Need To Know Book

Year 10

Autumn 2023

Name:_____

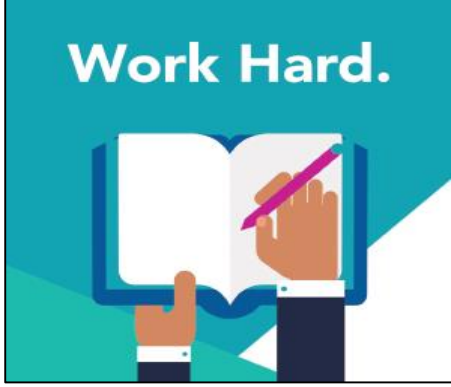
Form Group: _____

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Contents Page

Knowledge Retrieval Sheet



What are knowledge retrieval sheets?

Here at Little Lever School, we think it is really important that you know what the essential knowledge is for each subject that you study. Learning takes place not only in the classroom, but in all areas of the school building, and at home. These knowledge retrieval sheets contain all the essential knowledge you will need to help revise and make progress towards achieving your best in all of your subjects.

By using your knowledge retrieval sheets each week you will be able to transfer your knowledge from your short-term memory, and make it stick. Within all your lessons, you will be asked to retrieve knowledge from your long-term memory. This might be in the form of quizzes or longer responses. These might require you to use lots of information you have already stored from previous lessons and from your own life experiences. These Need to Know Books will help you to check how much you can remember.

We have designed your knowledge retrieval sheets so that they are simple for you to use both in school and at home. You can even get others to help you. Below are some options for how you might use each sheet to make the knowledge stick in your brain so that you will be able to remember it.

Using Knowledge Retrieval Sheets- 5 Top Tips:

1. **'Look, Cover, Say, Write, Check'-** Look at a fact on your sheet, cover it up with your hand or a piece of paper. Say it out loud, write the fact down without checking and then uncover and check if you were correct.
2. **'If this is the answer, what is the question?'-** Quiz yourself by covering up facts on your sheet. For example, you could cover up the definition of key vocabulary and try to remember what the key vocabulary means.
3. **Independent low-stakes quizzing-** Use the questions on the back of each sheet to test yourself. You should write the answers on a separate sheet of paper so that you can use the question sheet again in future.
4. **Paired low-stakes quizzing-** Give your book or a sheet to someone else. (Could be a friend, teacher or family). They can ask you the questions on the back of any sheet and use the facts on the front to check if you are correct.
5. **Flashcard Revision-** Make flashcards using your knowledge sheets. Can you summarise the essential knowledge into your own words to put onto a pocket-sized revision card?

Art and Photography

Helping every person achieve things they never thought they could.

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be kind | work hard | take responsibility

Year 10 Art: Assessment Objectives (AO1 + AO2)

AO1

EXPLORE

DEVELOP

DEVELOP IDEAS

INVESTIGATE & RESEARCH

OTHER ARTISTS WORK

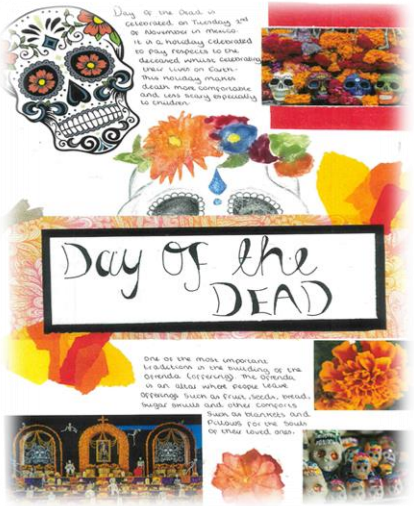
ANALYSE

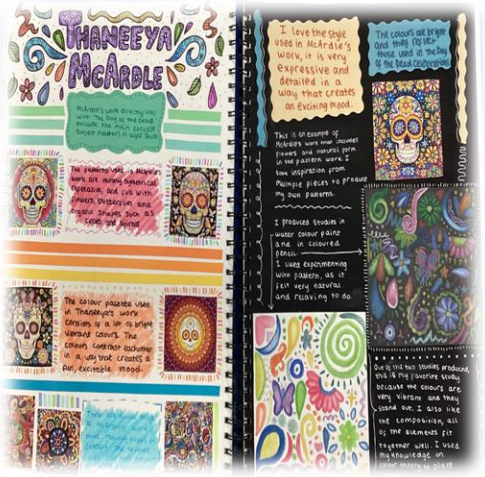
ANNOTATE

AO1

These are the things that you should consider including in AO1:

- Artist research pages.
- Visits to exhibitions and galleries.
- Your own responses in the style of the artist.
- Interviews with artists/ photographers.
- Annotate and analyse what you have found out.





AO2

These are the things that you should consider including in AO2

- Experimenting in response to your chosen artists.
- Use relevant materials and techniques to experiment with
- Experiment with new materials, tools and techniques as well as familiar ones.
- Try out different combinations of media and techniques
- Practise and refine your use of your chosen media, tools and techniques

AO2

REVIEW

REFINE

EXPERIMENT

EXPLORE DIFFERENT IDEAS AND MEDIA

A RANGE OF TECHNIQUES & PROCESSESS

SELECT

IMPROVE

Year 10 Art: Assessment Objectives (AO1 + AO2)

AO1

EXPLORE

DEVELOP

DEVELOP IDEAS

INVESTIGATE & RESEARCH

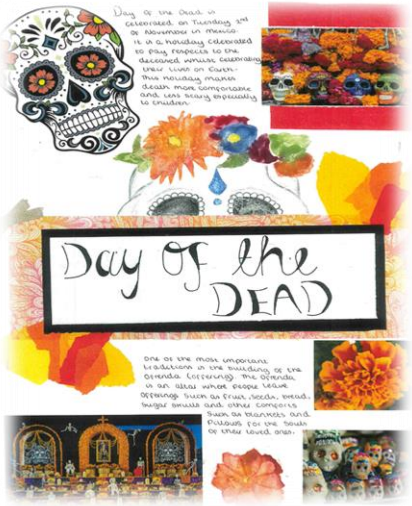
OTHER ARTISTS WORK

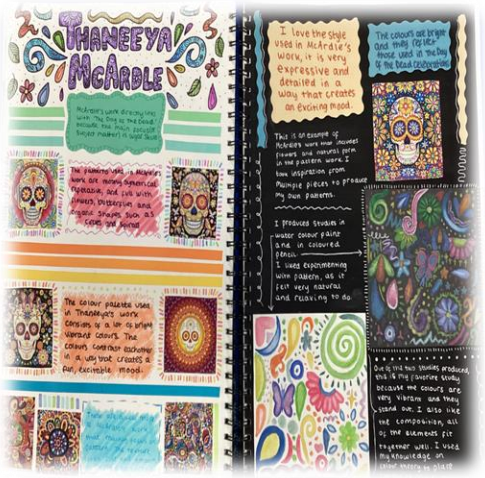
ANALYSE

ANNOTATE

What are the things you should consider including in AO1?

List at least 5 things that you would include.





What are the things you should consider including in AO2?

List at least 5 things that you would include.

AO2

REVIEW

REFINE

EXPERIMENT

EXPLORE DIFFERENT IDEAS

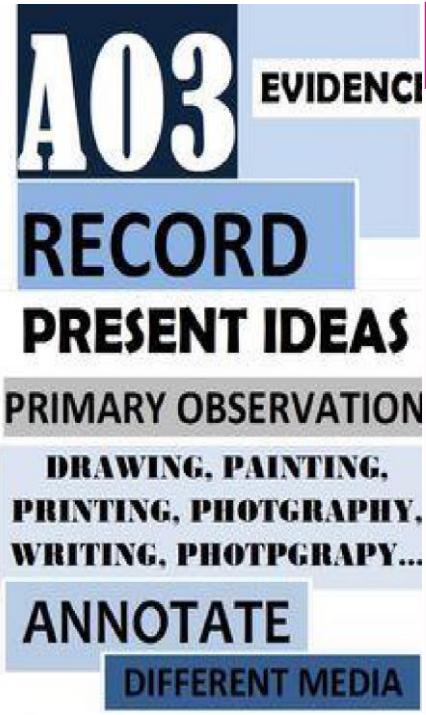
AND MEDIA

A RANGE OF TECHNIQUES & PROCESSESS

SELECT

IMPROVE

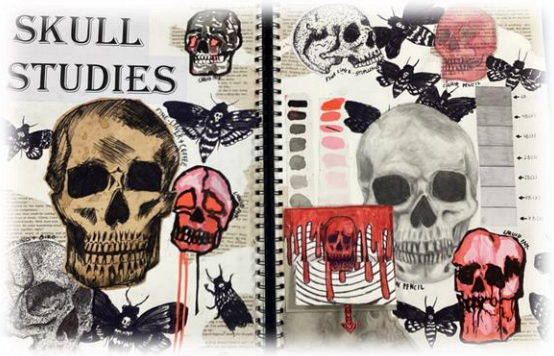
Year 10 Art: Assessment Objectives (AO3 + AO4)



AO3

These are the things that you should consider including in AO3:

- Title page.
- Mind Map.
- Mood-boards.
- Bullet points
- Notes/Annotation
- Longer paragraphs
- Photographs.
- Observational drawings
- Sketches
- Designs
- Diagrams
- Drawing using Photoshop



AO4

These are the things that you should consider including in AO2

- Plans and drawings of final piece ideas.
- Mini mock-ups and experiments for final piece.
- Creating an original final piece, that is clearly inspired by your research and creative journey.
- Evaluation of final piece (how does your piece link to the project theme?)

Year 10 Art: Assessment Objectives (AO3 + AO4)

AO3 EVIDENCE

RECORD

PRESENT IDEAS

PRIMARY OBSERVATION

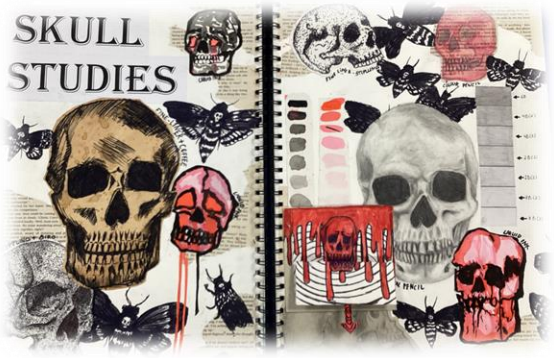
DRAWING, PAINTING, PRINTING, PHOTGRAPHY, WRITING, PHOTPGRAPY...

ANNOTATE

DIFFERENT MEDIA

What are the things you should consider including in AO3?

List at least 5 things that you would include.



What are the things you should consider including in AO4?

List at least 4 things that you would include.

AO4 OUTCOME

PRESENT

FINAL IDEAS

DEVELOPED AS PLANNED

CLEARLY RESPONDS TO ARTISTS EXPLORED

CONNECTION

CONCLUSION

Year 10 Photography:

Term	Terminology Definitions:
1. Shutter Speed	The amount of time the camera's shutter is open for. Longer shutter speeds (1/10s, 1s, 3s, etc) allow more light in but will cause blurring of anything moving. Shorter shutter speeds let less light in and can capture moving subjects as still or 'frozen'.
2. Exposure	This is the **amount of light entering the camera's sensor**. Too much light and the image is overexposed, not enough light and it's under exposed. Exposure is determined by **a combination of shutter speed, aperture, and ISO**.
3. Aperture	**The opening (or 'pupil') of your lens** is called aperture, which can be made smaller or bigger to change the amount of light being let in. A wide aperture (such as f/1.4) lets more light in, allowing for a faster shutter speed or lower ISO, and a shallow depth of field (How much of the image is in focus). A narrower aperture (such as f/8) lets less light through, requiring a slower shutter speed or higher ISO, but results in more of your image being in focus.
4. F-Stop	F-Stop or F-number is the aperture size or aperture stop in a number that controls the size of the lens opening. Therefore **controlling the amount of light entering the camera**. Smaller f-stops, like f/1.4 or f/2, indicate a wider aperture, while larger F stops, like f/11 or f/16, indicate a narrower aperture.
5. Bokeh	This is produced by **blurring the background of an image** and is popular in portraits as it forces you to focus on the subject. Most photographers look for smooth bokeh so as to not distract from the rest of the image. Using this technique, **light sources can appear as smooth blobs of colour**.

Year 10 Photography:

Term	Terminology Definitions:
1. Shutter Speed	
2. Exposure	
3. Aperture	
4. F-Stop	
5. Bokeh	

Year 10 Photography:

Term	Terminology Definitions:
6. Depth of Field	The **distance between the closest and furthest subjects** in a scene that looks sharp in an image. A wide aperture (f/1.4, f/2, etc.) produces a shallow depth of field, which can be used to isolate a subject. And narrow aperture (f/11 or f/16), produces a wide depth of field which keeps everything in focus.
7. Focal Point	This is the way to describe the **main part of the image or a point of interest within the image**. It is where the viewers eye is drawn to the most.
8. Rule of Thirds	A common compositional tool that states that one should **divide the image frame into equal vertical and horizontal thirds, then place points of interest at the intersections of the dividing lines.**
9. Macro	Photographing objects that are extremely small. Macro lenses can **usually capture more detail than we can see with the naked eye**. Normally macro photographers would use a lens with a 1:1 ratio, which is the size of the subject on the sensor.
10. Raw	A raw file is the data **taken from the sensor without any sort of image processing applied**. As opposed to a JPEG produced by the camera. Though bigger in file size, photographers prefer RAW files because they allow for more creative range in post processing and higher image quality before exporting the final image in a file format such as JPEG.

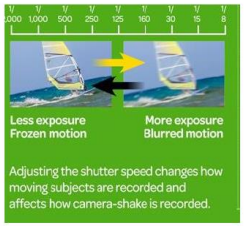
Year 10 Photography:

Term	Terminology Definitions:
6. Depth of Field	
7. Focal Point	
8. Rule of Thirds	
9. Macro	
10. Raw	

Year 10 Photography:

Shutter Speed

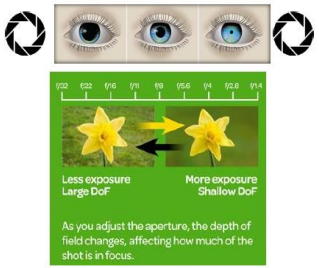
The amount of time the camera's shutter is open for.



Longer shutter speeds (1/10 s, 1 s, 3 s, etc.) allow more light in but will cause blurring of anything moving.
Shorter shutter speeds (1/200 s, 1/1,000 s, etc.) let less light in and can capture moving subjects as still or 'frozen'

Aperture

The opening (or 'pupil') of your lens is called aperture, which can be made smaller or bigger to change the amount of light being let in.

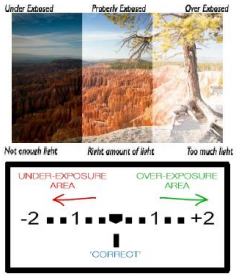


A wide aperture (such as f/1.4) lets more light in, allowing for a faster shutter speed or lower ISO, and a shallow depth of field (how much of the image is in focus).

A narrower aperture (such as f/8) lets less light through, requiring a slower shutter speed or higher ISO, but results in more of your image being in focus.

Exposure

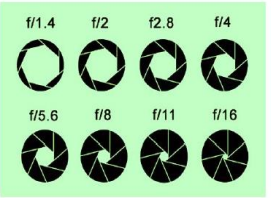
Is the amount of light entering the camera's sensor. Too much light and the image is overexposed and not enough light and it's underexposed.



Exposure is determined by a combination of shutter speed, aperture, and ISO.

F-Stop

Or f-number is the aperture size or aperture stop in a number that controls the size of the lens opening. Therefore controlling the amount of light entering the camera.



Smaller f-stops, like f/1.4 or f/2, indicate a wider aperture, while larger f-stops, like f/11 or f/16, indicate a narrower aperture.

Bokeh

Is produced by blurring the background of an image and is popular in portraits as it forces you to focus on the subject.

Most photographers look for smooth bokeh so as to not distract from the rest of the image. Using this technique, light sources can appear as smooth blobs of colour.

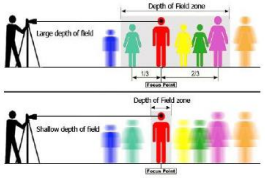
GCSE Photo Terminology

Focal Point

Is a way to describe the main part of the image or a point of interest within the image. It is where the viewer's eye is drawn to most.

Depth of Field

The distance between the closest and farthest subjects in a scene that look sharp in an image (abbreviated to DOF).



A wide aperture (f/1.4, f/2, etc.) produces a shallow depth of field, which can be used to isolate a subject.
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Rule of Thirds

A common compositional tool that states that one should divide the image frame into equal vertical and horizontal thirds, then place points of interest at the intersections of the dividing lines.

Macro

Photographing objects that are extremely small.

Macro lenses can usually capture more detail that we can see with the naked eye. Normally macro photographers would use a lens with a 1:1 ratio, which is the size of the subject on the sensor.

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Year 10 Photography:

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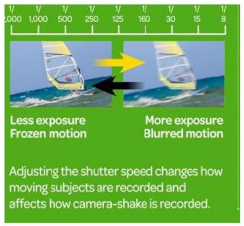

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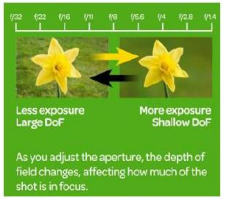

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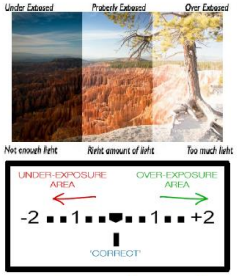

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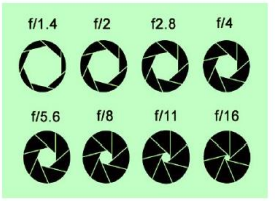

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GCSE Photo Terminology- what are the key terms?

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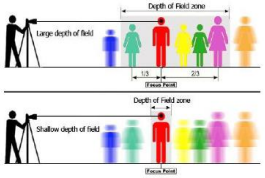

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Computing, Business and Media

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10: GCSE Business

The Dynamic Nature of Business

Why do new business ideas come about:

- Changes in technology
- Changes in what consumers want
- Products & services becoming obsolete

How do new business ideas come about?

- Original ideas
- Adapting existing products/services/ideas

Risk and Reward

Risk:

- Business failure
- Financial loss
- Lack of security

For example:

One risk is lack of security as an entrepreneur may have previously had a job and guaranteed income however income will depend on how well the enterprise performs.

Reward:

- Business success
- Profit
- Independence

For example:

One reward is independence as previously the entrepreneur would have had a manager telling them what to do. This independence may result in higher motivation because the entrepreneur is free to make their own decisions.

Revenues, Costs and Profits

Total costs

TC (total cost) = TFC (total fixed costs) + TVC (total variable costs)

Revenue

Revenue = price × quantity

Break even

$$\text{Break even point in units} = \frac{\text{fixed cost}}{(\text{sales price} - \text{variable cost})}$$

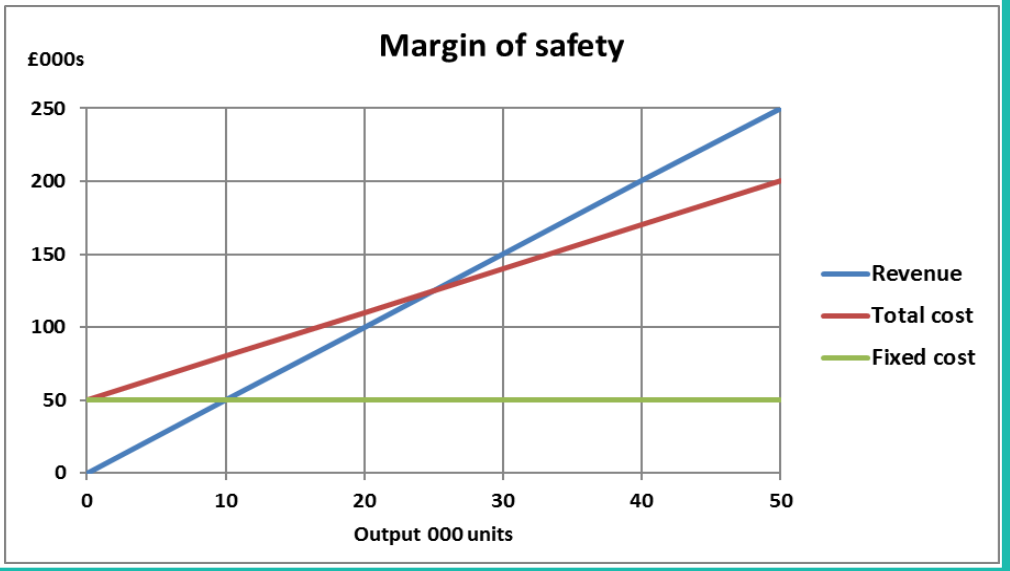
Break even point in costs / revenue = break even point in units × sales price

Margin of safety

Margin of safety = actual or budgeted sales – break even sales

Interest (on loans)

$$\text{Interest (on loans) in \%} = \frac{\text{total repayment} - \text{borrowed amount}}{\text{borrowed amount}} \times 100$$



Year 10: GCSE Business

The Dynamic Nature of Business

Why do new business ideas come about:

- -
- -
- -

How do new business ideas come about?

- -
- -

Risk and Reward

What is risk?

- -
- -
- -

For example:

What is reward?

- -
- -
- -

For example:

Revenues, Costs and Profits

Total costs

TC (total cost) = +

Revenue

Revenue =

Break even

$$\text{Break even point in units} = \frac{\text{fixed cost}}{(\text{sales price} - \text{variable cost})}$$

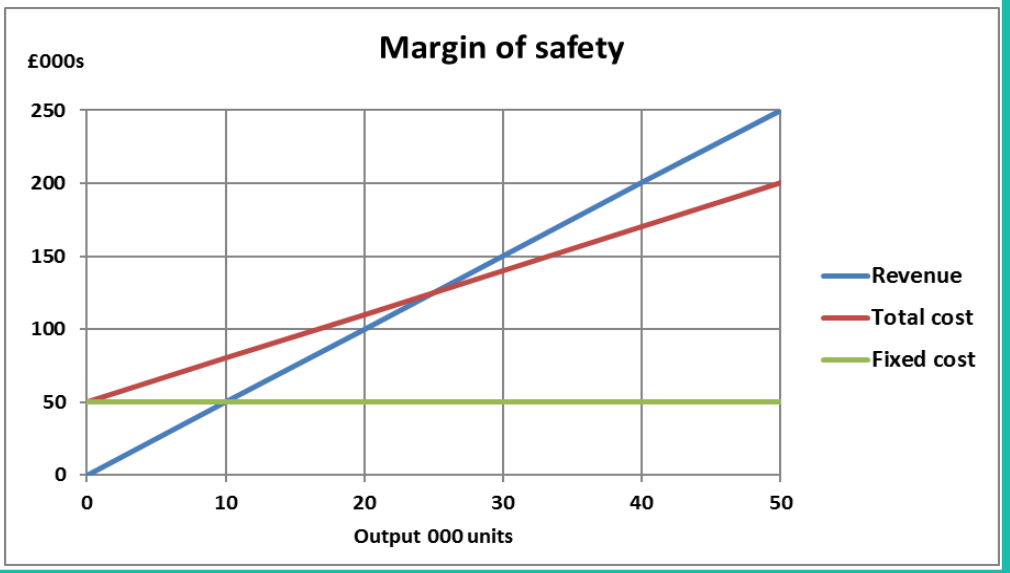
Break even point in costs / revenue = break even point in units × sales price

Margin of safety

Margin of safety = −

Interest (on loans)

$$\text{Interest (on loans) in \%} = \frac{\quad}{\quad} \times 100$$



Year 10: GCSE Business

Revenues, Costs and Profits

Break Even Level of output is where Total Costs = **Total Revenue**.

In this example, the break even level of output is 25

Margin of Safety is the difference between the break even level of output and the actual level of output. If the actual output in this example was 50, the margin for safety would be 25 (50 – 25).

Calculating the Break Even Level of Output

Examples: Sony's fixed costs for the PlayStation 3 are £2,400,000 and variable costs are £140 per console. Calculate the break-even point when the PlayStation 3 was priced at £300. Show your working out and the formula used.

$$\text{Break even point in units} = \frac{\text{fixed cost}}{(\text{sales price} - \text{variable cost})}$$

- The selling price of a PlayStation 3 is £300.
- The variable cost of production is £140.
- Every time a PlayStation is sold, Sony makes £160 above the variable cost of production (300 – 140).
- This £160 is called a **contribution**

How many £160s are needed to pay off the fixed cost of £2 400 000?

- £2,400,000 / 160 = 15 000
- The break-even level of output is 15 000.

Cash and Cash Flow

Net cash-flow

Net cash-flow = cash inflows – cash outflows in a given period

Opening and closing balances

Opening balance = closing balance of the previous period

Closing balance = opening balance + net cash-flow

Cash flow forecasts

- A forecast of all the cash flowing into and out of the business.
- Shows opening balance at start of each month and closing balance at end.
- Normally produced monthly but can be any time frame e.g. weekly.

Opening Balance

- Cash available at the start of the month.

Closing Balance

- Cash available at the end of the month.

Year 10: GCSE Business

Revenues, Costs and Profits

Break Even Level of output is where…

Margin of Safety is…

Calculating the Break Even Level of Output

Examples: Sony's fixed costs for the PlayStation 3 are £2,400,000 and variable costs are £140 per console. Calculate the break-even point when the PlayStation 3 was priced at £300. Show your working out and the formula used.

$$\text{Break even point in units} = \frac{\text{fixed cost}}{(\text{sales price} - \text{variable cost})}$$

- -
- -
- -
- -

How many £160s are needed to pay off the fixed cost of £2 400 000?

- -
- -

Cash and Cash Flow

Net cash-flow

Net cash-flow = [ ] – [ ]

Opening and closing balances

Opening balance = [ ]

Closing balance = [ ]

What are cash flow forecasts?

- -
- -
- -

What is an opening balance?

- -

What is a closing balance?

- -

Year 10: GCSE Business

What does a cash flow forecast look like?

	Jan (£)	Feb (£)	Mar (£)	Jun (£)
Cash In (Receipts)	4000	4500	5500	6500
Cash Out (Payments)	13000	2250	2000	2500
Net cash flow	(9000)	2250	3500	4000
Opening Balance	0	(9000)	(6750)	(3250)
Closing Balance	(9000)	(6750)	(3250)	750

Remember: a number in brackets means it is a negative (-) number

Why is having cash important for a business?

- The importance of cash to a business:
- To pay suppliers, overheads and employees
- To prevent business failure (insolvency)
- The difference between cash and profit
- Cash can only be recorded when it has actually been received by the business.
- Profit is recorded as soon as the sale is agreed (even though no money may have changed hands)

Stakeholders

Stakeholder	Impact on business activity
Shareholders (Owners)	•Sets aims and objectives •Provide funding and investment to start and expand the business
Employees	•Provide good service which results in repeat purchase •Impacts on business reputation if they don't do their job well
Customers	•Buy products and services •Make recommendations on how to improve (reviews, research) •Recommend the business to friends and on social media
Managers	•Manage employees and monitor quality •Communicate the business' needs to employees
Suppliers	•Provide the business with the materials it needs •Affects the amount that can be sold (e.g. if the supplier cannot provide raw materials on time, production stops) •Their prices impact on the business' costs
Local Community	•Support the business by buying its goods and services •Object to the business if it has a negative impact on the community / environment
Pressure Groups	•Challenges the business' behaviour, such as the packaging it uses •Improves employees' conditions, such as health and safety or fair wages •Influences customers' opinions of the business
The Government	•Can change the amount of tax the business has to pay which impacts on the business' costs •Passes new laws that may affect how and what the business does (and impact on costs to make changes)

Year 10: GCSE Business

What does a cash flow forecast look like?

	Jan (£)	Feb (£)	Mar (£)	Jun (£)
Cash In (Receipts)	4000	4500	5500	6500
Cash Out (Payments)	13000	2250	2000	2500
Net cash flow	(9000)	2250	3500	4000
Opening Balance	0	(9000)	(6750)	(3250)
Closing Balance				

Remember: a number in brackets means it is a negative (-) number

Why is having cash important for a business?

- -
- -
- -
- -
- -
- -

Stakeholders

Stakeholder	Impact on business activity
Shareholders (Owners)	
Employees	
Customers	
Managers	
Suppliers	
Local Community	
Pressure Groups	
The Government	

Year 10: GCSE Business

Discuss the impact of pressure groups on a business

Pressure groups highlight the negative activity of a business therefore this can damage the business' company image. This could mean that customers are less likely to buy from the business. Therefore revenue will decrease.

However, if the business changes its behaviour as a result of pressure group activity then their company image will be improved. This may lead to an increase in customers which would lead to higher market share.

Conflict (disagreement) between stakeholders

- Shareholders (Owners) want the highest profit possible
- Employees want the highest wages possible
- Customers want the lowest prices possible
- Managers want the highest bonus possible
- Suppliers want to sell at the highest prices possible
- Local Community want the smallest environmental impact possible
- Pressure Groups want the business to behave in an ethical way
- The Government want the business to follow laws and pay their taxes

Question 1: What are some factors that can lead to the emergence of new business ideas?

Answer: Changes in technology, changes in consumer preferences, and the obsolescence of products and services can all contribute to the emergence of new business ideas.

Question 2: How do new business ideas come about?

Answer: New business ideas can originate from original thinking or by adapting existing products, services, or ideas to meet the needs of the market.

Question 3: What are some risks associated with starting a business?

Answer: Some risks include the possibility of business failure, financial loss, and a lack of security, as entrepreneurs often rely on the performance of their venture for income.

Question 4: What are some rewards that can be obtained from starting a business?

Answer: Starting a business can lead to rewards such as business success, profitability, and independence. Entrepreneurs have the opportunity to make their own decisions and experience higher motivation compared to working under a manager's direction.

Question 5 Explain one possible conflict that may exist between stakeholders.

Answer: Shareholders will want the highest profit possible so that they receive high dividends (share of the profits). However, employees will want the highest wages possible. Paying higher wages would increase the business' costs and therefore (if revenue stays the same) profit would be lower meaning that the shareholders would be unhappy.

Question 6: What does a cash flow forecast typically show?

Answer: A cash flow forecast shows the projected cash inflows and outflows for a business, usually on a monthly basis. It includes the opening balance at the start of each month and the closing balance at the end.

Question 7: Why is having cash important for a business?

Answer: Cash is important for a business because it is necessary to pay suppliers, cover overhead expenses, and compensate employees. It helps prevent business failure or insolvency. It is important to understand that cash and profit are not the same, as cash is recorded only when it is actually received by the business, whereas profit is recorded when a sale is agreed, even if no money has changed hands yet.

Year 10: GCSE Business

Discuss the impact of pressure groups on a business

Conflict (disagreement) between stakeholders

- -
- -
- -
- -
- -
- -
- -
- -

Question 1: What are some factors that can lead to the emergence of new business ideas?

Answer:

Question 2: How do new business ideas come about?

Answer:

Question 3: What are some risks associated with starting a business?

Answer:

Question 4: What are some rewards that can be obtained from starting a business?

Answer:

Question 5 Explain one possible conflict that may exist between stakeholders.

Answer:

Question 6: What does a cash flow forecast typically show?

Answer:

Question 7: Why is having cash important for a business?

Answer:

Year 10: GCSE Computer Science

Python Programming Language Subset

Data Types

There are 4 data types used in the Python Programming Language:

- **Integer** – a whole number (e.g. 5, 71, -23)
- **Float / Real** – a number with a decimal place (e.g. 45.76, 3.1236, -56.1)
- **String** – a sequence of characters, that can contain text, symbols and numbers, that the computer is not expected to understand (e.g. “Fred”, “The cat sat on the mat”, “%$£1234ABC”)
- **Boolean** – a condition set to either True, or False.

Data type	PLS
integer	int
real	float
Boolean	bool
character	str

Structured data types

A structured data type is a sequence of items, which themselves are typed. Sequences start with an index of zero.

Data type	Explanation	PLS
string	A sequence of characters	str
array	A sequence of items with the same (homogeneous) data type	list
record	A sequence of items, usually of mixed (heterogenous) data types	list

Operators

Arithmetic operators

Arithmetic operator	Meaning
/	division
*	multiplication
**	exponentiation
+	addition
–	subtraction
//	integer division
%	modulus

Relational operators

Logical operator	Meaning
==	equal to
!=	not equal to
>	greater than
>=	greater than or equal to
<	less than
<=	less than or equal to

Logical/Boolean operators

Operator	Meaning
and	both sides of the test must be true to return true
or	either side of the test must be true to return true
not	inverts

Year 10: GCSE Computer Science

Python Programming Language Subset

Data Types

There are 4 data types used in the Python Programming Language:

- -
- -
- -
- -

Data type	PLS
integer	
real	
Boolean	
character	

Structured data types

A structured data type is a sequence of items, which themselves are typed. Sequences start with an index of zero.

Data type	Explanation	PLS
string		str
array		list
record		list

Operators

Arithmetic operators

Arithmetic operator	Meaning
/	
*	
**	
+	
–	
//	
%	

Relational operators

Logical operator	Meaning
==	
!=	
>	
>=	
<	
<=	

Logical/Boolean operators

Operator	Meaning
and	
or	
not	

Year 10: GCSE Computer Science

Programming Constructs

Assignment

Assignment is used to set or change the value of a variable.

<variable identifier> = <value>
<variable identifier> = <expression>

Variable Example:

```
1 name = "Fred"
```

Constants:

Constants are conventionally named in all uppercase characters .

```
1 ROOMS = 100
```

The value of a variable can change, if necessary, while a program is running, however the value of a constant will not change while a program is running.

Section

if <expression>: <command>	If <expression> is true, then command is executed.

if <expression>:
  <command>
else:
  <command>
	If <expression> is true, then first <command> is executed, otherwise second <command> is executed.

if <expression>:
  <command>
elif <expression>:
  <command>
else:
  <command>
	If <expression> is true, then first <command> is executed, otherwise the second <expression> test is checked. If true, then second <command> is executed, otherwise third <command> is executed.
	
	Supports multiple instances of 'elif'.
	
	The 'else' is optional with the 'elif'.

```
1  age = int(input("How old are you? "))
2
3  if age < 4:
4      print("You don't need to go to school yet.")
5  elif age >=4 and age < 11:
6      print("You are in primary school.")
7  elif age >= 11 and age < 16:
8      print("You need to go to high school.")
9  else:
10     print("You no longer need to go to school.")
```

Repetition

while <condition>: <command>	Pre-conditioned loop. This executes <command> while <condition> is true.

Year 10: GCSE Computer Science

Programming Constructs

Assignment

Assignment is used to :

```
<variable identifier> = <value>
<variable identifier> = <expression>
```

Variable Example:

```
1 name = "Fred"
```

Constants:

Constants are conventionally named in all

```
1 ROOMS = 100
```

The value of a variable can change, if necessary, while a program is running, however the value of a constant will not change while a program is running.

Section

`if <expression>:` `  <command>`	If

`if <expression>:`
`  <command>`
`else:`
`  <command>`
	If

`if <expression>:`
`  <command>`
`elif <expression>:`
`  <command>`
`else:`
`  <command>`
	If

```
1  age = int(input("How old are you? "))
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9  else:
10     print("You no longer need to go to school.")
```

Repetition

`while <condition>:` `  <command>`	

Year 10: GCSE Computer Science

Iteration

`for <id> in <structure>:` `  <command>`	Executes <command> for each element of a data structure, in one dimension.
`for <id> in range (<start>, <stop>):` `  <command>`	Count-controlled loop. Executes <command> a fixed number of times, based on the numbers generated by the range function. <stop> is required. <start> is optional.

`for <id> in range (<start>, <stop>,`
`  <step>):`
`  <command>`
	Same as above, except that <step> influences the numbers generated by the range function. <stop> is required. <start> and <step> are optional.

Iteration Example 1:

The following example of iteration will store each item from the array in the 'name' variable in turn:

```
1 namesList = ["Tina","Bob","Jane","Fred"]
2
3 for name in namesList:
4     print(name)
```

Iteration Example 2:

The following example of iteration will use the index variable as a counter, that will increase by +1 on each loop, starting at 0 and ending when the stop value is reached:

```
1 for index in range(0,11):
2     number = index * 4
3     print(index, "x 4 =",number)
```

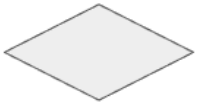
Inputs and Outputs

Screen and keyboard

`print (<item>)`	Displays <item> on the screen
`input (<prompt>)`	Displays <prompt> on the screen and returns the line typed in

```
1 school = input("What school do you go to? ")
2 print(school,"is a great school.")
```

Flowcharts

Symbol	Name	Function
	Start/Stop	Represents the beginning (start) and end (stop) of a program.
	Arrows	Connects the flowchart symbols together and defines the 'flow' of the program.
	Input/Output	Input of digital data or digital output such as on or off, or move forward or backward.
	Process	Pauses the processing of the flowchart for a given number of seconds.
	Decision	Creates a 'branch' in the program with two outcomes. True (yes) or False (no).

Year 10: GCSE Computer Science

Iteration

for <id> in <structure>: <command>	
for <id> in range (<start>, <stop>): <command>	
for <id> in range (<start>, <stop>, <step>): <command>	

Iteration Example 1:

The following example of iteration will store each item from the array in the 'name' variable in turn:

```
1 namesList = ["Tina","Bob","Jane","Fred"]
2
3 for name in namesList:
4     print(name)
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The following example of iteration will use the index variable as a counter, that will increase by +1 on each loop, starting at 0 and ending when the stop value is reached:

```
1 for index in range(0,11):
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3     print(index, "x 4 =",number)
```

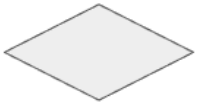
Inputs and Outputs

Screen and keyboard

print (<item>)	
input (<prompt>)	

```
1 school = input("What school do you go to? ")
2 print(school,"is a great school.")
```

Flowcharts

Symbol	Name	Function
	Start/Stop	
	Arrows	
	Input/Output	
	Process	
	Decision	

Year 10: GCSE Computer Science

Flowchart Algorithm

Example:

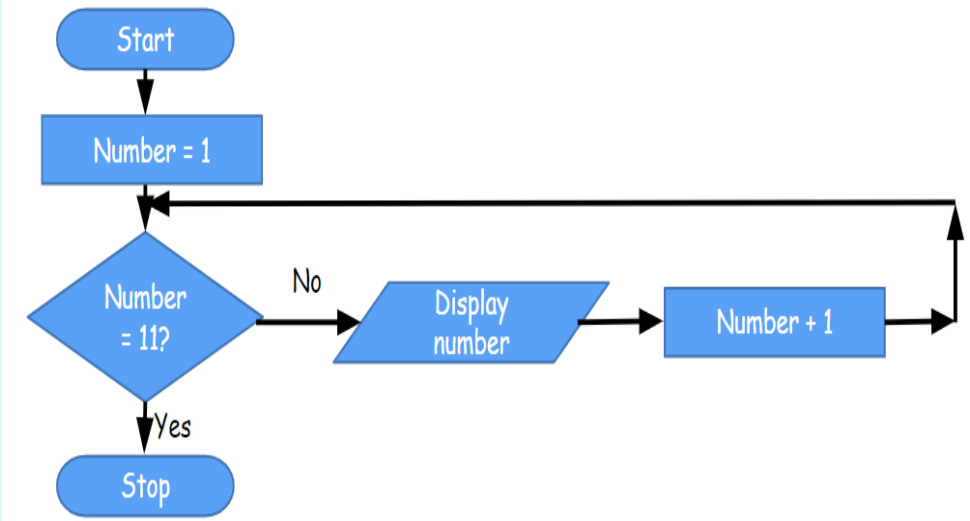
Written Description of the Problem:

Write an algorithm that will display the numbers 1 to 10 only.

Decomposed Problem:

- PROCESS: Set number to 1
- DECISION: Is number equal to 11?
- FALSE OUTPUT: Display number, number = number+1
- TRUE OUTPUT: Stop

Flowchart Algorithm:



Questions

1. State the names of the 4 data types used in the Python programming language and give examples**. Complete the table below.**

Data Type	Example Data Values
String	
	-9.43, 56.0987, 45.7, 0.00

2. **State the type of operator that the examples below belong to.**

Operators	Operator Type
+, -, *	
<, >=, !=	
AND, NOT	

3. Write the code, in the box below, that would initialise a variable called '**num_1**' and you should assign it any suitable **integer** value.

Year 10: GCSE Computer Science

Questions

4. Write the code, in the box below, that would initialise the **constant 'SIDES'** and assign it the integer value of 6.

5. Write the code, in the box below, using **selection** (an IF Statement), that will ask a user if it is raining, and if the response is yes, it will output the string "Take an umbrella.", and if the response is not yes, it should output the string "Enjoy the outdoors."

6. Write the code, in the box below, using **repetition** (a WHILE loop), that will output only the numbers from 10 down to 1 on separate lines.

7. Write the code, in the box below, using **iteration** (a FOR loop), that will output each of the strings in the array called animals below.

animals = ["Dog" , "Cat" , "Horse" , "Cow"]

8. Write the code, in the box below, using **iteration** (FOR loop), that will output the 8 times table from 1 x 8, up to 20 x 8.

Example output format:
1 x 8 = 8
2 x 8 = 16 etc…

9. Draw a flowchart that for the following **algorithm**
The user will be asked for two integers.

- If the numbers are the same, the algorithm should output "The numbers are equal."
- If the first number is greater than the second, the algorithm should output "The first number is greater than the second number"
- If the second number is greater, the algorithm should output "The second number is greater than the first number"

Year 10: BTEC Media

Media Research Methods

Type of research	Advantages	Disadvantages
Primary New information, collected first-hand.	• Up to date information • Questions are specific to your needs • Sample is specific to your needs, e.g. teenagers • Not available to the competition	• Time consuming to collect • Often more expensive
Secondary Information that already exists as it has been collected by someone else.	• It is usually cheaper than primary research • It is less time consuming because the information can be easily found	• The information gathered may not be specific or relevant to you. • The information may be out of date • The information is also available to your competitors

Quantitative data: data collected in the form of numbers, statistics. Large amounts can be easily analysed.

Qualitative data: data collected in the form of people's thoughts and opinions. Gain deeper insights into reasons for choices but much harder to analyse.

Research Methods

Primary Research Methods:

1. **Observations**: Actively observing media products and audience behaviours. Example: , monitoring viewers' reactions to a film or watching how people interact with a website interface.
2. **Discussions**: Engaging in conversations with peers to gather a range of different perspectives and insights on media-related topics. Example: discussion on the impact of social media on youth culture.
3. **Interviews**: Conducting one-on-one or group interviews with target audience members to gain in-depth information about their views and perspectives. Example: asking viewers about their media consumption habits.
4. **Surveys**: Using questionnaires or online surveys to collect quantitative data from a large number of respondents. Example: surveying viewers about their favourite TV shows and reasons for watching.
5. **Focus groups**: Bringing together a small group of individuals to participate in a guided discussion. Example: gather feedback from the audience about their specific thoughts and feelings about a new TV show.

Secondary Research Methods:

1. **Television**: You can watch TV shows or interviews about the media product to understand its production process and the intentions of the creators.
2. **Magazines**: You can read magazine articles or interviews with the creators or critics to gain insights and opinions about the media product.
3. **Films**: You can watch documentaries or behind-the-scenes features about the making of the media product to learn about its impact and techniques used.
4. **Internet**: You can search for online reviews, analysis, or fan discussions to gather different perspectives and opinions on the media product.
5. **Books**: You can read books written by experts or scholars that analyse similar media products or explore relevant theories and concepts to gain a deeper understanding and context for your analysis.

Year 10: BTEC Media

Media Research Methods

Type of research	What are the advantages?	What are the disadvantages?
Primary New information, collected first-hand.	• - • - • - • -	• - • -
Secondary Information that already exists as it has been collected by someone else.	• - • -	• - • - • -

What is quantitative data?

What is qualitative data?

Research Methods

Primary Research Methods:

1. What are observations?
2. What are discussions?
3. What are interviews?
4. What are surveys?
5. What are focus groups?

Secondary Research Methods:

1. How can television be used as a method?
2. How can magazines be used?:
3. How are films used?
4. How can the Internet be used as research?
5. How can books be used?

Year 10: BTEC Media

Decoding meaning in media products

Semiotics	The study of signs and symbols and what they mean.
Denotation	The basic or literal meaning of a sign or symbol, what it directly represents. The denotation of a rose is a type of flower with petals, thorns, and a pleasant fragrance.
Connotation	all the extra feelings and ideas (hidden meanings) we connect to a sign or symbol. **Example**: The connotation of a dove often represents peace and purity due to its association with those concepts in various cultures.
Signs	Used to communicate ideas, concepts, or messages.
Symbols	Special signs with extra meanings.
Signifiers	Things we see or hear that carry the meaning of signs or symbols.
Encoding	When someone creates meaning and attaches messages to signs, like a filmmaker making a movie with a message. **Example**: Imagine you and your friends are making a funny video together. Each of you decides on the jokes, actions, and expressions to use, which is like encoding your own unique funny message into the video.
Decoding	When people interpret or understand the messages and meanings in signs or media. **Example**: when you watch a film or TV show you may pick up on the characters emotions or actions which helps you understand what is happening in the story more easily.
Anchorage	Using words or other visuals to guide how we interpret an image or media, like a caption giving more information. **Example**: A caption accompanying a photograph clarifying the context or providing additional information about the image.
Polysemy	Signs or symbols can have many different meanings or interpretations. **Example**: The word "bank" can have multiple meanings, such as a financial institution or the edge of a river.
Intertextuality	When texts (like stories or movies) are connected to each other and have references or ideas from other texts, making the meaning more interesting and complex. **Example**: the movie "Shrek" containing references and parodies of classic fairy tales like Cinderella, Snow White, and Pinocchio to add depth and humour to the story.

Year 10: BTEC Media

Decoding meaning in media products

What is **semiotics**?	
Define **denotation**	
Define **connotation**	
What do **signs** do?	
What are **symbols**?	
What are **signifiers**?	
What is **encoding**?	
What is **decoding**?	
What does **anchorage** mean?	
What does **polysemy** mean?	
What is **intertextuality**?	

Year 10: BTEC Media

Purpose of Media Products

Media products, such as movies, TV shows, advertisements, and articles will have different purposes. The purpose is simply '**the point**' of the media product. The reason why it was created.

Call to Action	Encouraging the audience to take specific actions or make a change. **Examples**: Campaigns urging people to recycle, volunteer, or support a cause
To Shock	Provoking strong emotional reactions, often to draw attention or create a memorable impact. **Examples**: News stories highlighting shocking events or horror movies aiming to scare viewers.
To persuade	Convincing the audience to adopt a particular viewpoint or belief. **Examples**: Political speeches, advertisements promoting a product or service, or opinion articles.
To Argue	Presenting different perspectives on a topic and providing evidence to support a particular viewpoint. **Examples**: Debates, documentaries exploring controversial issues, or opinion pieces.
To Explain	Clarifying complex concepts or providing step-by-step instructions. **Examples**: Educational videos, science documentaries, or instructional articles.
To Advertise	Promoting a product, service, or event to encourage the audience to purchase or participate. **Examples**: TV commercials, online banners, or social media posts promoting a new movie release.
To Document	Capturing real events, people, or places for historical or informational purposes. **Examples**: News reports, historical documentaries, or photojournalism.

To Recount	Sharing personal experiences or stories. **Examples**: Autobiographies, personal blogs, or vlogs.
To Describe	Providing detailed information about a person, place, or object. **Examples**: Travel guides, product reviews, or descriptive articles.
To Inform	Presenting facts, news, or updates to keep the audience knowledgeable. **Examples**: News articles, weather reports, or educational websites.
To Encourage	Motivating the audience to pursue goals, self-improvement, or positive actions. **Examples**: Inspirational speeches, self-help books, or motivational videos.
To Raise Awareness	Drawing attention to social, environmental, or health issues. **Examples**: Public service announcements, documentaries on climate change, or charity campaigns.
To Intrigue	Engaging the audience's curiosity and keeping them interested. **Examples**: Mystery novels, movie trailers, or cliff-hanger TV series.
To Entertain	Providing enjoyment, relaxation, or amusement. **Examples**: Movies, TV shows, music, or online games.
To Instruct	Teaching or imparting knowledge and skills. **Examples**: How-to videos, DIY articles, or cooking recipes.

Year 10: BTEC Media

Purpose of Media Products- Complete below:

Media products, such as movies, TV shows, advertisements, and articles will have different purposes. The purpose is simply '**the point**' of the media product. The reason why it was created.

Call to Action	
To Shock	
To persuade	
To Argue	
To Explain	
To Advertise	
To Document	

To Recount	
To Describe	
To Inform	
To Encourage	
To Raise Awareness	
To Intrigue	
To Entertain	
To Instruct	

Year 10: BTEC Media

Codes and Conventions

- **Codes**: Systems of signs and symbols used in media to convey meaning.
- **Conventions**: Established practices or techniques that are commonly used and expected by the audience. Example: A horror film has spooky music and scary characters. A magazine always has a big cover image and a masthead at the top.

Understanding the codes and conventions in media helps us interpret and understand messages effectively. These can include visual cues, storytelling techniques, camera angles, sound effects, and more. Example: you can often tell you are watching a certain genre of film within the first few minutes simply by observing visual clues, music and the types of characters.

1. What is the purpose of media products that aim to "raise awareness"? Provide an example.

The purpose of media products that aim to raise awareness is to draw attention to social, environmental, or health issues. They seek to inform and educate the audience about important topics. An example could be a documentary on the impact of plastic pollution on marine life, urging viewers to take action to protect the oceans.

2. Explain the meaning of "codes and conventions" in the context of media.

Codes are systems of signs and symbols used in media to convey meaning, while conventions are established practices or techniques that are commonly used and expected by the audience. Codes and conventions help shape the way messages are communicated in media, including visual cues, storytelling techniques, camera angles, sound effects, and more.

Media Producers

Types of media producers:

- **Media conglomerates**: Large corporations that own multiple media outlets and have control over various aspects of the industry. Examples: Comcast Corporation, News Corp
- **Public service broadcasters**: Organisations funded by public resources, with a mandate to provide educational, informative, and culturally enriching content. Examples: BBC, Channel 4
- **Independent media producers**: Small-scale or individual creators who produce media outside of major corporate structures. Example: A24 is an American independent entertainment company that specialises in film and television production, as well as film distribution, based in Manhattan, New York City.
- **Community media organisations**: Non-profit or volunteer-based initiatives that focus on serving local communities and promoting community participation. Example: Radio Regan has been on the air in the Manchester area since 1999. The organisation operates 3 full time community radio stations and provides training opportunities for the areas young people and people from disadvantaged areas.

Year 10: BTEC Media

Codes and Conventions

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1. What is the purpose of media products that aim to "raise awareness"? Provide an example.

2. Explain the meaning of "codes and conventions" in the context of media.

Media Producers

Types of media producers (describe below):

- **Media conglomerates**:
- **Public service broadcasters**:
- **Independent media producers**:
- **Community media organisations**:

Year 10: BTEC Media

Ethos/aims of the media producer:

The ethos/aims of a media producer refers to their guiding principles and values that shape their approach to content creation.
This can include a commitment to:

Quality	Media producers who prioritise quality aim to create content that is well-made, engaging, and of high standards, like a filmmaker who focuses on making movies that look and sound amazing.
Diversity	Media producers committed to diversity make sure that their content represents different cultures, backgrounds, and perspectives, like a TV show that includes characters from various ethnicities and tells stories about people from different walks of life.
Inclusivity	Inclusive media producers strive to make their content accessible and relatable to a wide range of people, like a website that provides closed captions or subtitles for people who are deaf or hard of hearing.
Impartiality	Media producers aiming for impartiality present information or stories without taking sides or being biased, like a news outlet that provides different viewpoints on a topic and lets viewers form their own opinions.
Accessibility	Media producers focused on accessibility make sure their content can be easily accessed by everyone, including people with disabilities, like a website that is designed to be easy to navigate and provides options for larger text or audio descriptions.
Innovation	Innovative media producers come up with new and creative ideas to make their content exciting and fresh, like a video game that uses virtual reality technology or a movie with ground-breaking special effects.

How media products fulfil their purpose:

- **Production values**: The use of technologies, costs of production, and style/design contribute to the overall quality and visual/audio experience of a media product.
- **Participants**: Actors, presenters, hosts, directors, and contributors play vital roles in bringing the content to life.
- **Content**: Storylines, characters, featured people, articles, artwork, or gameplay are elements that engage the audience and convey the intended message or experience.
- **Synergy and marketing**: Cross-media links, connections with other media products, and promotional campaigns help reach a wider audience and create buzz.
- **Distribution**: Media products are delivered through various platforms, such as television, cinema, radio, streaming services, or websites.

Year 10: BTEC Media

Ethos/aims of the media producer:

The ethos/aims of a media producer refers to their guiding principles and values that shape their approach to content creation.
Define the principles/values below:

Quality	
Diversity	
Inclusivity	
Impartiality	
Accessibility	
Innovation	

Explain how these media products fulfil their purpose:

- Production values:
- Participants:
- Content:
- Synergy and marketing:
- Distribution:

Year 10: BTEC Media

Audience Participation

Audience interpretation refers to the process by which individuals understand and make sense of media messages or content. It involves how individuals perceive, analyse, and assign meaning to the information they receive from various media sources such as television, films, newspapers, social media, etc. Audience interpretation is influenced by several factors:

- **Demographics**: involve characteristics that define audience segments, including age, gender, family status, ethnicity, and socio-economic scale (A, B, C1, C2, D, E). These factors provide insights into the composition and diversity of audiences.
- **Psychometric Audience Profile**: considers how individuals think and examines their values, attitudes, and lifestyles (VALs). The Young and Rubicam 4Cs model categorises audiences into different segments:

The Aspirer	Are driven by the desire for success, status, and recognition. They strive to achieve their goals and often seek products and media that align with their aspirations.
The Explorer	Are curious, adventurous, and open to new experiences. They actively seek out unique and innovative content, enjoying variety and novelty in their media consumption
The Mainstreamer	Value tradition, conformity, and maintaining social norms. They are likely to engage with popular, widely accepted media products that align with mainstream cultural values.
The Reformer	Are socially and environmentally conscious. They prioritise social change, justice, and equality. They are drawn to media that reflects their values and supports causes they believe in.
The Resigned	Individuals often feel disempowered or marginalised. They may have a negative outlook and may engage with media products that reflect their frustrations or provide an escape from their realities.
The Struggler	Face financial and personal challenges, often living in economically deprived conditions. They may seek media products that offer practical solutions, inspiration, or a sense of hope.
The Succeeder	Have achieved success and are financially secure. They may engage with media that reinforces their achievements, offers luxury and high-quality experiences, or appeals to their refined tastes.

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Audience Participation- Define the types below:

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The Aspirer	
The Explorer	
The Mainstreamer	
The Reformer	
The Resigned	
The Struggler	
The Succeeder	

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Audience Types

Mass Audience	A large and diverse audience consuming media products without specific targeting.
Specialised Audience	A smaller, niche audience with specific interests or characteristics
Target/Main Audience	The primary intended audience for a media product.
Secondary Audience	Audiences beyond the primary target, who may also engage with the product.
Tertiary Audience	Audiences further removed from the primary target, but still potentially exposed to the product.

Audience Theories:

Passive Audience Theory: The hypodermic needle model and media effects theory suggest that audiences can be directly influenced by the media, absorbing messages without critical thought.

Stuart Hall's Reception Theory: Recognizes that media producers encode preferred readings into products, but audiences respond differently. Reception theory identifies three different modes of audience response:

- **Dominant/Preferred Reading**: Some audiences interpret media products in line with the intended message of the producer. They accept and reinforce the dominant or preferred meaning encoded in the media text.
- **Negotiated Reading**: Other audiences negotiate their interpretation of media products, combining elements of agreement and resistance. They acknowledge some aspects of the intended message but also bring their own perspectives and values into the interpretation.
- **Oppositional Reading**: Certain audiences interpret media products in direct opposition to the intended message of the producer. They reject or challenge the dominant meaning encoded in the media text, bringing their own alternative interpretations and viewpoints.

Audience Engagement Theory:

Recognizes that audiences can consume media products passively or actively, depending on factors such as the situation, social context, and level of audience involvement. This includes primary, secondary, and tertiary levels of engagement.

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Audience Types- describe below:	
Mass Audience	
Specialised Audience	
Target/Main Audience	
Secondary Audience	
Tertiary Audience	

Audience Theories:

What is **Passive Audience Theory**?

What is **Stuart Hall's Reception Theory**?

- **Define Dominant/Preferred Reading**:
- **Define Negotiated Reading**:
- **Define Oppositional Reading**:

What is the **Audience Engagement Theory:**

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Blumler and Katz Uses and Gratification Theory

This theory suggests that audiences actively choose and engage with media products based on their personal needs and desires. This includes:

Information	People seek media to acquire knowledge, stay informed about current events, and satisfy their curiosity. They use media to gather information on various topics of interest, such as news, weather updates, educational content, or advice.
Personal Identity	Individuals use media to shape their self-perception and reinforce their personal values and beliefs. They seek content that reflects and reinforces their identities, such as television shows, movies, or social media platforms that align with their interests, cultural background, or personal ideologies.
Entertainment	Media serves as a source of relaxation, escapism, and amusement. People use media to entertain themselves, enjoy fictional narratives, engage in leisure activities, or simply have a good time. Examples include watching movies, playing video games, or listening to music.
Social interaction	Media enables social connection and facilitates communication between individuals. People use media to interact with others, maintain relationships, and engage in social communities. This includes social media platforms, online forums, video conferencing tools, or even traditional forms of media like newspapers or television programs that promote social discussion.

Genre

Genre is a way to categorise different types of stories or media based on similar themes, settings, or styles, like adventure, mystery, or fantasy. It is often easy to spot products from different genres because they generally have similar characteristics. Example: Some generic characteristics of fantasy stories include magical or imaginary elements, such as wizards, mythical creatures, and enchanted worlds. The top 5 movie genres are:

Drama: These are movies that tell serious and emotional stories about people's lives. They make you feel different emotions and show how characters deal with their problems. Some examples are "The Shawshank Redemption," "Schindler's List," and "The Godfather."

Action: These movies are all about excitement! They have lots of fast-paced scenes, cool stunts, and big fights. You'll see brave heroes doing daring things and going on adventures. Some examples are James Bond movies, "Mission: Impossible," and "Mad Max: Fury Road."

Comedy: These movies are meant to make you laugh and have a good time. They tell funny stories and have silly jokes and funny characters. You'll find yourself giggling and smiling while watching them. Some examples are "Anchorman: The Legend of Ron Burgundy," "Bridesmaids," and "Superbad."

Science Fiction: These movies take you to different worlds and show amazing futuristic things. They often have cool technology, space travel, or robots. They make you think about what could happen in the future and explore interesting ideas. Some examples are "Star Wars," "Blade Runner," and "The Matrix."

Thriller/Suspense: These movies keep you on the edge of your seat! They have thrilling and suspenseful stories with lots of twists and surprises. You'll feel excited and curious to know what happens next. Some examples are "Psycho," "The Silence of the Lambs," and "Inception."

Year 10: BTEC Media

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Personal Identity	
Entertainment	
Social interaction	

Genre

Describe the characteristics of the top 5 movie genres below:

Drama:

Action:

Comedy:

Science Fiction:

Thriller/Suspense:

Year 10: BTEC Media

Understanding Narrative Elements in Media

Storytelling devices: Storytelling devices are tools that storytellers use to make their stories interesting and exciting. These tools help them tell the story in a way that captures the audience's attention and keeps them engaged.

Various techniques enhance storytelling, such as;

Foreshadowing	Hinting at future events
Red Herrings	Misleading clues
Subplots	Secondary story lines
Flashbacks/forwards	Narrative jumps in time
Parallel action	Intercutting between multiple storylines
Enigmas	Mysterious elements
Cliffhangers	Suspenseful endings

Storytelling in Non-Fiction:

- **Inverted pyramid structure**: Non-fiction storytelling often follows a structure where the most important information is presented first (who? what? where? when? why? how?) in the lead, followed by supporting details and quotations in the body, and additional related information in the tail.
- **Storytelling devices:** Non-fiction storytelling may involve interviews/quotations with people involved, experts, or members of the public, facts and figures to support the narrative, and the use of language to engage and inform the audience.

Narrative Structures

Narrative structures refer to the organisation and arrangement of elements within a story or narrative. It encompasses how the story is constructed, how events unfold, and how the plot is organised to create a coherent and engaging experience for the audience or readers.

Linear: A straightforward narrative progression from beginning to end, following a chronological order.

Non-linear: The narrative is presented out of chronological order, using techniques like flashbacks or parallel storylines.

Open/Closed: Open narratives leave room for interpretation or unresolved elements, while closed narratives provide a clear resolution.

Single/Multi-strand: Single-strand narratives focus on a single main storyline, while multi-strand narratives involve multiple interconnected storylines.

Todorov: Had a theory for structuring engaging narratives. He said that all stories go through this cycle: equilibrium, disruption, recognition, repair and new equilibrium.

Year 10: BTEC Media

Understanding Narrative Elements in Media

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Red Herrings	
Subplots	
Flashbacks/forwards	
Parallel action	
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Cliffhangers	

Storytelling in Non-Fiction:

- **What is the inverted pyramid structure?**

- **What are storytelling devices?**

Narrative Structures- define below:

Narrative structures refer to the organisation and arrangement of elements within a story or narrative. It encompasses how the story is constructed, how events unfold, and how the plot is organised to create a coherent and engaging experience for the audience or readers.

Linear:

Non-linear:

Open/Closed:

Single/Multi-strand:

Todorov:

Year 10: BTEC Media

Point of View (POV)

POV refers to the perspective or vantage point from which the story is presented or narrated. It represents the lens through which the events, characters, and emotions of the story are conveyed to the audience or readers.

Subjective	The subjective camera angle renders the audience an active participant of the event. Either by seeing the event through the character's eyes. Or by trading places with another person in the picture (e.g., first-person) This reflects their thoughts, emotions, and biases.
Objective	Objective camera angle provides a side-line view of the action. Through the objective viewpoint, the audience looks on, perhaps from the eyes of an unseen observer. Example: In a film, positioned within a passing character e.g. a random person within a crowd looking at the action.
Privilege Spectator	An external perspective that provides insight into the thoughts and actions of multiple characters. Example: In a film you could be positioned high up (like a fly on the wall) and you get to witness something that none of the other characters can see.

Characterisation

Character development: Characters grow and change. Complex characters have strengths, weaknesses, and flaws. They face challenges, learn, and transform. Character arc shows the journey, growth, and evolving relationships.

Hero/Protagonist	The main character who sets out on a journey or quest.
Villain/Antagonist	The character who opposes or creates conflicts for the hero.
Donor/Provider	The character who gives the hero a magical object, information, or assistance to aid their quest.
Helper	A character who assists the hero throughout their journey.
Princess/Damsel	The character in need of rescue or with whom the hero seeks a relationship.
False Hero	A character initially believed to be the hero but later revealed as deceptive or unworthy

Year 10: BTEC Media

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Villain/Antagonist	
Donor/Provider	
Helper	
Princess/Damsel	
False Hero	

Year 10: BTEC Media

Media Representation and Perspectives

Representation in the media is how people, places, issues, and events are shown. Here are some important points to remember:

1. Audience Positioning and Perspective:

- Media can shape how we see and think about things.
- Different perspectives can influence our understanding of a story.
- For example, a news report might focus on different angles depending on the intended audience.

2. Audience Identification:

- Media tries to make us relate to characters or situations.
- We may see ourselves in the heroes or villains of a story.
- For example, a movie might have a young hero we can look up to and connect with.

3. Use of Stereotyping:

- Stereotyping is when groups of people are shown in simplified or exaggerated ways.
- It can create biases and unfair judgments.
- For example, a TV show might show a certain group always behaving in a certain way, which isn't true for everyone.

4. Positive and Negative Representations:

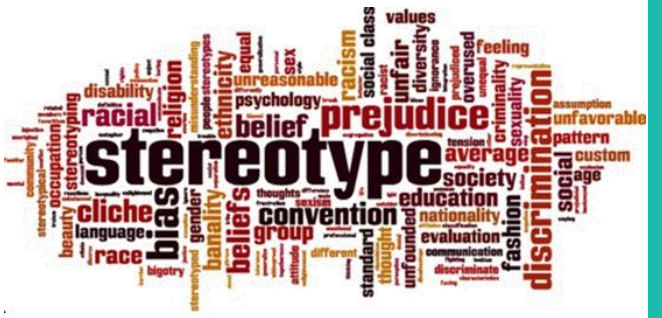
- Media can show people, places, and events in positive or negative ways.
- Positive representations can inspire and uplift us.
- Negative representations can reinforce stereotypes and hurtful ideas.
- For example, a magazine might portray a diverse group of friends having fun together, promoting inclusivity.

How can media products position the audience and influence their beliefs and attitudes?

Media products can position the audience through storytelling techniques, camera angles, music choices, and persuasive messaging. By appealing to emotions, presenting certain viewpoints, and shaping narratives, media can shape the audience's beliefs, values, and attitudes.

What are the consequences of stereotyping in media representations?

Stereotyping in media can lead to unfair judgments, perpetuate harmful biases, and create misunderstandings about certain groups of people. It can contribute to discrimination, marginalisation, and the reinforcement of negative stereotypes, affecting individuals and communities negatively.



Year 10: BTEC Media

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What are the important tings to remember?

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2. Audience Identification:

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3. Use of Stereotyping:

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How can media products position the audience and influence their beliefs and attitudes?

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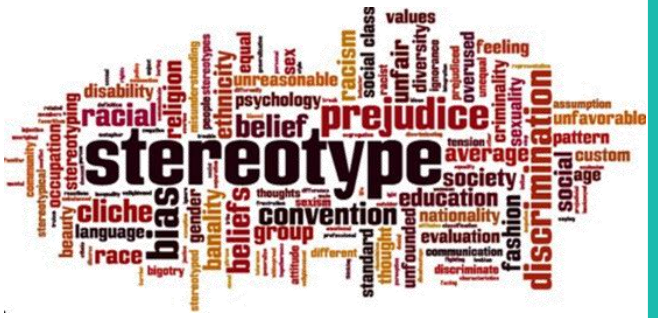


Year 10: BTEC Media

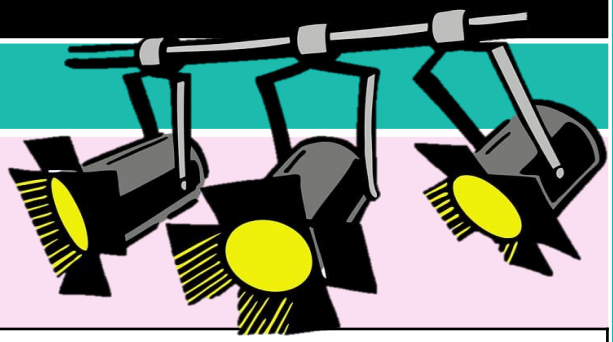
Media Production Techniques

Mise en Scène: refers to the arrangement of visual elements within a scene in media production. It includes various components that contribute to the overall look and feel of a scene.

Top 5 components of Mise en Scène:

Setting	This is where the scene happens, like a place or environment. It includes things like buildings, landscapes, or inside spaces. The setting helps create the look and feel of the scene.
Costume and Makeup	This is about the clothes, accessories, and makeup that the characters wear. It shows what they look like and helps us understand their personality and role in the story.
Lighting	This is how the scene is lit up. Different types of lighting can make things look different and create different moods. For example, bright lighting can make things feel happy, while dark lighting can make things feel mysterious or scary.
Props and Objects	These are the things that the characters use or have around them in the scene. Props can give us important clues, show what time period the story is in, or help tell the story in other ways.
Acting and Performance	This is about how the actors act out their characters. They use their faces, bodies, and emotions to bring the characters to life. The way they talk, move, and express themselves helps make the scene more interesting and believable.

Lighting



Low key	This kind of lighting makes the scene look dramatic and mysterious. It uses strong contrasts between light and dark.
High key	This lighting makes the scene bright and evenly lit. It's often used in happy or funny scenes.
Back	When the light comes from behind the subject, it creates a special effect. It makes the subject look like they have a glowing halo around them and emphasises their shape.
Side	This is when the light comes from the side. It adds depth to the scene and makes things look more textured.
Soft	Soft lighting makes the scene look gentle and diffused. It reduces harsh shadows and makes people look nicer.
Hard	Hard lighting makes the scene look strong and direct. It creates clear, sharp shadows and a more intense feeling.
Realistic	This lighting tries to look like natural light sources, making the scene feel real and authentic.
Ambient	This is the general light that fills up the whole scene. It helps set the mood or show where the scene is taking place.
Expressive	This lighting is used to create specific feelings or emotions in the scene. It adds to the story and makes it more exciting.

Year 10: BTEC Media

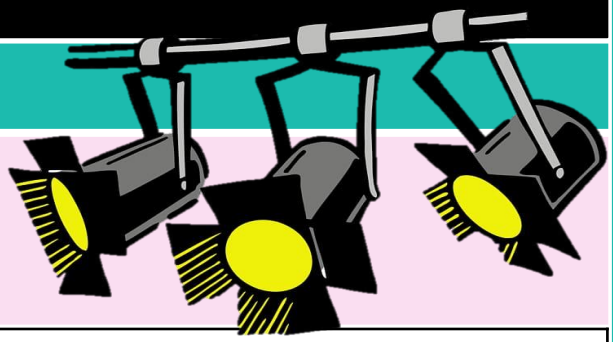
Media Production Techniques

Mise en Scène: refers to the arrangement of visual elements within a scene in media production. It includes various components that contribute to the overall look and feel of a scene.

Describe below the top 5 components of Mise en Scène?

Setting	
Costume and Makeup	
Lighting	
Props and Objects	
Acting and Performance	

Lighting



Low key	
High key	
Back	
Side	
Soft	
Hard	
Realistic	
Ambient	
Expressive	

Year 10: BTEC Media

Media Production Techniques

Camerawork

Low-angled shot	When the camera is below the subject, it makes them look really powerful, strong, or scary.
Extreme close up	This is when the camera zooms in really close to show a small detail of something. It makes that detail seem really important or intense.
Long shot	When the camera is far away, it captures the whole scene or subject. It helps us understand where everything is happening and how big things are.
Medium shot	This shot shows the subject from the waist up. It's a good balance between being close enough to see details and far enough to understand the surroundings.
Eye level shot	This is when the camera is at the same height as the subject's eyes. It helps us see things from a neutral and relatable perspective.
High angle shot	The camera is positioned above the subject, making them look small, weak, or in a vulnerable position.
Point of view shot	This shot shows the scene from the character's perspective. It makes us feel like we're seeing what the character sees and experiencing the scene through their eyes.

Use of Sound

Diegetic	This is the sound that comes from the world of the story. It includes things like the characters talking or making sounds in the movie or show.
Non-diegetic	This is sound that doesn't come from the story world. It includes background music or a voice that talks to us but the characters can't hear.
Sound effects	These are special sounds that are added to make the scene more exciting or to create certain feelings. They are not real sounds that were recorded during filming.
Sound mixing	This is when different sounds are combined and adjusted so that they sound good together. It's like making sure all the sounds are at the right volume and can be heard clearly.
Sound bridge	This is when the sound from one scene continues into the next scene. It helps the scenes flow smoothly together.
Ambient	These are the sounds that you would hear in the background of a scene. They help create the feeling of being in that place.
Synchronised	This is when the sound matches what you see on the screen. For example, if a character is walking, you will hear their footsteps. It makes everything feel more real.
Voice over	This is when a voice speaks over the movie or show but you don't see who is talking. It's like someone is telling you extra information or giving their thoughts.

Year 10: BTEC Media

Media Production Techniques

Camerawork

Low-angled shot	
Extreme close up	
Long shot	
Medium shot	
Eye level shot	
High angle shot	
Point of view shot	

Use of Sound

Diegetic	
Non-diegetic	
Sound effects	
Sound mixing	
Sound bridge	
Ambient	
Synchronised	
Voice over	

Year 10: BTEC Media

Editing Techniques

Cut: This is when one shot is quickly replaced by another shot. It's like changing from one picture to another really fast.

Fade In: This is when a scene gradually appears on the screen. It starts from a black screen and gets brighter until you can see the scene clearly.

Fade Out: This is the opposite of fade in. It's when a scene slowly disappears from the screen. It goes from bright to dark until it's all black.

Dissolve: This is when one shot fades away while another shot gradually appears. It's like the two shots blend together smoothly.

Wipe: In this editing technique, the next shot moves across the screen and "wipes away" the previous shot, revealing the new scene.

Flashback: This is when the story pauses and shows a scene from the past. It helps us understand something that happened before the current time in the story.

Shot-Reverse-Shot: This is when the camera goes back and forth between two characters who are talking to each other. It shows their reactions and interactions during the conversation.

Cross Cutting: This is when the movie or show cuts between two or more different scenes happening at the same time. It can create suspense or show how the scenes are connected to each other.

Eyeline Match: This editing technique connects what a character is looking at with the next shot showing what they are seeing. It helps us understand their point of view and what they are paying attention to.

Year 10: BTEC Media

Editing Techniques

Cut:

Fade In:

Fade Out:

Dissolve:

Wipe:

Flashback:

Shot-Reverse-Shot:

Cross Cutting:

Eyeline Match:

Design and Technology

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 Hospitality and Catering- Providers

- The **Hospitality and Catering** sector includes: pubs, bars and nightclubs; restaurants; self-catering accommodation, holiday centres travel and tourist services; visitor attractions and hotels. Hospitals, prisons, schools armed forces and social care .
- It has grown over the last 20 years and, despite recession, is predicted to continue to grow .The sector as a whole currently employs almost 2 million people.

Residential establishments

Hotels
Guest houses
Bed and breakfasts
Farmhouses
Motels
Holiday parks
Some public houses

Services and food provided varies by price charged

Hotels

The style of food provided will depend on the standard of the hotel
Hotel may provide

- No food provision
- Room service
- Hotel owned restaurants
- Franchise restaurants
- Breakfast provision only

Bed & breakfasts, Guesthouses, Farmhouses

Often showcase local themes or produce.
May be breakfast, Half board or full board, family run

Motels & Holiday parks

Lower standard than hotels, food is usually buffet style breakfast. Corporate or independent

Non residential establishments

Restaurants
Fast food outlets
Public houses
Bars
Delicatessens
Take away outlets
School meals
Burger vans

Services and food provided varies by the situation and price charged

Restaurants

Variety of styles and food types, may be specialist eg italian, or gourmet or fine dining
Styles of service vary with types of food and cost
See styles of service section for more…

Cafes

Can vary from independent "greasy" spoon, Tea rooms or coffee shops.
Serve snacks and full meals.

Public houses

Can serve "basket" meals sandwiches or full table service. Some chain pubs have a fixed menu eg Wetherspoons.

Bars

more cosmopolitan menu than pubs , often themed to the type of establishment. Table service or eat at the bar

Non commercial establishments

Hospitals
Prisons
Meals on wheels
Residential care homes
Armed services

Services and food provided varies by the situation and the needs of the clients.
Not required to make a profit

Fast food

Chains eg KFC, Dominos or independent businesses
Limited menu, low cost, eat in or take away
Disposable packaging

Take aways

Dedicated take away or restaurant attached or may be just take away, most food is cooked to order.

Year 10 Hospitality and Catering- Providers

What does the hospitality and catering sector include? Provide examples.

Which residential establishments does the hospitality and catering sector include?

What are the different types of food provision that might be found in hotels?

Bed & breakfasts, Guesthouses, Farmhouses

Often showcase local themes or produce.
May be breakfast, Half board or full board, family run

Motels & Holiday parks

Lower standard than hotels, food is usually buffet style breakfast.
Corporate or independent

Which non-residential establishments does the hospitality and catering sector include?

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Which non-commercial establishments does the hospitality and catering sector include?

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Year 10 Hospitality and Catering- Providers

Hospitals

Patients may need reduced fat, sugar, protein diets depending on health
Soft meals, Vegetarian, vegan, religious, childrens meals
Budget for food controlled by NHS

School meals

School employed or outside company .Strict guidelines on what can be served to U16, oily fish 1x week, chips max 2x week

Meals on wheels

Social meal service provided by volunteers, to people unable to prepare their own food.

Care home meals

food served may depend on the needs of the clients, some may have conditions which need special meals. Some residents may need help eating and drinking

Armed services meals

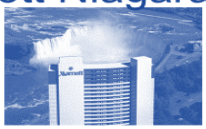
Mass catering, Camps on active service, Canteens at bases.High energy, balanced nutritionally

Prisons

Food is prepared in by prison inmates to ensure that tight budgets for food are met

Marriott Niagara

- 4 star Hotel
- 3 different themed restaurants
- Breakfast restaurant
- Room service
- Starbucks attached to ground floor!



Bristol hotel Gibraltar

- No food or restaurant on site
- Shared breakfast room across street with another hotel

Styles of food service

- Depends on
- Type of establishment
- Type of food being served
- Cost of the meal or food
- Time available for the meal
- Type of customer
- Number of customers
- Availability of serving staff

Counter service	Table service	Personal service
Cafeteria	Plate service	Travel service
Self service	Family service	Tray service
Fast food	Silver service	Vending service
Take away	Gueridon service	
Buffet		
Carvery		

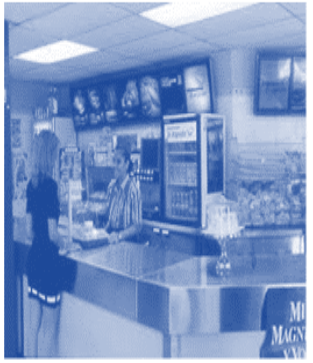
Cafeteria /self service

- A single long counter displaying the food available
- Could be multiple counters (like at a motorway service area)

- Queueing is often required
- It can be fast so produces a high turnover
- Simple, basic experience for customers
- Displays lead to impulse buying
- Low skilled serving staff

Cafeteria / self service

Fast food / take away



Year 10 Hospitality and Catering- Providers

Describe hospital food provision below:

Describe school meal provision below:

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Social meal service provided by volunteers, to people unable to prepare their own food.

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How do prisons ensure food budgets are met?

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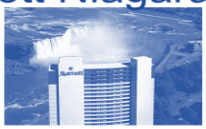


Bristol hotel Gibraltar

- No food or restaurant on site
- Shared breakfast room across street with another hotel

List the different styles of food service below:

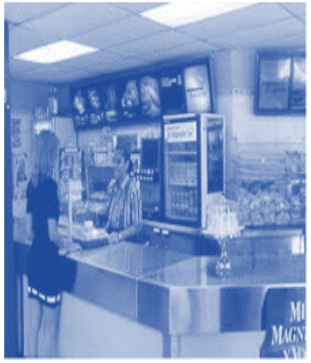
List the examples of each service below:

Counter service	Table service	Personal service

Outline the elements of cafeteria/self-service provision below:

Cafeteria / self service

Fast food / take away



Year 10 Hospitality and Catering- Providers

Silver service

- Food is served by staff using spoon and fork,
- Full silver service= all food served this way
- Demi silver service= meat pre plated, veg silver served

- More personal customer experience
- Slower speed of service
- Variation in portion control
- Needs skilled staff

Gueridon service

- Food is served from a side table using a spoon and fork
- Dishes can be cooked, finished or assembled in front of the customer
- Eg crepe suzette

- Specialist, skilled service,
- Individual attention to customer
- High staff costs
- Time consuming service

Silver service

Gueridon service

Plate service

- Pre plated meals served from the kitchen
- Could be basic food or decorated cuisine

- From cafes to luxury restaurants
- Good portion control
- Consistent presentation
- Relys on skill of kitchen staff
- Time consuming for kitchen staff

Family service

- Dishes are put on the table where serving spoons are provided and customers serve themselves

- More sociable
- Less portion control
- Easy and quick to serve
- Suits groups of people
- Needs a large table because of all the dishes!

Transported meal service

- An assembled meal provided or a choice from a menu
- Planes, trains

Tray service

- An assembled meal provided or a choice from a menu
- Tray service used in hospitals, room service

Fast food / take away

- Single or multiple counters where customer orders food from limited menu
- Food is collected from the counter

- A quick, simple type of service
- Can be a very high turnover of food
- Often a limited choice of menu
- Use disposable, cutlery, and packaging

Buffet / carvery

- Usually single counter
- Staff may serve some items eg meats from a joint
- Informal style of service
- Fast and simple service
- Reasonably low cost depending on the type of food served
- Poor portion control
- Needs efficient clearing away and arranging

Buffet / carvery

Plate service

Year 10 Hospitality and Catering- Providers

Describe the components of silver service. Provide at least one advantage and one disadvantage

Describe the components of plate service. Provide at least one advantage and one disadvantage

Describe the components of fast food/take away. Provide at least one advantage and one disadvantage

Describe the components of family service. Provide at least one advantage and one disadvantage

Describe the components of a buffet/ carvery. Provide at least one advantage and one disadvantage

Describe the components of Gueridon service. Provide at least one advantage and one disadvantage

Silver service

Gueridon service

Transported meal service

- An assembled meal provided or a choice from a menu
- Planes, trains

Tray service

- An assembled meal provided or a choice from a menu
- Tray service used in hospitals, room service

Buffet / carvery

Plate service

Year 10 Hospitality and Catering- Providers

Vending service

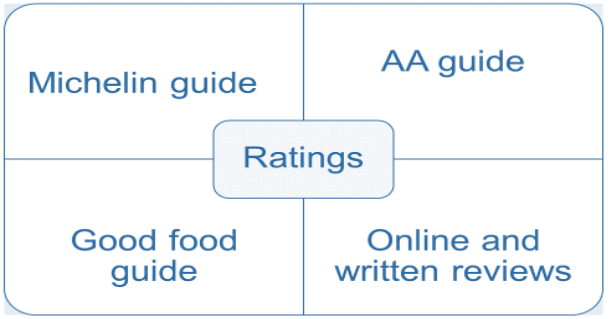
- Food and drinks served from a machine
- 24hour food service
- Drinks, snacks and meals can be offered
- Can include hot meals

Benefits of ratings?

- A good establishment could see an increase in business from people wanting to try the food.
- It generates publicity for the establishment.
- Customers might come from further away to dine.
- Customers can identify less good establishments.

Food hygiene ratings is a different topic altogether.

Types of ratings



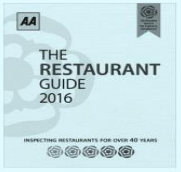
Online review sites

- There are a number of online review sites where anyone can post their reviews of an establishment.
- with a large number of reviews, a restaurant's average score is likely to be reasonably accurate.
- There are guidelines to clamp down on establishments that give away freebies for a good review or give themselves good reviews!

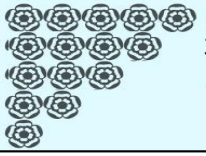
tripadvisor
yelp
OpenTable
Harden's
SquareMeal.co.uk

AA Rosettes & Stars

Inspectors visit restaurants or hotels and write a review of the establishment -award rosettes for restaurants, stars for hotels.



Restaurants



12
38
173

Michelin stars

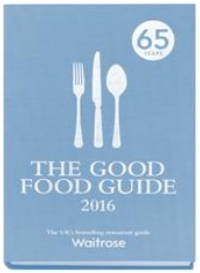
Anonymous inspectors visit establishments and have a meal and write a review of the establishment can award stars for excellence.

Out of 3,600 establishments inspected in Great Britain and Ireland they awarded:

3
23
143

Good Food Guide

Members of the general public who have visited the establishment fill in a review which is compiled into a guide. Award points for excellence .



The Good Food Guide scores explained	
Score	Explanation
1	Capable cooking, with simple food combinations and clear flavours, but some inconsistencies.
2	Decent cooking, displaying good basic technical skills and interesting combinations and flavours. Occasional inconsistencies.
3	Good cooking, showing sound technical skills and using quality ingredients.
4	Dedicated, focused approach to cooking; good classical skills and high-quality ingredients.
5	Exact cooking techniques and a degree of ambition; showing balance and depth of flavour in dishes.
6	Exemplary cooking skills, innovative ideas, impeccable ingredients and an element of excitement.
7	High level of ambition and individuality, attention to the smallest detail, accurate and vibrant dishes.
8	A kitchen cooking close to or at the top of its game – highly individual with impressive artistry. There is little room for disappointment here.
9	Cooking that has reached a pinnacle of achievement, making it a hugely memorable experience for the diner.
10	Just perfect dishes, showing faultless technique at every service; extremely rare, and the highest accolade the Guide can give.

Score 10 – 2
Score 9 – 4
Score 8 – 13
Score 7 - 23

* one star

- minimum of five bedrooms.
- All bedrooms with en suite or private facilities.
- guests have access to the hotel at all times.
- Proprietor and/or staff on site all day and on call at night.
- A dining room,restaurant serving a cooked or continental breakfast seven days a week.
- A dining room, restaurant serving evening meals at least five days a week
- A bar or sitting area with a Liquor (alcohol) Licence.
- Hotel open seven days a week during its operating season
- Proprietor and or staff available during the day and evening to receive guests and provide information
- A clearly designated reception facility

*** Three star

- All areas meet the Three Star level of quality for cleanliness, maintenance and hospitality
- Residents have access at all times during the day and evening Dinner served a minimum of six evenings a week with bar snack or equivalent available on seventh
- Room service as a minimum of hot and cold drinks and light snacks (e.g. sandwiches) during daytime and evening.
- All bedrooms with en suite bathrooms.
- Internal or direct dial telephone system required
- Wi-Fi available in public areas.

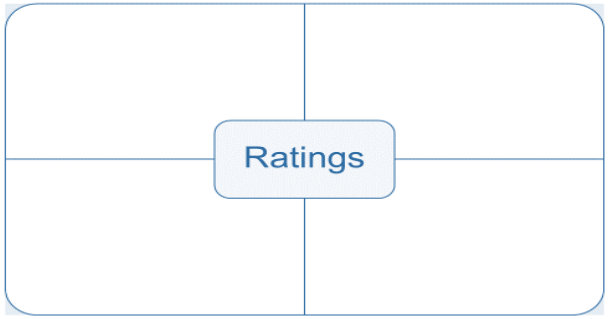
Year 10 Hospitality and Catering- Providers

Vending service

- Food and drinks served from a machine
- 24hour food service
- Drinks, snacks and meals can be offered
- Can include hot meals

What are the benefits of ratings?

What are the different types of ratings?



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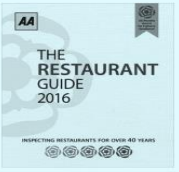


How are Michelin stars awarded?
How many establishments have Michelin stars in Great Britain?

What is the Good Food Guide?

What are the components of one star establishments?

What are the components of three star establishments?

Year 10 Hospitality and Catering- Understanding the importance of nutrition

Macro-nutrients

Carbohydrates - Carbohydrates are mainly used in the body for energy. There are two types of carbohydrates which are:

- **Starch - Examples include bread, pasta, rice, potatoes and cereals.**
- **Sugar - Examples include sweets, cakes, biscuits & fizzy drinks.**

Fat - This is needed to insulate the body, for energy, to protect bones and arteries from physical damage and provides fat soluble vitamins. There are two main types of fat which are:

- **Saturated fat - Examples include butter, lard, meat and cheese.**
- **Unsaturated fat - Examples include avocados, plant oils such as sunflower oil, seeds and oily fish.**

Protein - Protein is mainly used for growth and repair in the body and cell maintenance. There are two types of protein which are:

- **High biological value (HBV) protein - Includes meat, fish, poultry, eggs, milk, cheese, yogurt, soya and quinoa.**
- **Low biological value (LBV) protein - Includes cereals, nuts, seeds and pulses.**

Micro-nutrients

Vitamins

Fat soluble vitamin A - Main functions include keeping the skin healthy, helps vision in weak light and helps children grow. Examples include leafy vegetables, eggs, oily fish and orange/yellow fruits.

Fat soluble vitamin D - The main function of this micro-nutrient is to help the body absorb calcium during digestion. Examples include eggs, oily fish, fortified cereals and margarine.

Water soluble vitamin B group - Helps absorbs minerals in the body, release energy from nutrients and helps to create red blood cells. Examples include wholegrain foods, milk and eggs.

Water soluble vitamin C - Helps absorb iron in the body during digestion, supports the immune system and helps support connective tissue in the body which bind cells in the body together. Examples include citrus fruits, kiwi fruit, cabbage, broccoli, potatoes and liver.

Micro-nutrients

Minerals

Calcium - Needed for strengthening teeth and bones. Examples include dairy products, soya and green leafy vegetables.

Iron - To make haemoglobin in red blood cells to carry oxygen around the body. Examples include nuts, beans, red meat and green leafy vegetables.

Sodium - Controls how much water is in the body and helps with the function of nerves and muscles. Examples include salt, processed foods and cured meats.

Potassium - Helps the heart muscle to work correctly and regulates the balance of fluid in the body. Examples include bananas, broccoli, parsnips, beans, nuts and fish.

Magnesium - Helps convert food into energy. Examples include wholemeal bread, nuts and spinach.

Dietary fibre (NSP) - Helps digestion and prevents constipation. Examples include wholegrain foods (wholemeal pasta, bread and cereals), brown rice, lentils, beans and pulses.

Water - Helps control temperature of the body, helps get rid of waste products from the body and prevents dehydration. Foods that contain water naturally include fruits and vegetables, milk and eggs

Year 10 Hospitality and Catering- Understanding the importance of nutrition

Name the 3 macro-nutrients and provide examples:

Micro-nutrients

What do each of these vitamins do? (Provide examples)

Fat soluble vitamin A –

Fat soluble vitamin D –

Water soluble vitamin B group –

Water soluble vitamin C -

Micro-nutrients

Describe what each mineral below does. Provide examples:

Calcium -

Iron –

Sodium -

Potassium -

Magnesium -

Dietary fibre (NSP) -

Water -

Year 10 Hospitality and Catering- Understanding the importance of nutrition

Nutrition at different life-stages

Adults:

Early – Growth in regard to height of the body continues to develop until 21 years of age. Therefore, all micro-nutrients and macro-nutrients especially carbohydrates, protein, fats, vitamins, calcium and iron are needed for strength, to avoid diseases and to maintain being healthy.

Middle – The metabolic rate starts to slow down at this stage, and it is very easy to gain weight if the energy intake is unbalanced and there isn't enough physical activity.

Elderly – The body's systems start to slow down with age and a risk of blood pressure can increase as well as decrease in appetite, vision and long-term memory. Because of this, it is essential to keep the body strong and free from

Children:

Babies – All nutrients are essential and important in babies, especially protein as growth and development of the body is very quick at this stage. Vitamins and minerals are also important. You should try to limit the amount of salt and free sugars in the diet.

Toddlers – All nutrients remain very important in the diet at this stage as growth remains. A variety of foods are needed for toddlers to have all the micro-nutrients and macro-nutrients the body needs to develop.

Teenagers – The body grows at a fast pace at different times at this stage as the body develops from a child to an adult, therefore all nutrients are essential within proportions. Girls start their menstruation which can

Special Dietary Needs

Different energy requirements based on:

Lifestyles / Occupation / Age / Activity level

The amount of energy the body needs is determined with each of the above factors e.g. active lifestyle or physical activity level would need more energy compared to a person being sedentary.

Dietary requirements:

Religious beliefs – Different religions have different dietary requirements.

Vegetarian – Avoids eating meats and fish but does eat dairy products and protein alternatives such as Quorn and tofu.

Vegan – Avoids all animal foods and products but can eat all plant-based foods and protein alternatives such as tofu and tempeh.

Pescatarian – Follows a vegetarian diet but does eat fish products and seafood.

Medical conditions:

Allergens – Examples of food allergies include milk, eggs, nuts and seafood.

Lactose intolerance – Unable to digest lactose which is mainly found in milk and dairy products.

Gluten intolerance – Follows a gluten free diet and eats alternatives to food containing wheat, barley and rye.

Diabetes (Type 2) – High level of glucose in the blood, therefore changes include reducing the amount of fat, salt and sugar in the diet.

Cardiovascular disorder – Needing a balanced, healthy diet with low levels of salt, sugar and fat.

Iron deficiency – Needing to eat more dark green leafy vegetables, fortified cereals and dried fruit.

Year 10 Hospitality and Catering- Understanding the importance of nutrition

Describe nutrition at each different life-stage:

Adults:

Early –

Middle –

Elderly –

Children:

Babies –

Toddlers –

Teenagers –

Define the different special dietary needs below:

Different energy requirements based on:

Lifestyles / Occupation / Age / Activity level

The amount of energy the body needs is determined with each of the above factors e.g. active lifestyle or physical activity level would need more energy compared to a person being sedentary.

Dietary requirements:

Religious beliefs –

Vegetarian –

Vegan –

Pescatarian –

Medical conditions:

Allergens –

Lactose intolerance –

Gluten intolerance –

Diabetes (Type 2) –

Cardiovascular disorder –

Iron deficiency –

Year 10 Design and Technology: our world

Technology Push is when research and development in new technology, drives the development of new products.

Technology push is when products are **re-designed because of changes in materials or manufacturing methods.**

This might mean that **new materials have become available**, with improved properties; or that improvements in manufacturing processes mean a manufacturer can **make the product cheaper or more efficiently**, which reduces manufacturing costs and carbon footprints

Market Pull

Market pull is when product ideas are produced in response to market forces.

Examples of market influences include:

- A demand from consumers for new or improved products.
- A competing product is launched by another manufacturer.
- A manufacturer wants to increase their of share the market.

Global Production

Products are sold and manufactured worldwide: we need to consider the positive and negative implications of this and how the products we design affect people, jobs & the environment.

- Developments in transport makes it easier for manufactures to ship materials, components and products worldwide.
- Allows for materials and components to be sourced in one country, manufactured into products or part-products in another and ship worldwide.
- Manufacturing costs can be reduced through automation or global production impacting jobs.
- Mobile technology & the internet make it easier to communicate with people all over the world.
- Greater competition among manufactures, reducing cost

CAD/CAM/CNC

CAD - Computer Aided Design

An effective method of drawing, editing and presenting design work digitally.

CAM - Computer Aided Manufacture

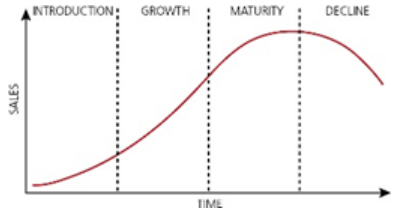
Using machinery to produce products. CAM machines run from instructions produced from CAD drawings.

CNC - Computer Numerically Controlled

Machine tools that are controlled by a computer.

Product Lifecycle

Product life cycle an important part of marketing. It covers the 4 stages a product goes through from its initial introduction to the market until it is replaced as it is not selling well or has been used.



The introduction stage is when the product is 1st developed, the 2nd is growth and manufacturing, maturity would be as the product is used by the customer and decline in and the end of its life when the product is disposed of.

Carbon Footprint

The impact human activities have on the environment in terms of the amount of green house gases produced, measured in units of carbon dioxide

Year 10 Design and Technology: our world

What is technology push?
(give examples)

What is market pull?
(Provide examples)

Global Production- what are he positive and negative implications?

Products are sold and manufactured worldwide: we need to consider the positive and negative implications of this and how the products we design affect people, jobs & the environment.

- -
- -
- -
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CAD/CAM/CNC

What is CAD?

What is CAM?

What is CNC?

What is product lifecycle? Explain the stages below:

What is carbon footprint?

Year 10 Design and Technology: our world

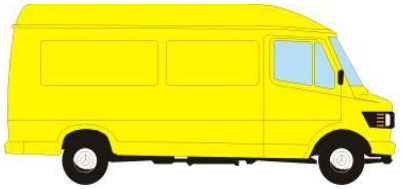
6 Rs - Sustainability

1. **Recycle** and reprocess the materials
2. **Re-use** materials/components/products for another purpose
3. **Reduce** the amount of energy and resources used throughout the whole product life cycle
4. **Repair** products/design them to be easily repaired
5. **Rethink** our current lifestyles and the way we design and make
6. **Refuse** products which are unnecessary or wastefully use resources

Product Miles

How many miles does the product travel?

- Source material to primary processor
- Material to factory
- Product to distributor
- Distributor to retail outlet
- Retail outlet to home



Scale of Productions

There are 4 scale of production:

- prototype or one-off production
- batch production
- mass production
- continuous production

Planned Obsolescence

When a manufacturer plans or designs a product to have a short, useful life. It could mean that after a period of time, the product:

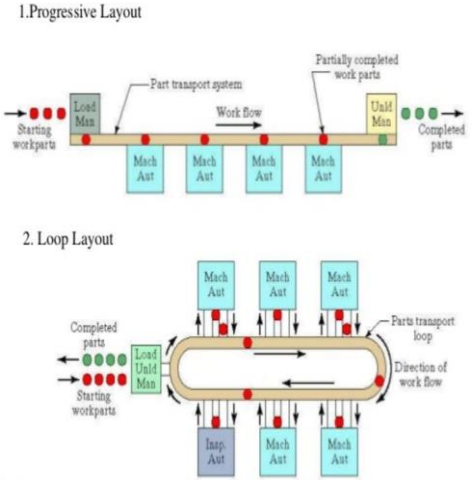
- becomes unfashionable
- will no longer function.

Just-in-Time (JIT)

Just-in-time (JIT) production is a method of organizing a factory so that materials and components are ordered to arrive at the product assembly plant just in time for production.

- triggered by a customer order.
- The correct amounts of materials are ordered in to cover the order, and these arrive just as they are needed by production.
- This saves money on storage, reduces waste and ensures there is no money wasted producing stock that will remain unsold.

Flexible Manufacturing Systems



Production is organized into cells of automated machines performing different tasks. Often along a conveyor line.

Lean Manufacture

Focuses on maximizing productivity while reducing waste when manufacturing.

- Reduced lead times and operating costs
- Improved product quality and customer satisfaction
- Resource savings and better sustainability
- Flexibility through small batch sizes and low inventories
- Better management of process complexity

Year 10 Design and Technology: our world

What are the 6 Rs of sustainability?

1. -
2. -
3. -
4. -
5. -
6. -

Product Miles

How many miles does the product travel?

- Source material to primary processor
- Material to factory
- Product to distributor
- Distributor to retail outlet
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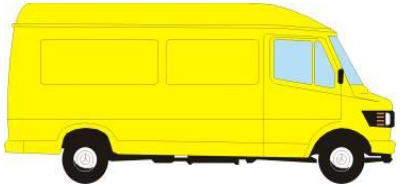


Scale of Productions

What are the 4 scales of production?

- -
- -
- -
- -

Planned Obsolescence

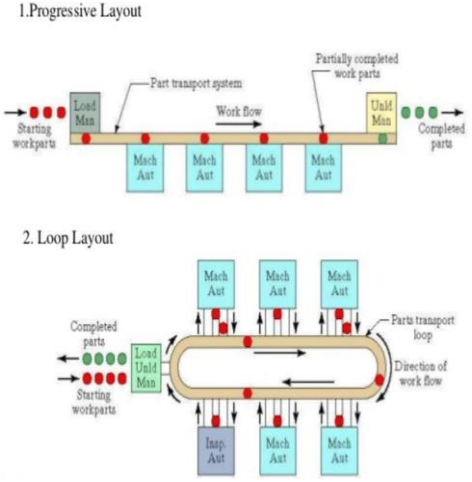
When a manufacturer plans or designs a product to have a short, useful life. It could mean that after a period of time, the product:

- -
- -

What is Just-in-Time (JIT) production? Give examples.

Just-in-time (JIT) production is:

Flexible Manufacturing Systems



Production is organized into cells of automated machines performing different tasks. Often along a conveyor line.

What is lean manufacture?

Year 10 Design and Technology: Timbers

Timber Classifications

Hardwood

- comes from deciduous trees
- trees lose their leaves in winter
- trees have broad leaves
- is slower growing than softwood
- has seeds that are housed in fruit
- is generally more expensive than softwood
- generally good resistance to decay.

Softwood

- comes from coniferous trees
- is evergreen
- trees have needles rather than leaves
- is quick growing
- has seeds that are housed in cones
- is extensively used in joinery
- is generally less expensive than hardwood
- has generally poor resistance to decay.

Manufactured boards are usually made from timber waste and adhesive. To make them more aesthetically pleasing they are often veneered. They are cheap to buy but will need protective coatings for longevity.

Chip board

Medium Density Fibreboard (MDF)

Plywood

Stock Forms

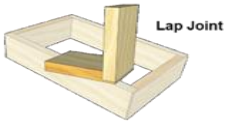
Timber and man-made boards are available in different standardised forms.

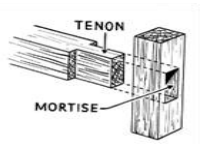
Timber cut at a sawmill, it is referred to as sawn finish and uses include garden fence posts and some building work. This type of finish is rough and has not been treated or machined further.

Timber that is sold at DIY shops or from a timber merchant can often be bought with planed edges that have been machined smooth.

Manufactured boards are in sheet form and in standard sizes with various thicknesses depending on the material.

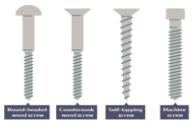
Traditional Joints

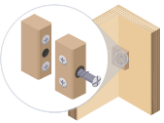




Fixings and Fastenings

Temporary fixings will often be done using fastening components, such as screws or knock-down fittings, which are most commonly used in joining flat-pack furniture.





Surface finishes.

Physical properties of timbers can be changed, such as colour and texture, by applying a surface finish to the wood.

- staining
- varnishing
- oiling
- waxing
- painting
- laminating

Year 10 Design and Technology: Timbers

Timber Classifications

Hardwood- list the characteristics:

- -
- -
- -
- -
- -
- -
- -

Softwood- list the characteristics

- -
- -
- -
- -
- -
- -
- -
- -

Manufactured boards are usually made from timber waste and adhesive. To make them more aesthetically pleasing they are often veneered. They are cheap to buy but will need protective coatings for longevity. **Give 3 examples below:**

-

-

-

Stock Forms

Timber and man-made boards are available in different standardised forms.

Timber cut at a sawmill, it is referred to as sawn finish and uses include garden fence posts and some building work. This type of finish is rough and has not been treated or machined further.

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Manufactured boards are in sheet form and in standard sizes with various thicknesses depending on the material.

Traditional Joints- draw 4 different joints below:

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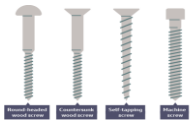
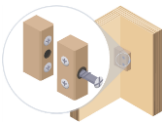
Temporary fixings will often be done using fastening components, such as screws or knock-down fittings, which are most commonly used in joining flat-pack furniture.





Surface finishes- list below:

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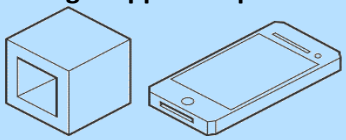
Year 10 Design and Technology: Design Skills

Isometric Drawings,

A good way of showing measurements and how components fit together. Unlike perspective drawings, they don't get smaller as the lines go into the distance.

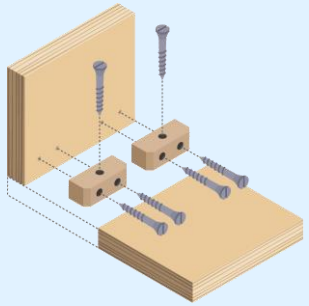
There are three main rules to isometric drawing:

- **horizontal edges are drawn at 30 degrees**
- **vertical edges are drawn as vertical lines**
- **parallel edges appear as parallel lines**



Exploded Diagrams.

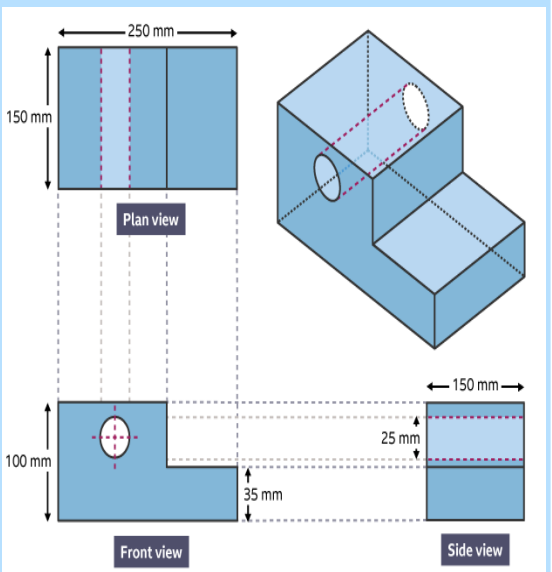
Exploded diagrams show how a product can be assembled and how the separate parts fit together, with dotted lines showing where the parts slide into place. The diagrams also show components that would usually be hidden in a solid drawing.



Orthographic Drawing.

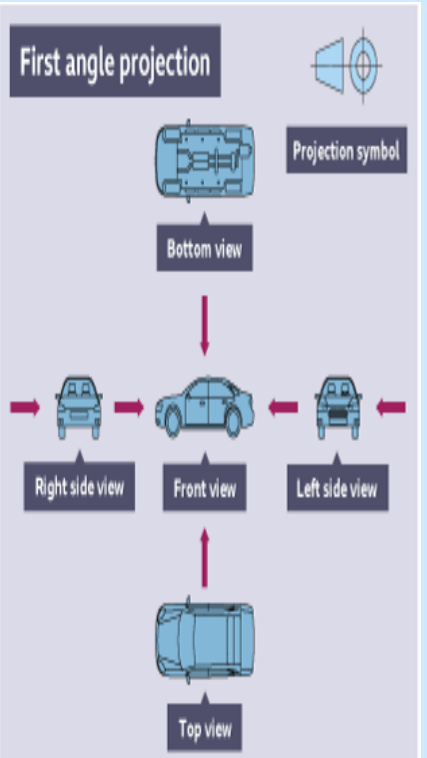
Orthographic projections are working drawings in either a **first or third angle projection** and show each side of a design without perspective, ie a 2D drawing of a 3D object.

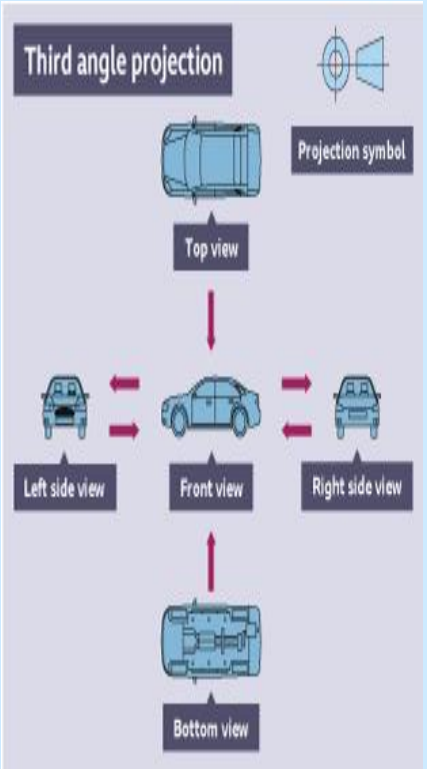
They are used to show an object from every angle to help manufacturers plan production. Starting with a front view of a product, construction lines show where areas join and are used to draw a side and plan (top) view, ensuring that the drawing is accurate from all angles. These drawings are to scale and must show dimensions.



Orthographic projections have a set of standard lines to show different aspects of the diagram. These lines allow complex shapes to be drawn simply in 2D.

Outlines	
Construction lines	
Hidden details	
Dimension arrow	3 cm
Centre line	





Year 10 Design and Technology: Design Skills

Isometric Drawings,

What are the 3 rules for isometric drawings?

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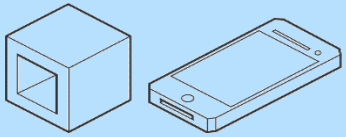
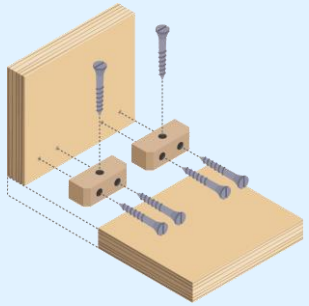
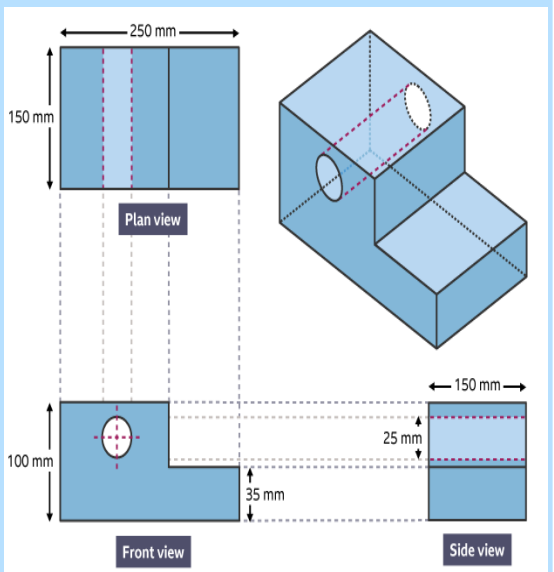


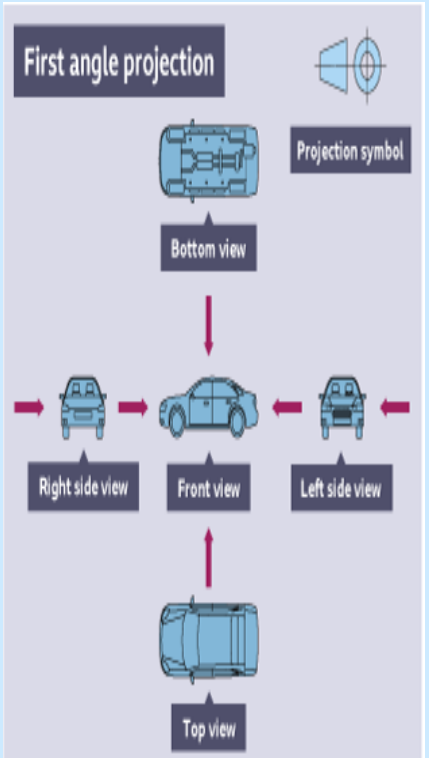
What is an exploded diagram?

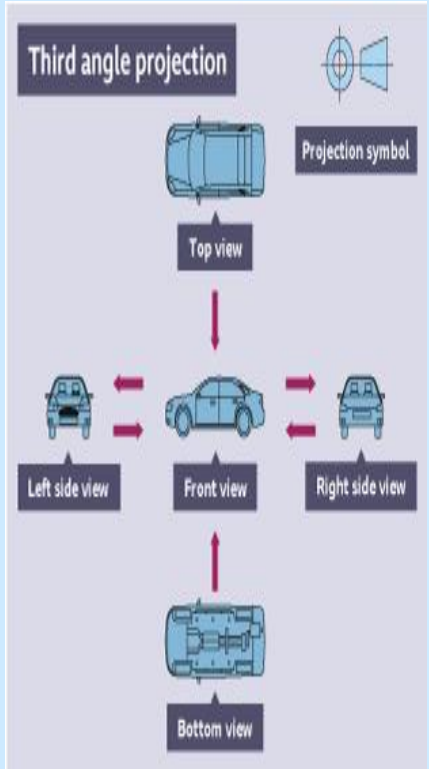


What are orthographic drawings?



Orthographic projections have a set of standard lines to show different aspects of the diagram. These lines allow complex shapes to be drawn simply in 2D. **What are the lines called?**

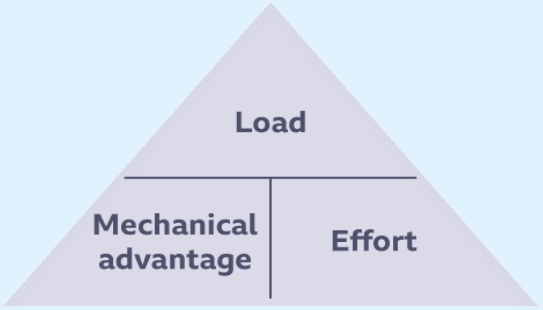




Year 10 Design and Technology: Mechanical Components

Different Types of Motion

- **Rotary** - moves in a complete circle, e.g. a wheel turning.
- **Linear** - moves in a straight line, e.g. a train moving down a track.
- **Oscillating** - moves backwards and forwards in part of a circle, e.g. a pendulum of a mechanical clock.
- **Reciprocating** - moves backwards and forwards in a straight line, e.g. a piston or pump.



1. mechanical advantage = load ÷ effort
2. load = mechanical advantage × effort
3. effort = load ÷ mechanical advantage

Levers

There are three different types of levers. They are based fulcrum and load in a different order:

First order levers (Class 1) place the fulcrum between the effort and the load. Examples would be a seesaw, which places the fulcrum in the centre and allows equally weighted children to lift each other up

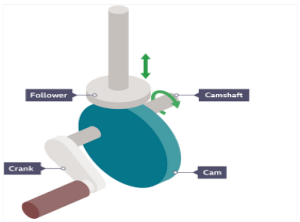
Second order levers (Class 2) place the fulcrum at one end of the lever and the effort at the other, with the load in the centre. The closer together the fulcrum and load are, the easier it is to lift the load. Examples include wheelbarrows, nutcrackers and some bottle openers.

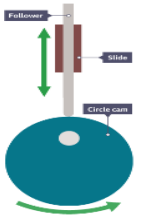
Third order levers (Class 3) place the effort between the fulcrum and the load. If the effort and the fulcrum are further apart, it becomes easier to lift. Examples include tweezers or fishing rods.

Cams Mechanism

A cam mechanism has two main parts:

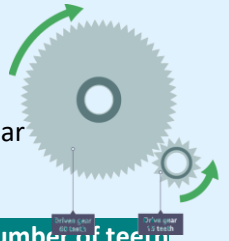
- **a cam** - attached to a crankshaft, which rotates
- **a follower** - touches the cam and follows the shape, moving up and down





Gear Trains

Gear trains are when two or more gears are joined together. In a simple gear train, the drive gear the driven gear to turn in the opposite direction.



Gear ratio = number of teeth on driven gear ÷ number of teeth on the drive gear

Pulleys

Pulleys use mechanical advantage, similar to levers, to lift up loads. Pulleys are wheel shaped with a groove that allows a cord to sit inside the groove.

Belts can be attached around different-sized pulleys to drive shafts to change speed. As with gears, the bigger the wheel, the slower the speed. The velocity ratio between two pulleys can be calculated.

Velocity ratio = diameter of the driven pulley ÷ diameter of the driver pulley

Output speed = input speed ÷ velocity ratio

Year 10 Design and Technology: Mechanical Components

What are the different types of motion?

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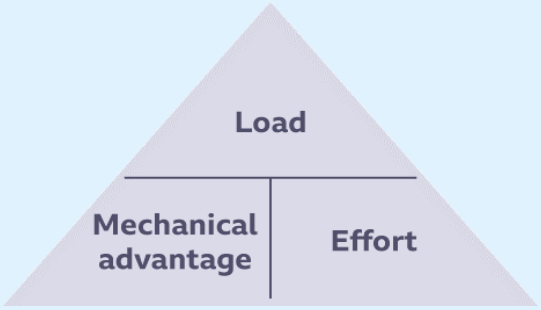

1. mechanical advantage = load ÷ effort
2. load = mechanical advantage × effort
3. effort = load ÷ mechanical advantage

Levers

There are three different types of levers.
They are based fulcrum and load in a different order**. Describe them below:**

First order levers (Class 1)

Second order levers (Class 2)

Third order levers (Class 3)

Cams Mechanism

A cam mechanism has two main parts- what are they?

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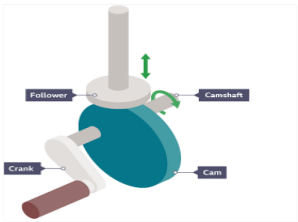
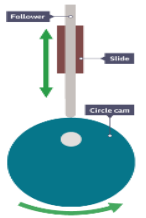
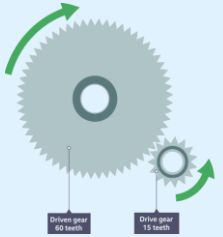




Gear Trains How do we work out the gear ratio of a gear train?



Pulleys How does a pulley work?

Belts How can we calculate the velocity ratio of a belt mechanism?

Drama

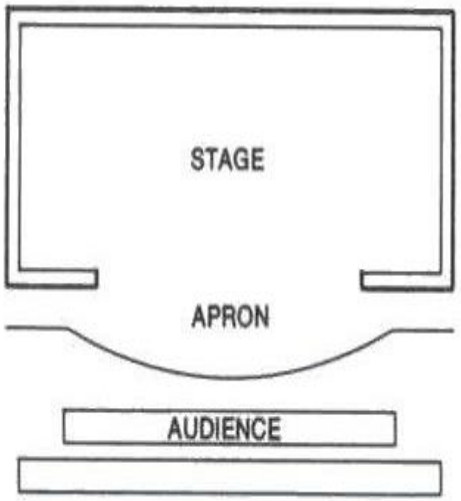
Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 Drama: Staging Types

Proscenium Arch

Common in large theatres and opera houses.
The proscenium refers to the frame around the stage; the area in front of the arch is called the apron. The audience faces one side of the stage directly and may sit at a lower height or on tiered seating.



Advantages:

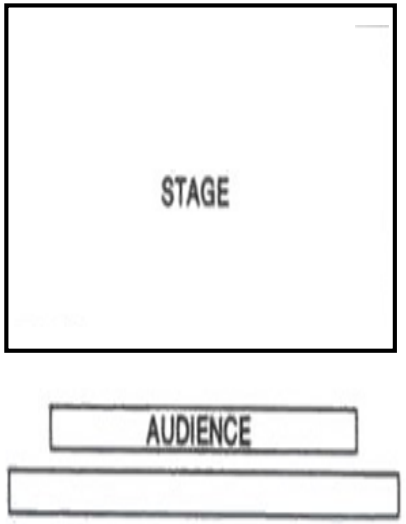
- Stage pictures are easy to create, as the audience look roughly at the same angle.
- Backdrops and large scenery can be used without blocking sightlines.
- There is usually fly space and wings for storing scenery.
- The frame around the stage adds to the effect of a fourth wall; creating a self-contained world.

Disadvantages:

- Some audience members may feel distant from the stage.
- The auditorium could feel formal and rigid.
- Audience interaction may be more difficult.

End On

This is similar to proscenium arch, as the audience faces one side of the stage directly and may sit at a lower height or on tiered seating. However, **it doesn't have the large proscenium or apron**.
Our studio is set up as end on.



Advantages:

- The audience all have a similar view.
- Stage pictures are easy to create.
- Large backdrops or projections may be used.

Disadvantages:

- Audience members in the back rows may feel distant from the stage.
- It doesn't have the proscenium frame, which can enhance some types of staging.
- It may not have wings or a fly area.

Year 10 Drama: Staging Types

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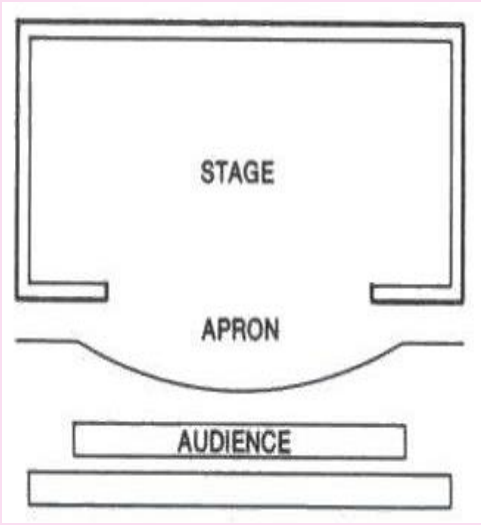

What are the advantages?

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What are the disadvantages?

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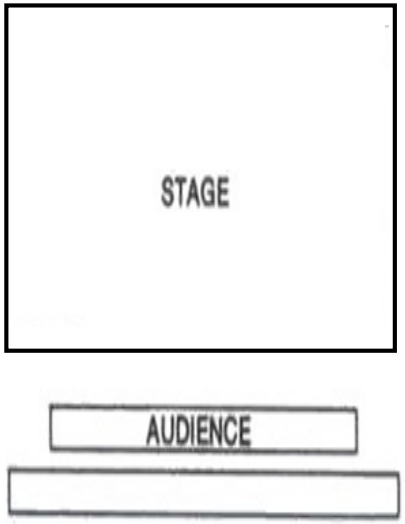

What are the advantages?

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What are the disadvantages?

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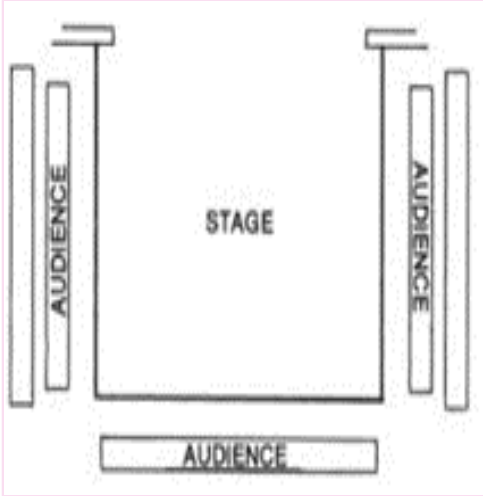
Year 10 Drama: Staging Types

Thrust

When the stage in front of the proscenium protrudes into the auditorium, so that the audience are sitting on three sides. **This is one of the oldest types of staging**; Greek amphitheatres and Elizabethan theatres like Shakespeare's Globe are both types of thrust stages



Advantages:

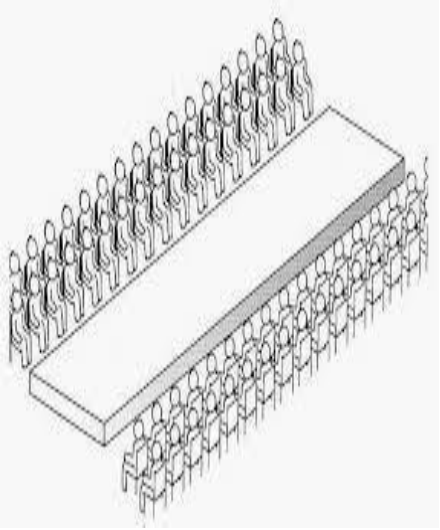
- As there is no audience on one side of the stage, backdrops, flats and large scenery can be used.
- The audience might feel closer to the stage – there are 3 front rows.
- Fourth wall can be achieved while having the audience close to the action.

Disadvantages:

- Audience members in the back rows may feel distant from the stage.
- It doesn't have the proscenium frame, which can enhance some types of staging.
- It may not have wings or a fly area.

Traverse

The acting area is a long central space and the audience sits on two sides facing each other.
This type of staging can feel like a catwalk show.



Advantages:

- The audience feel very close to the stage as there are two long front rows.
- Audience members can see the reactions of the other side of the audience.
- The extreme ends of the stage can be used to create extra acting areas.

Disadvantages:

- Big pieces of scenery, backdrops or set can block sightlines
- The acting area is long and thin, which can make some blocking challenging.
- Actors must be aware of making themselves visible to both sides of the audience.

Year 10 Drama: Staging Types

Thrust

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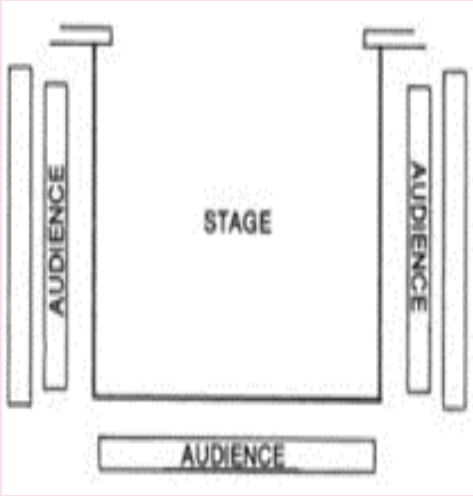

What are the advantages?

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What are the disadvantages?

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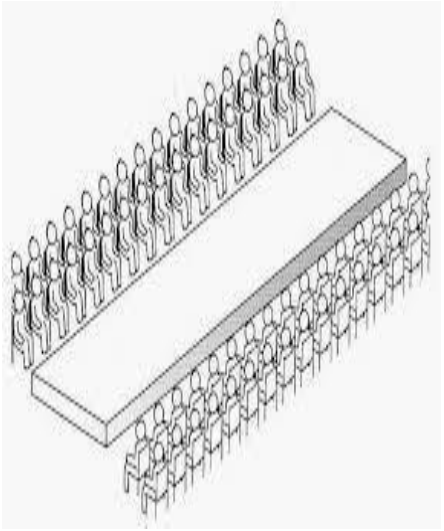

What are the advantages?

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What are the disadvantages?

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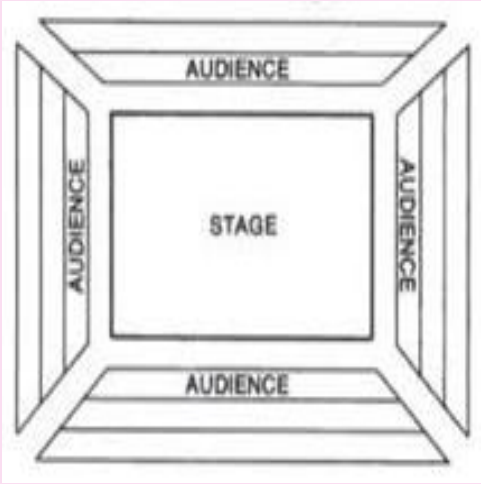
Year 10 Drama: Staging Types

In the Round

The stage is positioned in the centre of the audience and the audience are seated around all areas of the stage. The stage/audience can either be curved (creating a circle), or more like a square or rectangle. There are usually several 'tunnel-like' entrances, these are called **vomitories**.



Advantages:

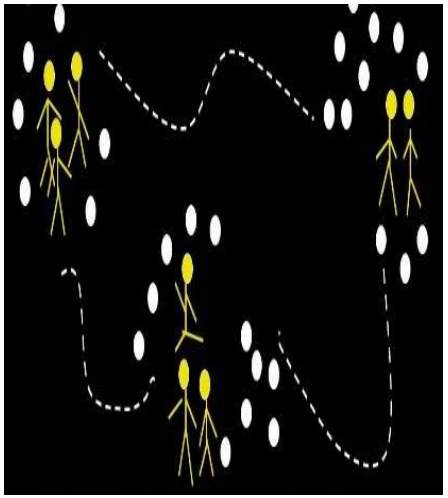
- The audience is close to the stage as there is an extended first row.
- The actors enter and exit through the audience which can make them feel more engaged.
- There is no easily achieved fourth wall separating the audience from the actors – it is easy to interact with them.

Disadvantages:

- Designers cannot use backdrops or flats as they would obscure the view of the audience.
- Stage furniture has to be chosen carefully so that audience sightlines aren't blocked.
- Actors must continually move around so that the audience can see them and critical interactions.

Promenade

The performance areas are set in various locations in a venue. Promenade means 'to walk' and the audience follows the action on foot, moving from one performance area to another. Promenade staging is often used in site specific performances (a performance in a location that is not a conventional theatre, e.g. a street, a warehouse)



Advantages:

- Interactive style of theatre where the audience feels involved.
- No set changes or need for movement of big bulky items.
- Enables audience to be more engaged as they move from one piece of action to the next.

Disadvantages:

- The audience may find moving around the space difficult or might get tired.
- Actors and or crew need to be skilled at moving the audience around and controlling their focus.
- There can be health and safety risks

Year 10 Drama: Staging Types

In the Round

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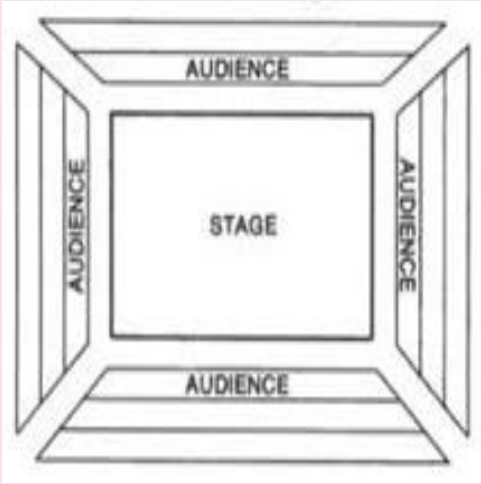

What are the advantages?

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What are the disadvantages?

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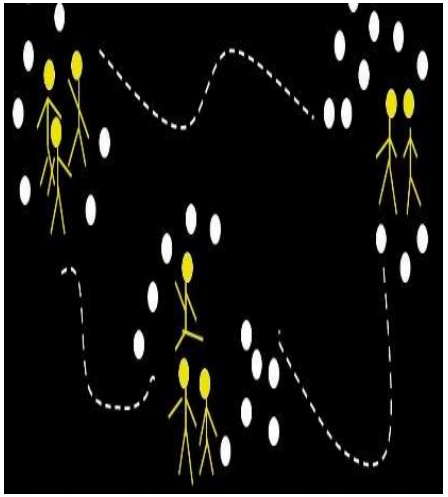

What are the advantages?

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What are the disadvantages?

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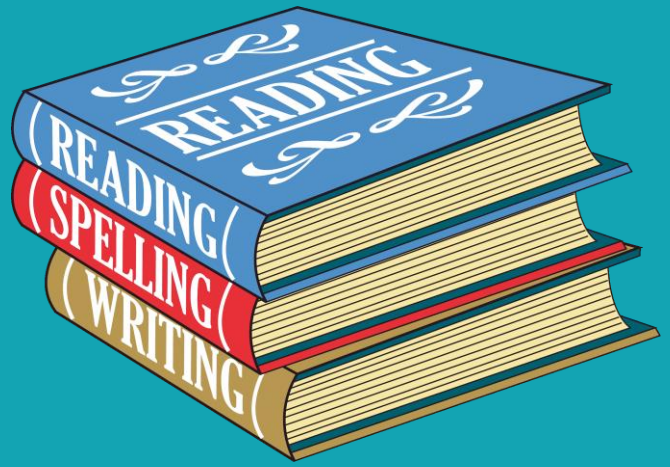
English



Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 English: 'A Christmas Carol' by Charles Dickens

Knowledge of Context

1. Charles Dickens wrote the novella in the **Victorian era**, where society believed that if you were poor it was because you were idle (lazy). This was a misconception.

2. Working class people actually worked very hard, for **long hours**, **little pay** and in **unsafe conditions**. They were exploited by Capitalist factory owners, who prioritised profit over their welfare. Children were also **exploited** as **child labourers.** As most middle and upper class business owners had the same attitudes, working class people were **trapped in poverty** with no opportunities to escape, through training or education.

3. The government has **Laissez Faire** attitudes towards poverty, meaning they knew it was a problem, but did not see it as their responsibility to fix it. It suited them to believe the poor did not deserve help, as **it justified their decision** to ignore them. **The Poor Law** (1834) introduced workhouses as a way to help poor people, but they were designed to humiliate and punish the poor.

4. Dickens alludes to the words of the economist **Thomas Malthus**, who claimed that war, famine and disease has positive impacts on the country's wealth, as it '**decreased the surplus population**'. By this he meant there would be fewer working class people requiring resources. He claimed that with a growing population, **poverty was inevitable** as there would never be enough resources to support everyone. Dickens disagreed. He argued there are enough resources – they just need to be **shared more fairly.**

5. Victorian Britain was a **God fearing society**. Dickens believed that many middle/upper class people were **hypocritical** as they ignored the **Christian values of generosity and charity**. He also used Scrooge's transformation to highlight that we are all capable of **redemption** if we accept our sins and vow to change.

Writing about Literature

P **Point**

Answer the question

E **Evidence**

Embed a quote, or pattern of quotes that juxtapose or reinforce each other

A **Analyse**

Explain the inferences behind the quote in detail using as/so/because/which

Z **Zoom**

Explain the connotations of a powerful word or technique has and the effect of this

E **Effect**

Explain what the writer's intention is/ what they are trying to teach the reader

L **Link to Context**

Explain how these ideas link to the real world

Characters

Ebenezer Scrooge
Miserly money lender

Bob Cratchit
Scrooge's poor clerk

Jacob Marley
Scrooge's deceased business partner

Fred Scrooge
Scrooge's nephew

Tiny Tim
Bob's disabled son

The Ghost of Christmas Past

The Ghost of Christmas Present

The Ghost of Christmas Yet to Come

Belle
Scrooge's ex fiancé

Fan
Scrooge's sister

Portly Gentlemen
Charity Collectors

Ignorance and Want
Symbolic children

Fezziwig
Scrooge's old boss

Year 10 English: 'A Christmas Carol' by Charles Dickens

Knowledge of Context

1. In what **era** was the novella written?

2. What **misconception** did people commonly believe about the poor?

3. What was life like for **working class** people in the Victorian era?

4. How did factory owners **exploit** their workers?

5. How were **children** exploited?

6. Why were working class people **trapped** in poverty?

7. What was the Victorian **government's attitude** to poverty?

8. Why did it suit the Victorian government to have this view?

9. What was the **Poor Law of 1834**?

10. Who was **Thomas Malthus**?

11. What were Malthus' views on poverty and **population growth**?

12. What did Malthus believe would have a positive effect on the economy (Britain's wealth)?

13. What were Dickens' views on Malthus?

14. Why did Dickens believe that the upper and middle class Christians were **hypocrites**?

15. What is **redemption**?

Writing about Literature

What does each part of PEAZEL ask you to do?

P **Point**

E **Evidence**

A **Analyse**

Z **Zoom**

E **Effect**

L **Link to Context**

Characters

Ebenezer Scrooge
Miserly money lender

Bob Cratchit
Scrooge's poor clerk

Jacob Marley
Scrooge's deceased business partner

Fred Scrooge
Scrooge's nephew

Tiny Tim
Bob's disabled son

The Ghost of Christmas Past

The Ghost of Christmas Present

The Ghost of Christmas Yet to Come

Belle
Scrooge's ex fiancé

Fan
Scrooge's sister

Portly Gentlemen
Charity Collectors

Ignorance and Want
Symbolic children

Fezziwig
Scrooge's old boss

Year 10 English: 'A Christmas Carol' by Charles Dickens

Key Quotations

"Secret and self contained and solitary as an oyster" Description of Scrooge Stave 1	*"If they had rather die they had better do it, and decrease the surplus population"* Scrooge, Stave 1	*"Are there no prisons? Are the (…) workhouses still in operation?"* Scrooge, Stave 1	*"Dismal little cell"* Description of Bob Cratchit's working conditions	*"The fog came pouring in through every chink and every keyhole"* Description of the weather, Stave 1
"I wear the chains I forged in life. I made them link by link and yard by yard" Marley, Stave 1	*"Mankind was my business!"* Marley, Stave 1	*"Would you so soon put out the light I give?"* Ghost of Christmas Past, Stave 2	*"A solitary child, neglected by his friends"* Description of Scrooge as a child, Stave 2	*"Yo ho my boys!"* Fezziwig, Stave 2
"Gain engrosses you" "Another idol has displaced me…a golden one" Belle, Stave 2	*"Bore a little crutch and his limbs were supported by an iron frame"* Description of Tiny Tim Stave 3	*"To Mr Scrooge! The founder of the feast!"* Bob Cratchit, Stave 3	*"Yellow, meagre, ragged, scowling, wolfish"* Description of Ignorance and Want, Stave 3	*"Reeked of crime and filth and misery"* Description of London slums
"Overrun by grass and weeds" Description of Scrooge's grave, Stave 4	*"Oh, tell me I may sponge away the writing on this stone!"* Scrooge Stave 4	*"No fog. No Mist. Clear, bright, jovial light. Sweet, fresh air"* Description of the weather, Stave 5	*"I'm as light as a feather, as happy and an angel, as merry as a schoolboy"* Scrooge, Stave 5	"God bless us. Everyone!" Tiny Tim, Stave 5

Year 10 English: 'A Christmas Carol' by Charles Dickens

Complete the key quotations below:

"Secret and… Description of Scrooge Stave 1	*"If they had rather…* Scrooge, Stave 1	*"Are there no…* Scrooge, Stave 1	*"Dismal…* Description of Bob Cratchit's working conditions	*"The fog …* Description of the weather, Stave 1
"I wear the… Marley, Stave 1	*"Mankind…* Marley, Stave 1	*"Would you so…* Ghost of Christmas Past, Stave 2	*"A solitary…* Description of Scrooge as a child, Stave 2	*"Yo ho…* Fezziwig, Stave 2
"Gain… Belle, Stave 2	*"Bore a little…* Description of Tiny Tim Stave 3	*"To Mr…* Bob Cratchit, Stave 3	*"Yellow…* Description of Ignorance and Want, Stave 3	*"Reeked of…* Description of London slums
"Overrun… Description of Scrooge's grave, Stave 4	*"Oh, tell me…* Scrooge Stave 4	*"No fog…* Description of the weather, Stave 5	*"I'm as light…* Scrooge, Stave 5	"God bless… Tiny Tim, Stave 5

Year 10 English: English Language Paper 1

Section A: Reading Section

Question 1

List four things you learn about…

- 4 marks
- 5 mins (as part of your reading time)

Find answers from the correct lines

Write in full sentences with the key word from the question

Two answers per line

Question 2

How does the writer use language to…?

- 8 marks
- 10-12 mins
- 3 x ZE paragraphs

Zoom

Pick a powerful word or language technique
+
Identify the connotations created

Effect

Explain in detail the meanings created the reader's response

(as/so/because/which)

Question 3

How does the writer structure the text to interest the reader?

- 8 marks
- 10-12 mins
- 2 PEA paragraphs
  - 1 PEA about the opening
  - 1 PEA about the ending

Point	What does the writer do/use to interest the reader? (choose from WATCH)
Evidence	Quote
Analyse	Explain how this makes the reader intrigued and curious

W – **Withholding Information** – What does the writer not tell us to make us curious?

A – **Atmosphere** – What atmosphere is created and why is this intriguing?

T – **Topics/Themes**– Which topics and themes do we focus on? Why does this hold our attention?

C – **Characters**– Why are we engaged by the character?

H – **Hints**– What do we expect to happen next? What is foreshadowed?

Question 4

How far do you agree of disagree (with the statement)?

- 20 marks
- 20 mins
- Split the statement

Complete 1 STEP METHOD paragraph on each part of the statement (2 in total).

Step A
State the part of the statement you are focusing on, whether you **agree or disagree** and why.

Step B
Embed a **quote** (or pattern of quotes) to prove that your judgement is accurate.

Step C
Analyse the **inferences** behind the quotes.
Explain what they prove about the statement.
As/so/because/which

Step D
Zoom in on 2+ methods or powerful words.
Identify connotations and explain the effects.
As/so/because/which

Step E
Summarise which you agree or disagree.

Start with the word, *Overall…*

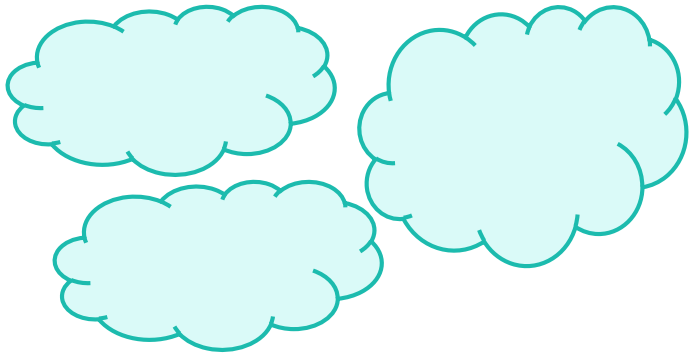
Year 10 English: English Language Paper 1

Section A: Reading Section

Question 1

List four _____

- 4 marks
- 5 mins (as part of your reading time)



Question 2

How does the writer use _____

- 8 marks
- 10-12 mins
- 3 x ZE paragraphs

Zoom	Effect

Question 3

How does the writer _____ _____ .

- 8 marks
- 10-12 mins
- 2 PEA paragraphs
  - 1 PEA about the opening
  - 1 PEA about the ending

Point	
Evidence	
Analyse	

W _____ – What does the writer not tell us to make us curious?

A _____ – What atmosphere is created and why is this intriguing?

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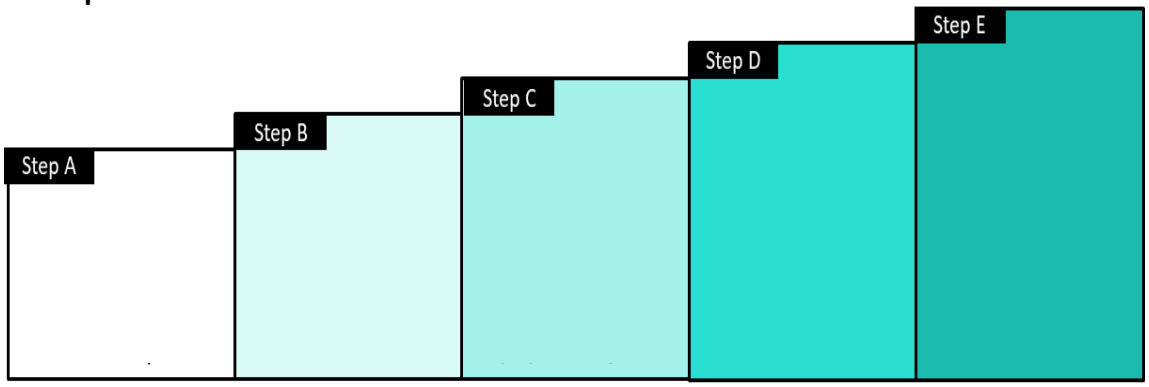

Year 10 English: English Language Paper 1

Section B: Writing Section

Question 5

Write a descriptive story.

Choose from…

- **A picture stimulus**
- **A written stimulus**
- **45 minutes**
- **40 marks**
  - **24 marks – Content and Organisation**
  - **16 marks – Technical Accuracy**

Technical Accuracy = Spelling, punctuation and grammar

Proof Read!

Content and Organisation = The way you craft and structure your piece

Paragraph structure:

1	Hook	A dramatic opening that withholds information
2	Description	Detailed description of setting and character
3	Flashback	Descriptions of past event and how it impacts the present
4	One Liner	Dramatic sentence
5	Climax	Detailed description of one major event
6	Cliff Hanger	Unanswered questions at the end. Link to the hook

Quality over Quantity

Varying sentence length
Use your sentence lengths to reflect the pace of the action in the **narrative**. Short sentences can show a faster pace and create drama and tension whereas longer sentences tend to slow it down.

… ( ) : ; ? ! -

Punctuation Marks

Capital Letters Start of every sentence. Proper nouns (names). Abbreviations.

Full Stops At the end of a statement or piece of information.

Question Marks At the end of a question

Brackets and Dashes Add extra information (subordinate clauses) much like commas.

Colon Before a colon is a full sentence. After colon is a list or explanation.

Semi Colon Links to full sentences that are linked by topic or idea

Exclamation Marks At the end of an emotional or exaggerated sentence

Apostrophes To show possession or missing letters in a contraction *(e.g. can't)*

Commas Separate items in a list or used to add extra information

Ellipsis Creates a dramatic pause

Show Don't Tell

Vary the way that you start sentences to keep your writing interesting and lively.

Start your sentence with a…	Example
Verb – an action word	**Running for her life,** Sarah shouted at the bus to stop.
Simile - comparing something to something else	**As quiet as a whisper,** he turned to me.
Preposition – indicates the position of someone or something	**Beyond** the gate, the road stretched far away.
Adverb – modifies or describes a verb, adjective or another adverb	**Cautiously,** he moved away from the lion.
Connective – joining word	**Despite** the sunshine, Mr Tucker was wearing a heavy coat.

Year 10 English: English Language Paper 1

Section B: Writing Section

Question 5

Write a _____.

Choose from…

- **A picture stimulus**
- **A written stimulus**
- **45 minutes**
- **40 marks**
  - **24 marks – Content and Organisation**
  - **16 marks – Technical Accuracy**

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Proof Read!

Paragraph structure:

1	Hook	
2	Description	
3	Flashback	
4	One Liner	
5	Climax	
6	Cliff Hanger	

Quality over Quantity

Why/when should we vary sentence length?

… ( ) : : ? ! -

Punctuation Marks

Capital Letters	Full Stops	Question Marks
Brackets and Dashes	Colon	Semi Colon
Exclamation Marks	Apostrophes	Commas
Ellipsis		

Show Don't Tell

Vary the way that you start sentences to keep your writing interesting and lively.

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_____ – joining word	**Despite** the sunshine, Mr Tucker was wearing a heavy coat.

Geography

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 Geography: Natural Hazards - Tectonic hazards

Key Vocabulary

1	**Earthquake**	A sudden or violent movement within the Earth's crust followed by a series of shocks
2	**Immediate responses**	The reaction of people as the disaster happens and in the immediate aftermath
3	**Long-term responses**	Later reactions that occur in the weeks, months and years after the event
4	**Monitoring**	Recording physical changes to help forecast when and where a natural hazard might strike
5	**Planning**	Actions taken to respond to, and recover from, natural disasters
6	**Prediction**	Attempts to forecast when and where a natural hazard will strike
7	**Primary effects**	The initial impact of a natural event on people and property
8	**Protection**	Actions taken before a hazard strikes to reduce its impact
9	**Secondary effects**	The after-effects that occur as indirect impacts of a natural event
10	**Subduction**	A process occurring at destructive plate margins where a heavier oceanic plate is forced under a continental plate
11	**Tectonic hazard**	A natural hazard caused by movement of tectonic plates

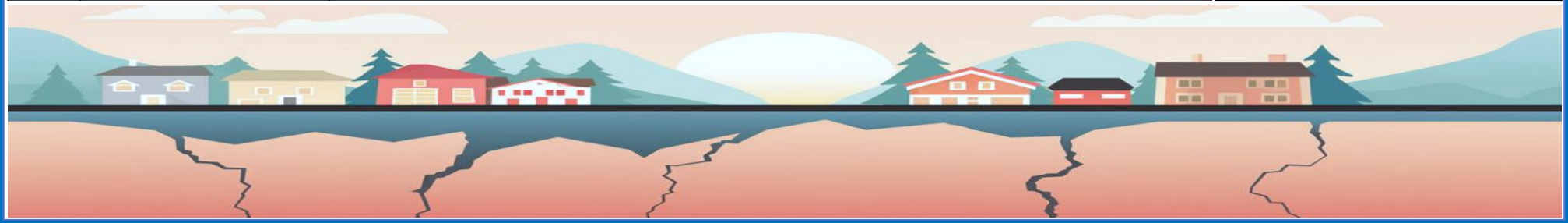
12. Plate Margins

Where plate edges meet a plate margin is formed:

- **Conservative**: plates move past each other
- **Destructive**: plates move towards each other and one is subducted
- **Constructive**: plates move away from each other

Plate Tectonic Theory

13	Inner core, outer core, mantle and crust
14	Crust pieces are called tectonic plates
15	Convection currents cause magma to move in circular movements
16	Convection currents cause tectonic plates to move



Year 10 Geography: Natural Hazards - Tectonic hazards

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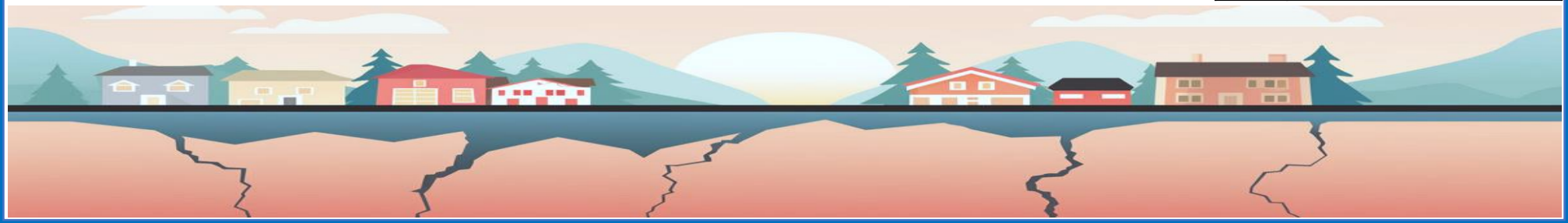
Plate Tectonic Theory

13	
14	
15	
16	



Year 10 Geography: Natural Hazards - Tectonic hazards

Contrasting earthquake case studies:

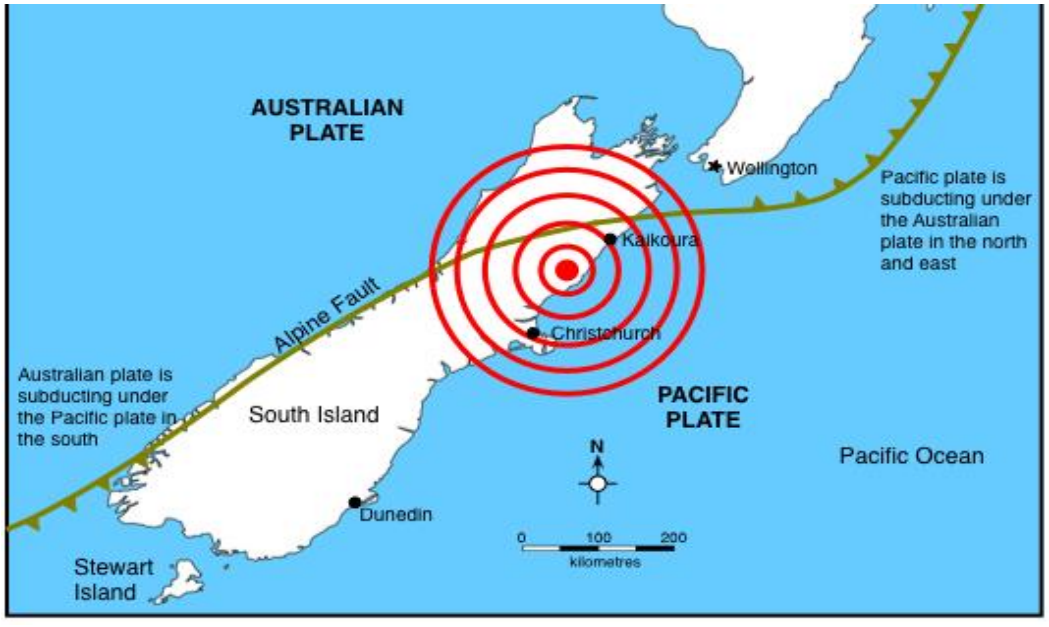
		Primary Effects		Secondary Effects		Immediate Response		Long-Term Response
Nepal 2015 (LIC)	**17**	• 9000 deaths • 7,000 schools destroyed • Water supplies cut off	**19**	• 3 million homeless • International airport congested	**21**	• UK and India sent search and Rescue • Half a million tents given	**23**	• Over 7000 schools re-built • Stricter controls on building quality
New Zealand 2016 (HIC)	**18**	• 5 deaths • 60 people needed emergency housing	**20**	• The earthquake triggered a tsunami 5m in height. • 100,000 landslides were triggered.	**22**	• A tsunami warning was issued • 100s of people were housed in emergency shelters	**24**	• Roads and railways were repaired and reopened within 2 years • Earthquake proof water pipes were installed.

Management of Tectonic Hazards:

25	**Planning**	Hazard maps showing areas at risk
26	**Prediction**	Measuring sulphur from volcano Seismometers measure vibrations
27	**Protection**	Earth embankments divert lava Earthquake resistant buildings

Living with Risk

28	Geothermal energy to power homes and industry
29	Dramatic scenery attracts tourists
30	Lava and ash deposits provide valuable nutrients for soil



Year 10 Geography: Natural Hazards - Tectonic hazards

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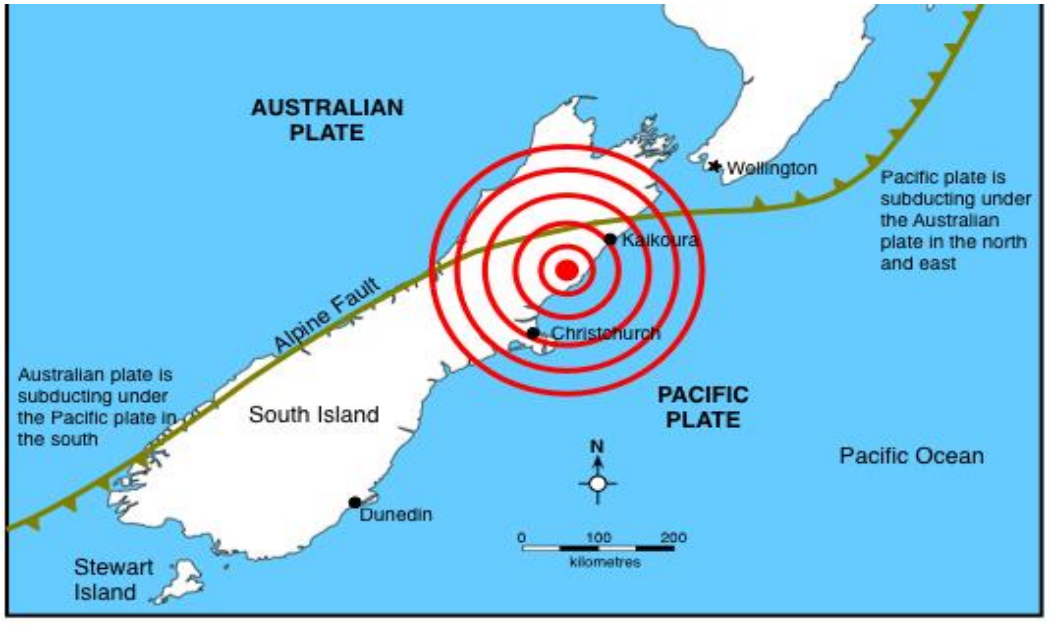
	Primary Effects		Secondary Effects		Immediate Response		Long-Term Response	
Nepal 2015 (LIC)	17		19		21		23	
New Zealand 2016 (HIC)	18		20		22		24	

Management of Tectonic Hazards:

25	Planning	
26	Prediction	
27	Protection	

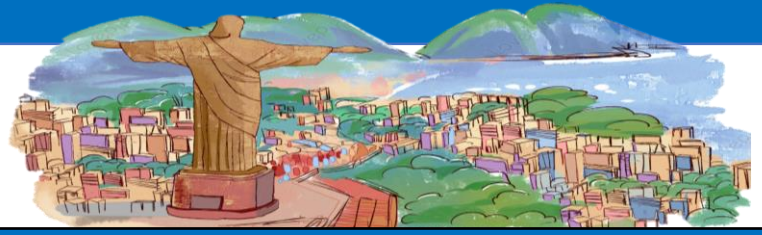
Living with Risk

28	
29	
30	



Year 10 Geography: Urban Issues and Challenges

Key Vocabulary		
1	**Economic opportunities**	Opportunities to improve standard of living
2	**Megacity**	A city over 10 million people
3	**Multiplier effect**	→ Factories are built → Jobs are provided in factories → Increase in taxes → Taxes reinvested in local infrastructure
4	**Sanitation**	Provision of clean water and disposal of sewage and waste
5	**Squatter settlement**	An area of illegal and informal housing that is poor quality
6	**Favela**	A squatter settlement in Brazil
7	**Urbanisation**	An increase in the proportion of people moving to urban areas
8	**Push factor**	Something that pushes someone away from an area (e.g. lack of access to water)
9	**Pull Factor**	Something that pulls people to an area (e.g. well-paid jobs)

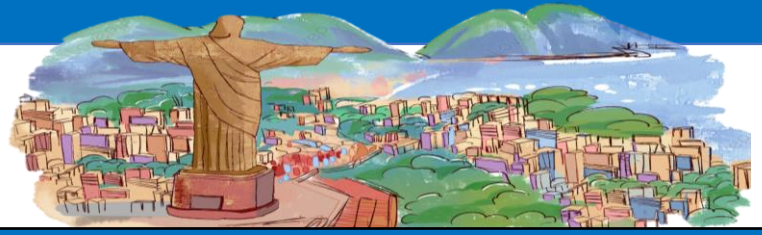


The world is becoming more urban		
10	**Causes**	• Natural increase • Migration → rural to urban • Pull factors → Employment,
11	**Trends**	Urban area populations in 2020: HIC's: 1 billion LIC's: 3.7 billion

Rio de Janeiro - Location and growth:		
12	**Location**	**Continent**: South America **Oceans**: Atlantic Ocean to east **Countries**: Brazil, Paraguay
13	**Growth**	• International migrants • National migration • Natural increase

Rio de Janeiro: Importance of the city		
14	**Local**	• Tourism • Diverse population
15	**Regional**	• The former capital • Major port
16	**Global**	• Exporter of coffee and sugar • 2012 Olympics and 2014 FIFA World Cup

Year 10 Geography: Urban Issues and Challenges



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The world is becoming more urban		
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Rio de Janeiro - Location and growth:		
12	Location	
13	Growth	

Rio de Janeiro: Importance of the city		
14	Local	
15	Regional	
16	Global	

Year 10 Geography: Urban Issues and Challenges

Opportunities from urban growth in Rio:

17	**Social**	• 105 hospitals • 1000 primary schools, 400 • secondary schools • 95% have access to mains water supply • 99% have access to the power grid
18	**Economic**	Employment at the port, industrial sites and manufacturing.

Improving quality of life:

19	**Problems in the favelas**	• Houses built on steep hillsides • High crime rates • Poor sanitation
20	**Favela Bairro Project**	• Removal of hillside houses • Pacifying Police Unit • Weekly waste collections
21	**Problems with the Favela Bairro Project**	• Overpopulation • Pacifying Police Unit is corrupt • $1billion budget is not enough

Challenges	Solutions
Squatter settlements	Favela Bairro Project
Poor access to healthcare	Home visits with health kits
Poor attendance in education	'School grants'
Poor access to clean water	7 new water treatment plants
Unreliable electricity	60km of new power lines
Air pollution	Toll roads and metro system
Water pollution from industry	12 new sewage works

Year 10 Geography: Urban Issues and Challenges

Opportunities from urban growth in Rio:

17	**Social**	
18	**Economic**	

Improving quality of life:

19	**Problems in the favelas**	
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21	**Problems with the Favela Bairro Project**	

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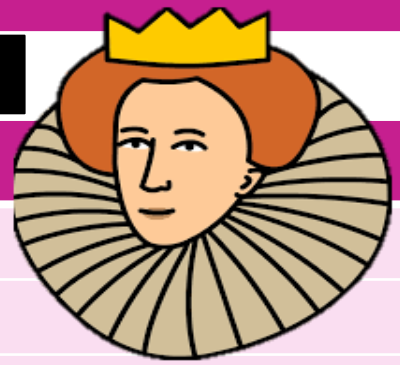
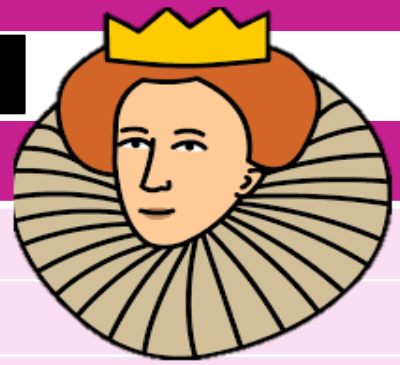
History

Year 10 History: Elizabethan England



Topic		Question	Answer
Elizabeth and her Government	1	Which Dynasty ruled in this period?	Tudor
	2	Who were seen to be England's main rivals?	Spain, France (the papacy?)
	3	How had Henry VIII caused a rivalry with the Papacy?	Broken with the Catholic Church/Papacy to divorce first wife. Set up Protestant Church of England.
	4	Which of Elizabeth's siblings had reigned before her?	Edward. Mary.
	5	Why was Elizabeth seen by some as an 'unrightful heir?'	She was born to Henry's second wife Anne Boleyn whilst he was still married.
	6	Who was Elizabeth's Catholic cousin who some claimed had a stronger claim to the throne?	Mary Queen of Scots.
	7	Why did Elizabeth grow up as an independent, strong character?	Her mother was executed by her father. She was sent away from Court. Well educated.
	8	Why did Elizabeth grow up to be cautious and brave?	She was accused of treason by her brother and sister.
	9	Why does Elizabeth keep Mary Queen of Scots under house arrest when she arrives in England?	Because she is a potential catholic threat to Elizabeth's crown
	10	What was the royal court?	Made up of 500 nobles advisors and servants who revolve around the Queen. Wherever she went, the court followed. It was the centre of political power.
	11	Who were the most influential part of Elizabeth's court?	The Privy Council
	12	Name three members of Elizabeth's Privy Council	Francis Walsingham, William Cecil, Robert Dudley

Year 10 History: Elizabethan England



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	10	What was the royal court?	
	11	Who were the most influential part of Elizabeth's court?	
	12	Name three members of Elizabeth's Privy Council	

Year 10 History: Elizabethan England

Topic		Question	Answer
Elizabeth and her Government	13	How did Elizabeth use patronage?	She would hand out jobs and titles to encourage loyalty
	14	What was a royal progress?	Elizabeth would tour the country, visiting loyal subjects and keeping an eye on others.
	15	What was Elizabeth's thinking behind divide and rule?	She would put rivals on the privy council to encourage them to compete & work harder. At least one would support her.
	16	Why was Elizabeth put under pressure to marry?	Produce an heir, stop Mary QoS becoming Queen, form a powerful alliance
	17	Name 2 of Elizabeth's suitors	King Phillip of Spain, Robert Dudley, Francis, Duke of Anjou
	18	Why did Elizabeth refuse to marry?	Loss of authority to a man, giving birth was risky, past experiences of family and marriage had been bad, being single could be used to her advantage.
	19	What did Elizabeth use parliament for?	Raising taxes, making laws.
	20	How did Elizabeth manage parliament?	She issued statements about authority, arrested MPs who went too far, dismissed parliament when she wished.
	21	What issues did Elizabeth and parliament conflict over	Religion, freedom of speech, marriage & succession, monopolies.
	22	How did the Earl of Essex initially upset Elizabeth?	They argued during a meeting, she hit him & he nearly drew his sword.

Year 10 History: Elizabethan England

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	20	How did Elizabeth manage parliament?	
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	22	How did the Earl of Essex initially upset Elizabeth?	

Year 10 History: Elizabethan England

Topic		Question	Answer
Elizabeth and her Government	23	How did Essex make things worse regarding Ireland?	He made peace without permission, returned home without permission & entered Elizabeth's chambers & caught her undressed.
	24	How did Essex rebel?	Took 4 privy councillors hostage, marched to London with 200 supporters
	25	How was the Essex rebellion stopped?	Essex was labelled a traitor and most of his followers fled.
	26	What were the consequences of the Essex rebellion?	Essex was executed, most of his supporters were fined, Elizabeth showed she wouldn't tolerate challenges to her authority.
Life in Elizabethan Times	27	Name two Elizabethan sailors	Walter Raleigh, Francis Drake, John Hawkins
	28	What made exploration possible?	Better defences to explore hostile territory, better navigation e.g. the astrolabe, better ships that were faster
	29	What was the impact of Elizabethan voyages?	England became involved in the slave trade, England became wealthier after raiding Spanish ships & ports as well as trade in the East, England's naval power grew, England's colonies began to grow e.g. North America.
	30	Who were the gentry?	A new social class, often wealthy landowners with important positions. Richer than peasants, but not born with titles.
	31	How did homes change in the Great rebuilding?	They showed off wealth & taste rather than defence. They used lots of expensive glass. They used symmetry and replaced halls with a great chamber. They would be built with the intention of attracting the queen to visit.

Year 10 History: Elizabethan England

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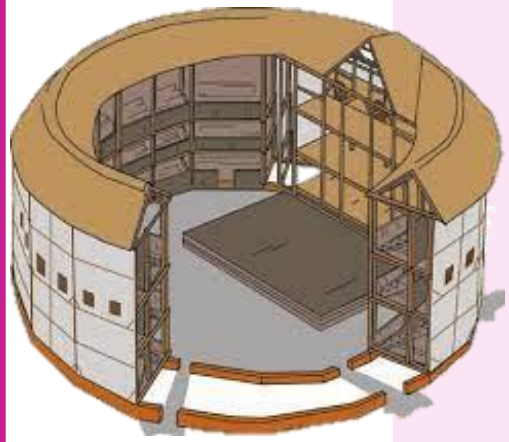
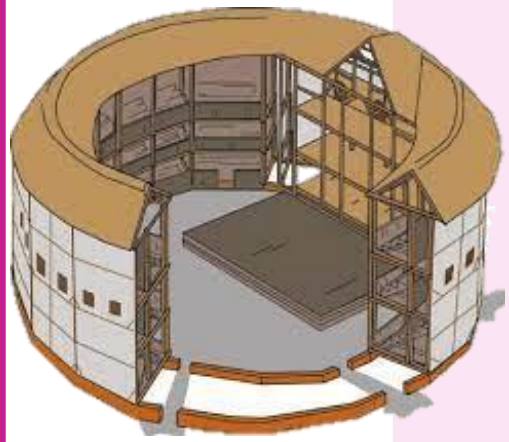
Year 10 History: Elizabethan England



Topic		Question	Answer
Life in Elizabethan Times	32	**Who were the Lord Chamberlain's men?**	A theatre troupe or company who were funded by a patron.
	33	**Why would people fund a theatre troupe?**	To impress the Queen, who loved theatre.
	34	**Describe an Elizabethan theatre such as the Globe**	The pit is where ordinary people stood in the open weather, the galleries had covered seats for the rich, the Lord's rooms were most expensive and sat behind the stage for all to see. Ticket price depended on where you were and an opportunity to show how rich you were
	35	**Why was theatre so popular?**	It was affordable, new & exciting, carried political messages, entertaining.
	36	**Why did some oppose theatre?**	Large gatherings could spread disease, Puritans saw it as sinful and a distraction from prayer, theatres were dangerous with drunkenness and crime.
	37	**Why was poverty an problem in Elizabethan England?**	Henry VIII had closed monasteries responsible for helping the poor. Bad harvests led to increases in food prices. Population increases led to rent increases. A flu outbreak killed 200,000 people.
	38	**Who were the undeserving poor?**	Untrustworthy beggars who weren't interested in working e.g. Counterfeit cranks, clapper dudgeons, Tom O' Bedlams.
	39	**How did people try to deal with poverty initially?**	Stocks, whippings, holes burnt in ears, hangings.
	40	**What did the poor Law do?**	Taxed the wealthy to pay for the care of the poor. Fit & healthy paupers given work. Those who refused whipped or sent to house of correction.

Year 10 History:
Elizabethan England



Topic		Question	Answer
Life in Elizabethan Times	32	Who were the Lord Chamberlain's men?	
	33	Why would people fund a theatre troupe?	
	34	Describe an Elizabethan theatre such as the Globe	
	35	Why was theatre so popular?	
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	37	Why was poverty an problem in Elizabethan England?	
	38	Who were the undeserving poor?	
	39	How did people try to deal with poverty initially?	
	40	What did the poor Law do?	

Year 10 History: Elizabethan England

Topic		Question	Answer
Trouble at Home and Abroad	41	Who were the Puritans?	Extreme protestants, unwilling to compromise their faith.
	42	Who were the Jesuits?	Missionaries sent to England to help restore Catholicism.
	43	How did Elizabeth demonstrate her 'Middle way'?	The Act of supremacy, which made her Governor, rather than head of the church. The Act of uniformity, which created an English prayer book, allowed Catholics to worship in private, allowed candles and colourful robes, made attendance at Anglican churches compulsory.
	44	What was the Northern rebellion?	Plan to kill Elizabeth & marry Duke of Norfolk to Mary QoS. Earls of Westmoreland & Northumberland took control of Durham Cathedral & had a catholic mass. Marched south with 4600 men, but fled. Northumberland executed.
	45	What was the Papal bull?	Message from the Pope excommunicating the Queen, encouraging rebellion.
	46	Describe two catholic plots to kill Elizabeth and replace her with Mary QoS	Ridolfi plot (Marry Mary QoS to Norfolk, Catholics to invade). Throckmorton plot (Kill Elizabeth, replace with Mary QoS. French invade). Babington plot (Kill Elizabeth, replace with Mary QoS. Mary agrees)
	47	What was the impact of Mary QoS's execution?	Catholics lose their alternative monarch. Mary became a martyr. Outrage was caused in France and Spain.
	48	What led to conflict with Spain?	Elizabeth turned Phillip down, Spain saw it as their duty to return Catholicism to England. Spain was keen to follow the Papal Bull. English sailors had raided Spanish ships & ports with license from Elizabeth.
	49	How did the Spanish plan to invade England?	Sail 151 ships, 7000 sailors and 34,000 soldiers to the Netherlands & collect more men. Sail in a crescent formation. Invade England with support from English Catholics.

Year 10 History: Elizabethan England

Topic	Question		Answer
Trouble at Home and Abroad	41	Who were the Puritans?	
	42	Who were the Jesuits?	
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	48	What led to conflict with Spain?	
	49	How did the Spanish plan to invade England?	

Life Chances

Helping every person achieve things they never thought they could.

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be kind | work hard | take responsibility

Year 10 Life Chances: CEIAG (careers)

Technology is one of the biggest **influences** on the changing opportunities in the world of work.

- **Artificial intelligence (AI)** is the development of machines that can mimic human behaviours such as learning, reasoning and self-correction.
- **Robots** can help humans do physical tasks. Not all robots are physical robots. Robotic process automation (RPA) is software that can be configured to do specific tasks that humans do on computers.
- **Automation** are tasks done by machines instead of humans to increase efficiency and reduce mistakes.

800,000 jobs have been lost but nearly **3.5 million new ones have been created** due to technology.

Technology has boosted employment in knowledge-intensive sectors such as **medicine**, **accounting** and **professional services**.

Career or Job?

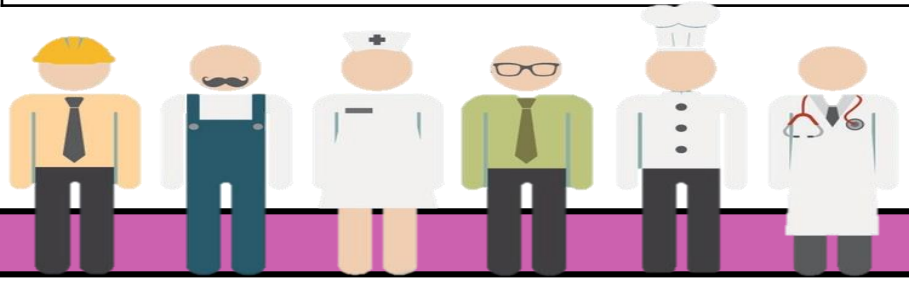
What is a job?

Your job is the role you have at your place of work. **Firefighter, airline pilot, teacher, politician** – these are all jobs.
In a nutshell, a job is about the here and now.

A job can be something you do just to earn money. But it can also be part of something much bigger. This is called a "career".

What is a career?

A career is about more than just earning a wage. It is to do with your long-term **aims** and **ambitions**, and what you want to achieve in your life. In a career, each job you have helps you achieve this goal.
This is called your career path.



Your Journey Through Education…

Institution	Age	Year Group	Qualification	Level	Status
Primary School	4-11 years	Reception – Year 6	SATs (In year 6)	N/A	Compulsory
Secondary School	11-16 years	Year 7 – Year 11	GCSEs (taken in year 11)	Level 2	Compulsory
Further Education (College/Sixth Form)	16+	Year 12 – Year 13	A Levels / T Levels / BTECs / Apprenticeships	Level 3	Compulsory
Higher Education (University/College)	18+	Undergraduate	Degree / Foundation degree / Degree apprenticeships	Level 4 - 6	Optional

Year 10 Life Chances: CEIAG (careers)

Technology is one of the biggest **influences** on the changing opportunities in the world of work.

- **Artificial intelligence (AI)** is…
- **Robots** can…
- **Automation** are..

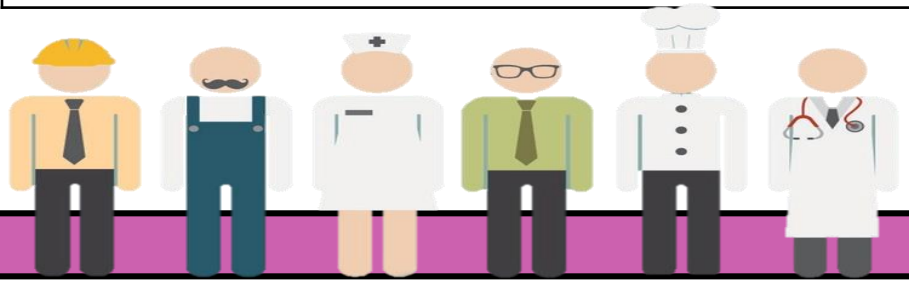
800,000 jobs have been lost but nearly _____ due to technology.

Technology has boosted employment in knowledge-intensive sectors such as _____ , _____ and _____.

Career or Job?

What is a job?

What is a career?



Your Journey Through Education…

Institution	Age	Year Group	Qualification	Level	Status
	4-11 years	Reception – Year 6		N/A	
	11-16 years	Year 7 – Year 11		Level 2	
	16+	Year 12 – Year 13		Level 3	
	18+	Undergraduate		Level 4 - 6	

Year 10 Life Chances: CEIAG (careers)

Understanding what university life is like

Level 4	• 1st Year Honours Degree • Certificate of Higher Education	• BTEC Professional Qualifications • Foundation Degree Year 1 • HNCs	• 1st Year Degree Apprenticeship • Higher Apprenticeship • NVQ Level 4
Level 3	• A and AS Levels • International Baccalaureate • Open University Access Modules	• T Levels • Vocational Level 3	• Advanced Apprenticeship • NVQ Level 3
Level 2	• GCSE Grades 4-9 • Maths /English/ Functional Skills Course	• Transitional Year (to get ready for T Levels) • Vocational Qualifications (BTEC etc.)	• Intermediate Apprenticeship • NVQ Level 2

How do students learn at university?

Lectures

University students are taught in lectures. A lecture is a formal educational talk given by a subject specialist to a group of students who listen and take notes. Lectures can be attended by hundreds of students at once.

Seminars

A seminar is another form of teaching at university. Small groups give presentations and hold discussions, often based around the lectures they have attended. It is a more informal way of teaching and acts as an opportunity for students to share their ideas.

Independent Study

There are many different types of teaching methods used in universities, lectures and seminars are just the most common. You will also be expected to do a lot of independent study during your degree.

Year 10 Life Chances: CEIAG (careers)

Understanding what university life is like

Level 4	• - • -	• - • - • -	• - • - • -
Level 3	• - • - • -	• - • -	• - • -
Level 2	• - • -	• - • -	• - • -

How do students learn at university?

What are lectures?

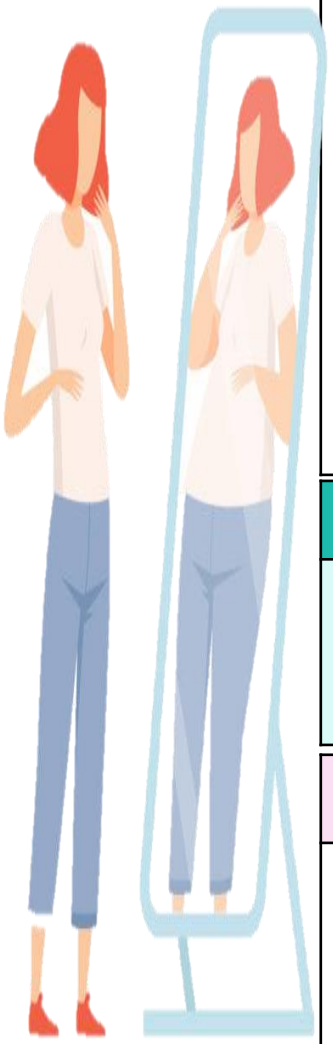
What are seminars?

What is independent study?

Year 10 Life Chances: Wellbeing

Useful Emotional Wellbeing Strategies

- Relaxation techniques, e.g. mindfulness and deep breathing
- Following interests and hobbies that provide an enjoyable distraction
- Getting plenty of good quality sleep
- Keeping active, e.g. running, swimming, walking, playing sport
- Spending time with friends and family
- Doing dedicated exercises intended to promote relaxation, e.g. yoga
- Getting outside into nature
- Online mindfulness, stress and anxiety apps
- Asking for support from teachers, family, friends, online support when things get a bit much.



Unhealthy Coping Strategies

- Sharing emotional and personal details on social media
- Working excessively on school work to cope with anxiety about studies
- Regularly over-exercising to the point of collapse
- Following a restrictive eating plan that involves eating less food than the body needs to maintain a healthy lifestyle
- Using energy drinks to boost energy levels and to enhance mood.
- Smoking to calm the nerves.

What is body image?

Body image is the way we think and feel about the size, shape, weight and overall appearance of our bodies.

The dangers from cosmetic surgery

Blood loss	Infection
Depression	Scarring
Financial pressures	Nerve damage
Body dysmorphia	Disappointment

Year 10 Life Chances: Wellbeing

Useful Emotional Wellbeing Strategies

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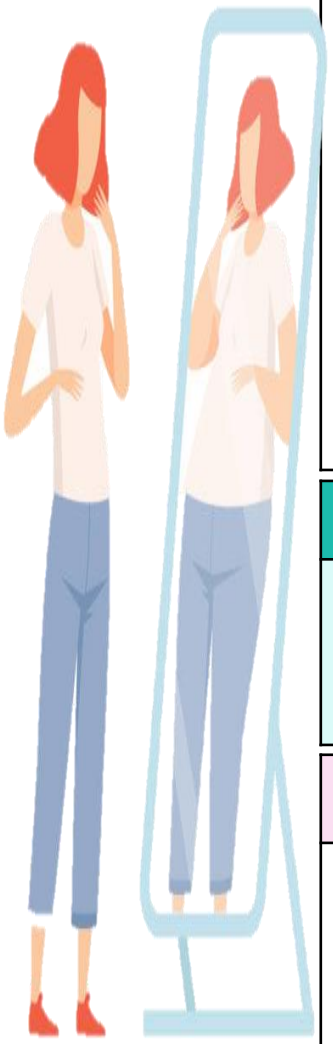

Unhealthy Coping Strategies

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What is body image?

The dangers from cosmetic surgery

Year 10 Life Chances: Wellbeing

Understanding the laws surrounding drugs.

Possession means that an individual is caught with a controlled drug for personal use. The person does not have to be using it, just to have it in their possession.

Possession with intent to supply means that a person is planning to give controlled drugs to someone else. This includes selling, sharing or giving for free.

Supply means that a person distributes or gives someone else controlled drugs. This can be selling, giving for a reward of some form, sharing or giving for free.

Drug	Effect 1	Effect 2
Depressants (E.G. Alcohol or solvents)	Initial feeling of pleasure or confidence before risk of losing consciousness at higher doses.	Lowers cognitive abilities, slows reactions and risks blackouts.
Stimulants (E.g. MDMA or cocaine)	Increased energy, pleasure, dilated pupils and increased confidence.	People can experience a clenched jaw and/or racing heart which increases the risk of a heart attack.
Hallucinogens (E.g. Magic mushrooms or LSD)	Altered perception or hallucinations.	Anxiety and panic, impaired decision making.
Dissociatives (E.g. Ketamine or nitrous oxide)	Disconnected from body, floaty or feeling numb.	Unable to move or protect self. Unpleasant feeling of being detached from own body.
Opioids (E.g. Heroin)	Pleasure, a sense of wellbeing and pain-relief.	Sleepiness and loss of consciousness. Risk of injury whilst feeling less pain.
Steroids (E.g. Anabolic steroids)	Over repeated doses, increased muscle mass and quicker recovery from exercise.	Linked to paranoia and aggressive behaviours.
Cannabinoids (E.g. Cannabis)	Feeling ‘chilled out’ or giggly.	Linked to paranoia and mood swings, also increased loss of memory.

Year 10 Life Chances: Wellbeing

Understanding the laws surrounding drugs.

Possession means…

Possession with intent to supply means…

Supply means…

Drug	Effect 1	Effect 2
Depressants (E.G. Alcohol or solvents)		
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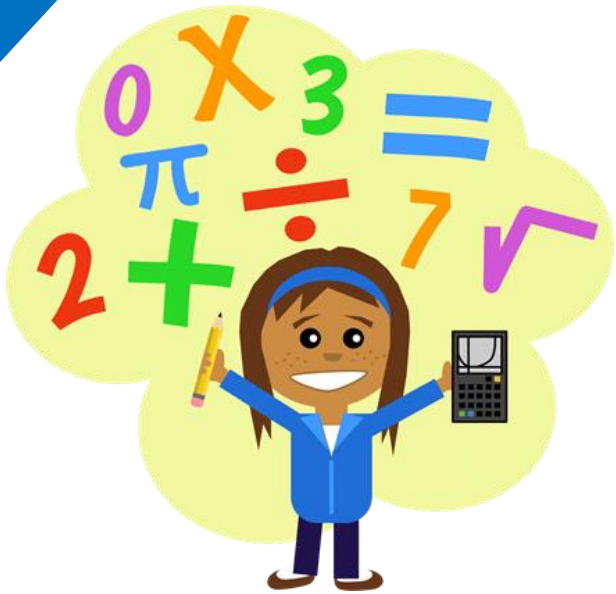
Maths



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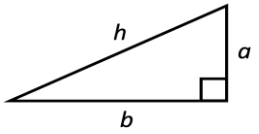
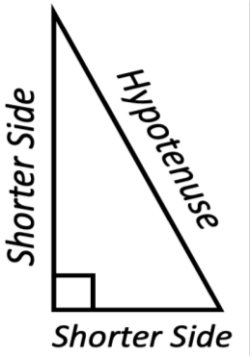
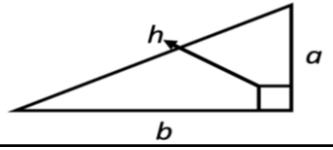
Year 10 Maths:

Key Vocabulary

1	**Pythagoras's Theorem**	• A relationship between the squares of the sides of a right angled triangle, written as the formula $a^2 + b^2 = h^2$	
2	**Right-Angled Triangle**	• Any triangle where one of its interior angles is 90°	
3	**Hypotenuse**	• The longest side of a right-angled triangle • Opposite the right angle	
4	**Shorter Sides**	• The remaining sides of the right-angled triangle that are not the hypotenuse	
5	**Labelling**	• Identifying the hypotenuse and the short sides • a and b are the shorter sides • h is always the hypotenuse	
6	**Squared**	• Multiplying a number by itself	4 squared $= 4^2 = 4 \times 4 = 16$ 8 squared $= 8^2 = 8 \times 8 = 64$
7	**Square Root**	• The number that has been multiplied by itself to make a square number	Square root of 36 $= \sqrt{36} = \sqrt{6 \times 6} = 6$
8	**Rearranging Formula**	• Changing the subject of a formula so that it equals a different part of a formula	$a^2 + b^2 = h^2$ can be rearranged to $a^2 = h^2 - b^2$ OR $b^2 = h^2 - a^2$
9	**Substitution**	• Replacing a letter with a number in a formula	$a = 3, b = 4$ $3^2 + 4^2 = h^2$

Key Facts

10	**Rounding to decimal places:** • Identify how many numbers after the decimal point and use the next number to round up or down. • E.g. 5.246 to 2 decimal places = 5.26
11	**Rounding to significant figures:** • Identify how many non zero digits are required then round up or down to make all the other numbers zero. • E.g. 236.543 to 2 significant figures = 240
12	**Pythagoras' Theorem** to find the hypotenuse length: • $a^2 + b^2 = h^2$
13	**To calculate the length of a short side:** • $h^2 - b^2 = a^2$, or • $h^2 - a^2 = b^2$
14	**Pythagorean Triples** are where a, b and h are all positive integers: • 3, 4, 5 where $3^2 + 4^2 = 5^2$ • 7, 24, 25 where $7^2 + 24^2 = 25^2$

Key Formula

Pythagoras' Theorem	$a^2 + b^2 = h^2$

Year 10 Maths:

Key Vocabulary

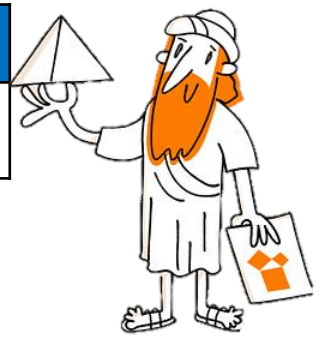
1	What is **Pythagoras's Theorem?**	
2	Define a **right-angled triangle**	
3	Which side of a right angled triangle is the **hypotenuse?**	
4	Which sides of a right angled triangle are **short sides?**	
5	How do you **label** a right angled triangle to be able to use Pythagoras' Theorem	
6	What does it mean to **square** a number?	
7	What does **square root** mean?	
8	Explain **rearranging a formula.**	
9	What does **substitution** mean?	

Key Facts

10	**What do you know about rounding to decimal places?**
11	**What is meant by rounding to significant figures?**
12	**State the formula for calculating the long side of a right angled triangle.**
13	**State the formula for calculating a short side of a right angled triangle that is labeled b.**
14	**Describe where a line of symmetry would on an isosceles triangle.**

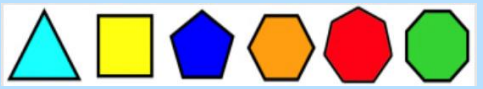
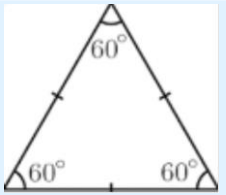
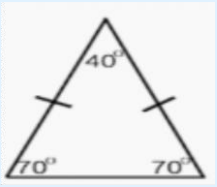
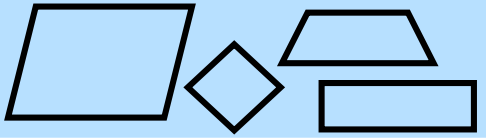
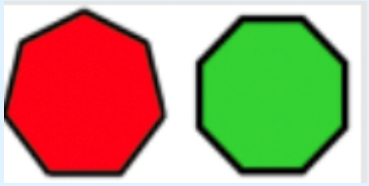
Key Formula

Pythagoras' Theorem	



Year 10 Maths:

Key Vocabulary

15	**Vertically Opposite Angles**	• Formed when two straight lines intersect • The four angles add up to 360°	
16	**Polygons**	• A 2D shape with straight sides	
17	**Interior angle**	• An angle between one side of a polygon and the adjacent side	
18	**Exterior angle**	• An angle between the extended side of a polygon and the adjacent side	
19	**Triangles**	• 3 sided polygon • Equilateral triangle has 3 equal sides and 3 equal angles (all 60°) • Isosceles triangles has 2 equal sides and 2 equal angles	 
20	**Quadrilateral**	• 4 sided polygon • For example: Square, Rectangle, Rhombus, Parallelogram, Kite, Trapezium and Arrow Head	
21	**Pentagon**	• 5 sided polygon	
22	**Hexagon**	• 6 sided polygon	
23	**Heptagon**	• 7 sided polygon	
24	**Octagon**	• 8 sided polygon	

Key Facts

25	A regular polygon has lines of symmetry equal to its number of sides
26	Vertically opposite angles are equal
27	Angles on straight line about a point add to 180°
28	Angles around a point add up to 360°
29	Interior angle + Exterior angle = 180°
30	Sum of Interior Angles in any triangle add up to 180°
31	Sum of Interior Angles in any quadrilateral add up to 360°
32	Sum of Exterior Angles in any polygon equals 360°

Year 10 Maths:

Key Vocabulary

15	What do you know about **vertically opposite angles?**
16	Name the **polygons** with the following numbers of sides **4 sided** **9 sided** **10 sided**
17	What is an **interior angle?**
18	On a polygon where is its **exterior angle?**
19	Define an **equilateral triangle** and an **isosceles triangle.**
20	Name as many **quadrilaterals** as you can.
21	Name the **polygon with 5 sides.**
22	Name the **polygon with 6 sides.**
23	**Name the polygon with 7 sides.**
24	Name the **polygon with 8 sides.**

Key Facts

25	A regular 6 sided polygon, has how many lines of symmetry?
26	What can you say about vertically opposite angles?
27	What do angles on a straight line about a point sum to?
28	What do angles around a point sum to?
29	An interior angle added to an exterior angle is straight line – why?
30	What do the interior angles of a triangle sum to?
31	What do the interior angles of a quadrilateral sum to?
32	What do the exterior angles of any polygon sum to?

Year 10 Maths:

Key Vocabulary

33	**Algebraic Expressions**	• An expression consists of variables, numbers and operations	$4x + 5y$ $2a$ $y^2 - 5y$
34	**Variable**	• A letter/symbol that stands for an unknown value	x y
35	**Term**	• Terms make up algebraic expressions • A term can be a number, variable or combination of both	x $5y$ ab 8
36	**Indices**	• How many times something has been multiplied by itself • Also called a power	y to the power of 5 means: $y^5 = y \times y \times y \times y \times y$
37	**Substitute**	• Swapping the variable for a number	Evaluate $2a + 5b$ when: $a = 4, b = 3$ $2 \times 4 + 5 \times 3 = 8 + 15 = 23$
38	**Simplifying**	• Adding, subtracting, multiplying and dividing terms	$2 \times 4a = 8a$ $4b + 3b = 7b$
39	**Like Terms**	• Like terms share the same letters and powers	x and $2x^2$ are like terms $4a$ and $5b$ are not like terms $4y$ and $4y^2$ are not like terms
40	**Expand**	• Multiplying out the brackets	$2(x + 3) = 2x + 6$ $a(a + b) = a^2 + ab$
41	**Factorise**	• Putting an expression back into brackets • The inverse of expanding	$10x + 15y = 5(2x + 3y)$

Key Facts

42	Simplify $4x + 6x$	$10x$
43	Simplify $4x + 3y - 6x + 7y$ *Collect like term*	$4x + 3y - 6x + 7y$ $= -2x + 10y$
44	Simplify $2 \times 3c$	$6c$
45	What does w^4 mean?	$w \times w \times w \times w$
46	Substitute $a = 4$ into $3a + 7$	Swap a for 4 $3 \times 4 + 7 = 12 + 7 = 19$
47	Expand $y(y + 2)$	$y \times y = y^2$ and $2 \times y = 2y$ $y(y + 2) = y^2 + 2y$
48	Expand and simplify $3(2x - 5) + 4(x + 1)$	$6x - 15 + 4x + 4$ $= 10x - 11$
49	Factorise $12y + 20$	HCF of 12 and 20 = 4 $12y + 20 = 4(3y + 5)$
50	Expand and simplify $(x + 7)(x - 3)$	<table><tr><td>×</td><td>x</td><td>$+7$</td></tr><tr><td>x</td><td>x^2</td><td>$+7x$</td></tr><tr><td>-3</td><td>$-3x$</td><td>-12</td></tr></table> $x^2 + 7x - 3x - 12$ $x^2 + 4x - 12$
51	Factorise $x^2 + 7x + 6$	$a = 1, b = 7, c = 6$ $ac = 6$ Factors of 6: 1, 2, 3, 6 $1 + 6 = 7$ $(x + 1)(x + 6)$

Year 10 Maths:

Key Vocabulary

33	What is an **algebraic expression**?	
34	What is a **variable** in algebra?	
35	Give an example of a **term** in algebra.	
36	What is an **index** (**indices** plural)?	
37	How do you **substitute** into expressions?	
38	What does **simplify** mean in algebra?	
39	What are **like terms**?	
40	Give an example of how to **expand** a single bracket.	
41	What does **factorise** mean?	

Key Facts

42	Explain how you would simplify $2x + 4x$
43	How would you collect like terms to simplify $2x + 8y + 3x - 2y$
44	Simplify $3 \times 2c$
45	How else could you write $w \times w \times w \times w$?
46	Explain what substitution means in algebra.
47	Explain how you would expand the bracket $x(x - 4)$.
48	Explain how you would expand and simplify $3(2x - 4) + 4(3x + 2)$.
49	What does factorise fully mean in algebra?
50	Explain how you would expand and simplify $(x + 5)(x - 4)$.
51	What is the method for factorising quadratic expressions such as $x^2 + 7x + 12$

Modern Foreign Languages

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Year 10 French: Recap

To have… (Verb)	
Avoir	To have
J'ai	I have…
Tu as	You have…
Il a	He has…
Elle a	She has…
On a	One has (We have)
Nous avons	We have…
Vous avez	You have (formal/plural)
Ils ont	They have… (Masculine/mixed)
Elles ont	They have… (feminine)

To live… (Verb)	
Habiter	To live
J'habite	I live…
Tu habites	You live…
Il habite	He lives…
Elle habite	She lives…
On habite	One lives (We live)
Nous habitons	We live…

To be… (Verb)	
Être	To be
Je suis	I am…
Tu es	You are…
Il est	He is…
Elle est	She is…
On est	One is (We are)
Nous sommes	We are…
Vous êtes	You are… (formal/plural)
Ils sont	They are… (Masculine/mixed)
Elles sont	They are… (feminine)

Year 10 French: Recap

To have… (Verb) Complete below:	
	To have
	I have…
	You have…
	He has…
	She has…
	One has (We have)
	We have…
	You have (formal/plural)
	They have… (Masculine/mixed)
	They have… (feminine)

To live… (Verb) Complete below:	
	To live
	I live…
	You live…
	He lives…
	She lives…
	One lives (We live)
	We live…

To be… (Verb) Complete below:	
	To be
	I am…
	You are…
	He is…
	She is…
	One is (We are)
	We are…
	You are… (formal/plural)
	They are… (Masculine/mixed)
	They are… (feminine)

Year 10 French:

Grammar Explanation

Immediate Future Tense

To use the immediate future tense, take the appropriate form of the verb **aller** (to go) and add the infinitive verb.

For example:

Je vais + manger = **je vais manger**
= I am going to eat.
Nous allons + **voyager** = **nous allons voyager**
= we are going to travel.

Below are some high frequency infinitives for you to practise with:

Aller = to go

Jouer = to play

Regarder = to watch

Visiter = to visit

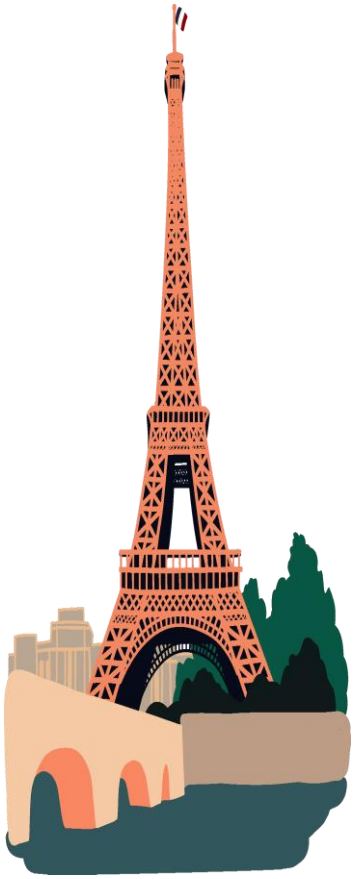
Faire = to do

Manger = to eat

Avoir = to have

Être = to be

Prendre = to take



Grammar Explanation

Perfect (past) Tense

When forming the perfect tense, you take the correct form of **avoir** and add the past participle. For most **-er** verbs, you form the past participle by taking the ER off the infinitive verb and adding an **é**. For example, **manger = mangé**. You then use the appropriate form of **avoir**, such as **j'ai mangé** = I have eaten, **il a mangé** = he has eaten

Voyager (to travel) = **voyagé** (travelled)

Manger (to eat) = **mangé** (eaten)

Loger (to stay - somewhere you have paid for) = **logé**

Forming the past participle is different for -re verbs and -ir verbs but we will learn these at a later stage.

Some verbs have irregular stems, such as:

Faire (to do) = fait (did). For example, j'ai fait = I did

However, some verbs use **être** instead of **avoir** when forming the perfect tense. One of these verbs is **aller**. For **aller**, you form the stem by taking the **er** off and adding **é**. You then use **être** to form the past tense, for example, **je suis allé** (masculine) or **je suis allée** (feminine).

The verb rester (to stay) also takes être.

Year 10 French:

Grammar Explanation

How do we use the Immediate Future Tense? For example:

Je vais + manger = _____

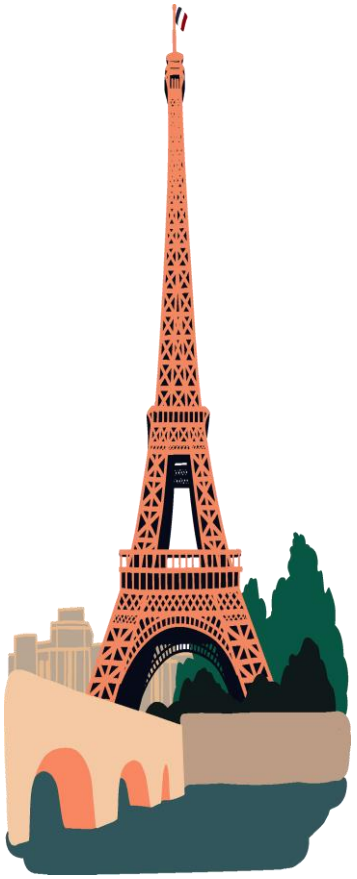
= I am going to eat.

Nous allons + **voyager** = _____

= we are going to travel.

Below are some high frequency infinitives for you to practise with:

- _____ = to go
- _____ = to play
- _____ = to watch
- _____ = to visit
- _____ = to do
- _____ = to eat
- _____ = to have
- _____ = to be
- _____ = to take



Grammar Explanation

How do we form the **Perfect (past) Tense?**

Voyager (to travel) = _____ (travelled)

Manger (to eat) = _____ (eaten)

Loger (to stay - somewhere you have paid for) = _____

Forming the past participle is different for -re verbs and -ir verbs but we will learn these at a later stage.

Some verbs have irregular stems, such as:

Faire (to do) = _____ (did). For example, _____ = I did

However, some verbs use **être** instead of **avoir** when forming the perfect tense. One of these verbs is..

Year 10 Spanish:

Tener (To have)

Tengo	I have
Tienes	You have
Tiene	He/She/It has
Tenemos	We have
Tenéis	You (plural) have
Tienen	They have

Ser (To be)

Soy	I am
Eres	You are
Es	He/She/It is
Somos	We are
Sois	You (plural) are
Son	They are

Grammar Explanation

There is a three-step method that will make conjugating regular Spanish verbs very easy for you.
In order to conjugate verbs that end with **-ar** in the preterite tense you:

- Find the infinitive (full verb)
- Cut off the **-ar**
- Add the new ending (**é, aste, ó, amos, asteis, aron**)

Ir (To go) Present tense

Fui	I went
Fuiste	You went
Fue	He/She/It wet
Fuimos	We went
Fuisteis	You (plural) went
Fueron	They went

English subject pronoun	Spanish subject pronoun	ar ending	Viajar (to travel)
I	yo	é	viaj**é**
you	tú	aste	viaj**aste**
he/she	él/ella	ó	viaj**ó**
we	nosotros/nosotras	amos	viaj**amos**
you (plural)	vosotros/vosotras	Asteis	viaj**asteis**
they	ellos/ellas	aron	viaj**aron**

Year 10 Spanish:

Tener (To have)

	I have
	You have
	He/She/It has
	We have
	You (plural) have
	They have

Ser (To be)

	I am
	You are
	He/She/It is
	We are
	You (plural) are
	They are

Grammar Explanation

There is a three-step method that will make conjugating regular Spanish verbs very easy for you.
In order to conjugate verbs that end with **-ar** in the preterite tense you:

- Find the infinitive (full verb)
- Cut off the **-ar**
- Add the new ending (**é, aste, ó, amos, asteis, aron**)

Ir (To go) Present tense

	I went
	You went
	He/She/It wet
	We went
	You (plural) went
	They went

English subject pronoun	Spanish subject pronoun Complete below:	ar ending	Viajar (to travel)
I	-	-	-
you	-	-	-
he/she	-	-	-
we	-	-	-
you (plural)	-	-	-
they	-	-	-

Year 10 Spanish:

How to form the immediate future tense:

To say what you are going to do, you can use the near immediate future tense.

This is formed by using the correct part of the verb **ir** (to go), plus the infinitive of another verb.

Voy a ir al cine
I am going to go to the cinema

Va a jugar al fútbol
He is going to play football

Ir (to go)	Preposition	Infinitive
Voy *(I am going)* **Vas** *(you are going)* **Va** *(he/she is going)* **Vamos a** *(we are going)* **Van a** *(we are going)*	a	**Jugar** - *to play* **Ver** - *to see* **Hacer** - *to do* **Montar** - *to ride* **Ser** - *to be* **Tener** - *to have*

Grammar Explanation

There is a three-step method that will make conjugating regular Spanish verbs very easy for you.

For **ER** and **IR** verbs you:

- Find the infinitive (full verb)
- Cut off the -**er** or -**ir**
- Add the new ending (**í, iste, ió, imos, isteis, ieron**)

English subject pronoun	Spanish subject pronoun	ar ending	Comer (to eat)
I	yo	í	**comí**
you	tú	iste	**comiste**
he/she	él/ella	ió	**comió**
we	nosotros/nosotras	imos	**comimos**
you (plural)	vosotros/vosotras	isteis	**comisteis**
they	ellos/ellas	ieron	**comieron**

Year 10 Spanish:

How do we form the immediate future tense?

_____
I am going to go to the cinema

_____
He is going to play football

Ir (to go)	Preposition	Infinitive
_____ *(I am going)* _____ *(you are going)* _____ *(he/she is going)* _____ *(we are going)* _____ *(we are going)*	a	_____ - *to play* _____ - *to see* _____ - *to do* _____ - *to ride* _____ - *to be* _____ - *to have*

Grammar Explanation

There is a three-step method that will make conjugating regular Spanish verbs very easy for you.

For **ER** and **IR** verbs you:

- -
- -
- -

English subject pronoun	Spanish subject pronoun	ar ending	Comer (to eat)
I	-	-	-
you	-	-	-
he/she	-	-	-
we	-	-	-
you (plural)	-	-	-
they	-	-	-

Music and Performing Arts

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 Music: Areas of Study

AoS1

Musical Forms & Devices

Ternary

Section A	Section B	Section A
The initial ideas are introduced. This section usually ends with a perfect cadence in the tonic key.	A contrasting section that is sometimes known as an episode.	Either an exact repeat or slightly altered version of the first section.

Variation

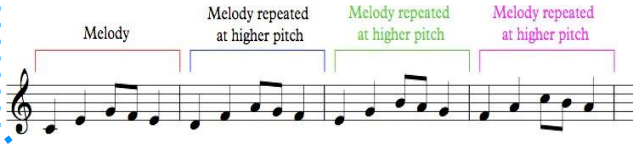
Theme	Variation 1	Variation 2	Variation 3
This could be in a certain structure- perhaps binary or ternary.	**Some ways in which the theme could be transformed are:** • Decoration and embellishment • A change of instrumentation, temp, key, harmony, metre or rhythm • Developing the theme using a variety of devices such as imitation, inversion, sequence, diminution or augmentation • Presentation the theme at a different pitch • Developing harmonies and rhythms with a tune • Introducing additional or new melodies • Varying the style		

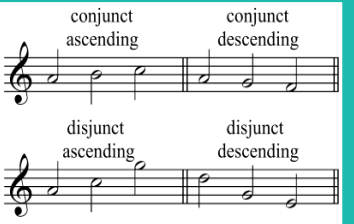
Binary

Section A	Section B
Starts in the tonic key but modulates to a related key at the end of the section. This section is usually unfinished when played on its own.	Starts in the same key as the end of section A but the music works it way back to the tonic. It is usually longer than the A section but balances the piece.

Sequence

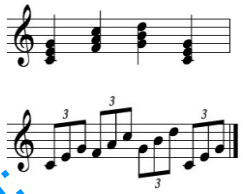
Repetition of a melodic or harmonic phrase in the same part, but at a higher or lower pitch





Arpeggio/Broken Chord

When the notes of a chord are played separately in succession

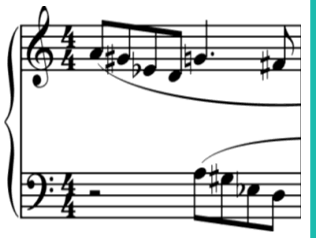


Imitation

A contrapuntal device, when a melodic idea is copied in another part

Motif

A short, musical idea, melodic or rhythmic

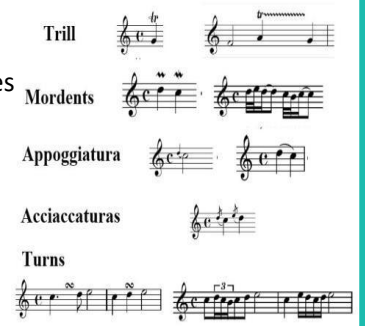


Repetition

When sounds, sequences, melodies or rhythms are repeated

Ornamentation

Decorate or embellish the music. Popular examples of ornaments are trill, mordents and turns.



Baroque

Simple melodies, ornaments, terraced dynamics, energetic and relentless rhythmic movement, major/ minor, keys mainly string instruments with some woodwind, use of the harpsichord, basso continuo.

Bach, Handel, Vivaldi, Corelli, Lully,

Classical

Balanced, regular phrases, functional harmony, wider range of dynamics, focus on piano, elegant and graceful 'symmetrical' style, frequent changes of mood and timbre, alberti bass.

Haydn, Mozart, Beethoven

Romantic

Melodies were lyrical, distinct thematic ideas, leitmotifs, expressive, richer harmonies with chromaticism, more variation in dynamics, rhythms and creative freedom, programmatic music, larger brass section.

Schubert, Mendelssohn, Chopin, Schumann, Wagner

Year 10 Music: Areas of Study

AoS1

Musical Forms & Devices

Forms

Ternary

Section A	Section B	Section A
The initial ideas are introduced. This section usually ends with a perfect cadence in the tonic key.	A contrasting section that is sometimes known as an episode.	Either an exact repeat or slightly altered version of the first section.

Variation

Theme	Variation 1	Variation 2	Variation 3
This could be in a certain structure- perhaps binary or ternary.	**Some ways in which the theme could be transformed are:**		

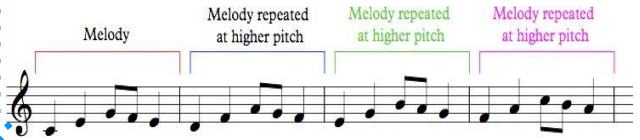
Binary

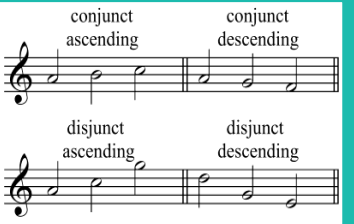
Section A	Section B
Starts in the tonic key but modulates to a related key at the end of the section. This section is usually unfinished when played on its own.	Starts in the same key as the end of section A but the music works it way back to the tonic. It is usually longer than the A section but balances the piece.

Devices

Sequence

Repetition of a melodic or harmonic phrase in the same part, but at a _____ or _____ pitch



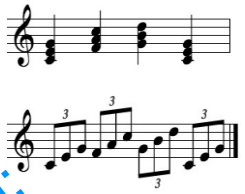


Imitation

A contrapuntal device, when a melodic idea is _____ in another part

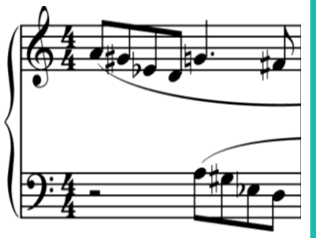
Arpeggio/Broken Chord

When the notes of a chord are played _____ in succession



Motif

A _____, musical idea, melodic or rhythmic



Repetition

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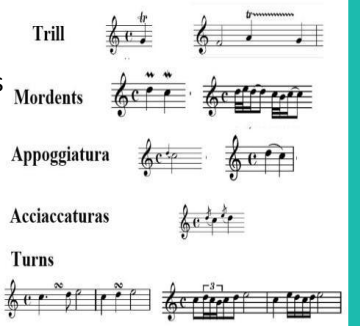

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Haydn, _____ , Beethoven

Romantic

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Schubert, _____ , Chopin, Schumann, Wagner

Year 10 Music: Areas of Study

AoS2

Music for Ensemble

Jazz & Blues

12-bar blues

Head arrangement

In Jazz & Blues, the drummer keeps a steady beat. The bass player lays down a 'groove' and supports the improvisation sections. The keyboard player comps and improvises the chords whilst the other instruments Improvise virtuosic solos.

Key features in most jazz bands are: the instruments, use of improvisation, the pentatonic scale, head arrangement, melodic riffs, blues notes, use of the blues scale, call and response and jazz virtuoso with solo sections.

Classic Blues band

Modern Jazz band

Baroque

Basso Continuo

Double bass and harpsichord providing harmony

Classical

String Quartet

2 Violina, a viola & cello. 4 movements.

Romantic

String Quartets with a piano. Experimentation with different combinations of instruments to improve tone quality and overall sound.

A small group of classical musicians.

Chamber Ensemble

There are various instrumental ensembles that accompany the singers onstage.

Musical Theatre

Musicals use **various vocal ensembles** which are known as the chorus. This features multiple vocal parts like **Soprano, Alto, Tenor and Bass.**

Large-scale musicals can use a full orchestra of musicians, but smaller shows may only use a small rock band.

Sonority

Individual tone colour or tone quality. The tone colour of different combinations of instruments can result in very different effects. It is its relative loudness and 'feel' compared with other sounds.

Texture

Monophonic	Single melodic line or parts together in unison
Homophonic	One melody heard with an accompaniment of chords
Polyphonic	A number of melodies heard at one, like imitation and counterpoint

Ensemble

A group of performers, usually between 2 and 8. Examples include: basso continuo, string quartet, jazz and blues trios, a rhythm section and vocal ensembles (duets, trios, backing vocals).

Year 10 Music: Areas of Study complete the missing knowledge

AoS2

Music for Ensemble

Chamber Ensemble

Baroque

Basso Continuo
Double bass and _____ providing harmony

Classical

String Quartet
2 Violina, a viola & cello. 4 movements.

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Classic Blues band

12-bar blues

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Texture	
Monophonic	
Homophonic	
Polyphonic	

Ensemble

A group of performers, usually between 2 and 8. Examples include: basso continuo, string quartet, jazz and blues trios, a rhythm section and vocal ensembles (duets, trios, backing vocals).

Year 10 Music: Areas of Study

AoS3 Film Music

Rhythmic Devices

- Syncopation
- Hemiola
- Diminution
  - Constant Beats
  - Long-held notes
- Dotted rhythms
  - Polyrhythms
  - Augmentation

Tempo

Allegro – fast/lively
Andante – walking pace
Adagio – slowly
Accelerando – gradually getting faster
Ritardando – gradually getting slower
Rubato – not sticking to time, free

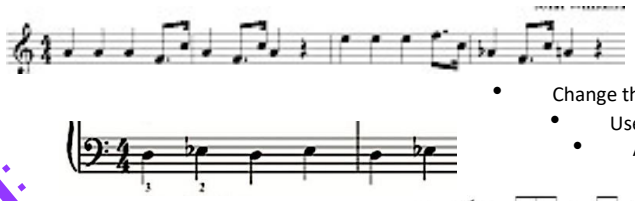
Elements

Use of dynamics
Different timbres
Vary textures
Tonality

Devices

Leitmotif

A short musical theme or idea linked with a character, object, place or idea.

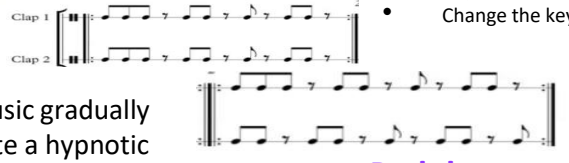


Thematic Transformation

- Add or subtract from the idea
- Change the instrumentation
- Change the pitch, dynamics, tempo or note-values
- Use inversion, augmentation or diminution
- Alter some of the musical characteristics
- Vary the texture
- Change the key

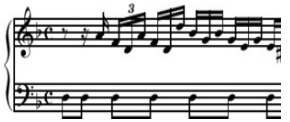
Minimalism

Small cells of music gradually evolving to create a hypnotic effect.



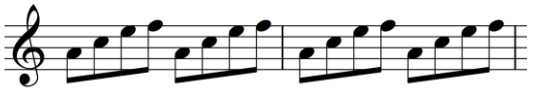
Pedal notes

A harmonic device where the same note is sustained or repeated.



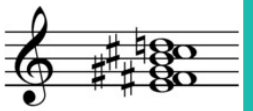
Ostinato

Melodic, rhythmic or harmonic patterns



Cluster chords

Clashing notes together to build suspense.



Layering

Building up musical ideas to fill out the texture

Harmony

Diatonic – chords that relate to specific keys.
Chromatic – chords that are not in the key.
Dissonant – chords that clash causing tension and conflict.

Melody

- Balanced phrases
- Climactic Point
- A strong sense of key
- Use of repetition
- A strong 'shape'
- Balance between steps and leaps

Simple Time

The main beat is a crochet beat

Duple Time: Two beats in each bar	Triple Time: Three beats in each bar	Quadruple Time: Four beats in each bar
2/4 ♩ ♩	3/4 ♩ ♩ ♩	4/4 ♩ ♩ ♩ ♩

Compound Time

The main beat is a dotted crotchet beat

Duple Time: Two beats in each bar	Triple Time: Three beats in each bar	Quadruple Time: Four beats in each bar
6/8 ♩. ♩.	9/8 ♩. ♩. ♩.	12/8 ♩. ♩. ♩. ♩.

Origins

Silent movies were accompanied by pianists or small orchestras in the theatres. This was normally music written specifically for the film, existing classical music or popular music of the time. Sound with pictures was developed in 1927 with the film *'The Jazz Singer'.*

Function

To create atmosphere; to underscore the dialogue; for scene changes or montages; to set the era, time or period; to correspond with the visuals (mickey-mousing); to arouse a collective emotion from the audience; to build tension and suspense.

Music for Film

Diegetic: music contained within the action e.g. a club singer performing on stage

Non-Diegetic: the background music supporting the on-screen action. This is not heard by the on-screen actors but the audience.

Year 10 Music: Areas of Study

AoS3 Film Music

Rhythmic Devices

- Diminution
  - Dotted rhythms
- Syncopation
  - Constant Beats
  - Polyrhythms
- Hemiola
  - Long-held notes
  - Augmentation

Tempo

Allegro – _____
Andante – _____
Adagio – _____
Accelerando – _____
Ritardando – _____
Rubato – _____

Harmony

_____ – chords that relate to specific keys.

_____ – chords that are not in the key.

_____ – chords that clash causing tension and conflict.

Melody

Balanced phrases
Climactic Point
A strong sense of key
Use of repetition
A strong 'shape'
Balance between steps and leaps

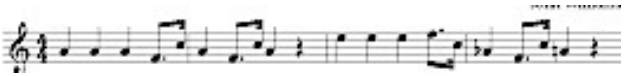
Elements

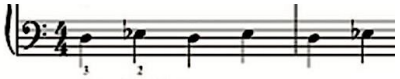
Use of dynamics
Different timbres
Vary textures
Tonality

Devices

Leitmotif

A short musical theme or idea linked with a _____, _____, place or idea.



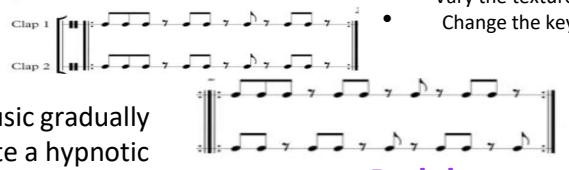


Thematic Transformation

- Add or subtract from the idea
- Change the instrumentation
- Change the pitch, dynamics, tempo or note-values
- Use inversion, augmentation or diminution
- Alter some of the musical characteristics
- Vary the texture
- Change the key

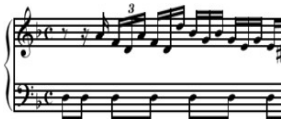
Minimalism

Small cells of music gradually evolving to create a hypnotic effect.



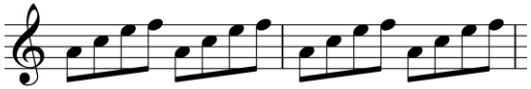
Pedal notes

A harmonic device where the same note is _____ or _____.



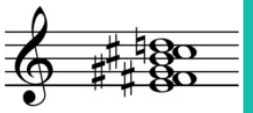
_____

Melodic, rhythmic or harmonic patterns



Cluster chords

Clashing notes together to build suspense.



Duple Time: Two beats in each bar	Triple Time: Three beats in each bar	Quadruple Time: Four beats in each bar
2/4 ♩ ♩	3/4 ♩ ♩ ♩	4/4 ♩ ♩ ♩ ♩

Simple Time

The main beat is a _____

Duple Time: Two beats in each bar	Triple Time: Three beats in each bar	Quadruple Time: Four beats in each bar
6/8 ♩. ♩.	9/8 ♩. ♩. ♩.	12/8 ♩. ♩. ♩. ♩.

Compound Time

The main beat is a dotted crotchet beat

Origins

Silent movies were accompanied by pianists or small orchestras in the theatres. This was normally music written specifically for the film, existing _____ or popular music of the time. Sound with pictures was developed in 1927 with the film *'The Jazz Singer'*.

Function

To create _____ ; to underscore the dialogue; for scene changes or montages; to set the era, time or period; to correspond with the visuals (mickey-mousing); to arouse a collective emotion from the audience; to build _____ and _____ .

Music for Film

_____: music contained within the action e.g. a club singer performing on stage

_____: the background music supporting the on-screen action. This is not heard by the on-screen actors but the audience.

Layering

Building up musical ideas to fill out the texture

Year 10 Music: Areas of Study

AoS4 Popular Music

Rock & Pop

Pop
Commercial genre which has mass audience appeal.

Rock
Harsher and more serious form of popular music.

Electric Guitar
Supports the rhythm by strumming the chords

Drum kit
A collection of different sized drums and cymbals. Drummers keep the beat and add fills to add interest.

Bass Guitar
Strings are plucked or 'slapped'. Bass holds the low notes in a bass line.

Structure
Most rock & pop structures are in verse- chorus form or 32-bar song form.

Melody
Hooks – catchy & memorable
Repetition and symmetry

Harmony
Most chords are in **root position.** There is **parallel movement** towards the tonic. The chords stick to the key using mainly (I, ii, IV, V, vi and sometimes viiº).

Digital Electronic Rock
A genre of rock music that relies on electronic and digital instruments: synths, moogs and drum machines. These genres are: House, Techno, Trance, Dubstep, Indietronica. The reproduction of acoustic sounds can also be edited: remixing, panning, delay, reverb, phasing and looping.

Fusion
Fusion is what happens when two or more different musical styles or genres are blended. Ray Charles combined musical elements of gospel and jazz-influenced blues. The Pogues combines Celtic music with punk by playing with traditional Irish instruments. Afro Celt Sound System combine African, Celtic and Dance Music through instrumentation and elements.

Bhangra

Bhangra emerged in the UK as a type of fusion which features music from the Punjab region of India combined with other popular styles.

Traditional Punjab music used the folk instruments of the country, with the main emphasis on percussion and string instruments.

Tempo
Fast/moderate, lively, upbeat.

Chaal
The chaal rhythm is played by the dhol in a kind of swing rhythm.

Melody
Quite repetitive, simple, limited in range, uses embellishments to decorate, often dips at the end of phrases, uses microtonal intervals. Ideas are sung or played. Shouted phrases of 'Hoi!'

Structure
Traditional verse-chorus

Rhythm
Chaal rhythm, syncopation, 4 beats in a bar.

Technology
Uses drum machines, synths, samples, mixing and scratching.

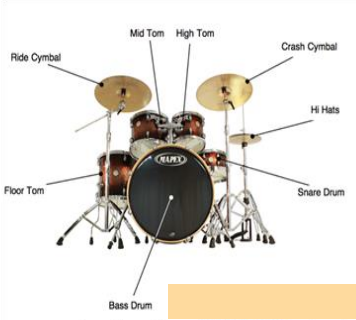
Lyrics
Punjabi language, often mixed with English covering social subjects.

Year 10 Music: Areas of Study complete the missing words below

Rock & Pop

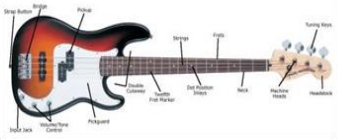
Pop
Commercial genre which has mass audience appeal.

Supports the rhythm by strumming the chords



A collection of different sized drums and cymbals. Drummers keep the beat and add fills to add interest.

Rock
Harsher and more serious form of popular music.



Strings are plucked or 'slapped'. Bass holds the low notes in a bass line.

Structure
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Badinerie

BACH

1738-39

The Baroque period

- Complex melodic lines with ornamentation
- Terraced dynamics
- Polyphonic texture
- Harpsichord and strings
- Basso Continuo

Tonality

Section A begins in ***B minor*** and ends in ***F# minor***

Section B: the opposite, beginning in ***F# minor*** and ending in ***B minor***.

Instrumentation

Instrumentation: (Transverse) Flute String Orchestra Harpsichord (Basso Continuo).

Dynamics

Mostly ***forte***

Use of ***terraced dynamics***

Rhythm

Simple ostinato rhythms, forming the basis of the two short musical ideas (X and Y)

Consist almost totally of ***quavers*** and ***semi- quavers***.

The time signature is 2/4 throughout

Tempo

Allegro

Texture

Homophonic (***melody and accompaniment***).

Flute and the cello provide the main musical material

1st violin participates occasionally

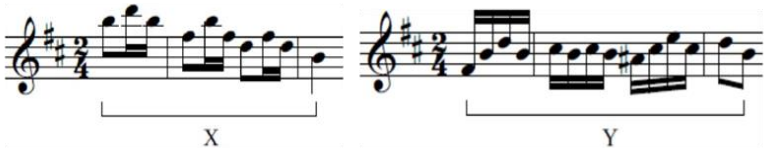
2nd violin and viola provide harmony with less busy musical lines.

Structure

Binary form (AB),

with each section repeated once (AABB)

Section A	Bars $0^2 – 16^1$	16 bars
Section B	Bars $16^2 – 40^1$	24 bars



Melody

The movement is based on two short musical ***ideas*** (X and Y).

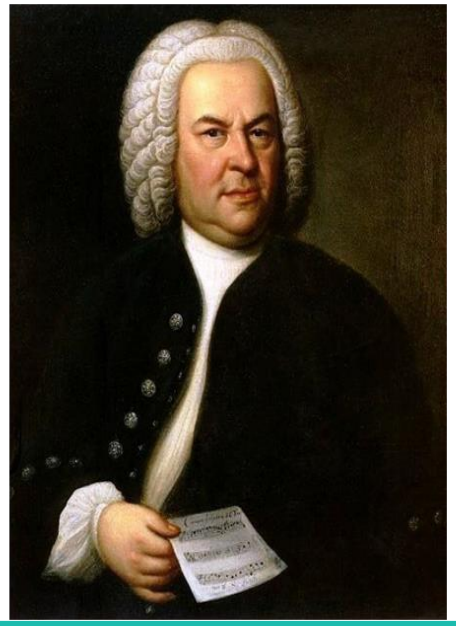
The flute part has a two-octave pitch ***range***.

The movement includes ***ornaments*** and ***compositional devices*** typical of the Baroque era:

Trills: Bars 8^1, 10^1, 15^2, 27^2, 30^1 and 32^1

Appoggiaturas: Bars 33^1 and 40^1

Sequences: $6^2 – 10^1$ and bars $28^2 – 32^1$.



Harmony

Diatonic throughout.

Section A ***modulates*** from the ***tonic*** to the ***dominant*** **minor** and Section B does the opposite.

Imperfect and ***perfect cadences*** are clearly presented throughout.

Chords frequently occur in ***inversion*** with occasional use of ***V7*** in third inversion.

A ***Neapolitan sixth chord*** is used in bar 35.

Suspensions also occur in bars 8^1, 10^1 and 32^1.

Year 10 Music: Areas of Study complete the missing words below

Badinerie

BACH

1738-39

The Baroque period

- Complex melodic lines with ornamentation
- Terraced dynamics
- Polyphonic texture
- Harpsichord and strings
- Basso Continuo

Tempo

Allegro

Texture

Homophonic (***melody and accompaniment***).
Flute and the cello provide the main musical material
1st violin participates occasionally
2nd violin and viola provide harmony with less busy musical lines.

Tonality

Section A begins in ***B minor*** and ends in _____
Section B: the opposite, beginning in ***F# minor*** and ending in ***B minor***.

Rhythm

Simple ostinato rhythms, forming the basis of the two short musical ideas (X and Y)
Consist almost totally of ***quavers*** and ***semi- quavers***.
The time signature is _____

Instrumentation

Instrumentation: (Transverse) Flute String Orchestra Harpsichord (Basso Continuo).

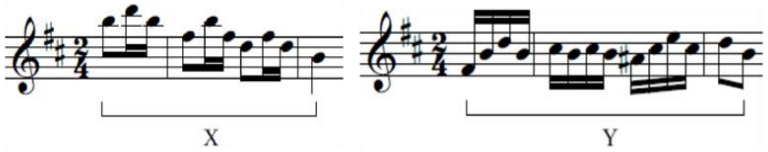
Dynamics

Mostly _____
Use of ***terraced dynamics***

Structure

_____ form (AB),
with each section repeated once (AABB)

Section A	Bars $0^2 – 16^1$	16 bars
Section B	Bars $16^2 – 40^1$	24 bars



Melody

The movement is based on two short musical ***ideas*** (X and Y).
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The movement includes _____ and ***compositional devices*** typical of the Baroque era:

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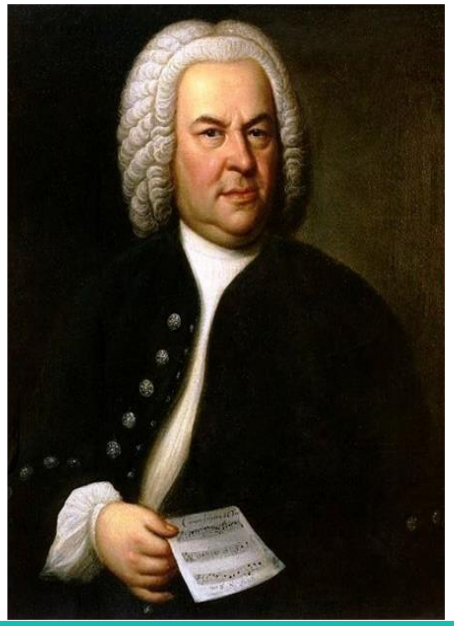
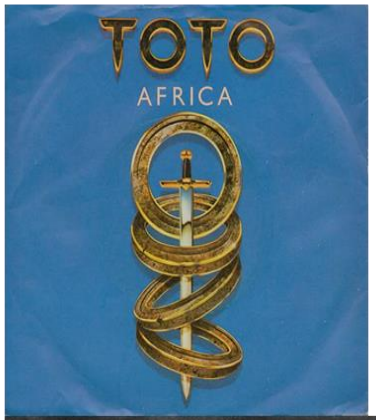


Harmony

_____ throughout.
Section A ***modulates*** from the ***tonic*** to the ***dominant minor*** and Section B does the opposite.
Imperfect and ***perfect cadences*** are clearly presented throughout.
Chords frequently occur in ***inversion*** with occasional use of ***V7*** in third inversion.
A _____ ***sixth chord*** is used in bar 35.
Suspensions also occur in bars 8^1, 10^1 and 32^1.

Africa

1981
Toto IV
David Paich & Jess Porcaro



Instrumentation
Rock Band: drum kit (keeps the groove) with additional percussion, lead guitar (plays solos and chords), bass guitar (holds the bassline), synthesizers (emphasizes the chords and leads the solo instrumental section), lead singer (sings the lyrics and melody). And male backing vocals (harmonies).

Harmony
The harmony is **diatonic,** the chords used are based on the key of the piece. Power chords and inversions.

Texture
Homophonic: melody and accompaniment

Melody
Mostly conjunct (moving in step) and includes occasional use of the pentatonic scale. The pitch range of the vocal line is just less than two octaves on the printed score, but it is wider on the recording with the vocal improvisations towards the end of the song.

Rhythm
Ostinato rhythms, consisting almost totally of quavers, with constant use of syncopation. The time signature is 2/2 (split common time) throughout.

Tempo
Moderately fast

Dynamics
Mainly mezzo forte, choruses are forte

Intro	Verse 1/2	Chorus 1/2	Link	Instrumental	Chorus 3	Outro
Bars 1-4	Bars 5-39 Bars 14-39	Bars 40-57	58-65	66-82	Bars 40-92	Bars 93-96
B major	B major	A major	B major	B major	A major	B major
Syncopated chordal riff A running into ostinato riff B based on E pentatonic scale.	Mostly syllabic, syncopated rhythms that are conjunct. Final chord is sustained for drum fill.	Vocal texture builds on each line, mostly syllabic with melisma on the final melody.	Same as intro but only repeated once instead of three times.	Chords based on the verse but with instrumental melody based on riff B.	New e. guitar riff, lyrics are repeated with solo vocal improvisation	Same as intro, texture gradually decreases as the music repeats to fade out.

Year 10 Music: Areas of Study complete the missing words below

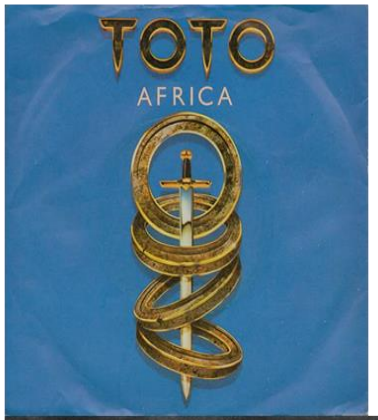
1981

Toto IV

& Jess Porcaro

Africa

TOTO



Instrumentation

Rock Band: drum kit (keeps the groove) with additional percussion, lead guitar (plays solos and chords), bass guitar (holds the bassline), synthesizers (emphasizes the chords and leads the solo instrumental section), lead singer (sings the lyrics and melody). And male backing vocals (harmonies).

Texture

: melody and accompaniment

Melody

Mostly (moving in step) and includes occasional use of the pentatonic scale. The pitch range of the vocal line is just less than two octaves on the printed score, but it is wider on the recording with the vocal improvisations towards the end of the song.

Harmony

The harmony is the chords used are based on the key of the piece. Power chords and inversions.

Rhythm

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Tempo

Moderately fast

Dynamics

Mainly forte, choruses are forte

Intro	Verse 1/2	Chorus 1/2	Link	Instrumental	Chorus 3	Outro
Bars 1-4	Bars 5-39 Bars 14-39	Bars 40-57	58-65	66-82	Bars 40-92	Bars 93-96
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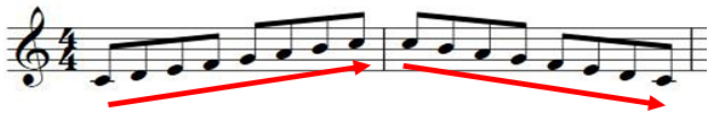
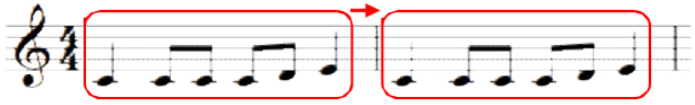
Year 10 Music: Areas of Study

MELODY

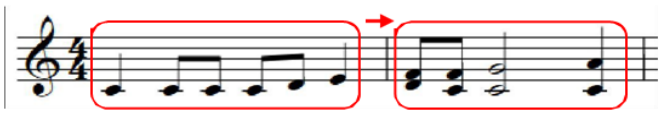
Direction Rising Falling



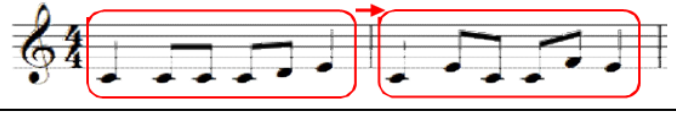
Repetition Doing the same thing again, without any changes.



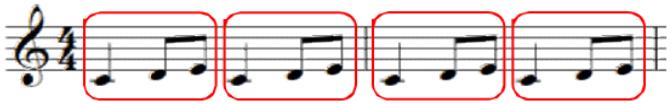
Contrast Doing something completely different.



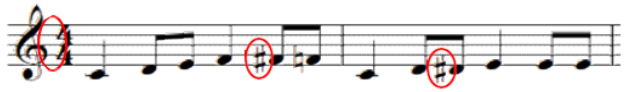
Imitation Doing the same thing again, with some changes (similar).



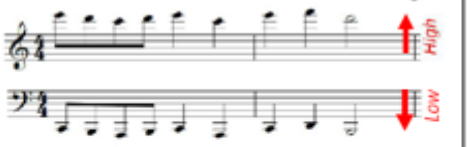
Ostinato A short repeated idea.



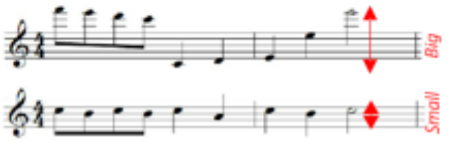
Chromatic The melody uses notes that aren't in the scale / key of the piece.



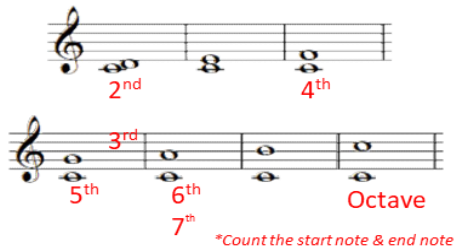
High or low. **Range**



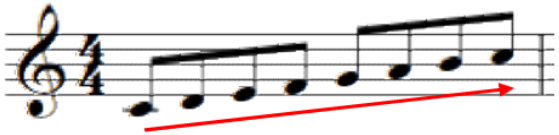
Big or Small.



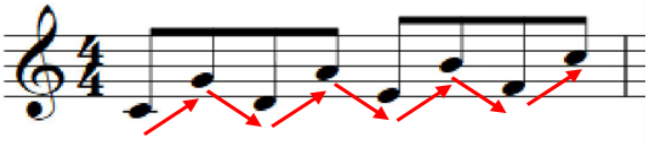
Interval The distance between two notes



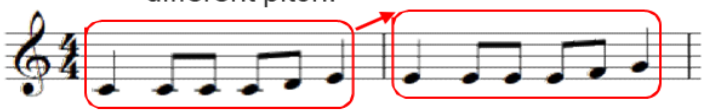
Conjunct (Moving In Step) **Type of movement**



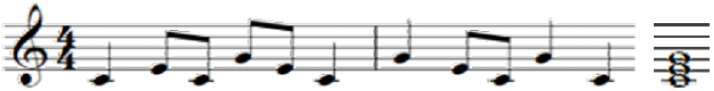
Disjunct (Moving In Leaps)



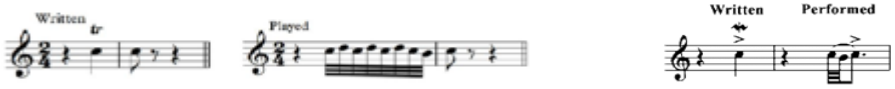
Sequence Doing the same shape idea but at a different pitch.



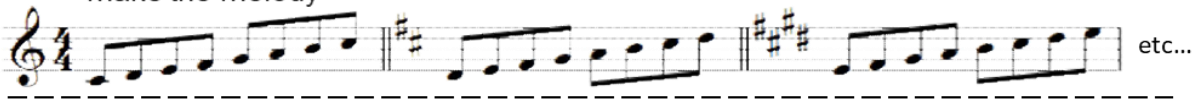
Triadic The tune is based on notes from the chords / triads.



Ornaments Trills Mordents



Scale The series of notes in a key that are used to make the melody

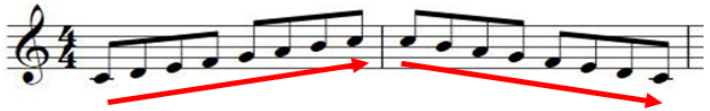


I 1. Tonic
II 2.Supertonic
III 3.Mediant
IV 4.Subdominant
V 5.Dominant
VI 6.Submediant
VII 7.Leading Note

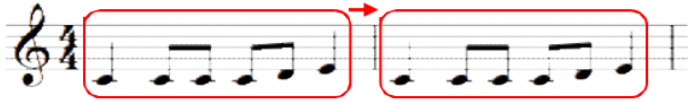
Year 10 Music: Areas of Study complete the missing words

MELODY

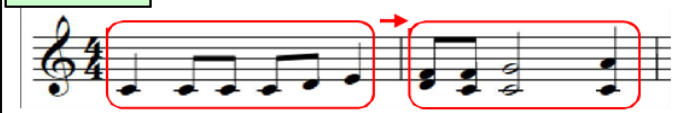
[ ] Rising Falling



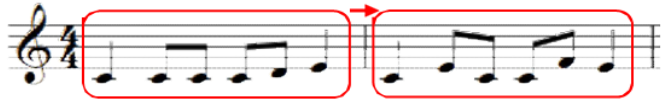
[ ] Doing the same thing again, without any changes.



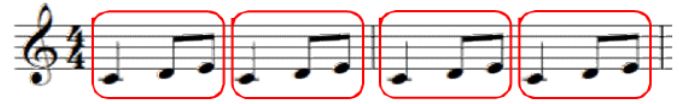
[ ] Doing something completely different.



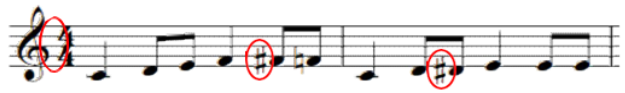
[ ] Doing the same thing again, with some changes (similar).



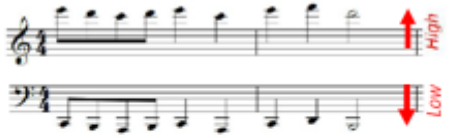
[ ] A short repeated idea.



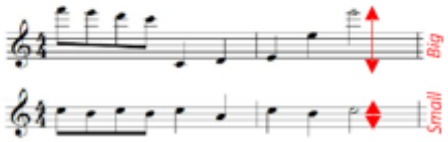
[ ] The melody uses notes that aren't in the scale / key of the piece.



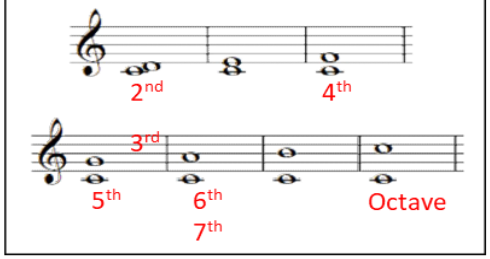
High or low. **Range**



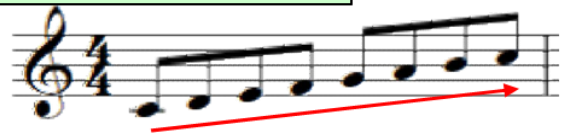
Big or Small.



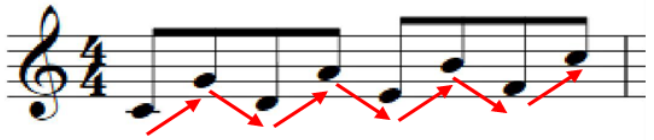
[ ] The distance between two notes



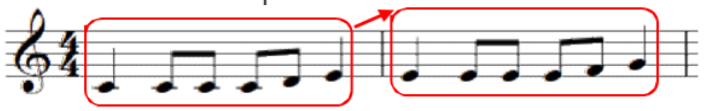
[ ] **Type of movement**



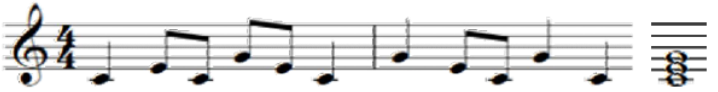
[ ]



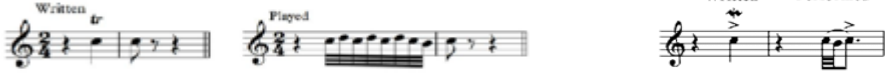
[ ] Doing the same shape idea but at a different pitch.



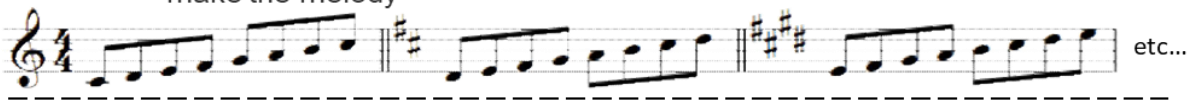
[ ] The tune is based on notes from the chords / triads.



[ ] Trills Mordents



[ ] The series of notes in a key that are used to make the melody



I 1.Tonic
II 2.Supertonic
III 3.Mediant
IV 4.Subdominant
V 5.Dominant
VI 6.Submediant
VII 7.Leading Note

Year 10 Music: MAD T-SHIRTS

Not Dynamics...

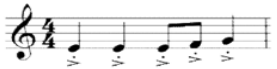
Articulation is the way the performer plays / sings the note, not how loud they do it. That would be Dynamics instead.

ARTICULATION

(How the notes are played)

More Than One...

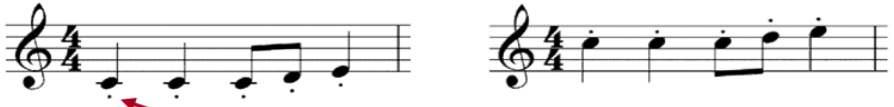
You can write more than one type of articulation for the same note. For example:



*Staccato & Accented

Staccato

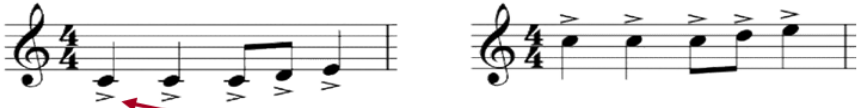
Staccato means short and detached /seperated. **You will likely hear a gap between each note.*



Shown by writing a **dot** just above/below the head of the note.

Accented

Give extra emphasis or force to the marked notes.



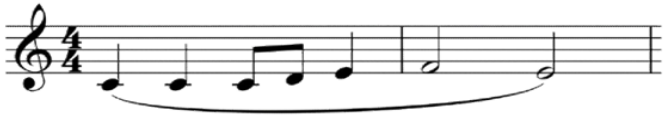
Shown by writing an **accent** above/below the head of the note.

Legato

To play the music smoothly, without breaks between notes.

Slurred

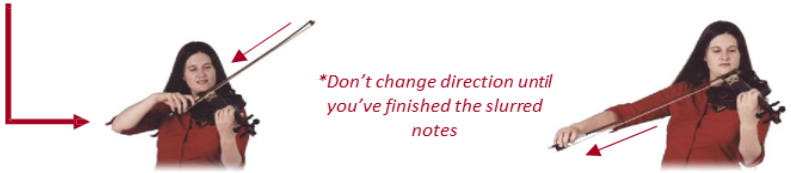
Playing the notes in a legato style, without breaks between notes.



Shown with a **slur** on the score.

How? Some examples:

String Instruments - Play the notes without changing the direction of the bow.



*Don't change direction until you've finished the slurred notes

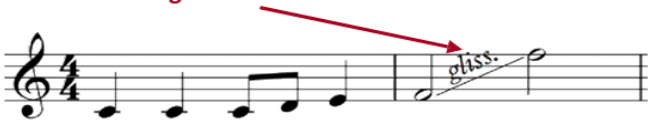
Brass & Wind Instruments - Only tongue the first note, not the others.

Glissando

*You can glissando upwards or downwards

A slide between two notes.

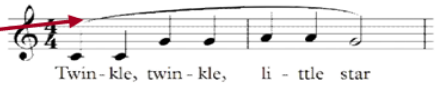
Marked with a **glissando** on the score.



Some Associated Markings On Vocal Music...

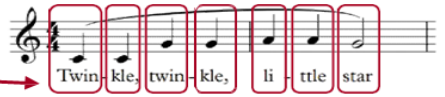
Phrase markings

Slurs drawn onto the score to show singers what to sing in one breath.



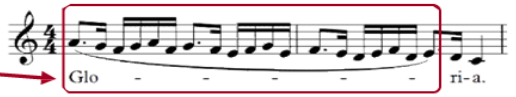
Syllabic

Where the music is written with one note per syllable.



Melismatic

Where the music is written with more than one note per syllable.



*A slur is used to show the notes on one syllable

Year 10 Music: MAD T-SHIRTS complete the missing words

ARTICULATION

(How the notes are played)

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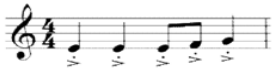

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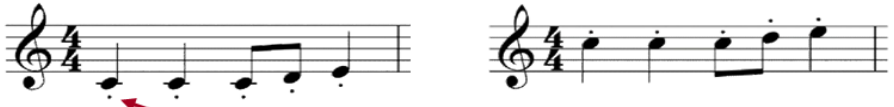

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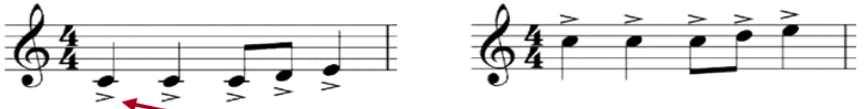
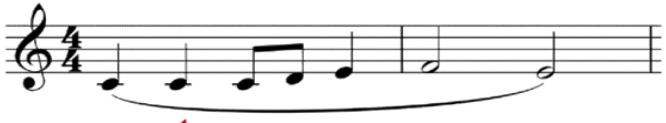


Shown by writing an **accent** above/below the head of the note.

To play the music smoothly, without breaks between notes.

Playing the notes in a legato style, without breaks between notes.



Shown with a **slur** on the score.

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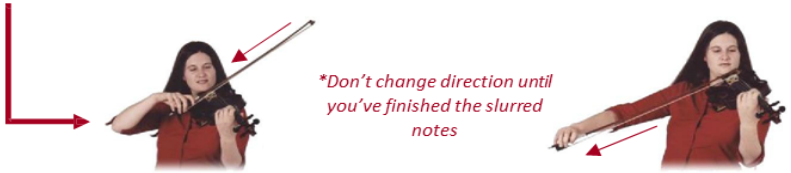

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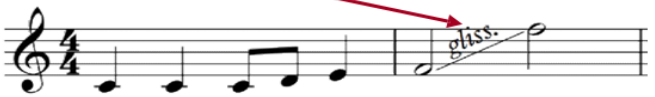
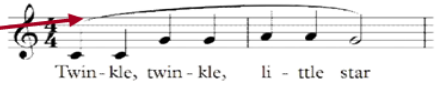
A slide between two notes.

Marked with a **glissando** on the score.

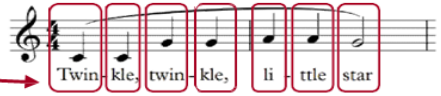


Some Associated Markings On Vocal Music...

Slurs drawn onto the score to show singers what to sing in one breath.



Where the music is written with one note per syllable.



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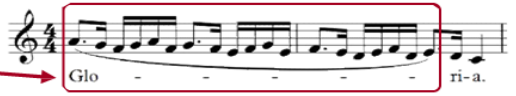


*A slur is used to show the notes on one syllable

Year 10 Music: MAD T-SHIRTS

Describing What You Hear

Comment on any changes - don't sum up the whole example with one word (unless it doesn't change!)

The music starts… then… the music ends…

DYNAMICS

(The volume of the music)

Writing Dynamics

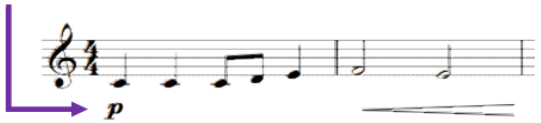
Dynamics can create contrast in music.

Dynamics can add expression to the music.

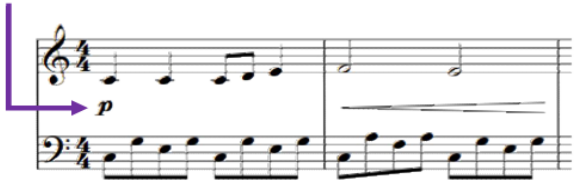
Dynamics can allow the listener to hear the most important lines in the music.

On The Score

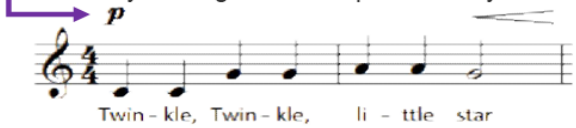
Dynamics are marked underneath the music, to show the instrument how loudly it should play:



If it is a piano, the dynamics usually go in-between the two staves:



For singers, dynamics usually go above the stave, so that they don't get mixed up with the lyrics:



Marking	Italian Term	Meaning
pp	Pianissimo	Very Quiet
P	Piano	Quiet
mp	Mezzo Piano	Moderately Quiet
mf	Mezzo Forte	Moderately Loud
f	Forte	Loud
ff	Fortissimo	Very Loud
	Crescendo	Getting Louder
	Diminuendo	Getting Quieter
sfz	Szorzando	Sudden Accent

Shh … *!!!*

Change gradually

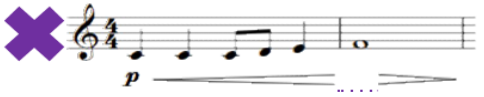
Baroque Period: Dynamics were rarely used (no crescendos and diminuendos). Use of Terraced Dynamics.

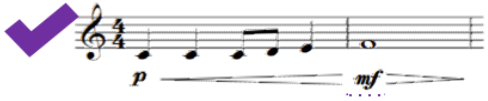
Classical Period: Some dynamics, to add contrast.

Romantic Period: Lots of crescendos & diminuendos and a large range of dynamics to add expression.

Writing Your Own Dynamics

If using crescendos and diminuendos, make sure you say how loud/quiet you want the music to get. This will clearly show what you want.





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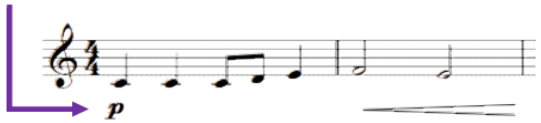

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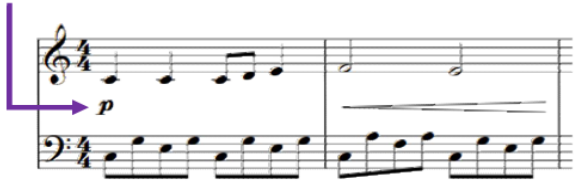

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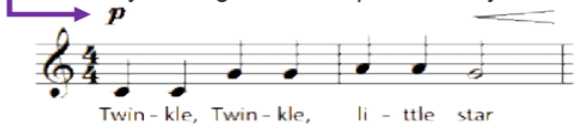

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pp		
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ff		

Shh … *!!!*

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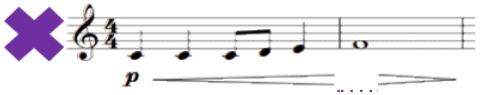
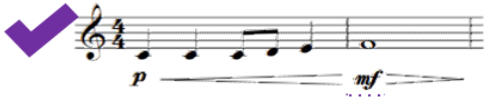
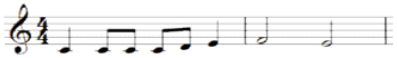




Year 10 Music: MAD T-SHIRTS

TEXTURE

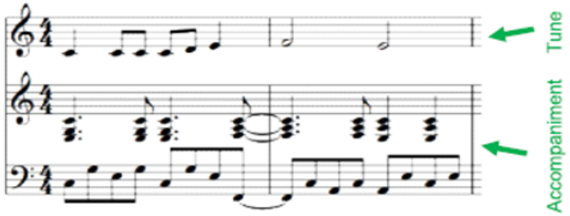
Monophonic
Music with only one part (one note at a time).



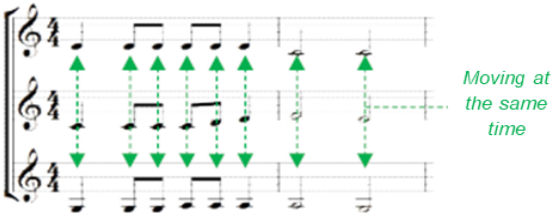
*You can have as many players or singers as you want on the same part so long as it is the only part. No chords!

Antiphonal
Two groups of musicians play/respond to each other from two different performing positions.

Melody & Accompaniment
A melody (tune) plus some accompanying chords or ideas.

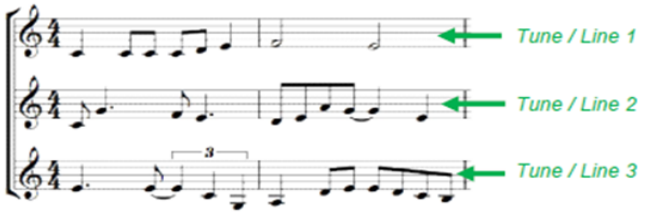


Homophonic
All parts move in chords at the same time.



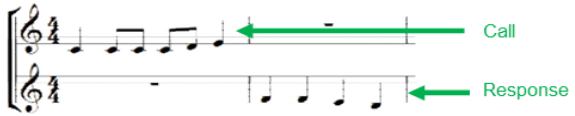
*Homo-phonic = same-sound… they have the same rhythm

Polyphonic
Several (2 or more) independent lines of music.

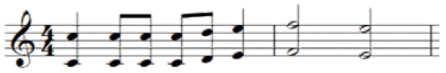


*Poly-phonic = many-sounds… several (two or more) different tunes.

Call And Response
One idea played/sung and then another performer(s) responding.



Octaves
When parts move together, an octave apart.



*Same note name but different pitch.

What Is The Instrument's Role

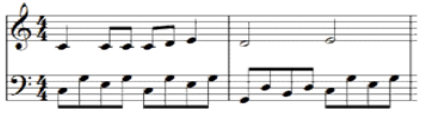
Melody – The tune.

Accompaniment – The parts supporting the tune.

Countermelody – A second melody that fits with the main tune.

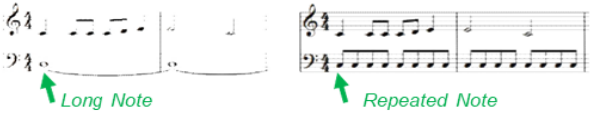
Bass Line – The lowest sounding part.

Alberti Bass
Accompaniment found mainly in the left hand part of piano music.
Don't play all three notes of the triad together; break them up into four equal notes. Usually lowest, highest, middle, highest.

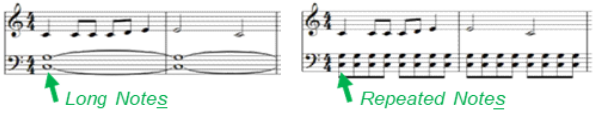


Why doesn't Mr Edwards like playing an Alberti Bass? It gives him the EBGBs.

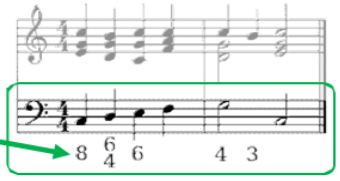
Pedal
A long or repeated note – *usually in the bass.*



Drone
Long or repeated notes – *usually a 5th apart.*



Basso Continuo
The part given to instruments in The Baroque Period that played the bass line and chords, accompanying the melody, using figured bass.

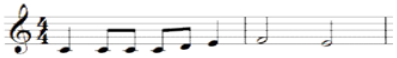


*Harpsichord, bass viol, organ, lute…

Year 10 Music: MAD T-SHIRTS complete the missing words

TEXTURE

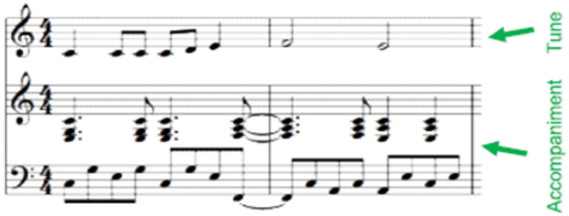
Music with only one part (one note at a time).



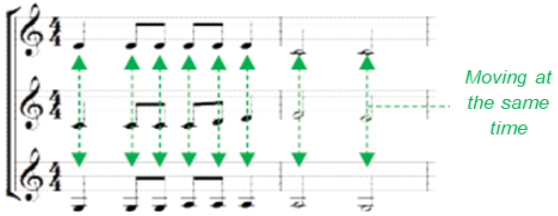
*You can have as many players or singers as you want on the same part so long as it is the only part. No chords!

Two groups of musicians play/respond to each other from two different performing positions.

A melody (tune) plus some accompanying chords or ideas.

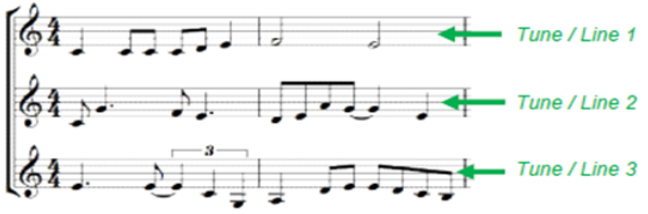


All parts move in chords at the same time.



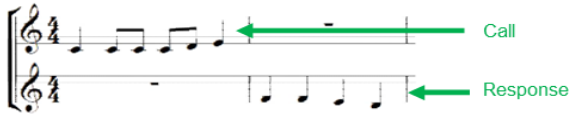
*Homo-phonic = same-sound… they have the same rhythm

Several (2 or more) independent lines of music.

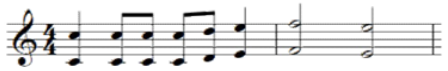


*Poly-phonic = many-sounds… several (two or more) different tunes.

One idea played/sung and then another performer(s) responding.



When parts move together, an octave apart.



*Same note name but different pitch.

_____ – The tune.

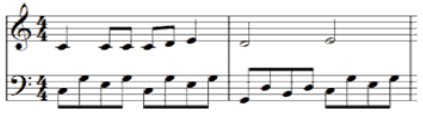
_____ – The parts supporting the tune.

_____ – A second melody that fits with the main tune.

_____ – The lowest sounding part.

_____

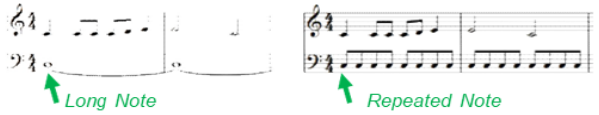
Accompaniment found mainly in the left hand part of piano music.
Don't play all three notes of the triad together; break them up into four equal notes. Usually lowest, highest, middle, highest.



Why doesn't Mr Edwards like playing an Alberti Bass? It gives him the EBGBs.

_____

A long or repeated note – *usually in the bass.*



_____

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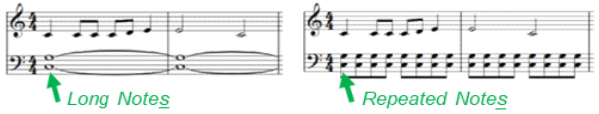

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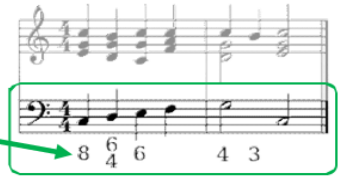


*Harpsichord, bass viol, organ, lute…

Year 10 Music: MAD T-SHIRTS

Structure – The order that things happen in.

First… then… this is followed by… at the end.

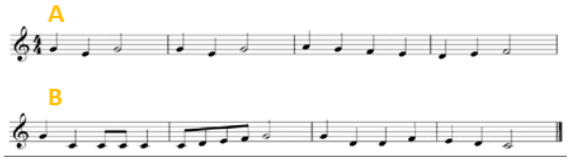
STRUCTURE

Song Form

Intro Verse Chorus Middle 8 Bridge Outro

Binary Form - Music in two parts

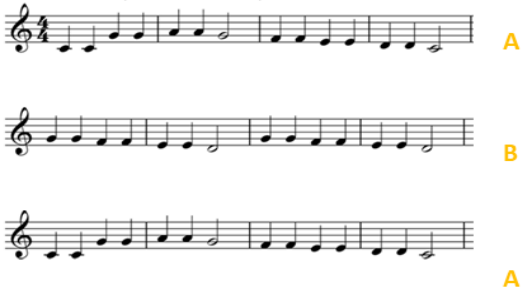
Section A and Section B.



Section B contrasts Section A in some way. Usually both sections are repeated.

Ternary Form - Music in three parts

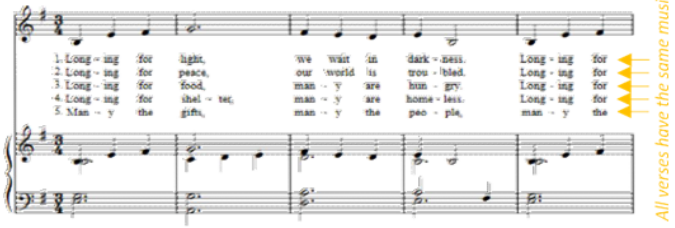
Section A, Section B, Section A.



The 2nd Section A can be an exact repeat of the 1st Section A, or a slightly altered version.

Strophic Form - Same music repeated each section.

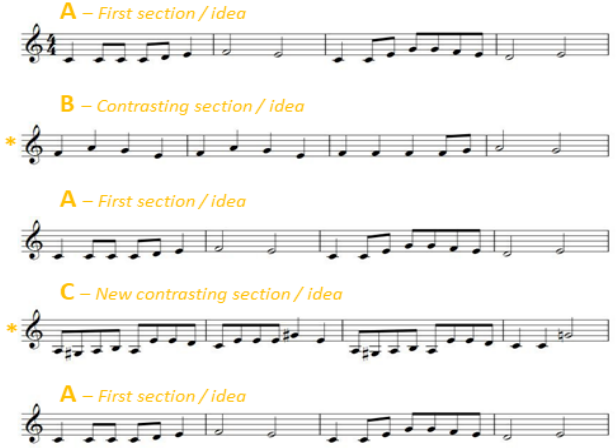
Section A, Section A, Section A.



e.g. Hymns, Folk Songs…

Rondo Form – The opening section keeps returning, with contrasting sections in between.

Section A, Section B, Section A, Section C, Section A.



* The contrasting sections are called 'episodes'.

Minuet & Trio – Dance founded in 17th-18th Century Europe. In Triple time and moderato. Both are in binary form. Trio is like a second Minuet but contrasting in some way.

Minuet		Trio		Minuet	
Section A (Repeated)	Section B (Repeated)	Section A (Repeated)	Section B (Repeated)	Section A (No Repeat)	Section B (No Repeat)
In tonic key. Ends with key change.	*In related key. Ends with change back to tonic key.*	*More contrast – new key or change of instruments. Ends with key change.*	*In related key. Ends with key change back to starting key of trio.*	*Keys are same as first time playing Minuet.*	

Variation Form – A theme / section is then followed by other sections (variations), changing and developing the first theme / section in different and imaginative ways.

Theme	Variation 1	Variation 2	Variation 3
The original idea / section	*There are many ways you can transform the theme:* *Change the instrumentation, tempo, key, harmony, metre, rhythm…* *Use imitation, inversion, sequence, diminution, augmentation…* *Developing harmonies without the tune… Introducing new tunes… Varying the style…*		

Year 10 Music: MAD T-SHIRTS complete the missing words

STRUCTURE

[ ] – The order that things happen in.

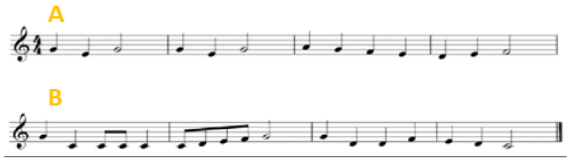
First… then… this is followed by… at the end.

[ ] Form

Intro Verse Chorus Middle 8 Bridge Outro

[ ] - Music in two parts

Section A and Section B.



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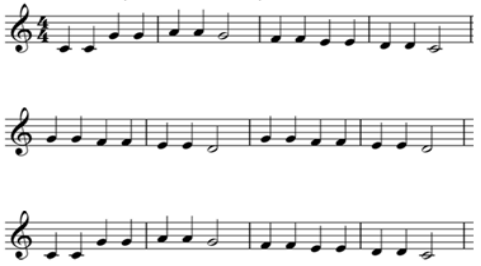
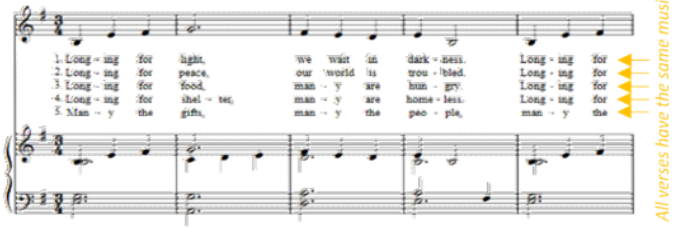
[ ] Form - Music in three parts

Section A, Section B, Section A.



[ ] Form - Same music repeated each section.

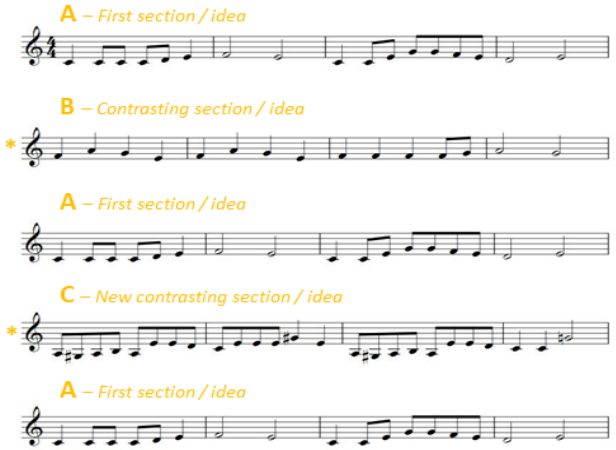
Section A, Section A, Section A.



e.g. Hymns, Folk Songs…

[ ] Form – The opening section keeps returning, with contrasting sections in between.

Section A, Section B, Section A, Section C, Section A.



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HARMONY & TONALITY

(The chords and keys used in the music)

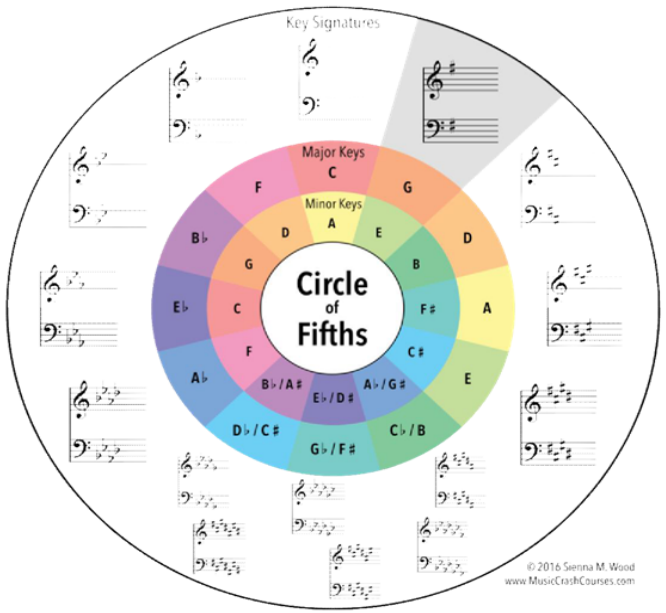
Key Signature

The sharps or flats at the start of a piece of music, showing what key the music is in.

Modulation

Musical word for key change. Most common changes: to **Dominant** or **relative Major/Minor**.

Major and Minor Key Signatures



*When you write music in a minor key you also need to raise the 7th note (leading note) up one small step - e.g. A minor uses G#s, not Gs.

Identifying The Tonality...

Tonal - In a major or Minor Key
Atonal - There is no sense of key
Modal - Uses 'old-fashioned' scales called modes
Pentatonic - The music only uses 5 notes

Chords

Triad - A chord with three notes (See below)

Power Chord – Only playing the Root and Fifth of a triad (used in Rock music)

Dissonance - Clashing notes played together

Consonance - Notes that fit / sound nice together

Primary Chords - The three most commonly used chords used in music: I, IV, V

Secondary Chords - The other chords: II, III, VI, VII

Chord Sequence - The order the chords in a piece of music follow (containing cadences at the ends of phrases)

Cadences

The last two chords in a phrase.
Only sounds 'complete' if ends on chord I.

Sounds Complete		
Perfect Cadence	V *Dominant*	I *Tonic*
Plagal Cadence	IV *Subdominant*	I *Tonic*
Sounds Incomplete		
Imperfect Cadence	*Can be other I *Tonic*	V *Dominant*
Interrupted Cadence	V *Dominant*	*Not chord I *Minor Chord*

*Sometimes the final cadence of a piece in a minor key ends with a major chord instead of the expected minor chord. This effect is known as a **Tierce de Picardie**.

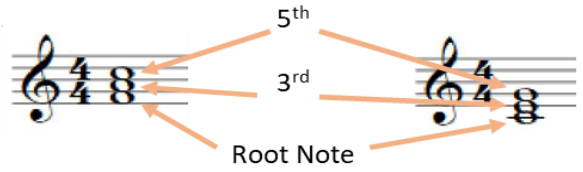
Diatonic

Music only uses notes that are found in the key signature of the piece

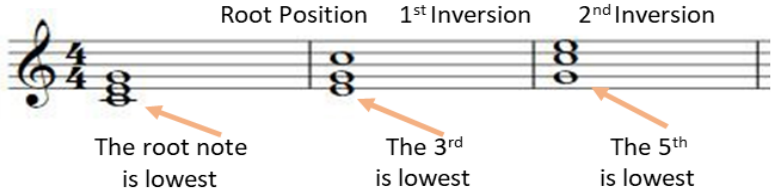
Chromatic

Music uses the notes found in the key of the piece but also adds in extra accidentals (# / b)

Triad A Chord with three notes:



Inversions Changing which note of a chord is the lowest sounding:



Year 10 Music: MAD T-SHIRTS complete the missing words

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(The chords and keys used in the music)

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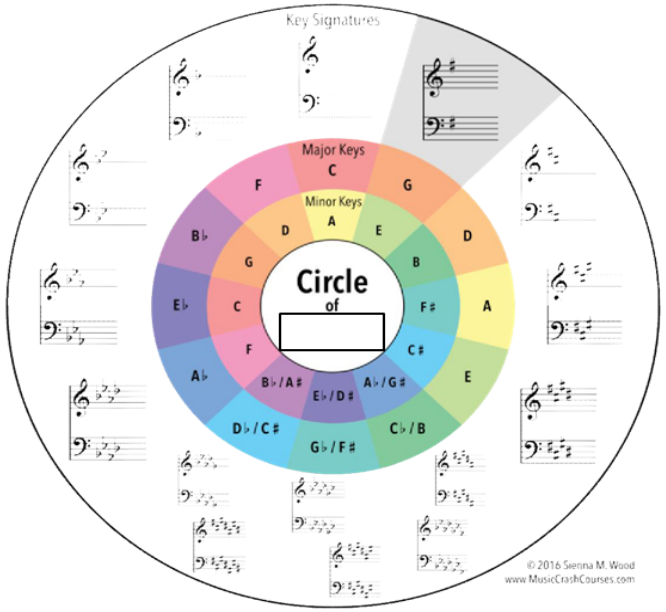

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In a major or Minor Key
There is no sense of key
Uses 'old-fashioned' scales called modes
The music only uses 5 notes

- A chord with three notes (See below)

– Only playing the Root and Fifth of a triad (used in Rock music)

- Clashing notes played together

Notes that fit / sound nice together

- The three most commonly used chords used in music: I, IV, V

- The other chords: II, III, VI, VII

The order the chords in a piece of music follow (containing cadences at the ends of phrases)

The last two chords in a phrase.
Only sounds 'complete' if ends on chord I.

Sounds Complete		
Cadence	V *Dominant*	I *Tonic*
Cadence	IV *Subdominant*	I *Tonic*
Sounds Incomplete		
Cadence	*Can be other I *Tonic*	V *Dominant*
Cadence	V *Dominant*	*Not chord I *Minor Chord*

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Music uses the notes found in the key of the piece but also adds in extra accidentals (# / b)

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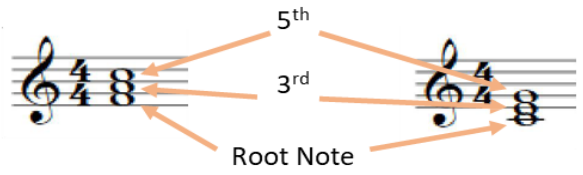

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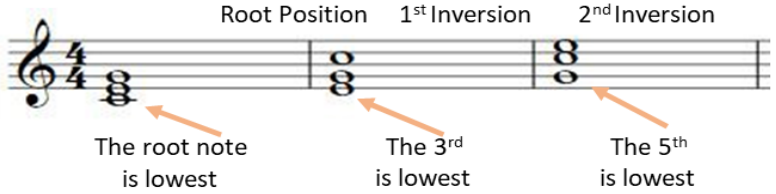


Year 10 Music: MAD T-SHIRTS

Instrumental Ensembles

Solo - 1 performer
Duet - 2 performers
Trio - 3 performers
Quartet - 4 performers

INSTRUMENTATION

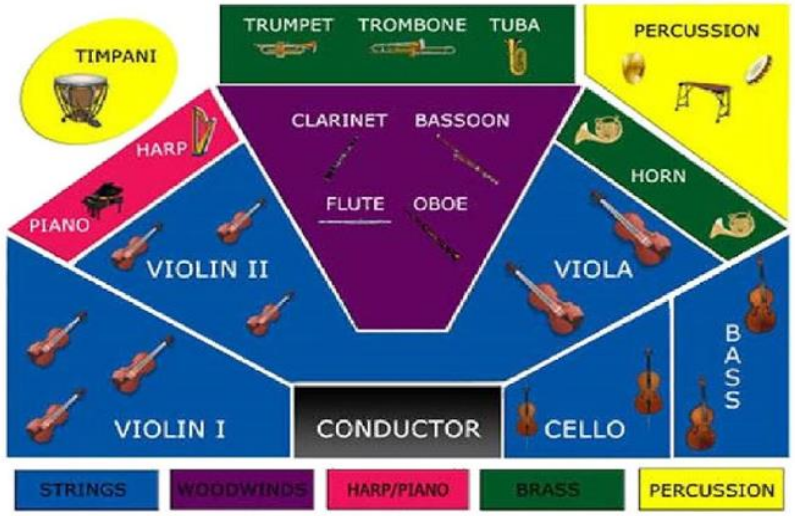
(The instruments you can hear and what they are doing – sometimes called 'orchestration')

Types Of Voices

Soprano	(Female)	HIGH
Treble	(Boy)	⋮
Alto	(Female)	⋮
Countertenor	(Male Alto)	⋮
Tenor	(Male)	⋮
Bass	(Male)	LOW

*SATB Choir: Soprano, Alto, Tenor & Bass

Instruments Of The Orchestra



Rock & Pop Instruments

Electric Guitar
Singers
Acoustic Guitar

Bass Guitar

Keyboard / Synthesizer

Drum Kit

Saxophone

Trumpet

*Lead instrument = Often an electric guitar ('lead guitar'). Plays melody or harmonises with the singer & often has a solo.

Jazz Instruments

Rhythm Section

Backup / Accompaniment for the melody. Sometimes still improvise and get solos.

*The Groove: Double Bass
*The Beat: Drum Kit
*The Chords: Piano
(Sometimes Guitar)

Front Line Instruments

Instruments that play melodies / improvise. Stand in front of the rhythm section.

*Trombone
*Saxophone

Musical Periods

Baroque Period (1600-1750)

*Small orchestra - Mostly Strings + Basso Continuo
*Basso Continuo - The part given to instruments playing the bass line & chords accompanying the melody. *(Harpsichord, bass viol, organ, lute…)*

Classical Period (1750-1810)

*Basso Continuo gradually stopped being used
*Pianoforte introduced & Clarinet invented
*String Quartet very popular *(Violin x2, Viola, Cello)*

Romantic Period (1810-1910)

*Piano music very popular *(Instrument further improved)*
*Large Orchestra
*Tone / construction of instruments improved

Instrumental Techniques - The way you play / use an instrument.

Some Examples

String Instruments

*Pizzicato *(Pizz.)* - Plucking the strings
*Arco / Bowed - Using a bow on the strings
*Double Stopping - Playing two strings at the same time

String & Brass Instruments

*Con Sordino *(Con Sord.)* - Playing with a mute *(changes the sound produced)*
*Tremolo - Quickly repeating the same note *('trembling')*

Voices

*Falsetto - A technique used by men to sing at a much higher pitch

Voices, Brass, Woodwind and String Instruments

*Vibrato – Make the note waver up and down to add expression

Other Vocal Terms

Acapella

Singing without any accompanying instruments.

Chorus

Music written for a choir.

Backing Vocals

Sing harmonies / support the lead singer.

Year 10 Music: MAD T-SHIRTS complete the missing words

Instrumental Ensembles

1 performer
2 performers
3 performers
- 4 performers

INSTRUMENTATION

(The instruments you can hear and what they are doing – sometimes called 'orchestration')

Types Of Voices

(Female) HIGH
(Boy)
(Female)
(Male Alto)
(Male)
(Male) LOW

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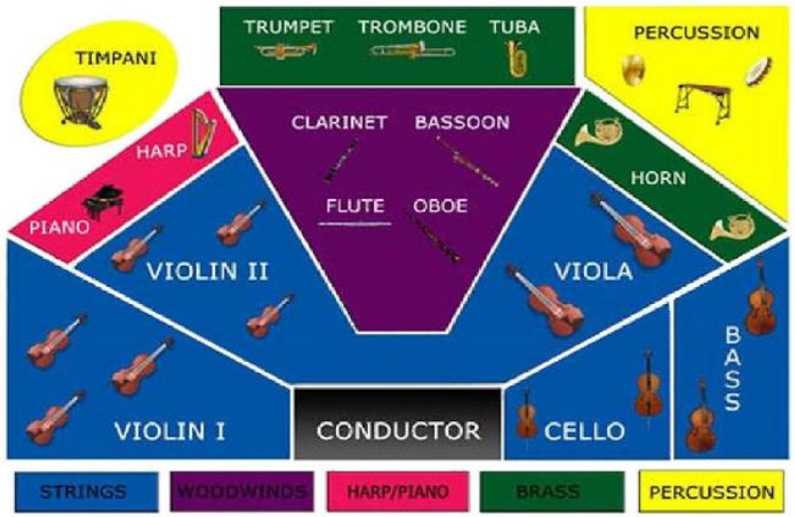
Instruments Of The Orchestra



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Other Vocal Terms

Acapella

Chorus

Music written for a choir.

Backing Vocals

Year 10 Music: MAD T-SHIRTS

Reading Rhythms

You need to be able to read all the different note lengths if you want to pass GCSE music. If you keep forgetting, look over them again!

RHYTHM & TEMPO

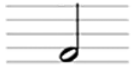
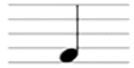
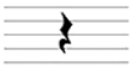
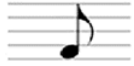
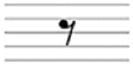
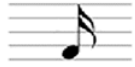
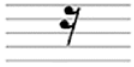
(The Patterns Of Note Lengths & Silences) (The Speed Of The Music)

Working Out The Tempo

Tap your toe to the pulse of the music and think, 'how fast am I tapping'.

**If you tap your whole foot you might put off other pupils.*

Durations

Beats	Note	Rest	Name
4			Semibreve
2			Minim
1			Crotchet
1/2			Quaver
1/4			Semiquaver

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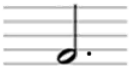
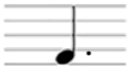
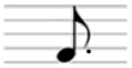
 3 beats **2 (+1)*

 1 ½ beats **1 (+ 1/2)*

 ¾ beat **1/2 (+ 1/4)*

Pause

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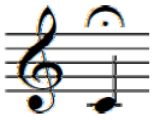

Tempo Markings

Marking	Meaning
Allegro / Vivace	Fast or Lively
Allegretto	Quite Fast (Not as fast as Allegro)
Moderato / Andante	Moderate / A Walking Pace
Adagio / Lento	Slowly
Accelerando	Gradually Speed Up
Ritardando / Rallentando rit. rall.	Gradually Slow Down
 = 60 **60bmp*	60 beats per minute *(One every second)*
 = 120 **120bmp*	120 beats per minute *(Two every second)*

Syncopation Playing off (or in-between) the beat / pulse

On The Beat →
Playing on one of the beats that you would 'tap your toe' to

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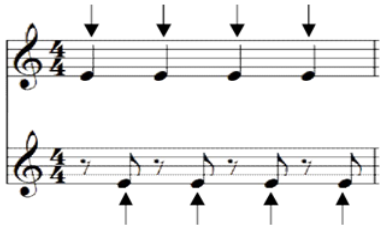

Triplet

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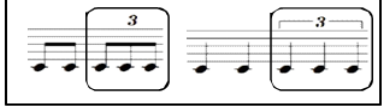


Swung Rhythms **A main feature of Jazz*

Written rhythms are played differently to give a swing feeling.

e.g 

Rubato **Translates as 'to steal time'*

Not sticking strictly to the tempo - to add feeling *(Romanitc Period!)*

Year 10 Music: MAD T-SHIRTS complete the missing knowledge

Reading Rhythms

You need to be able to read all the different note lengths if you want to pass GCSE music. If you keep forgetting, look over them again!

RHYTHM & TEMPO

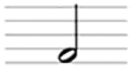
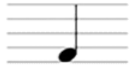
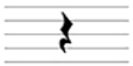
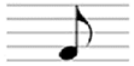
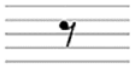
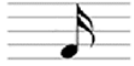
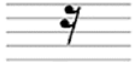
(The Patterns Of Note Lengths & Silences) (The Speed Of The Music)

Working Out The Tempo

Tap your toe to the pulse of the music and think, 'how fast am I tapping'.

**If you tap your whole foot you might put off other pupils.*

Durations

Beats	Note	Rest	Name
4			
2			
1			
1/2			
1/4			

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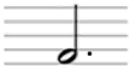
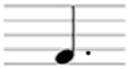
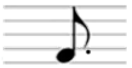
 3 beats **2 (+1)*

 1 ½ beats **1 (+ 1/2)*

 ¾ beat **1/2 (+ 1/4)*

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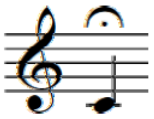

Tempo Markings

Marking	Meaning
Allegro / Vivace	
Allegretto	
Moderato / Andante	
Adagio / Lento	

	Gradually Speed Up
	Gradually Slow Down

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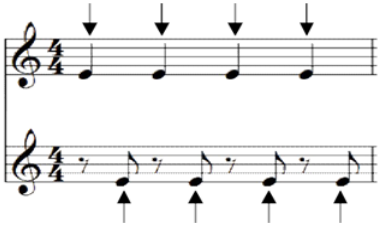

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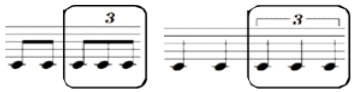

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Written rhythms are played differently to give a swing feeling.

e.g 

Rubato *Translates as 'to steal time'*

Not sticking strictly to the tempo - to add feeling *(Romanitc Period!)*

TIME SIGNATURE / METRE

(How the pulse is grouped into bars)

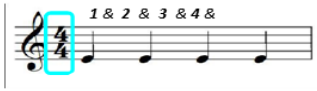
Common Time
4/4 is also known as common time. Instead of 4/4 you can write:

Cut Common Time
2/4 is also known as cut-common time. Instead of 2/4 You can write:

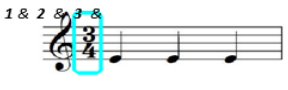
Time Signatures

Written at the start of the music (and anywhere it changes) to show how many beats there are per bar, plus what type of beat

Simple Time Signatures **Each beat can be divided into two equal halves*



4 crotchet beats per bar



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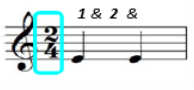
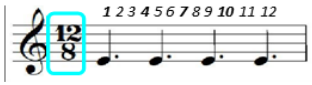
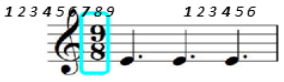


2 crotchet beats per bar

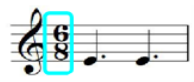
Compound Time Signatures **Each beat is dotted and can't be divided into two equal halves*



4 dotted crotchet beats per bar (12 quavers)



3 dotted crotchet beats per bar (9 quavers)



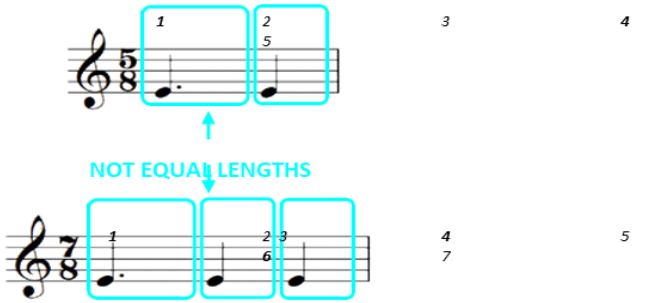
2 dotted crotchet beats per bar (6 quavers)

Listening Examples Go to Youtube to hear some examples of different metres:

2/4	Slaidburn March	**A march is usually in 2/4 (Left, Right, Left, Right... = 1, 2, 1, 2...)*
3/4	Shostakovich's Waltz No.2	**A waltz is a dance, usually in 3/4*
4/4	All That Jazz (from Chicago)	**Chicago is a Musical*
5/4	Take Five (By Dave Brubeck)	**Listen out for the jazz style*
7/4	The start of Money (By Pink Floyd)	*Listen out for the opening bass riff
6/8	We Are The Champions (By Queen)	**Queen are a famous British Rock Band*
12/8	The Way You Make Me Feel (By Michael Jackson)	**Count 1&a 2&a 3&a 4&a*

Irregular Time Signatures

Time signatures that <u>can't</u> be divided into equal groups of 2 or 3.



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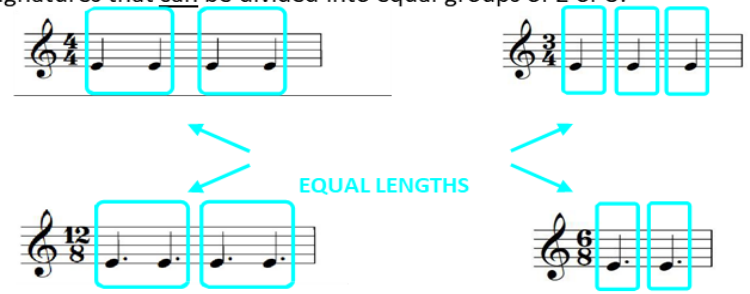

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You must make sure every bar adds up to the correct number of beats.
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Year 10 Music: MAD T-SHIRTS complete the missing words

TIME SIGNATURE / METRE

(How the pulse is grouped into bars)

[ ] Time
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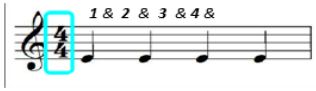
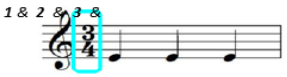


4 crotchet beats per bar



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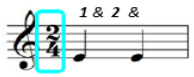

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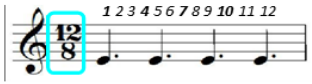

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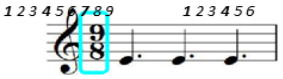

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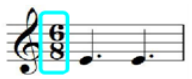
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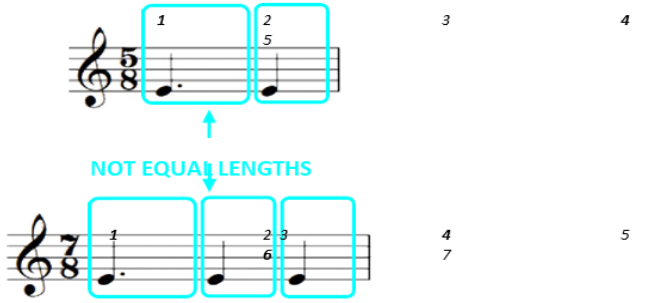
Time signatures that can't be divided into equal groups of 2 or 3.



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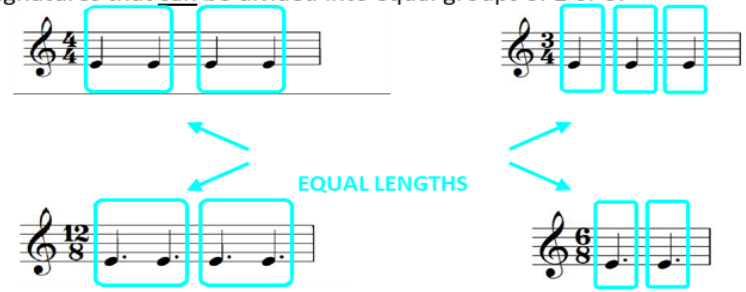

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Year 10 Music: MAD T-SHIRTS

Western Classical Music

Baroque Period 1600-1750	Classical Period 1750-1810	Romantic Period 1810-1910
Bach, Vivaldi, Handel	Mozart, Haydn, Beethoven	Chopin, Schubert, Wagner
Ornaments	Balanced, **regular phrases**	Use of the **leitmotif**
Terraced Dynamics	**Alberti Bass**	Music **more expressive**
Major & **Minor** Keys	Wider range of **dynamics**	Huge range of **dynamics**
Harpsichord	**Pianoforte** introduced	Use of **chromatic** chords
Small Orchestra (Mostly Strings)	**Wider range of mood**	Unusual **Key Changes**
	Orchestra got bigger	**Large Orchestra**
Basso Continuo	**Elegant**/Graceful style	Use of **Rubato**

STYLE

Minimalism

*Started in 20th Century

*Composers - Philip Glass...

*Based upon **Repetition**

*Uses small motifs that **gradually change**

***Slow changing harmony**

Jazz & Blues

***The 12 Bar Blues**

I	I	I	I
IV	IV	I	I
V	IV	I	I / V

***Swung rhythms**

***Extended chords**: 7th, 9th...

***Blue notes** – 'bending' some notes by a semitone

***Improvisation** - Performers make up music in the performance

***Rhythm Section** - Drums, Double Bass, Piano/Guitar

***Front Line Instruments** - Saxophones, Trumpets, Trombones

***Walking Bass** - The bass plays a steady rhythm & walks up/down the notes of the chord or scale.

Fusion -Mixing more than one style of music together

For example...

Bhangra - Came to UK in 1980s. Mixing traditional Indian music & pop music.

Tempo	Structure	Melody
Lively and Upbeat	Verse / Chorus structure	Quite repetitive. Simple. Decorated.
Rhythm	**Instruments**	**Technology**
Syncopation. 4 beats per bar.	Indian instruments (e.g. Dhol, Tabla, Sitar) & Pop Instruments	Drum machines. Synths. Scratching.

Pop & Rock Music

***Pop** - Commercial music which appeals to lots of people

***Rock** - Generally 'more aggressive' but also includes rock-ballads.

***Instruments** - (See instruments sheet!)

Intro	The beginning. Sets the mood & style. Usually just instruments.
Verse	Tells the story. Lyrics change each time but tune stays the same.
Chorus	The main message of the song. Same words and tune each time.
Bridge	A section that links two other sections.
Middle 8	A contrasting section of new ideas – usually 8 bars long.
Outro	Extra bit of music to finish off the song.

***Riff** - A repeated pattern. Can help make the song memorable.

*Examples:

The Who Jimmy Hendrix The Beatles

Pink Floyd The Sex Pistols The Clash

AC/DC David Bowie Queen

Film Music

***Genre** - Action, Adventure, Horror, Romance, War, Sci-fi, Western...

*Composers - John Williams, James Horner, Jerry Goldsmith

*Think, how do the **musical features represent what is happening on-screen**?
e.g.
Car Chase: Fast tempo, loud dynamics, sudden changes in melody direction...
WWII Film: Military instruments, fanfare, monophonic to represent isolation...
Large Theme Park Scene: Big Orchestra, Loud Dynamics, Fast/exciting rhythms...
Horror Scene: Dissonant chords and use of repeated pattern to build tension...

***Leitmotif** - A short musical idea linked to a specific character / thing

Musical Theatre

*A theatrical story told through music, singing, acting and dance

*Types: Jukebox, Film-to-stage, Sung-through (no speaking), Disney...

*Composers - Andrew Lloyd Webber, Leonard Bernstein, Stephen Sondheim...

***Overture** - The music played before the musical begins, usually featuring the musical's main themes.

***Solo** - Song for one character ***Duet** - Song for two characters

***Chorus** - Song for usually the whole 'company' to sing

***Recitative** - A song which does not have a memorable tune (more speech-like), often used to fill in the story if the show is all sung.

Year 10 Music: MAD T-SHIRTS complete the missing knowledge

Western Classical Music

[ ]	[ ]	[ ]
1600-1750	1750-1810	1810-1910
Bach, Vivaldi, Handel	Mozart, Haydn, Beethoven	Chopin, Schubert, Wagner
Ornaments	Balanced, **regular phrases**	Use of the **leitmotif**
Terraced Dynamics	**Alberti Bass**	Music **more expressive**
Major & **Minor** Keys	Wider range of **dynamics**	Huge range of **dynamics**
Harpsichord	**Pianoforte** introduced	Use of **chromatic** chords
Small Orchestra (Mostly Strings)	**Wider range of mood**	Unusual **Key Changes**
	Orchestra got bigger	**Large Orchestra**
Basso Continuo	**Elegant**/Graceful style	Use of **Rubato**

STYLE

Minimalism

*Started in 20th Century

*Composers - Philip Glass...

*Based upon [ ]

*Uses small motifs that **gradually change**

*Slow [ ]

Jazz & Blues

*[ ]

*The 12 Bar Blues

I	I	I	I
IV	IV	I	I
V	IV	I	I / V

*Extended chords: 7th, 9th...

*Blue notes – 'bending' some notes by a semitone

*[ ] - Performers make up music in the performance

*Rhythm Section - Drums, Double Bass, Piano/Guitar

*Front Line Instruments - Saxophones, Trumpets, Trombones

*[ ] - The bass plays a steady rhythm & walks up/down the notes of the chord or scale.

Fusion -Mixing more than one style of music together

For example...

[ ] - Came to UK in 1980s. Mixing traditional Indian music & pop music.

Tempo	Structure	Melody
Lively and Upbeat	Verse / Chorus structure	Quite repetitive. Simple. Decorated.
Rhythm	**Instruments**	**Technology**
Syncopation. 4 beats per bar.	Indian instruments (e.g. Dhol, Tabla, Sitar) & Pop Instruments	Drum machines. Synths. Scratching.

Pop & Rock Music

*Pop - Commercial music which appeals to lots of people

*Rock - Generally 'more aggressive' but also includes rock-ballads.

*Instruments - (See instruments sheet!)

Intro	The beginning. Sets the mood & style. Usually just instruments.
Verse	Tells the story. Lyrics change each time but tune stays the same.
Chorus	The main message of the song. Same words and tune each time.
Bridge	A section that links two other sections.
Middle 8	A contrasting section of new ideas – usually 8 bars long.
Outro	Extra bit of music to finish off the song.

*Riff - [ ]

*Examples:

The Who | Jimmy Hendrix | The Beatles

Pink Floyd | The Sex Pistols | The Clash

AC/DC | David Bowie | Queen

Film Music

*Genre - Action, Adventure, Horror, Romance, War, Sci-fi, Western...

*Composers - John Williams, James Horner, Jerry Goldsmith

*Think, how do the **musical features represent what is happening on-screen**?
e.g.
Car Chase: Fast tempo, loud dynamics, sudden changes in melody direction...
WWII Film: Military instruments, fanfare, monophonic to represent isolation...
Large Theme Park Scene: Big Orchestra, Loud Dynamics, Fast/exciting rhythms...
Horror Scene: Dissonant chords and use of repeated pattern to build tension...

*Leitmotif - [ ]

Musical Theatre

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*Overture - [ ]

*Solo - Song for one character *Duet - Song for two characters

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*Recitative - A song which does not have a memorable tune (more speech-like), often used to fill in the story if the show is all sung.

Year 10 Performing Arts: Eduqas Tech Award

Term	Definition
Audio Interface	• A device capable of converting audio signal from a microphone or guitar/ synth into a digital signal so it can enter a computer. Audio interfaces usually connect to a computer via a USB cable
Bouncing	• Exporting a track to a format like an mp3 or wav file
Channel	• Refers to one track of audio on a computer, part of the mixer or mixing desk
Chorus	• The chorus effect is an audio modulation effect that splits the original signal in the audio circuit into multiple signals, resulting in a chorus delayed signal that comes right after and alters the dry signal's pitch. It thickens the tone and creates an epic feeling. • Although it is best-used washing sounds and making supporting layers of your mix ambient, the chorus effect can have many purposes. One of the most obvious examples is how it can make your guitar feel like a "chorus" of guitars.
Clipping	• Another word for 'distorting' or 'peaking'
Compression	• Compression, along with reverb, is probably one of the most used effects in a DAW. Simply put, compression makes the loudest bits quieter, and the quietest bits louder (it 'compresses' the extremes). • When done correctly, this usually produces a more pleasant listening experience
DAW	• DAW is an acronym that means 'digital audio workstation'. It is sometimes spelt out when spoken (dee, ay, double you), or pronounced like 'door' (which sounds silly and can be confusing, especially if you are explaining something and you are standing by an actual door). • It can refer to any software used for sequencing and creating music; whether recorded or synthesised. GarageBand, Logic, Soundtrap and Cubase are examples of popular DAWs
Delay	• The delay audio effect is a made-by-man audio processing technique that stores a copy of the original signal in a storage medium and plays it back when defined by the producer. The most commonly used one is slapback delay, a type of delay which plays back the reflection right after the original input. The delay audio effect can be used to push an element back in the mix or to give it a wider stereo image. • This time-based audio effect makes productions more interesting by adding rhythmic variety and adding more depth to the mix.
Distortion	• In theory, the distortion effect is any type of alteration in the audio waveform. In music, the most common type of distortion is produced by adding a lot of gain to your audio . By doing so you create a fuzzy or gritty feeling to your electrical instrument.
Effects	• Many DAW packages have a number of built-in effects, including reverb, echo, delay. These and others can be used creatively in composition. • For learners composing using electronic or traditional instruments, these effects could be created with devices such as loop stations.

Year 10 Performing Arts: Eduqas Tech Award

Term	Definition
What is **audio interface?**	
Define **bouncing**	
What is a **channel?**	
Define **chorus**	
What is **clipping?**	
What is **compression?**	
What is **DAW?**	
Define **delay**	
Explain **distortion**	
What are **effects?**	

Year 10 Performing Arts: Eduqas Tech Award

Term	Definition
Envelope (ADSR)	• In music technology, envelope describes the 'shape' of a sound. For example, hitting a piano key will create an immediate, loud 'start' of the sound (**a**ttack), followed by a reduction in volume (**d**ecay). • This quieter sound will continue for a time (**s**ustain), before fading to nothing (**r**elease). The acronym ADSR is used to describe these four stages in a sound's envelope. As well as describing sounds, playing with envelope parameters is a vital part of synthesised sound
EQ	• EQ, or equalisation, is a versatile tool that is used to make your music sound better (in a nutshell). With EQ, you can boost (turn up) or cut (turn down) various frequencies in a track or project.
Equalization	• Equalization is a producing technique that controls volume in the audio frequency spectrum. We can equalize or completely filter (volume 0) by dropping/raising the volume of certain frequencies or even a frequency range. • Equalization is key to having a good mix, it creates space for instruments to breathe and be heard without interference from other instruments. It enhances the stereo experience because each sound is in its place, if well equalized of course.
FX	• Short for 'effects'. Common effects include reverb, chorus, distortion, and flange - processes or devices applied to a signal to alter its sound
Gain	• How loud a signal is before it goes through an amplifier. Can be another word for volume, and another word for guitar distortion
Latency	• Latency is the delay between inputting a signal (such as playing a key on a controller), the processing of the signal in the DAW, and the playback of that signal. • Poor latency can cause problems, like out of time recordings, or audio effects that don't work as intended. The most common solution is to buy more expensive equipment
Live and recorded sound	• Live sound is being performed in the moment, whereas recorded sound has already been performed and stored for playback at a later point. A music technology composition could include a combination of live and recorded sound, with or without effects being added to either or both.
Loop	• A repeated section of a song, often using imported samples
Mastering	• The final stages after mixing has been complete, the icing on the cake which makes tracks on a wider body of work sound uniform, and often also makes them louder
MIDI	• Another acronym (**m**usical **i**nstrument **d**igital **i**nterface), this is pronounced as a word (like the French for 'midday'). MIDI is complicated, so just remember a 'MIDI track' is one that can be easily edited in a DAW.

Year 10 Performing Arts: Eduqas Tech Award

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Envelope (ADSR)	• In music technology, envelope describes the '_____' of a sound. For example, hitting a piano key will create an immediate, loud 'start' of the sound (**a**ttack), followed by a reduction in volume (**d**ecay). • This quieter sound will continue for a time (**s**ustain), before fading to nothing (**r**elease). The acronym ADSR is used to describe these four stages in a sound's envelope. As well as describing sounds, playing with envelope parameters is a vital part of _____ sound
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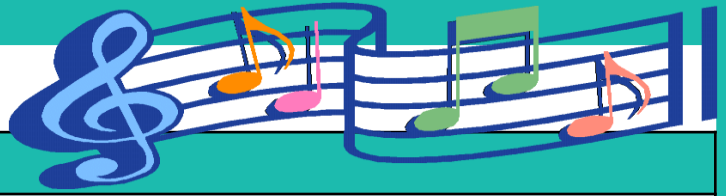
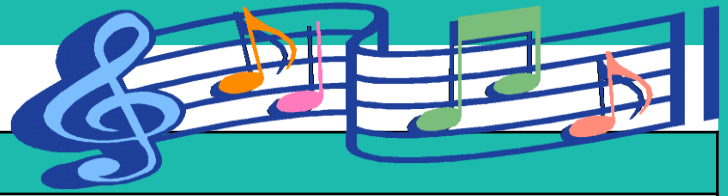
Year 10 Performing Arts: Eduqas Tech Award



Term	Definition
MIDI Controller	• A controller is a device which sends 'musical' information to the computer, often using MIDI. MIDI controllers often look like a (musical) keyboard, and send information such as frequency (pitch), duration, or velocity (dynamics), to a DAW. • They can be used to 'trigger' (start) certain events in live performance, such as beginning/ending a loop, or adding/changing an effect. They don't always look like keyboards; you may see drum pads, a guitar controller, or even a wind controller (that you blow into) used to send data to your computer
Mixing	• Applying processing and levelling audio recordings with the goal of making a balanced and listenable end product
Mixing Desk	• A unit which can control the routing and processing of audio signals. Some may have the functionality to connect to a computer, but not always. They are used commonly for live music or larger recording studio set ups. This is represented in GarageBand by each track's controls (Volume, Pan etc)
Panning	• Panning is the act of distributing the audio signal in a stereo field with panning controls. It can make sounds appear to come from different places in the left-right audio spectrum, therefore creating more space and width in the mix.
Plug-In	• A piece of software either included in a DAW or that can be loaded within a DAW and used for audio/MIDI processing. These can be used for effects such as EQ, Compression & Reverb
Quantising/ Quantisation	• When working with MIDI tracks, quantising can be used to 'make music sound in time'. It does this by 'snapping' each note to a predetermined point in the bar, depending on the settings. For example, 1/4 quantising will snap each note to the nearest quarter note, or crotchet, or 4th of a bar (it makes sense, trust me). • A general rule of thumb is to quantise to the shortest note value in a phrase (so if semi-quavers are used, try 1/16 quantisation). Be aware that this doesn't fix really out of time music, and it can remove some of the organic, musical qualities of a track
Recordings	• During the process of composing and producing a music technology composition a number of recordings will probably be made. These may be "dry" so that effects can be added later or may incorporate effects from the point of recording. At the end of the process, they should be mixed down into a final stereo recording.
Reverb	• Reverb is a complex echo resulting from multiple echoes reflecting on a hard surface many times, and with different amplitudes. These reverberations happen around us daily, but we're too busy to pay attention. If you take time to notice next time you're in an indoor pool or a church, that feeling of multiple echoes vibrating back to you when you speak is reverb. The sound waves bounce so fast that they lay on top of each other, creating what we call reverberations. • This audio effect is a great way to create a feeling of spaciousness in your mix and can help unify all the elements of your song. It generally works great on vocals and guitars.

Year 10 Performing Arts: Eduqas Tech Award



Term	Definition
What is a **MIDI controller?**	
Define **mixing**	
What is a **mixing desk?**	
Define **panning**	
What is a **plug-in?**	
Define **quantising/ quantisation**	
Define **Recordings**	
What is a **reverb?**	

Year 10 Performing Arts: Eduqas Tech Award

Term	Definition
Sample	• A sample is any pre-existing piece of audio that can be imported into a project and used as part of a track. The recorded 'loops' that come with GarageBand are samples, as is the hook from *Bootylicious* by Destiny's Child (it originally comes from the track *Edge of Seventeen* by Stevie Nicks). • Finding, editing, and reusing samples is a key part of much electronically produced music
Sampling	• Taking a short audio recording and manipulating this to include it in a new composition. • For example, the tempo and/or pitch of the sample could be changed, it could be reversed, it could be cut into smaller samples and rearranged, or short sections could be repeated to give a stuttering effect.
Scores and lead sheets	• The way in which music is written down, either as a traditional score (such as may be produced in software like Sibelius) or in a lead sheet which communicates the information in a different way, possibly graphically, using chord symbols, software screenshots with annotation, or in tab notation used by guitarists and drummers
Software instrument	• A virtual instrument (usually opened within a DAW), which interprets MIDI data and outputs it as the sound of an instrument
Tempo	• The speed of music. In BPM (beats per minute), 60 BPM for example is one beat a second
Velocity	• The force at which a note is played

Year 10 Performing Arts: Eduqas Tech Award

Term	Definition
What is a **sample?**	
Define **sampling**	
What are **scores and lead sheets?**	
Define **software instrument**	
Define **tempo**	
Define **velocity**	

PE

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 Core PE: Qualities of a Leader

Confidence

A leader must be confident to speak to a group and lead them. They must believe in their own abilities.

Leading your own warm up –

including a pulse raiser, dynamic stretches and a skill-based activity

Effective Communication

Talking and listening to teammates

Encouraging teammates

Supporting them instead of criticizing them

Knowledge of the sport and its rules

A leader must know the ins and outs of a sport to have a positive influence on their teammates

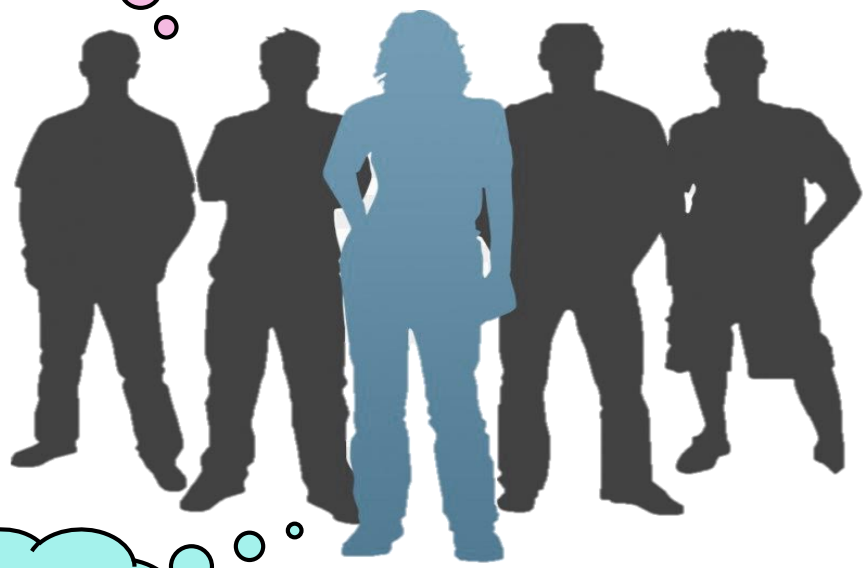
Punctuality

Being on time

Little Lever School

be kind | work hard | take responsibility

Year 10 Core PE: What are the qualities of a good leader?



Little Lever School

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Year 10 Core PE: Officiating and Fair Play

Sportsmanship

Applauding opponents when they do something well. Admitting if a foul is made of if the ball is out of play. Playing fair.

Whistle

You need to blow your whistle to get the attention of the players

Signal

Use arm signals to give a visual cue of what decision you have made

Gamesmanship

Bending the rules to gain an advantage. Not classed as cheating.

Etiquette

Polite behaviour in sport. Shaking hands with opponents. Complimenting them if they do something well.

Restart

Know how to restart the game correctly

Year 10 Core PE: What are the components of officiating and fair play?

Year 10 Core PE:

Attacking & Defending Tactics	
Zonal Defending	Defending a space rather than a person
Looking for a space	Move away from defenders and into space to receive a pass
Person on person defending	Staying close to a player and 'marking' them by following them wherever they go.
Communicating	• Using names to ask for a pass or to get the attention of the receiver • Talking to teammates to keep the defence in an organised shape
Triangles	Create angles to pass and receive quickly with no defenders in between
Closing the space	Closing the space between you and the attacker to make it difficult for them
Width	Use width to attack and stretch defences, such as the inverted U.

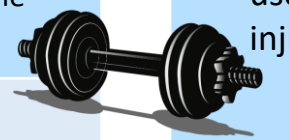
Year 10 Core PE:

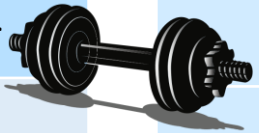
Define the attacking & defending tactics below:	
Zonal Defending	
Looking for a space	
Person on person defending	
Communicating	
Triangles	
Closing the space	
Width	

Year 10 Core PE: Fitness

Motor Competence

Muscular Strength	The amount of force you can put out or the amount of weight you can lift.
Muscular Endurance	Perform exercises to failure so that you improve your muscular endurance.
Speed	Moving your body fast as possible.
Agility	Changing direction rapidly, whilst maintaining speed and precision.
Flexibility	A joint or series of joints to move through an unrestricted, pain free range of motion.
Balance	Even distribution of weight enabling someone or something to remain upright and steady.
Co-ordination	Throw with one hand catch with the other.
Reaction Time	How fast an athlete is able to respond to a stimulus.
Cardiovascular Fitness	To exercise the whole body for long periods





Rules, Strategies and Tactics

- With all of the movements completed to improve muscular strength the correct technique must be used as this would stop any injuries or muscular injuries occurring.
- With all of the movements completed to improve agility and speed the correct technique must be used as this would stop any injuries or muscular injuries occurring.

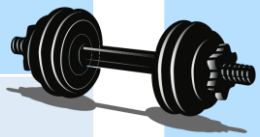
Healthy Participation

Muscles	Gluteal, hamstrings, quadriceps, gastrocnemius
Fitness components	Aerobic, anaerobic, warm up, cool down, circuit, continuous, fartlek

Year 10 Core PE: Fitness

Motor Competence- define each term below:

Muscular Strength	
Muscular Endurance	
Speed	
Agility	
Flexibility	
Balance	
Co-ordination	
Reaction Time	
Cardiovascular Fitness	



Rules, Strategies and Tactics

Explain the rules and strategies to fitness below:

Healthy Participation

What are the muscles used during fitness workouts?	
What are the fitness components?	

Year 10 Option PE: The Media

Digital and Social media:

- ❑ Social networking
- ❑ Media sharing sites
- ❑ Live streaming and technology on the move
- ❑ Websites/blogs

Social and digital media	Different source types for example Twitter
Streaming sites	For example, YouTube
Technology on the move	Tablets and phones
Websites and blogs	For example Sky Sports, F1 fanatic, CAUGHTOFFSIDE, the sporting blog

Different forms of broadcast media

Television	Freeview, SMART TV and subscription services
Radio	Specific sport internet streaming services and radio providers
Podcasts	iTunes, Amazon Music; That Peter Crouch Podcast

Print media sources

Newspapers	Broadsheet, tabloids, the Guardian, The Daily Mail
Magazines	Monthly subscriptions, FourFourTwo, Rugby World
Books	History, skill books, Sam Warburton - open side

Year 10 Option PE: The Media

List examples of digital and social media:

- ❑ Social networking
- ❑ Media sharing sites
- ❑ Live streaming and technology on the move
- ❑ Websites/blogs

	Different source types for example Twitter
	For example, YouTube
	Tablets and phones
	For example Sky Sports, F1 fanatic, CAUGHTOFFSIDE, the sporting blog

List the different forms of broadcast media:

	Freeview, SMART TV and subscription services
	Specific sport internet streaming services and radio providers
	iTunes, Amazon Music; That Peter Crouch Podcast

What are print media sources?

	Broadsheet, tabloids, the Guardian, The Daily Mail
	Monthly subscriptions, FourFourTwo, Rugby World
	History, skill books, Sam Warburton - open side

Year 10 Option PE: The Media

What are the positive effects of the media?

Participation

How the media can help promote sport to increase awareness and improve participation levels:

- Inspiring others to participate
- Creating and adopting role models

Examples include:

- Exposure and coverage more likely to inspire others to participate – grass roots increase (netball after Commonwealth gold, cycling after 2012 Olympic success)
- 'Influencers' through social networks
- How this exposure and coverage might remove some barriers to participation

Raising the Profile of Sport

How the media can share positive messages and raise the profile of sports, break down barriers, promote the health and fitness industry

- Sports initiatives that seek to increase participation
- Promotion of an active, healthy lifestyle

Examples may include:

- Initiatives – how the media use topical role models and famous people (celebrities) to promote current initiatives
- Rise in home health and fitness industry – online, live and on demand fitness classes

Education

How the media can share positive updates and overviews of sports and their developments

- Exposure for emerging and minority sports
- Continued education of performers and spectators in emerging sports and changes to existing sports

Includes:

- Examples of emerging/new and minority sports – such as handball, walking football
- Increase in media sources – this increases exposure and wider demographic reached so new initiatives are easily promoted
- Education/changes: rules, new technologies, new variations to attract more spectators and participants

Revenue

How the media positively influences the revenue from sport:

- Promotional opportunities for business and commercial sport
- Sport as a commodity
- The Golden Triangle

Includes:

- Sport using the media to sell itself, the media uses sport to sell newspapers, TV channels, with many sports dependent on media money as source of revenue
- Sport changing rules and adapts competitions to attract spectators and media coverage (e.g. 20/20 cricket)
- How sport performers promote themselves and their sport using social networks
- Sponsors of main events (e.g. Olympics)

Year 10 Option PE: The Media

What are the positive effects of the media?

Participation	Raising the Profile of Sport	Education	Revenue
How the media can help promote sport to increase awareness and improve participation levels: • - • - **Examples include:** • - • - • -	**How the media can share positive messages and raise the profile of sports, break down barriers, promote the health and fitness industry** • - • - **Examples may include:** • - • -	**How the media can share positive updates and overviews of sports and their developments** • - • - **Includes:** • - • - • -	**How the media positively influences the revenue from sport:** • - • - • - **Includes:** • - • - • - • -

Year 10 Option PE: The Media

What are the negative effects of the media?

External factors affecting decline in live spectatorship	Ethical appropriateness of sponsors	How the media is assisting a widening wealth divide in sport	Impact of wider global issues on sport/ performers and spectators	Media demands affecting sport fixture scheduling
To include: • Effect on clubs and surrounding communities; Pay Per View (PPV), live streaming, social networks, increased technology and multiple devices • Links between gambling online and attendance at live sports events	**Examples may include:** • Gambling logos: might this be banned? • Alcohol sponsors: American National Football league • Formula1: tobacco being banned since 2005 • Ethical sponsors: fast/junk food, energy drinks • Individual athletes: diet/supplement products	**Examples may include:** • Premiership football: agents' fees for top transfers, wages, TV rights compared to lower leagues and other sports • Gender divide in earnings • Divide between top sports and 'growing'/minority sports	**Examples may include:** • Reduction in live spectator sport due to current affairs (e.g. pandemics) • Major competition hosts - travel restrictions or different time zones/climates	**Examples may include:** • Christmas calendar for Premiership football • Major events/tournaments – international breaks • Major event (World Cup) impact on leagues/ participants

Year 10 Option PE: The Media

What are the negative effects of the media?

External factors affecting decline in live spectatorship	Ethical appropriateness of sponsors	How the media is assisting a widening wealth divide in sport	Impact of wider global issues on sport/ performers and spectators	Media demands affecting sport fixture scheduling
To include: • - • -	Examples may include: • - • - • - • - • -	Examples may include: • - • - • -	Examples may include: • - • -	Examples may include: • - • - • -

Year 10 Option PE: The Media

Negative Impacts On Sport and Sports Performers

Coverage of inappropriate behaviour on-field and off-field	Rejection of sporting heroes	Scrutiny and criticism of participants including officials, performers and leaders	Increased pressure on athletes to look a certain way and links to mental health
Includes a broad range of media sources – one off or repeated poor behaviour is for all to see up close, replayed, archived forever.	Research examples of current sporting heroes. Examples from 2020 may include: • Sir Bradley Wiggins • Danny Cipriani • Victoria Pendleton	Impact in society: Aggression seen in football fans, aggression against officials at grass roots.	Different body types appropriate to different sports but not understood by the media. E.g. female strength athletes having a body type which is not usually promoted as the standard ideal of what a woman should look like

Year 10 Option PE: The Media

What are the negative impacts on sport and sports performers?

1.	2.	3.	4.
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Religious Education

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 RE: Christianity

Christianity is a **monotheistic** religion, which means that they believe in **One God.** They believe that God has many qualities/attributes.

Qualities	Meaning	Evidence from the Bible
Omnipotent	All-powerful	The creation of the world in Genesis. Miracles that Jesus performed, for example, turning water into wine.
Omni-benevolent	All-loving	Jesus' death - so that humanity could achieve salvation and atonement.
Just	Fair, treat everyone equally.	The Parable of the Sheep and Goats. The Book of Job.

Key Words

- **Salvation** – the idea that Jesus **saved** humanity from **sin** and death through his death and **resurrection**.
- **Sin** – acting against God's will.
- **Original Sin** – Some Christians believe this was the **first** sin, committed by Adam and Eve.
- **Atonement** – Forgiveness, reconciliation, being **'at one'** with God.

Year 10 RE: Christianity

Christianity is a _____ religion, which means that they believe in _____. They believe that God has many qualities/attributes.

Qualities	Meaning	Evidence from the Bible
Omnipotent		
Omni-benevolent		
Just		

Key Words- define below:

- **Salvation** –
- **Sin** –
- **Original Sin** –
- **Atonement** –

Year 10 RE: Christianity

The Trinity is the Christian belief in One God, made up of three persons. The three persons of the Trinity for Christians are **God the Father**, **God the Son (Jesus)** and **God the Holy Spirit**. They are all equally important.

Christians see the three persons of the Trinity as having different characteristics and roles.

God the Father	God the Son	God the Holy Spirit
Sustains and rules everything.	Born of the Virgin Mary.	Part of God that works within the world.
Will judge.	Performed miracles.	Helper and guide.
Continues to care for us like a father.	Rose from the dead on the third day.	Invisible power of God which breathes new life into people.
Creator	Redeemer, saviour	Provides courage and strength.

Why do Christians believe in the Trinity?

1. It is explained in the Creeds, for example, the Apostles' Creed and the Nicene Creed.
2. It is referred to in the Creation Story.
3. It is referred to when Jesus was baptised.

How do Christians express their belief in the Trinity?

1. They recite the creeds.
2. They do the 'sign of the cross' at the beginning and end of prayers.
3. During baptism, water is poured over the head three times.
4. They celebrate Trinity Sunday.

Year 10 RE: Christianity

The Trinity is the Christian belief in One God, made up of three persons. The three persons of the Trinity for Christians are _____, _____ and _____ . They are all equally important.

Christians see the three persons of the Trinity as having different characteristics and roles.

God the Father	God the Son	God the Holy Spirit

Why do Christians believe in the Trinity?

1. -
2. -
3. -

How do Christians express their belief in the Trinity?

1. -
2. -
3. -
4. -

Science

Helping every person achieve things they never thought they could.

Little Lever School
be kind | work hard | take responsibility

Year 10 Science: Atomic Structure

Radius of an atom 1×10^{-10}m

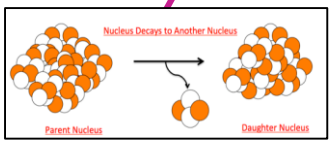
Atom	*Same number of protons and electrons*
Ion	*Unequal number of electrons to protons*
Mass number	*Number of protons and neutrons*
Atomic number	*Number of protons*

Electrons gained

Electrons lost

Negative ion

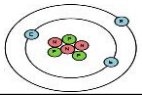
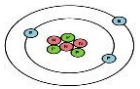
Positive ion



Decay	*Range in air*	*Ionising power*	*Penetration power*
Alpha	Few cm	Very strong	Stopped by paper
Beta	up to 1m	Medium	Stopped by Aluminium
Gamma	Great distances	Weak	Stopped by thick lead

Particle	*Charge*	*Mass(AMU)*	*Found*
Neutron	*None*	*1*	*In the nucleus*
Proton	+	*1*	
Electron	-	*negligible*	*Orbits the nucleus*

Atom structure

Isotope	$^{6}_{3}Li$		$^{7}_{3}Li$	

Different forms of an element with the same number of protons but different number of neutrons

Radioactive decay	Unstable atoms randomly emit radiation to become stable
Detecting	Use Geiger Muller tube
Unit	Becquerel
Ionisation	All radiation ionises

Discovery of the nucleus

Dalton (1803)	Suggested idea of atoms as small spheres that cannot be cut.
Thomson (1904)	Proposed *'plum pudding'* model – atoms are a ball of positive charge with negative electrons embedded in it.
Geiger and Marsden (1909)	Directed beam of alpha particles ($^{4}_{2}He$) at a thin sheet of gold foil. Found some travelled through, some were deflected, some bounced back.
Rutherford (1911)	Used above evidence to suggest alpha particles deflected due to electrostatic interaction between the very small charged nucleus. Proposed mass and positive charge contained in nucleus while electrons found outside the nucleus which cancel the positive charge exactly.
Bohr (1913)	Suggested modern model of atom – electrons in circular orbits around nucleus, electrons can change orbits by emitting or absorbing electromagnetic radiation. His research led to the idea of some particles within the nucleus having positive charge; these were named protons.
Chadwick (1932)	Discovered neutrons in nucleus – enabling other scientists to account for mass of atom.

Year 10 Science: Atomic Structure

Radius of an atom
1×10^{-10}m

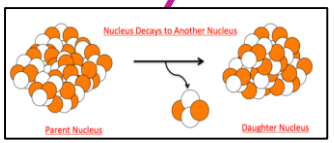
Atom	
Ion	
Mass number	
Atomic number	

Electrons gained

Electrons lost

Negative ion

Positive ion



Decay	*Range in air*	*Ionising power*	*Penetration power*
Alpha			
Beta			
Gamma			

Particle	*Charge*	*Mass(AMU)*	*Found*
Neutron			
Proton			
Electron			

Atom structure

Radioactive decay	
Detecting	
Unit	
Ionisation	

Isotope	$^{6}_{3}Li$		$^{7}_{3}Li$	

Different forms of an element with the same number of protons but different number of neutrons

Discovery of the nucleus

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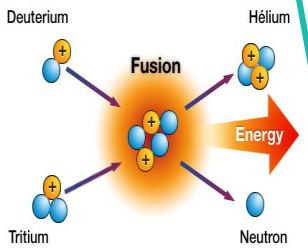
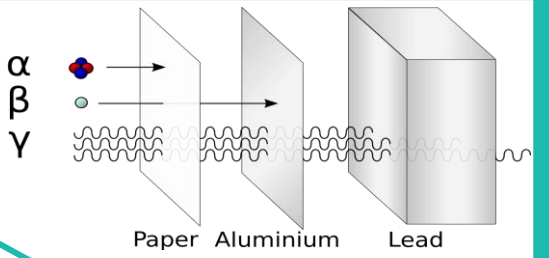
Year 10 Science: Atomic Structure

Atoms and Nuclear Radiation

Nuclear fission	**One large unstable nucleus splits to make two smaller nuclei**	Neutron hits U-235 nucleus, nucleus absorbs neutron, splits emitting two or three neutrons and two smaller nuclei. Process also releases energy.	Process repeats, chain reaction formed
			Used in nuclear power stations
Nuclear fusion	**Two small nuclei join to make one larger nucleus**	Difficult to do on Earth – huge amounts of pressure and temperature needed.	Occurs in stars



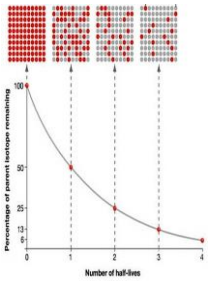
Decay	Emitted from nucleus	*Changes in mass number and atomic number*	
Alpha (α)	Helium nuclei ($^4_2\mathrm{He}$)	***-4***	***-2***
Beta (β)	Electron ($^0_{-1}\mathrm{e}$)	***0***	***+1***
Gamma (γ)	Electromagnetic wave	***0***	***0***
Neutron	Neutron	***-1***	***0***

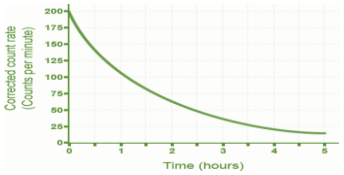


$^{238}_{92}U \rightarrow {}^{234}_{90}Th + {}^{4}_{2}He$

$^{14}_{6}C \rightarrow {}^{14}_{7}N + {}^{0}_{-1}e$

$^{99}_{43}Tc \rightarrow {}^{99}_{43}Tc + \gamma$





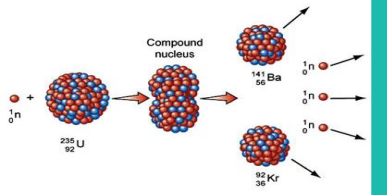
Contamination	***Unwanted presence of radioactive atoms***
Irradiation	***Person is in exposed to radioactive source***

Half life	***The time taken to lose half of its initial radioactivity***

Sievert	Unit measuring dose of radiation
Background	Constant low level environmental radiation, e.g. from nuclear testing, nuclear power, waste

Uses	Different isotopes have different half lives	Short half-lives used in high doses, long half lives used in low doses.
Tracers	Used within body	Isotope with short half life injected, allowed to circulate and collect in damaged areas. PET scanner used to detect emitting radiation. Must be beta or gamma as alpha does not penetrate the body.
Radiation therapy	Used to treat illnesses e.g. cancer	Cancer cells killed by gamma rays. High dose used to kill cells. Damage to healthy cells prevented by focussed gamma radiography machine.

Fuel rods	Made of U-238, 'enriched' with U-235 (3%). Long and thin to allow neutrons to escape, hitting nuclei.
Control rods	Made of Boron. Controls the rate of reaction. Boron absorbs excess neutrons.
Concrete	Neutrons hazardous to humans – thick concreate shield protects workers.

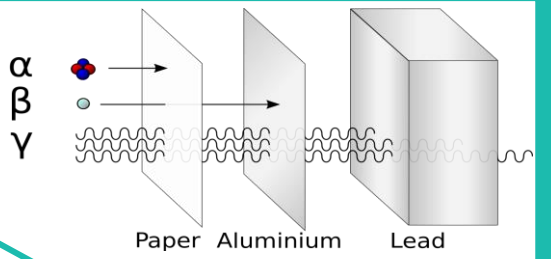


Year 10 Science: Atomic Structure

Atoms and Nuclear Radiation

Nuclear fission	One large unstable nucleus splits to make two smaller nuclei		
Nuclear fusion	Two small nuclei join to make one larger nucleus		

Decay	Emitted from nucleus	*Changes in mass number and atomic number*	
Alpha (α)	Helium nuclei ($^4_2\mathrm{He}$)		
Beta (β)	Electron ($^0_{-1}\mathrm{e}$)		
Gamma (γ)	Electromagnetic wave		
Neutron	Neutron		



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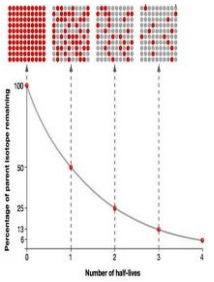

Contamination	
Irradiation	

Decay	Emitted from nucleus
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Beta (β)	Electron ($^0_{-1}\mathrm{e}$)
Gamma (γ)	Electromagnetic wave
Neutron	Neutron

Sievert	
Background	

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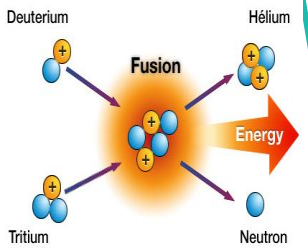
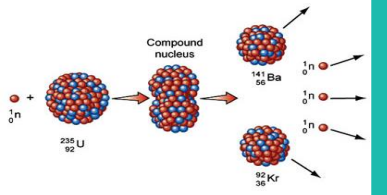


Uses		
Tracers		
Radiation therapy		

Fuel rods	
Control rods	
Concrete	



Year 10 Science: Chemical Changes

Oxidation **I**s **L**oss (of electrons) **R**eduction **I**s **G**ain (of electrons)

AQA CHEMICAL CHANGES

Reactivity of metals

- The reactivity series
- Metal oxides
- Oxidation and reduction in terms of electrons (HT ONLY)
- Neutralisation of acids and salt production

Ionic half equations (HT only)

For displacement reactions	***Ionic half equations show what happens to each of the reactants during reactions***	For example: The ionic equation for the reaction between iron and copper (II) ions is: **$Fe + Cu^{2+} \rightarrow Fe^{2+} + Cu$** The half-equation for iron (II) is: **$Fe \rightarrow Fe^{2+} + 2e^-$** The half-equation for copper (II) ions is: **$Cu^{2+} + 2e^- \rightarrow Cu$**

Acid name	Salt name
Hydrochloric acid	Chloride
Sulfuric acid	Sulfate
Nitric acid	Nitrate

sodium hydroxide + hydrochloric acid → sodium chloride + water

calcium carbonate + sulfuric acid → calcium sulfate, + carbon dioxide + water

Neutralisation	**Acids can be neutralised by alkalis and bases**	An **alkali** is a soluble base e.g. metal hydroxide. A **base** is a substance that neutralises an acid e.g. a soluble metal hydroxide or a metal oxide.

Metals and oxygen	***Metals react with oxygen to form metal oxides***	**magnesium + oxygen → magnesium oxide** *$2Mg + O_2 \rightarrow 2MgO$*
Reduction	***This is when oxygen is removed from a compound during a reaction***	e.g. metal oxides reacting with hydrogen, extracting low reactivity metals
Oxidation	***This is when oxygen is gained by a compound during a reaction***	e.g. metals reacting with oxygen, rusting of iron

Year 10 Science: Chemical Changes

Oxidation **I**s **L**oss (of electrons) **R**eduction **I**s **G**ain (of electrons)

AQA CHEMICAL CHANGES

Reactivity of metals

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Neutralisation of acids and salt production

Acid name	Salt name
Hydrochloric acid	
Sulfuric acid	
Nitric acid	

sodium hydroxide + hydrochloric acid →

calcium carbonate + sulfuric acid →

Neutralisation		An **alkali** is a soluble base e.g. metal hydroxide. A **base** is a substance that neutralises an acid e.g. a soluble metal hydroxide or a metal oxide.

Metal oxides

Metals and oxygen	***Metals react with oxygen to form metal oxides***	**magnesium + oxygen → magnesium oxide** $2Mg + O_2 \rightarrow 2MgO$
		e.g. metal oxides reacting with hydrogen, extracting low reactivity metals
		e.g. metals reacting with oxygen, rusting of iron

Year 10 Science: Chemical Changes

HT ONLY: Reactions between metals and acids are redox reactions as the metal donates electrons to the hydrogen ions. This displaces hydrogen as a gas while the metal ions are left in the solution.

Reactions of acids

Reactions of acids and metals

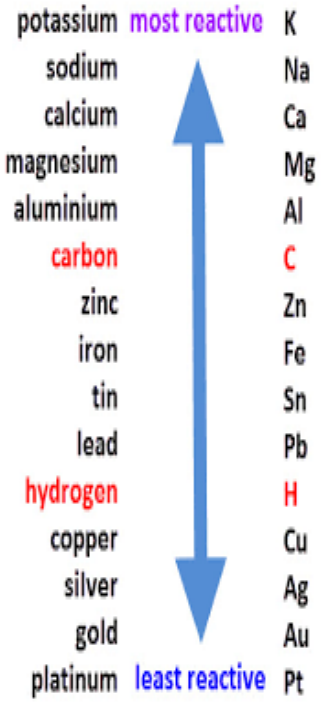
Acids react with some metals to produce salts and hydrogen.

Reactions with acids	*metal + acid → metal salt + hydrogen*	**magnesium + hydrochloric acid → magnesium chloride + hydrogen** **zinc + sulfuric acid → zinc sulfate + hydrogen**

Extraction using carbon	
Metals less reactive than carbon can be extracted from their oxides by reduction.	For example: **zinc oxide + carbon → zinc + carbon dioxide**

Extraction of metals and reduction

Unreactive metals, such as gold, are found in the Earth as the metal itself. They can be mined from the ground.



Metals form positive ions when they react	The reactivity of a metal is related to its tendency to form positive ions	The reactivity series arranges metals in order of their reactivity (their tendency to form positive ions) following reactions with acid and water.
Carbon and hydrogen	Carbon and hydrogen are non-metals but are included in the reactivity series	These two non-metals are included in the reactivity series as they can be used to extract some metals from their ores, depending on their reactivity.
Displacement	A more reactive metal can displace a less reactive metal from a compound.	Silver nitrate + Sodium chloride → Sodium nitrate + Silver chloride

	Reactions with water	Reactions with acid
Group 1 metals	Reactions get more vigorous as you go down the group	Reactions get more vigorous as you go down the group
Group 2 metals	They react very slowly with water and steam.	Observable reactions include fizzing and temperature increases
Zinc, iron and copper	They react very slowly with water.	Zinc and iron react slowly with acid. Copper does not react with acid.

Year 10 Science: Chemical Changes

HT ONLY:

Reactions of acids

Reactions of acids and metals

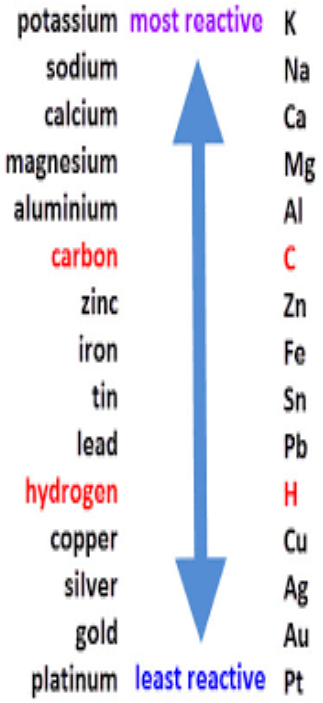
Acids react with some metals to produce _____ and _____.

Reactions with acids	*metal + acid → metal salt + hydrogen*	**magnesium + hydrochloric acid →** **zinc + sulfuric acid →**

Extraction using carbon	
Metals less reactive than carbon can be extracted from their oxides by reduction.	For example: **zinc oxide + carbon →**

Extraction of metals and reduction

Unreactive metals, such as _____ , are found in the Earth as the metal itself. They can be mined from the ground.



Metals form positive ions when they react		The reactivity series arranges metals in order of their reactivity (their tendency to form positive ions) following reactions with acid and water.
Carbon and hydrogen		These two non-metals are included in the reactivity series as they can be used to extract some metals from their ores, depending on their reactivity.
Displacement		Silver nitrate + Sodium chloride →

	Reactions with water	Reactions with acid
Group 1 metals		Reactions get more vigorous as you go down the group
Group 2 metals		Observable reactions include fizzing and temperature _____
Zinc, iron and copper		Zinc and iron react slowly with acid. _____ does not react with acid.

Year 10 Science: Chemical Changes

The ions discharged when an aqueous solution is electrolysed using inert electrodes depend on the relative reactivity of the elements involved.

Electrolysis

At the negative electrode	Metal will be produced on the electrode if it is less reactive than hydrogen. Hydrogen will be produced if the metal is more reactive than hydrogen.
At the positive electrode	Oxygen is formed at positive electrode. If you have a halide ion (Cl^-, I^-, Br^-) then you will get chlorine, bromine or iodine formed at that electrode.

Process of electrolysis	Splitting up using electricity	When an ionic compound is melted or dissolved in water, the ions are free to move. These are then able to conduct electricity and are called electrolytes. Passing an electric current though electrolytes causes the ions to move to the electrodes.
Electrode	Anode Cathode	The positive electrode is called the anode. The negative electrode is called the cathode.
Where do the ions go?	Cations Anions	Cations are positive ions and they move to the negative cathode. Anions are negative ions and they move to the positive anode.

Electrolysis of aqueous solutions

Strong acids	Completely ionised in aqueous solutions e.g. hydrochloric, nitric and sulfuric acids.
Weak acids	Only partially ionised in aqueous solutions e.g. ethanoic acid, citric acid.
Hydrogen ion concentration	As the pH decreases by one unit (becoming a stronger acid), the hydrogen ion concentration increases by a factor of 10.

Strong and weak acids (HT ONLY)

Soluble salts

Soluble salts	Soluble salts can be made from reacting acids with solid insoluble substances (e.g. metals, metal oxides, hydroxides and carbonates).
Production of soluble salts	Add the solid to the acid until no more dissolves. Filter off excess solid and then crystallise to produce solid salts.

Reactions of acids

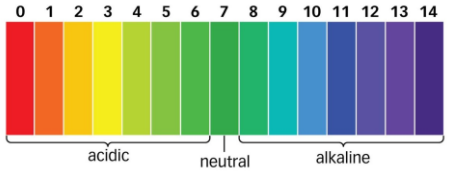
Acids	Acids produce hydrogen ions (H^+) in aqueous solutions.
Alkalis	Aqueous solutions of alkalis contain hydroxide ions (OH^-).

In neutralisation reactions, hydrogen ions react with hydroxide ions to produce water:

$$H^+ + OH^- \rightarrow H_2O$$

The pH scale and neutralisation

You can use universal indicator or a pH probe to measure the acidity or alkalinity of a solution against the pH scale.



Year 10 Science: Chemical Changes

The ions discharged when an aqueous solution is electrolysed using inert electrodes depend on the relative reactivity of the elements involved.

Electrolysis

Process of electrolysis	Splitting up using electricity
Electrode	Anode Cathode
Where do the ions go?	Cations Anions

Electrolysis of aqueous solutions

At the negative electrode	
At the positive electrode	

Strong and weak acids (HT ONLY)

	Completely ionised in aqueous solutions e.g. hydrochloric, nitric and sulfuric acids.
Weak acids	Only partially ionised in aqueous solutions e.g. _____ , _____ .
Hydrogen ion concentration	As the pH decreases by one unit (becoming a stronger acid), the hydrogen ion concentration increases by a factor of ____ .

Soluble salts

Soluble salts	
Production of soluble salts	

Reactions of acids

Acids	
Alkalis	

In neutralisation reactions, hydrogen ions react with hydroxide ions to produce water:

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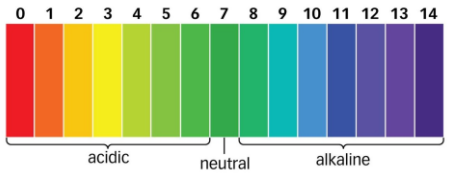
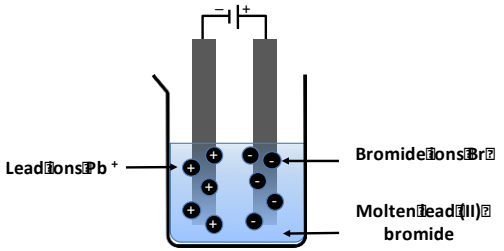


Year 10 Science: Chemical Changes

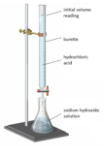
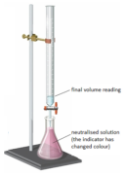
Extracting metals using electrolysis

Metals can be extracted from molten compounds using electrolysis.
This process is used when the metal is too reactive to be extracted by reduction with carbon.
The process is expensive due to large amounts of energy needed to produce the electrical current. Example: aluminium is extracted in this way, from aluminium oxide.



Higher tier:

You can display what is happening at each electrode using half-equations:
At the cathode: $Pb^{2+} + 2e^- \rightarrow Pb$
At the anode: $2Br^- \rightarrow Br_2 + 2e^-$

	**1.** Use the pipette to add 25 cm^3 of alkali to a conical flask and add a few drops of indicator.
	**2.** Fill the burette with acid and note the starting volume. Slowly add the acid from the burette to the alkali in the conical flask, swirling to mix.
	**3.** Stop adding the acid when the end-point is reached (the appropriate colour change in the indicator happens). Note the final volume reading. Repeat steps 1 to 3 until you get consistent readings.

Titrations (Chemistry only)

Titrations are used to work out the precise volumes of acid and alkali solutions that react with each other.

Calculating the chemical quantities in titrations involving concentrations in mol/dm^3 and in g/dm^3 (HT ONLY):

$2NaOH(aq) + H_2SO_4(aq) \rightarrow Na_2SO_4(aq) + 2H_2O(l)$

It takes 12.20cm^3 of sulfuric acid to neutralise 24.00cm^3 of sodium hydroxide solution, which has a concentration of 0.50mol/dm^3.

Calculate the concentration of the sulfuric acid in g/dm^3

0.5 mol/dm^3 x (24/1000) dm^3 = 0.012 mol of NaOH

The equation shows that 2 mol of NaOH reacts with 1 mol of H_2SO_4, so the number of moles in 12.20cm^3 of sulfuric acid is **(0.012/2) = 0.006 mol of sulfuric acid**

Calculate the concentration of sulfuric acid in mol/dm^3

0.006 mol x (1000/12.2) dm^3 =0.49mol/dm^3

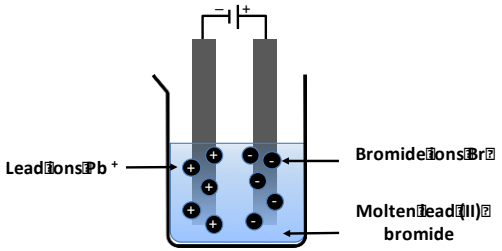
Calculate the concentration of sulfuric acid in g/dm^3

H_2SO_4 = (2x1) + 32 + (4x16) = 98g

0.49 x 98g = 48.2g/dm^3

Year 10 Science: Chemical Changes

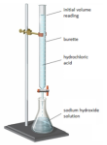
Extracting metals using electrolysis



Higher tier:

You can display what is happening at each electrode using half-equations:
At the cathode: $Pb^{2+} + 2e^- \rightarrow Pb$
At the anode: $2Br^- \rightarrow Br_2 + 2e^-$

1.



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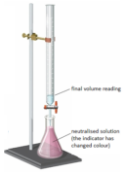


3.

Titrations (Chemistry only)

Titrations are used to work out the precise volumes of acid and alkali solutions that react with each other.

Calculating the chemical quantities in titrations involving concentrations in mol/dm³ and in g/dm³ (HT ONLY):

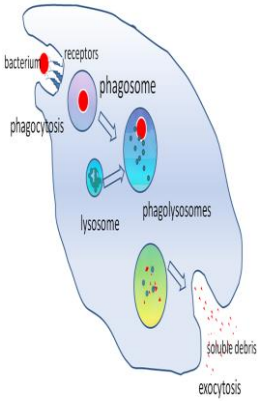
$2NaOH(aq) + H_2SO_4(aq) \rightarrow Na_2SO_4(aq) + 2H_2O(l)$

It takes 12.20cm³ of sulfuric acid to neutralise 24.00cm³ of sodium hydroxide solution, which has a concentration of 0.50mol/dm³.

Calculate the concentration of the sulfuric acid in g/dm³

0.5 mol/dm³ x (24/1000) dm³ = 0.012 mol of NaOH

Year 10 Science: Infection and Response



Phagocytes	**Phagocytosis**	Phagocytes engulf the pathogens and digest them.
Lymphocytes	**Antibody production**	Specific antibodies destroy the pathogen. This takes time so an infection can occur. If a person is infected again by the same pathogen, the lymphocytes make antibodies much faster.
	Antitoxin production	Antitoxin is a type of antibody produced to counteract the toxins produced by bacteria.

BIOLOGY ONLY-Plants have several ways of defending themselves from pathogens and animals

Physical	Mechanical
Thick waxy layers, cell walls stop pathogen entry	Thorns, curling up leaves to prevent being eaten
Chemical	
Antibacterial and toxins made by plant	

Detection and identification of plant diseases (bio only)

Detection	Identification
Stunted growth	Reference using gardening manual or website, laboratory test for pathogens, testing kit using monoclonal antibodies.
Spots on leaves	
Area of decay	
growths	
Malformed stem/leaves	
Discolouration	
Presence of pests	

Nitrate ions needed for protein synthesis – lack of nitrate = stunted growth.

Magnesium ions needed to make chlorophyll – not enough leads to chlorosis – leaves turn yellow.

Bacteria may produce toxins that damage tissues and make us feel ill

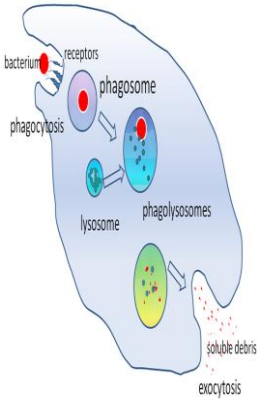
Viruses	Bacteria (prokaryotes)	Protists (eukaryotes)	Fungi (eukaryotes)
e.g. cold, influenza, measles, HIV, tobacco mosaic virus	e.g. tuberculosis (TB), Salmonella, Gonorrhoea	e.g. dysentery, sleeping sickness, malaria	e.g. athlete's foot, thrush, rose black spot
DNA or RNA surrounded by a protein coat	No membrane bound organelles (no chloroplasts, mitochondria or nucleus). Cell wall. Single celled organisms	Membrane bound organelles. Usually single celled.	Membrane bound organelles, cell wall made of chitin. Single celled or multi-cellular

Pathogens

Pathogens are microorganisms that cause infectious disease

Viruses live and reproduce inside cells causing damage

Year 10 Science: Infection and Response



Phagocytes		
Lymphocytes		

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Year 10 Science: Infection and Response

Pathogens are identified by white blood cells by the different proteins on their surfaces **ANTIGENS.**

White blood cells are part of the immune system

Immune system

Human defence systems

Non-specific defence systems

The human body has several non specific ways of defending itself from pathogens getting in

	**Nose**	Nasal hairs, sticky mucus and cilia prevent pathogens entering through the nostrils.
	**Trachea and bronchus (respiratory system)**	Lined with mucus to trap dust and pathogens. Cilia move the mucus upwards to be swallowed.
	**Stomach acid**	Stomach acid (pH1) kills most ingested pathogens.
	**Skin**	Hard to penetrate waterproof barrier. Glands secrete oil which kill microbes

Pathogens may infect plants or animals and can be spread by direct contact, water or air

Pathogen	*Disease*	Symptoms	Method of transmission	Control of spread
Virus	**Measles**	Fever, red skin rash.	Droplet infection from sneezes and coughs.	Vaccination as a child.
Virus	**HIV**	Initially flu like systems, serious damage to immune system.	Sexual contact and exchange of body fluids.	Anti-retroviral drugs and use of condoms.
Virus	**Tobacco mosaic virus**	Mosaic pattern on leaves.	Enters via wounds in epidermis caused by pests.	Remove infected leaves and control pests that damage the leaves.
Bacteria	**Salmonella**	Fever, cramp, vomiting, diarrhoea.	Food prepared in unhygienic conditions or not cooked properly.	Improve food hygiene, wash hands, vaccinate poultry, cook food thoroughly.
Bacteria	**Gonorrhoea**	Green discharge from penis or vagina.	Direct sexual contact or exchange of body fluids.	Use condoms. Treatment using antibiotics.
Protists	**Malaria**	Recurrent fever.	By an animal vector (mosquitoes).	Prevent breeding of mosquitoes. Use of nets to prevent bites.
Fungus	**Rose black spot**	Purple black spots on leaves.	Spores carried via wind or water.	Remove infected leaves. Spray with fungicide.

Year 10 Science: Infection and Response

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Virus				
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Bacteria				
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Protists				
Fungus				

Year 10 Science: Infection and Response

Antibiotics and painkillers

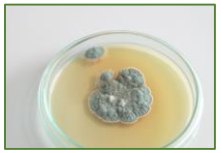
Bacteria can mutate

Sometimes this makes them resistant to antibiotic drugs.

Discovery and drug development

Most new drugs are synthesised by chemists in the pharmaceutical industry.

Traditionally drugs were extracted from plants and microorganisms

Digitalis	Aspirin	Penicillin
Extracted from foxglove plants and used as a heart drug	A painkiller and anti-inflammatory that was first found in willow bark	Discovered by Alexander Fleming from the *Penicillium* mould and used as an antibiotic
		

Drugs have to be tested and trialled before to check they are safe and effective

Double blind trial: patients and scientists do not know who receives the new drug or placebo until the end of the trial. This avoids bias.

New drugs are extensively tested for:

Efficacy	Make sure the drug works
Toxicity	Check that the drug is not poisonous
Dose	The most suitable amount to take

Preclinical trials - using cells, tissues and live animals - must be carried out before the drug can be tested on humans.

Clinical trials use healthy volunteers and patients

Stage 1	Stage 2	Stage 3	Stage 4
Healthy volunteers try small dose of the drug to check it is safe record any side effects	A small number of patients try the drug at a low dose to see if it works	A larger number of patients; different doses are trialled to find the optimum dose	A double blind trial will occur. The patients are divided into groups. Some will be given the drug and some a placebo.

Specific to one binding site on the antigen. Can target specific chemicals or cells in the body

Year 10 Science: Infection and Response

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		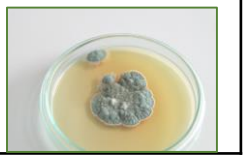

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A placebo can look identical to the new drug but contain no active ingredients

Monoclonal antibodies can be used in a variety of ways

Diagnosis	Detecting pathogens	Detecting molecules	Treatment
e.g. pregnancy test – measure the level of hormones	Can detect very small quantities of chemicals in the blood	Fluorescent dye can be attached so it can be seen inside cells or tissues	Bound to radioactive substance, toxic drug or chemical Cancer cells are targeted to normal body cells are unharmed

Monoclonal antibodies

Identical copies of one types of antibody produced in laboratory

1. A mouse is injected with pathogen
2. Lymphocytes produce antibodies
3. Lymphocytes are removed from the mouse and fused with rapidly dividing mouse tumour cells
4. The new cells are called hybridomas
5. The hybridomas divide rapidly and release lots of antibodies which are then collected

Antibiotics have greatly reduced deaths from infectious bacterial disease

Antibiotics	**e.g. penicillin**	Kill infective bacteria inside the body. Specific bacterial infections require specific antibiotics.
Painkillers and other medicines	**e.g. aspirin, paracetamol, ibuprofen**	Drugs that are used to treat the symptoms of a disease. They do not kill pathogens

Antibiotics cannot be use to treat viral pathogens

It is difficult to develop drugs to kill viruses without harming body tissues because viruses live and reproduce inside cells

Vaccination

Used to immunise a large proportion of the population to prevent the spread of a pathogen

Vaccination

Small amount of dead or inactive form of the pathogen

1st infection by pathogen	White blood cells detect pathogens in the vaccine. Antibodies are released into the blood.
Re-infection by the same pathogen	White blood cells detect pathogens. Antibodies are made much faster and in larger amounts.

A person is unlikely to suffer the symptoms of the harmful disease and it's spread in a population is prevented

Created more side effects than expected (fatal in some cases) and are not as widely used as everybody hoped when first developed.

Year 10 Science: Infection and Response

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