

# 100% book - Year 10 Grammar

Aim to memorise 100% of the knowledge on these Knowledge Organisers.

## Term 3



### Swindon Academy 2024-25

Name:	
Tutor Group:	
Tutor & Room:	

*"If you are not willing to learn, no one can help you.*

*If you are determined to learn, no one can stop you."*

# How to use your 100% book of Knowledge Organisers and Quizzable Organisers

## Knowledge Organisers

Knowledge Organisers contain the essential knowledge that you **MUST** know in order to be successful this year and in all subsequent years.

They will help you learn, revise and retain what you have learnt in lessons in order to move the knowledge from your short-term memory to long-term memory.

## Quizzable Knowledge Organisers

These are designed to help you quiz yourself on the essential Knowledge.

Use them to test yourself or get someone else to test you, until you are confident you can recall the information from memory.

### Top Tip

Don't write on your Quizzable Knowledge Organisers! Quiz yourself by writing the missing words in your prep book. That way you can quiz yourself again and again!

## Expectations for Prep and for using your Knowledge Organisers

1. Complete all prep work set in your subject prep book.
2. Bring your prep book to every lesson and ensure that you have completed all work by the deadline.
3. Take pride in your prep book – keep it neat and tidy.
4. Present work in your prep book to the same standard you are expected to do in class.
5. Ensure that your use of SPAG is accurate.
6. Write in blue or black pen and sketch in pencil.
7. Ensure every piece of work has a title and date.
8. Use a ruler for straight lines.
9. If you are unsure about the prep, speak to your teacher.
10. Review your prep work in green pen using the mark scheme.

# How do I complete Knowledge Organiser Prep?

## Step 1

Check Epraise and identify what words /definitions/facts you have been asked to learn. Find the Knowledge Organiser you need to use.

The screenshot shows the Epraise website interface. On the left is a 'Planner' for the week of 20th May to 26th May 2020, with a grid for days of the week and subjects like Science, History, and English. On the right is a 'Knowledge Organiser' for 'What is particle theory?'. It contains various questions and answers, such as 'What is particle theory?', 'Describe the arrangement and movement of particles in the three states of matter.', and 'What is the law of conservation of mass?'. There are also diagrams of particle arrangements for solid, liquid, and gas states.

## Step 2

Write today's date and the title from your Knowledge Organiser in your Prep Book.

The screenshot shows a student's prep book. The date '29th May 2020' and the title 'Particle theory' are written in blue ink at the top. Below this, the student has copied the content from the Knowledge Organiser, including the definition of particle theory, the law of conservation of mass, and the arrangement and movement of particles in the three states of matter (solid, liquid, and gas). There are also diagrams of particle arrangements and a flowchart showing the changes of state between solid, liquid, and gas, with arrows indicating the direction of the change and the energy involved (gaining or losing energy).

## Step 3

Write out the keywords/definitions/facts from your Knowledge Organiser in FULL.

The screenshot shows a student's prep book with the keywords/definitions/facts from the Knowledge Organiser written out in full. The text is written in blue ink and includes: '29th May 2020', 'Properties of the states of matter', 'Particle theory = all matter is made of particles', 'Solid = regular pattern particles vibrate in fixed position', 'Liquid = particles are arranged randomly but are still touching each other Particles can slide past each other and move around', and 'Gas = Particles are far apart and are arranged randomly. Particles carry a lot of energy'.

## Step 4

Read the keywords/definitions/facts out loud to yourself again and again and write the keywords/definitions/facts at least 3 times.

The screenshot shows a student's prep book with the keywords/definitions/facts from the Knowledge Organiser written out three times. The text is written in blue ink and includes: 'Solid = regular pattern particles vibrate in fixed position', 'Solid = regular pattern particles vibrate in fixed position', and 'Solid = regular pattern particles vibrate in fixed position'.

## Step 5

Open your quizzable Knowledge Organiser. Write the missing words from your quizzable Knowledge organiser in your prep book.

The screenshot shows a student's prep book with the missing words from the Knowledge Organiser written in the quizzable version. The text is written in blue ink and includes: 'Self quizzing', 'Arrangement/movement of matter', 'Solid = regular pattern particles vibrate in fixed position', 'Liquid = particles are arranged randomly but are still touching each other Particles can slide past each other and move around', and 'Gas = Particles are far apart and are arranged randomly. Particles carry a lot of energy'.

## Step 6

Check your answers using your Knowledge Organiser. Repeat Steps 3 to 5 with any questions you got wrong until you are confident.

The screenshot shows a student's prep book with the answers to the quizzable Knowledge Organiser. The text is written in blue ink and includes: 'Particle theory = all matter is made of particles', 'Solid = regular pattern particles vibrate in fixed position', 'Liquid = particles are arranged randomly but are still touching each other Particles can slide past each other and move around', and 'Gas = Particles are far apart and are arranged randomly. Particles carry a lot of energy'.

Make sure you bring in your completed Prep notes to demonstrate that you have completed your prep.

## ENGLISH –A Christmas Carol- Grammar

1. Context	
<p><b>Writer:</b> Charles Dickens (1812-1870)</p> <p><b>Dates:</b> First published in 1843</p> <p><b>Genre:</b> Allegorical; a ghost story.</p> <p><b>Era:</b> Victorian</p> <p><b>Set:</b> Victorian London</p> <p><b>Structure:</b> The novella is divided into 5 staves (chapters).</p>	<p><b>Biography of Dickens</b></p> <ul style="list-style-type: none"> <li>Born in Portsmouth in 1812</li> <li>When Dickens was 12, his father was sent to debtors' prison as he was unable to pay his bills.</li> <li>His mother and youngest siblings were sent with him, whilst Dickens stayed with a family friend. In order to help his family, Dickens had to leave school and work in a factory sticking labels on bottles.</li> <li>Dickens dedicated his life to writing works that revealed the horrors of life in Victorian London for those living in poverty.</li> </ul>
<p><b>Christmas:</b></p> <p>Dickens grew concerned that, due to capitalism, society had lost sight of traditional values (Christian morals, forgiveness, charity). He felt that Christmas was the perfect time to reconnect with these values and used his novella to do this. He also knew that Christmas would be a popular topic so it would sell well – therefore enabling his message to reach a wider audience.</p>	<p><b>London and inequality:</b></p> <p>Dickens juxtaposes scenes of middle-class comfort and poverty to emphasise the close proximity and contrast of the different classes. It highlights the Christian concept of 'love thy neighbour'. The urban setting allows Dickens to exercise his fondness for hyperbole, with the exaggerated extremes of poverty adding to the effect of the 'plight of the poor'.</p>
<p><b>The Poor Law, 1834</b></p> <p>In order to deter poor people from claiming financial help, the government made claimants live in workhouses: essentially, prisons for the poor. Dickens hated this law. He spent 1843 touring factories and mines in England and wished to highlight the situation facing poor people. A Christmas Carol was published soon after – in December 1843.</p>	<p><b>Malthusian Theory</b></p> <p>The reformation of The Poor Law was partially informed by the writings of Thomas Malthus. Malthus argued that if living standards increased, population would increase and eventually the number of people would be too great for the food that could be produced. As a result, Malthus argued it was important not to support the poor or improve their standards of living, but to allow them to die if they couldn't support themselves because charity would only prolong their suffering.</p>
<p><b>The Supernatural:</b> Victorian society was fascinated by the supernatural, including mediums, ghosts, and spiritualism. However, this belief in the supernatural was also heavily influenced by the church, with the belief that ghosts were souls who were trapped in purgatory (a place of suffering where the souls of sinners were trapped).</p>	

2. Key Characters
<p><b>Ebenezer Scrooge:</b> The protagonist is initially established as an archetypal villain who dismisses the goodwill and generosity associated with Christmas. After being forced to transform, he feels remorse for his avarice and becomes a symbol of Christmas spirit. Scrooge embodies the relentless capitalist spirit of the time, but also demonstrates that everyone has the capacity to reform.</p>
<p><b>Bob Cratchit:</b> Bob is Scrooge's downtrodden but loyal employee. His family are a symbol of Victorian poverty, cheerfulness in adversity, togetherness and Christmas Spirit. Bob shows pity for Scrooge, and provides a contrast to Scrooge's isolation and meanness. His son, Tiny Tim, is an emblem for noble poverty; he accepts his disability without complaint.</p>
<p><b>Fred:</b> Fred juxtaposes the character of Scrooge and epitomises the concept of goodwill and forgiveness, refusing to be discouraged by his uncle's misery. People speak highly of Fred and his generosity, in contrast to how they speak of Scrooge. Fred shows that Scrooge has chosen isolation and shows forgiveness to Scrooge, welcoming him in Stave Five.</p>
<p><b>Marley's Ghost:</b> Marley's ghost is the spiritual representation of Scrooge's potential fate. The chains that drag him down symbolize the guilt caused by his failure to help people in need. Marley's ghost warns Scrooge that he too will experience the same guilt if he continues to deny people help.</p>
<p><b>The ghosts:</b> The Ghost of Christmas Past is a symbol of childhood, truth and enlightenment. The Ghost of Christmas Present represents goodwill, plenty and the festival of Christmas. The Ghost of Christmas Yet to Come symbolises a catastrophic future for mankind.</p>
<p><b>Belle:</b> The woman that Scrooge was engaged to when he was a young man. Belle's role is crucial in Scrooge's transformation, as the scenes show Scrooge what he might have had in his life if he had not been so avaricious. Through the character of Belle, Dickens sets emotional love directly against Scrooge's love of money and suggests that avarice can lead to a deprivation of kindness, love and empathy.</p>

3. Central Themes	
<p><b>Social injustice</b></p>	<p>Dickens highlights the unfairness within society through the juxtaposition of the poor and wealthy. Through Scrooge's refusal to give to charity and his exclamation that the poor should be in workhouses or die, Dickens illustrates the selfishness of the higher classes and the injustice of wealth distribution in Victorian society. The children, Ignorance and Want, personify the dangerous consequences of allowing poverty to continue.</p>
<p><b>Transformation and redemption</b></p>	<p>By establishing Scrooge as an archetypal villain, Dickens is able to emphasise the idea that everyone is capable of transformation and redemption. From starting as a greedy, avaricious miser, Scrooge is able to reflect upon his actions and to understand that he must live his life helping others to avoid Marley's fate.</p>
<p><b>Social responsibility</b></p>	<p>Dickens felt that every individual had a responsibility for those around them. Marley's Ghost conveys the message of the novella when he cries, 'Mankind was my business' demonstrating that the proper 'business' of life is not about seeking financial reward but having concern for others. Dickens highlights the importance of trying to make a difference- whether that be large financial contributions (Scrooge), smaller contributions (Fezziwig) or simply showing compassion and kindness to one another.</p>

4. Key Vocabulary	
<b>Avarice</b>	Extreme greed of possessions or money
<b>Salvation</b>	Saving someone from harm or destruction
<b>Miserly</b>	someone who is greedy and does not like spending money
<b>Callous</b>	Mean or cruel
<b>Antithesis</b>	The exact opposite of something
<b>Epiphany</b>	A moment of sudden understanding
<b>Redemption</b>	The act of being saved or freed from sin or error
<b>Benevolence</b>	Kind and helpful towards others
<b>Philanthropic</b>	Showing concern for others by being charitable
<b>Misanthropic</b>	Someone who has a hatred for other people
<b>Penitence</b>	sincere regret for wrong or evil things that you have done
<b>Remorse</b>	a strong feeling of sadness and regret about something wrong that you have done
<b>Deprivation</b>	When someone is unable to have the things they need or want
<b>Despotism</b>	exercising power in a cruel and controlling way
<b>Capitalism</b>	A political system in which property, business, and industry are owned by private individuals and not by the government
5. Key Terminology, Symbols and Devices	
<b>Stave</b>	Chapters in the novella, but we normally associate staves with music, as if the <b>book</b> is a Christmas carol, and each chapter is part of the song. As Christmas carols are repetitive and easy to remember, it links to how Dickens wishes his message to be remembered.
<b>Intrusive Narrator</b>	A narrator who interrupts the story to provide a commentary to the reader on some aspect of the story or on a more general topic. In 'A Christmas Carol' the narrator helps to shape our impressions of Scrooge.
<b>Circular structure</b>	Circular narratives cycle through the story one event at a time to end back where the story originated.
<b>Allegory</b>	A story that can be interpreted to reveal a hidden meaning, typically a moral or political one.
<b>Allegorical figures</b>	An <b>allegorical</b> figure is a <b>character</b> that serves two purposes: first, they are an important person in the story in their own right, and, second, they represent abstract meanings or ideas.
<b>Foreshadowing</b>	Foreshadowing is a literary device in which a writer gives an advance hint of what is to come later in the story.
<b>Didactic</b>	A type of literature that is written to inform or instruct the reader, especially in moral or political lessons.
<b>Semantic Field</b>	A set of words that are related in meaning. Dickens frequently uses semantic fields of warmth and coldness that are associated with the characters.

The Big Ideas	Notes
<p>Dickens promotes a social responsibility <b>in which he argues that everyone must contribute.</b></p>	
<p>Dickens suggests that change is possible, and that <b>everyone has capacity to redeem themselves and reform.</b></p>	
<p>Dickens illustrates the injustice of wealth distribution in Victorian society and <b>highlights the dangerous consequences of allowing poverty to continue</b></p>	
<p>Dickens uses contrasting <b>characterisation</b> to demonstrate how we must be generous and socially responsible.</p>	
<p>Dickens uses <b>contrasts</b> in setting to highlight social injustice</p>	

# Year 10 – Grammar - Biology– Homeostasis and Response

## The nervous system

Job is to **detect** stimuli (changes in environment) and **respond** if needed.  
Consists of:

### Receptors



Specialised cells that detect stimuli, found in sense organs and internally

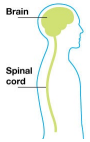
### Neurons

3 types – sensory, relay and motor

Carry **impulses** joining all parts of the nervous system

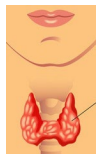
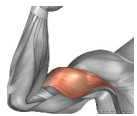


### Co-ordination Centres



Brain, spinal cord, pancreas.  
Coordinates the response

### Effectors



Organs that bring about a response

muscle or gland

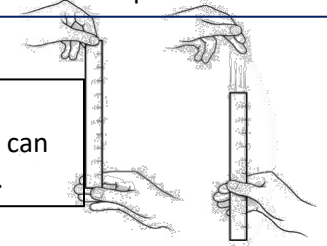
## RP 6 - Investigation into the effect of a factor on human reaction time.

1. Person A holds out hand with a gap between thumb and finger.
2. Person B holds ruler with the zero at the top of person A's thumb.
3. Person B drops ruler without telling Person A and Person A must catch it.
4. The distance on the ruler level with the top of person A's thumb is recorded
5. Repeat this ten times.
6. Repeat steps 1-5 after a factor has been changed
7. Use conversion table to convert ruler measurements into reaction time.

The 'factor' could be...

- Caffeine consumption
- Hours of sleep
- Alcohol consumption
- Amount of practice

A computer reaction test can also be used.



Control variables : distance above the hand, distance between finger and thumb, hand used (dominant or non-dominant, all other factors listed in the box above except the one being changed.

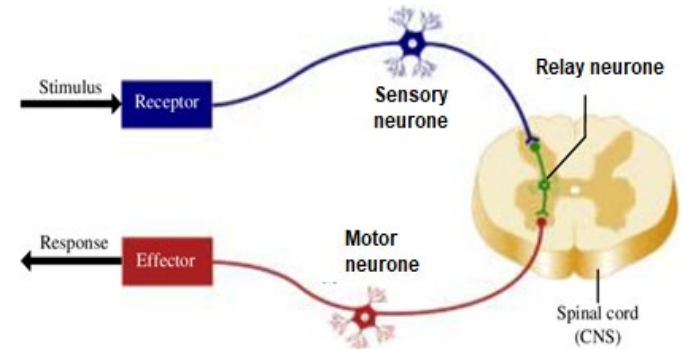
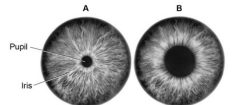
## Reflexes

A reflex is an automatic, rapid response

Reflexes do not involve the conscious part of the brain, so cannot be overridden

The response might be brought about by:

- muscle - e.g. pupil being constricted with bright light or knee jerk response
- gland – e.g. mouth watering or tears being released when something gets in your eye



## Reflex Arc

stimulus → receptor → **sensory neurone** → **relay neurone** → **motor neurone** → effector → response

## Example

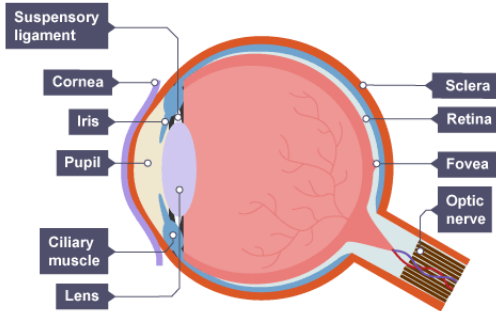
Hot pan → pain receptors → **sensory neurone** → **relay neurone** → **motor neurone** → hand muscles → release pan



# Year 10 – Grammar - Biology– Homeostasis and Response

## The eye

The eye is a sense organ containing **receptors** sensitive to light intensity and colour.



Structure	Function
Cornea	Refracts light - bends it as it enters the eye
Iris	Controls how much light enters the pupil
Lens	Further refracts light to focus it onto the retina
Retina	Contains the light receptors
Optic nerve	Carries impulses between the eye and the brain
Sclera	Tough white outer layer of the eye. It helps protect the eye from injury

To focus on a near object – the lens becomes thicker, this allows the light rays to refract (bend) more strongly.

To focus on a distant object – the lens is pulled thin, this allows the light rays to refract slightly.

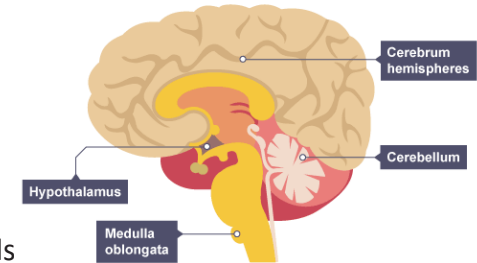
The amount of light entering the eye is controlled by a reflex action. The size of the pupil changes in response to bright or dim light. This is controlled by the muscles of the iris.

## The brain

The brain controls complex behaviour. It is made of billions of interconnected neurones and has different regions that carry out different functions.

There are four main areas in the brain:

- The **cerebrum** (the outer layer is called the cerebral cortex). It controls thought and high-level functions, such as language and verbal memory.
- The **cerebellum**, which controls balance, co-ordination of movement and muscular activity.
- The **medulla**, which controls unconscious activities such as heart rate and breathing rate,
- The **hypothalamus**, which is the regulating centre for temperature and water balance within the body.



Neuroscientists have been able to map various regions of the brain to particular functions by studying patients with brain damage, electrically stimulating different parts of the brain and using **MRI**. They use strong magnetic fields and radio waves to show details of brain structure and function.

Scientists have stimulated different parts of the brain with a weak electrical current and asked patients to describe what they experienced. If the motor area is stimulated, the patient makes an involuntary movement.



## Year 10 – Grammar - Biology– Homeostasis and Response

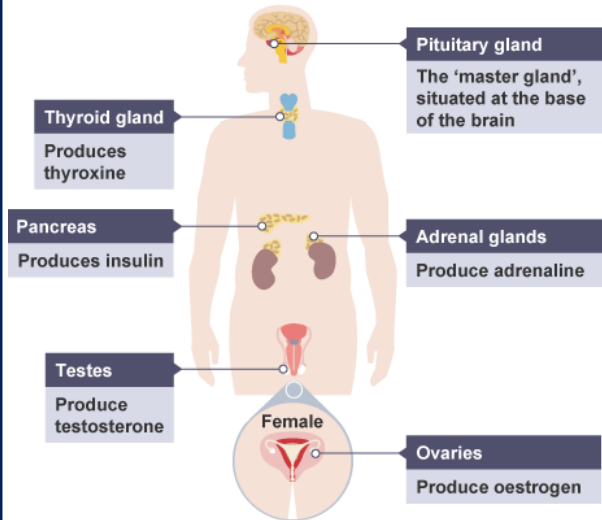
1. What is the function of the following:
2. How does the eye focus on near objects?
3. How does the eye focus on far objects?
4. How does the eye focus in the light and dark?
5. What does the brain control?
6. What does the cerebrum control?
7. What does the medulla control?
8. What does the hypothalamus control?
9. How have scientists discovered more about the brain?

Structure	Function
Cornea	
Iris	
Lens	
Retina	
Optic nerve	
Sclera	

# Year 10 – Grammar - Biology– Homeostasis and Response

## Hormonal responses

Hormones are chemicals released by glands  
They are carried in the bloodstream.  
Hormonal responses are slower than nervous responses but they last longer.



## Homeostasis

This means keeping internal conditions (of the body or a cell) constant to ensure optimum functioning.

In humans, this includes regulating:

- temperature
- water levels
- blood glucose concentration

Homeostasis can involve nervous or hormonal responses.

**Receptors** detect changes in the body  
**Coordination centres** (brain, pancreas, spinal cord etc) receive and process information  
**Effectors** carry out responses to return to normal

## Blood glucose concentration

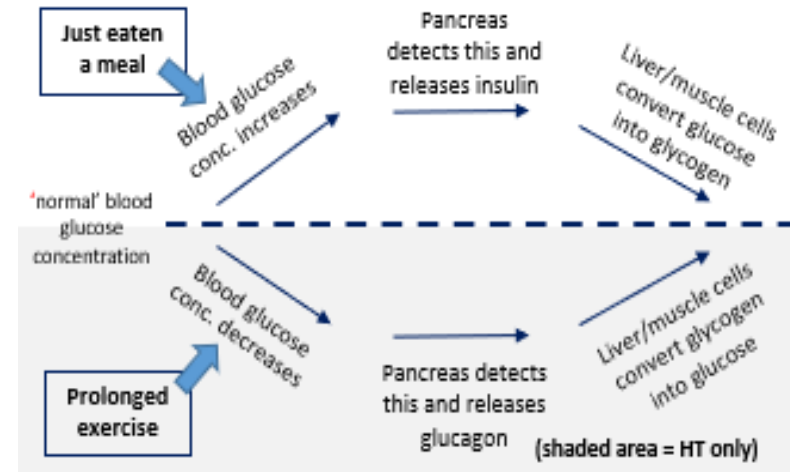
Blood glucose is monitored by the **pancreas**.

If glucose levels rise, the pancreas releases **insulin** into the blood.

This is a message to the liver to remove glucose and store it as **glycogen**.

If blood glucose is too low, **glucagon** is released.

The liver responds by breaking down glycogen into glucose and releasing it into the blood.



## Diabetes

There are two types – Type 1 and Type 2

Both result in a lack of control over blood glucose levels

	Type 1	Type 2
Cause	No insulin is made by the pancreas	Insulin is made, but the liver and muscle cells do not respond
Treatment	Injections of insulin Pancreatic transplant	Controlling carbohydrate intake Losing weight

### HT only

Negative feedback is when the release of something brings the levels back towards acceptable levels, it maintains a steady state.

E.g. if blood glucose increases, insulin is released to bring blood glucose back towards the normal range.

## Year 10 – Grammar - Biology– Homeostasis and Response

1. What is a hormone?
2. Where are hormones released from?
3. Which gland is known as the ‘master gland’?
4. How do hormones travel?
5. How does the speed and duration of a hormonal response compare to a nervous response?
6. Which hormone is made by the thyroid gland?
7. What is homeostasis?
8. Give two examples of conditions that are controlled within the human body

### **Blood glucose concentration**

1. Which organ monitors blood glucose?
  2. Which hormone is released when blood glucose increases?
  3. What causes blood glucose to increase?
  4. Which hormone is released when blood glucose falls?
  5. Which organ releases the hormones involved in blood glucose control?
- 
1. What are the two types of diabetes?
  2. Why are type 1 diabetics unable to control their blood glucose?
  3. What is the treatment for type 1 diabetes?
  4. What is the problem in type 2 diabetes?
  5. What is the treatment for type 2 diabetes?

# Year 10 – Grammar - Biology– Homeostasis and Response

## Adrenaline and thyroxine (HT only)

**Adrenaline** is produced by the **adrenal glands**.

It is produced in times of fear or stress.

It **increases heart rate** to ensure **more oxygen and glucose** to the cells to prepare for the 'fight or flight' response.

**Thyroxine** is produced by the **thyroid gland**.

It is involved in regulating **metabolic rate** and growth and development.

## Puberty

Females – **Oestrogen** is the main female reproductive hormone produced in the ovary. At puberty, eggs begin to mature, and one is released approximately every 28 days. This is called ovulation.

Males – **Testosterone** is the main male reproductive hormone produced by the testes and it stimulates sperm production.

Name of contraception	Description	+	-
Condoms/diaphragm	Barrier	Very effective, condom protects against STIs	Unreliable if not used properly
Oral Contraception (pill)	Hormonal (oestrogen or progesterone, stops FSH so no eggs mature)	Very effective	Must remember to take everyday, can have side effects
Injection/implant/skin patch	Slow-releasing hormone	Long lasting	Side effects such as heavy periods
Intrauterine Device (IUD or Coil)	Barrier method. Can also contain hormones	Long lasting (up to 5 years)	Side effects such as heavy periods
Surgical Sterilisation	Tying or cutting of sperm ducts/ oviducts.	Almost 100% effective	Difficult or impossible to reverse

## Menstrual Cycle

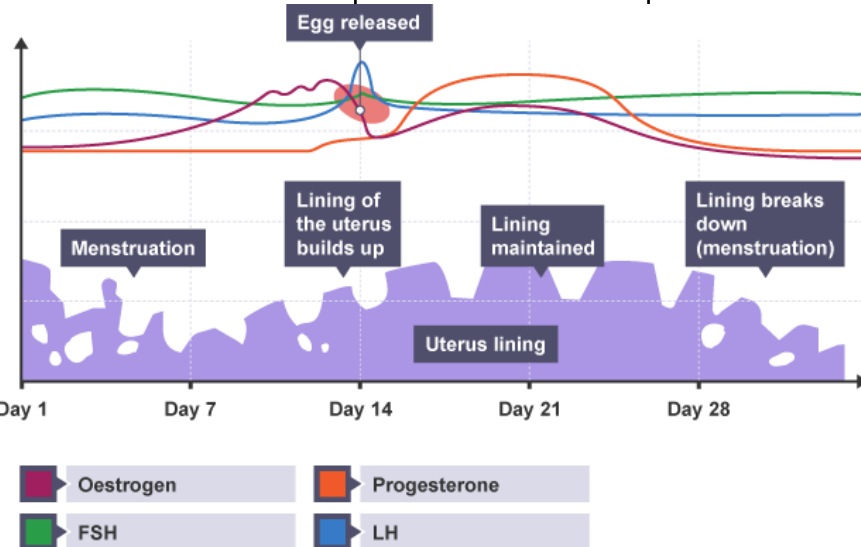
The menstrual cycle is controlled by several hormones:

FSH –from the pituitary. Causes an egg to mature in the ovary

LH – from the pituitary. Causes ovulation

Oestrogen and progesterone are involved in maintaining the lining of the womb.

HT – Oestrogen also feeds back to the pituitary to stop producing FSH.



## Infertility (HT only)

Fertility drugs LH and FSH can be given to increase the number of eggs released and increase the chance of fertilisation. .

### IVF

- Woman takes a dose of FSH and LH - stimulates the maturation of several eggs.
- Eggs are collected and fertilised by sperm from the male
- Fertilised eggs develop into embryos.
- One or two embryos inserted into the female's uterus.

### Negatives;

- very emotionally/ physically stressful
- success rates are not high
- can lead to multiple births (twins, etc.)
- Many embryos are not used & destroyed

## Year 10 – Grammar - Biology– Homeostasis and Response

### Adrenaline and thyroxine (HT only)

1. Where is adrenaline released from?
2. What effects does adrenaline have?
3. What does thyroxine do?

1. What is the male hormone?
2. What is ovulation?
3. Which organ produces oestrogen?

1. Which hormones are contained in the contraceptive pill?
2. Name a 'barrier' method of contraception
3. How does the contraceptive pill prevent pregnancy?
4. Give one advantage and one disadvantage of taking the contraceptive pill.
5. Give one disadvantage of surgical sterilisation

### Menstrual Cycle

1. Which organ releases FSH and LH?
2. What are the two other menstrual cycle hormones?
3. Approximately how long is one cycle?
4. Around which day of the cycle does ovulation occur?
5. What is the role of oestrogen and progesterone?

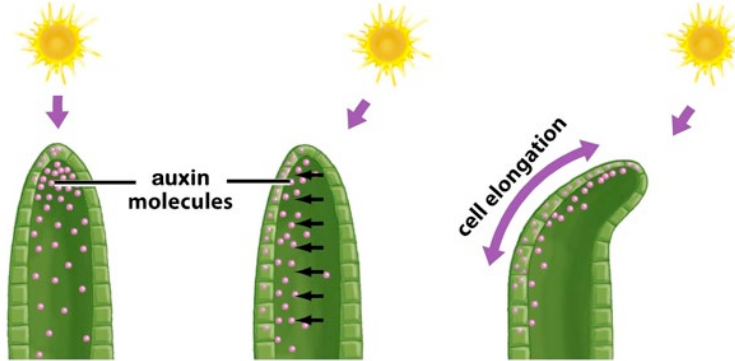
1. Which drugs are given as fertility drugs?
2. How do they increase the chances of getting pregnant?
3. How many embryos are transferred to the womb in IVF?
4. Give two negatives of IVF treatment

## Year 10 – Grammar - Biology– Homeostasis and Response

### Plant hormones

Plants produce hormones to coordinate and control growth and responses to light (phototropism) and gravity (gravitropism or geotropism).

Unequal distributions of auxin cause unequal growth rates in plant roots and shoots.



The auxin collect son the side of the plant in the shade.

Gibberellins are important in initiating seed germination.

Ethene controls cell division and ripening of fruits.

### The uses of plant hormones

Plant growth hormones are used in agriculture and horticulture.

Auxins are used:

- as weed killers
- as rooting powders
- for promoting growth in tissue culture.

Ethene is used in the food industry to control ripening of fruit during storage and transport.

Gibberellins can be used to:

- end seed dormancy
- promote flowering
- increase fruit size.



## Year 10 – Grammar - Biology– Homeostasis and Response

1. Name a plant hormones
2. What is phototropism?
3. What is geotropism?
4. Where does auxin collect?
5. Why are gibberellins important?
6. What is ethene used for?
7. In agriculture, what is auxin used for?
8. In agriculture, what is ethene used for?
9. In agriculture, what is gibberellins used for?

# Year 10 – Grammar - Biology– Homeostasis and Response

## Controlling body temperature

- Body temperature is monitored and controlled by the thermoregulatory centre of the brain.
- The thermoregulatory centre contains receptors sensitive to the temperature of the blood.
- Human body temperature is 37°C
- The skin also contains temperature receptors that feedback to the thermoregulatory centre in the brain.

## Response when body temperature too high

Energy transfer from the skin to the surroundings is increased by:

- Vasodilation ( the blood vessels dilate – get wider).
- Sweat is produced.

## Response when body temperature too low

Energy transfer from the skin to the surroundings is reduced by:

- Vasoconstriction ( the blood vessels constrict – get narrower).
- Sweat production stopped.
- Muscles contract (shiver), this requires the exothermic reaction respiration which increases the temperature of the muscles.

## The human kidney

- The kidneys are important for excretion and homeostasis.
- The kidneys produce urine by filtering the blood. It then reabsorbs all of the glucose and any mineral ions and water needed by the body by selective reabsorption.

### - ADH

- The water balance of the blood is controlled by the hormone ADH.
- ADH changes the amount of water reabsorbed by the kidney tubules.
- ADH is secreted by the pituitary gland in the brain.

Low water concentration in the blood	High water concentration in the blood
More ADH released	Less ADH released
More water reabsorbed	Less water reabsorbed
Small amount of concentrated urine produced	Large amount of diluted urine produced

## Removing waste

- carbon dioxide produced during respiration can produce an acidic solution.
- carbon dioxide is removed via the lungs.
- Urea is produced during the breakdown of proteins.
- Proteins are broken down to amino acids which cannot be stored by the body.
- The liver removes the amino group from amino acids via a process called deamination to produce ammonia which is very toxic.
- Ammonia is converted to urea.
- If cells lose or gain too much water by osmosis, they do not function efficiently.

## Uncontrolled loss of water and mineral ions

- Water loss via the lungs during exhalation.
- Water, mineral ion and urea loss through sweat in the skin.

## Controlled loss of water and mineral ions

- Water, mineral ion and urea loss via the kidneys in the urine.

## Treating kidney failure

### Dialysis

- A dialysis machine carries out the function of the kidneys.
- The level of useful substances in the blood are maintained while urea and excess mineral ions pass from the blood into the dialysis fluid.

### Disadvantages:

- A strict diet needs to be followed.
- You need to send regular long sessions connected to the dialysis machine.
- The blood levels are in balance for only a short time so you can feel tired and unwell between treatments.
- It can become harder to balance substance in the blood if you have dialysis for a long period of time.

### Transplant

- A kidneys from a donor replaces the diseased or damaged kidney.
- To prevent reject the tissue types of the recipient and donor are matched closely.

### Disadvantages:

- Immunosuppressant drugs need to be taken to reduce the chance of rejection.
- There is a shortage of donor kidneys.



## Year 10 – Grammar - Biology– Homeostasis and Response

1. Where are temperature receptors found in the human body?
2. What is human body temperature.
3. How does the body respond when the blood temperature is too high?
4. How does the body respond when the blood temperature is too low?

1. How is carbon dioxide removed from the body?
2. Why does carbon dioxide need to be removed from the body?
3. How is urea formed?
4. What methods are responsible for uncontrolled loss of water, mineral ions and urea from the body?
5. Which organ is responsible for the controlled loss of water , mineral ions and urine?

1. What substances are reabsorbed in the kidneys?
2. What does ADH do?
3. Which gland secretes ADH?
4. Complete the table below to show how water level in the blood is controlled.

Low water concentration in the blood	High water concentration in the blood

1. What are the two main ways of treating kidney failure?
2. What are the disadvantages of dialysis?
3. What are the disadvantages of kidney transplants?



<b>What we are learning this term:</b>
A. Atoms, elements and compounds B. Mixtures and separation C. Development of the atomic model D. Structure of the atom E. Electronic structure

<b>6 Key Words for this term</b>
1. Isotopes 2. Protons 3. Ionisation 4. Aqueous 5. Residue

**B. What is a mixture?**

A mixture consists of two or more elements or compounds not chemically combined.

**What properties do mixtures have?**

Each substance in the mixture will have the same chemical properties

**How are mixtures separated?**

By physical methods:	Filtration
Crystallisation	Simple Distillation
Fractional Distillation	Chromatography

**Are new substances made?**

No new substances are made

**A. What is Conservation of Mass**

Atoms are not created or destroyed in a reaction

**A. What are atoms?**

All substances are made of atoms. An atom is the smallest part of an element that can exist

<b>What are elements?</b>	<b>What are compounds?</b>
---------------------------	----------------------------

An element is a substance made of one type of atom

Compounds contain two or more elements chemically combined

**How are elements represented?**

By a chemical symbol.

**How are compounds represented?**

By the symbols of the atoms that formed them

<b>Example: Sodium</b>	Na
------------------------	----

<b>Example: Sodium Chloride</b>	NaCl
---------------------------------	------

**How many elements are there?**

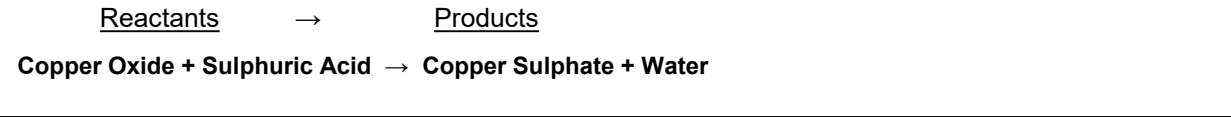
There are about 100, all shown on the periodic table

**How can compounds be separated?**

By chemical reactions only

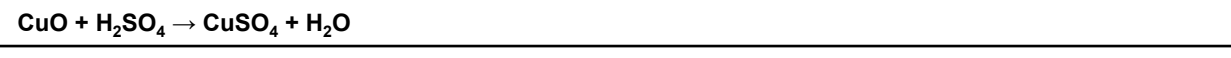
**A. What are word equations?**

These show the names of each substance that is involved in a chemical reaction. The reactants are shown on the left. The products are shown on the right.



**What are symbol equations?**

The chemical formulae (symbols) of the reactants and products show what happens in a chemical reaction



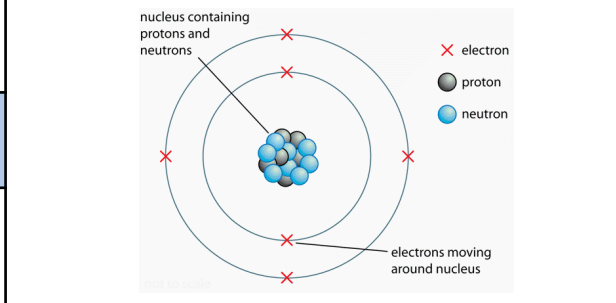
**D. What are subatomic particles?**

The particles that make up atoms

**Name the 3 subatomic particles**

Protons, neutrons and electrons

**Where are each subatomic particles found?**





C. Development of the Atomic Model – How was our current atomic model developed?					
<b>Person/Time</b>	Demicritus (400BC) Dalton (1803)	JJ Thomson (1898)	Ernest Rutherford (1909)	Niels Bohr (1913)	James Chadwick (1932)
<b>Ideas/model</b>	<ul style="list-style-type: none"> <li>Small indivisible matter</li> <li>Tiny hard spheres.</li> </ul>	Plum Pudding model <ul style="list-style-type: none"> <li>Sphere of positive charge with negative charged particles spread throughout (like plums in a pudding)</li> </ul>	<ul style="list-style-type: none"> <li>Alpha particle scattering experiment</li> <li>Proved that mass of atoms found in the centre – nucleus</li> <li>Negative electrons surround the positive nucleus</li> </ul>	<ul style="list-style-type: none"> <li>Electrons are restricted to certain orbits like planets round the sun</li> </ul>	<ul style="list-style-type: none"> <li>Discovered the neutron</li> </ul>
<b>Diagram</b>					
<b>Contribution to current model:</b>	Everything is made of atoms	Negative electrons	Positive mass in the centre surrounded by negative electrons	Electrons orbit in shells/orbitals at specific distances	Neutrons found in nucleus along with protons

<b>D.</b>	<b>How big are atoms?</b>
0.1nm (1 x 10 <sup>-10</sup> m)	
<b>D.</b>	<b>How big is the radius of an atom?</b>
1/10000 the size of the atom – 1x10 <sup>-14</sup> m	

<b>D.</b>	<b>What is relative mass and charges of the subatomic particles?</b>	
	<b>Subatomic particle</b>	<b>Relative Mass</b>
		<b>Relative Charge</b>
	Proton	1
	Neutron	1
	Electron	1/2000
		+1
		0
		-1

<b>D.</b>	<b>What is the overall charge of an atom?</b>
Atoms have no charge	
No of protons = no of electrons	

<b>D.</b>	<b>How do we know how many subatomic particles are in each element?</b>	
$\text{C}^{12}_6$	<b>Mass Number</b>	<b>What is Mass number?</b>
		Number of protons and neutrons
	<b>Atomic Number</b>	<b>What is atomic number?</b>
		Number of protons – same for each individual element

<b>D.</b>	<b>How can we know what element we have?</b>
Each element has a unique number of protons	
<b>D.</b>	<b>What is an isotope?</b>
An isotope is a substance with the same number of protons but different number of neutrons	

<b>D.</b>	<b>What is relative atomic mass of an element?</b>
An average value that takes account of the abundance of the isotopes of an element	

<b>E.</b>	<b>Which energy level do electrons fill first?</b>	
Electrons in an atom occupy lowest energy level first		
<b>How many electrons does each orbital hold?</b>		
First	Up to 2	
Second	Up to 8	
Third	Up to 8	

<b>Electronic structure of Sodium:</b>	
	<b>2,8,1</b>



**What we are learning this term:**

- A. Atoms, elements and compounds
- B. Mixtures and separation
- C. Development of the atomic model
- D. Structure of the atom
- E. Electronic structure

**6 Key Words for this term**

- 1. Isotopes
- 2. Protons
- 3. Ionisation
- 4. Aqueous
- 5. Residue

**B. What is a mixture?**

**What properties do mixtures have?**

**How are mixtures separated?**

**Are new substances made?**

**A. What is Conservation of Mass**

**A. What are atoms?**

**What are elements?**

**What are compounds?**

**How are elements represented?**

**How are compounds represented?**

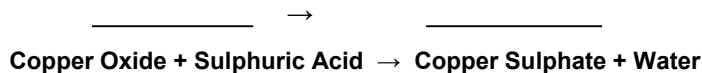
**Example: Sodium**

**Example: Sodium Chloride**

**How many elements are there?**

**How can compounds be separated?**

**A. What are word equations?**






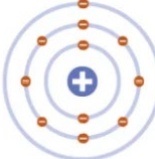
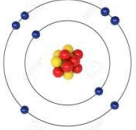
**What are symbol equations?**

**D. What are subatomic particles?**

**Where are each subatomic particles found?**

**Name the 3 subatomic particles**



C. Development of the Atomic Model – How was our current atomic model developed?					
Person/Time	Demicritus (400BC) Dalton (1803)	JJ Thomson (1898)	Ernest Rutherford (1909)	Niels Bohr (1913)	James Chadwick (1932)
Ideas/model					
Diagram					
Contribution to current model:					

D.	How big are atoms?
	How big is the radius of an atom?

D.	What is relative mass and charges of the subatomic particles?	
Subatomic particle	Relative Mass	Relative Charge
Proton		
Neutron		
Electron		

D.	What is the overall charge of an atom?

D.	How do we know how many subatomic particles are in each element?	
$  \begin{array}{c}  \text{C}^{12} \\  \leftarrow \text{Mass Number} \\  \\  \text{C}_6 \\  \leftarrow \text{Atomic Number}  \end{array}  $	What is Mass number?	
	What is atomic number?	

D.	How can we know what element we have?
What is an isotope?	

D.	What is relative atomic mass of an element?

E.	Which energy level do electrons fill first?	
How many electrons does each orbital hold?		
First		
Second		
Third		

Electronic structure of Sodium:

**What we are learning this term:**

- A. Arrangement of the Periodic table
- B. Development of the periodic table
- C. Metals and non metals
- D. Group 1
- E. Group 7
- F. Group 0
- G. Transition metals

**6 Key Words for this term**

- 1. Halogens
- 2. Intermolecular

**C. How many elements are metals?**

Most elements in the periodic table are metal

**What are ions?**

Ions are formed when elements gain or lose electrons

**What are positive ions?**

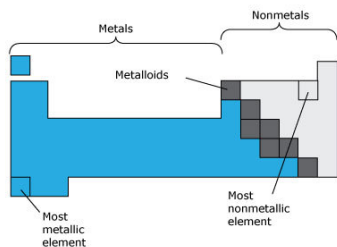
When an element loses an electron it forms a positive ion

**What type of ions do metals form?**

Metals react to form positive ions

**Where are metals and non-metals found on the periodic table?**

Metals are found to the left, towards the bottom. Non-metals are found towards the top right of the periodic table



**A. How are the elements in the periodic table arranged?**

Elements are arranged in order of increasing atomic number.

**What are Groups?**

The vertical columns are groups.

**What similarities do elements in groups have?**

- Similar properties
- Same no of electrons on outer shell

**What are periods?**

The horizontal rows in a periodic table

**B. Before the discovery of protons, how did scientists try to arrange elements?**

Scientists tried to group elements in order of their atomic weights

**What problems were often found with early periodic tables?**

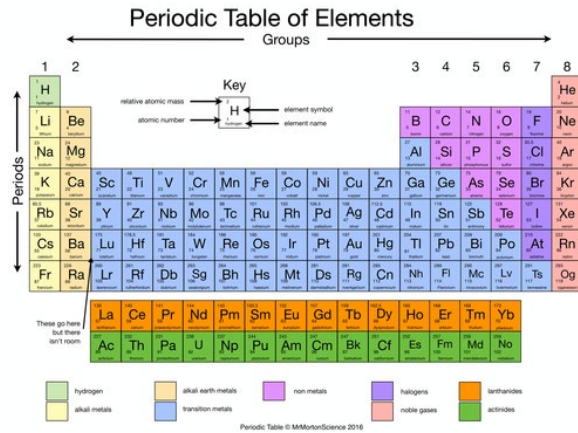
- Not all elements had been discovered
- Some elements placed in the wrong position when atomic weight was used

**C. What are negative ions?**

Ions formed when atoms gain electrons

**What type of ions do non-metals form?**

Non-metals do not form positive ions – they form negative ions

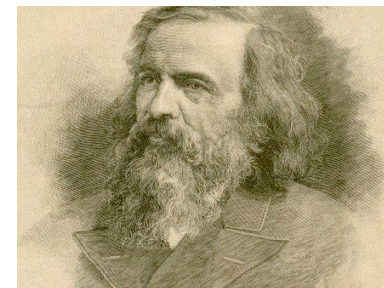


**B. How did Mendeleev overcome some of the problems of grouping elements?**

- He left gaps for possible elements that had not been discovered
- He sometimes changed the order based on atomic weights

**What was discovered that helped explain why using atomic weights didn't always work?**

Knowledge of isotopes



**What we are learning this term:**

- A. Arrangement of the Periodic table
- B. Development of the periodic table
- C. Metals and non metals
- D. Group 1
- E. Group 7
- F. Group 0

**6 Key Words for this term**

- 1. Halogens
- 2. Intermolecular

**C. How many elements are metals?**

**What are ions?**

**What are positive ions?**

**What type of ions do metals form?**

**Where are metals and non-metals found on the periodic table?**

**A. How are the elements in the periodic table arranged?**

**What are Groups?**

**What similarities do elements in groups have?**

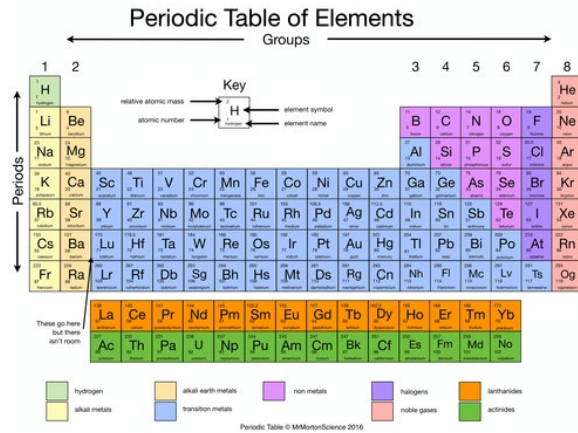
**What are periods?**

**B. Before the discovery of protons, how did scientists try to arrange elements?**

**What problems were often found with early periodic tables?**

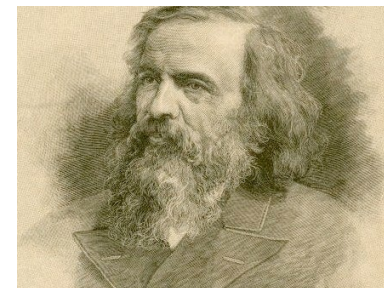
**C. What are negative ions?**

**What type of ions do non-metals form?**



**B. How did Mendeleev overcome some of the problems of grouping elements?**

**What was discovered that helped explain why using atomic weights didn't always work?**





D	Group 1 of the Periodic Table -	
What are group 1 elements known as?	Alkali Metals	
Metal or non-metal	Metal	
How many electrons are in the outer shell?	1 electron in the outer shell	
How reactive are they?	<ul style="list-style-type: none"> <li>Group 1 metals easily lose the electron on the outer shell.</li> <li>This makes group 1 elements very reactive</li> <li>Vigorous reactions with water</li> </ul>	
What ions do they form?	<ul style="list-style-type: none"> <li>Group 1 elements readily lose electrons to form positive ions</li> <li>This is so they can have a filled outer shell</li> </ul>	
How does reactivity change down the group?	Reactivity increases down the group	

F.	Group 0 of the Periodic Table – Helium, Neon, Argon, Krypton, Xenon, Radon	
What are group 0 elements known as?	The Noble Gases	
Metal or non-metal	Non-metal	
How many electrons are in the outer shell?	8 - Filled outer shell (except Helium that has 2)	
How reactive are they?	Filled outer shell so not very reactive	
How do boiling points change down the group?	Boiling point increases down the group as the atomic weight increases	

E.	What is a Halogen Displacement reaction?
A more reactive halogen can displace a less reactive halogen from an aqueous solution from its salt $\text{Cl}_2 + 2\text{KBr} \rightarrow 2\text{KCl} + \text{Br}_2$	

E.	Group 7 of the Periodic Table	
What are group 7 elements known as?	Halogens	
How are they found	Halogens travel in pairs – diatomic molecules ( $\text{Cl}_2$ , $\text{Br}_2$ , ...)	
Metal or non-metal	Non-metal	
How many electrons are in the outer shell?	7 electrons in the outer shell	
How reactive are they?	<ul style="list-style-type: none"> <li>Group 7 elements easily gain electrons</li> <li>This makes group 7 elements very reactive</li> </ul>	
What ions do they form?	<ul style="list-style-type: none"> <li>Group 7 elements readily gain electrons to form negative ions.</li> <li>This is so they can have a filled outer shell</li> </ul>	
How does reactivity change down the group	Reactivity decreases down the group	
How do boiling points change down the group?	As you go down the group, the boiling point increases as the atomic weight increases	

G.	Transition elements	
How do the physical properties of transition metals compare to the alkali metals?	They have higher melting points and densities and are stronger and harder.	
How reactive are they compare to alkali metals?	Less reactive, they do not react vigorously with oxygen or water	
What is different about the ions of transition elements?	They can have different charges in compounds.	
What is a general feature of compounds containing transition elements?	They are coloured	
What are transition elements used for?	Industrial catalysts	





D	Group 1 of the Periodic Table -
What are group 1 elements known as?	
Metal or non-metal	
How many electrons are in the outer shell?	
How reactive are they?	
What ions do they form?	
How does reactivity change down the group?	

F.	Group 0 of the Periodic Table – Helium, Neon, Argon, Krypton, Xenon, Radon
What are group 0 elements known as?	
Metal or non-metal	
How many electrons are in the outer shell?	
How reactive are they?	
How do boiling points change down the group?	

E.	What is a Halogen Displacement reaction?

E.	Group 7 of the Periodic Table
What are group 7 elements known as?	
How are they found	
Metal or non-metal	
How many electrons are in the outer shell?	
How reactive are they?	
What ions do they form?	
How does reactivity change down the group	
How do boiling points change down the group?	

G.	Transition elements
How do the physical properties of transition metals compare to the alkali metals?	
How reactive are they compare to alkali metals?	
What is different about the ions of transition elements?	
What is a general feature of compounds containing transition elements?	
What are transition elements used for?	

<b>What we are learning this term:</b>
A. Ionic Bonding B. Covalent Bonding C. Metallic Bonding D. States of matter E. Properties F. Carbon and Nanoparticles

<b>6 Key Words for this term</b>
1. Delocalised 2. Electrostatic 3. Ionic 4. Covalent

<b>A. What is an ionic compound?</b>
A giant structure of ions held together by strong electrostatic forces of attractions between oppositely charged ions

<b>How can we represent Sodium Chloride?</b>
<p>(a) 3D diagram      (b) Ball and stick model</p>

<b>A. What is ionic bonding?</b>
An electrostatic force of attraction between positively and negatively charged ions

<b>When do you get ionic bonding?</b>
When metals react with non-metals

<b>What are dot and cross diagram?</b>
A way of showing electron transfers during reactions

<b>How is an ionic bond formed in Sodium Chloride? Draw a dot and cross diagram to show this</b>
<ul style="list-style-type: none"> <li>Sodium loses an electron to form a filled outer shell. A positive ion is formed</li> <li>Chlorine gains this electron to fill its outer shell. A negative ion is formed</li> <li>An electrostatic force of attraction is formed between these oppositely charged ions</li> </ul>
<p>sodium atom, Na      chlorine atom, Cl</p> <p>sodium ion, Na<sup>+</sup> [2,8]<sup>+</sup>      chloride ion, Cl<sup>-</sup> [2,8,8]<sup>-</sup></p>

<b>A. What is covalent bonding?</b>
Covalent bonding is where atoms share pairs of electrons

<b>Sketch a dot and cross diagram to show the bonding in Methane (CH<sub>4</sub>) and Ammonia (NH<sub>3</sub>)</b>
--

<b>When do you get Covalent bonding?</b>
Non metallic elements and compounds
<b>What covalent structures are there?</b>
Simple molecules and giant covalent structures

--

<b>C. What is Metallic Bonding?</b>
Outer electrons are delocalised and free to move through the whole structure. This gives rise to metallic bonds
<b>What does delocalised mean?</b>
Where electrons are shared between 2 or more atoms
<b>When do you get Metallic bonding?</b>
Metallic elements and alloys

<b>Draw a sketch of metallic bonding</b>
<p>Free Electrons from outer shell of metal atoms</p> <p>Metal ions</p>

<b>D. What are the three states of matter?</b>			
<b>State</b>	<b>Solid</b>	<b>Liquid</b>	<b>Gas</b>
<b>Diagram</b>			
<b>The amount of energy required to change state is dependent on what?</b>	The strength of the forces between the particles		

<b>What we are learning this term:</b>
A. Ionic Bonding B. Covalent Bonding C. Metallic Bonding D. States of matter E. Properties F. Carbon and Nanoparticles


<b>6 Key Words for this term</b>
1. Delocalised 2. Electrostatic 3. Ionic 4. Covalent

<b>A. What is an ionic compound?</b>

<b>How can we represent Sodium Chloride?</b>
3D diagram      Ball and stick model

<b>A. What is ionic bonding?</b>	<b>When do you get ionic bonding?</b>

<b>What are dot and cross diagram?</b>

<b>How is an ionic bond formed in Sodium Chloride? Draw a dot and cross diagram to show this</b>
<div style="text-align: center; margin-top: 100px;">  </div>

<b>A. What is covalent bonding?</b>	<b>Sketch a dot and cross diagram to show the bonding in Methane (CH<sub>4</sub>) and Ammonia (NH<sub>3</sub>)</b>

<b>When do you get Covalent bonding?</b>

<b>What covalent structures are there?</b>

<b>C. What is Metallic Bonding?</b>
<b>What does delocalised mean?</b>
<b>When do you get Metallic bonding?</b>

<b>Draw a sketch of metallic bonding</b>

<b>D. What are the three states of matter?</b>
--

<b>State</b>			
<b>Diagram</b>			

<b>The amount of energy required to change state is dependent on what?</b>	
--	--



D. What are state symbols?	
These are used in chemical equations to show what state of matter things are in a reaction	
Solid	(s)
Liquid	(l)
Gas	(g)
Aqueous (in solution)	(aq)

E. What properties do Giant ionic structures have?	
Melting points/boiling points	High
Does it conduct electricity?	
Ionic solid	No
Molten ionic solid	Yes
Ionic compound in solution	Yes

E. What are polymers?	
Large long chain molecules	
Are the ionic or covalent?	Covalent

E. What properties do simple small covalent molecules have?	
Melting point	Lower melting points – because of weak intermolecular forces (not the covalent bonds)
Conduct electricity?	No – no overall charge

F. What different forms of carbon are there?				
	Graphite	Diamond	Graphene	Fullerenes
Structure	Hexagonal rings	Giant covalent	1 sheet of graphite	Giant covalent
Melting point	high	Very high	Very High	Very High
Conducts electricity?	Yes	No	Yes	No
Properties	soft	Very hard	hard	hard
Uses	Pencils, electrodes	Cutters, jewellery	Electronics, composites	Nanotechnology, electronics, medicine
Diagram				

E. What properties do giant covalent structures have?	
Melting point	High
Solubility	Insoluble due to strong covalent bonds

E. What are alloys?
Mixtures of metals
Harder than pure metals

F. What are nanoparticles?
Structures that are 1-100nm in size
Why are they useful?
Large surface area to volume ratio
What uses?
Medicine, electronics, sun cream, catalysts, cosmetics

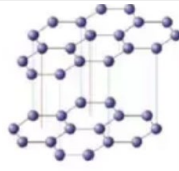
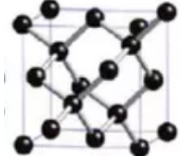
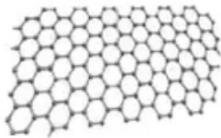
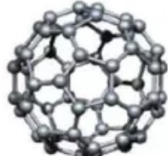


D.	What are state symbols?
These are used in chemical equations to show what state of matter things are in a reaction	
Solid	
Liquid	
Gas	
Aqueous (in solution)	

E.	What properties do Giant ionic structures have?
Melting points/boiling points	
Does it conduct electricity?	
Ionic solid	
Molten ionic solid	
Ionic compound in solution	

E.	What are polymers?
Are the ionic or covalent?	

E.	What properties do simple small covalent molecules have?
Melting point	
Conduct electricity?	

F.	What different forms of carbon are there?			
	Graphite	Diamond	Graphene	Fullerenes
Structure				
Melting point				
Conducts electricity?				
Properties				
Uses				
Diagram				

E.	What properties do giant covalent structures have?
Melting point	
Solubility	

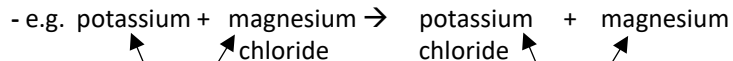
E.	What are alloys?
What properties do they have	

F.	What are nanoparticles?
Why are they useful?	
What uses?	

# T3 10GS C4 – Chemical Changes

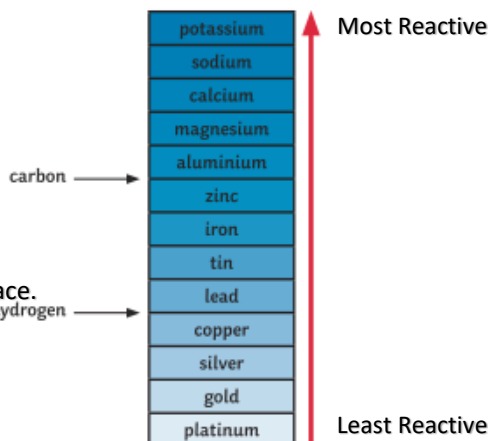
## The Reactivity Series

- A more reactive metal will replace a less reactive metal in a compound (**displacement**)



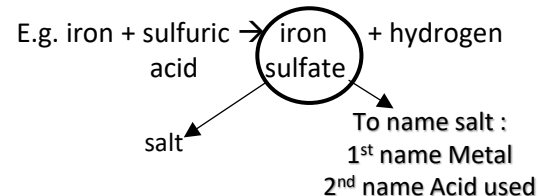
Potassium is more reactive than magnesium

Potassium **displaces** magnesium from the compound and takes its place.



## Reactions of acids with metals

- Metal + acid → salt + hydrogen



## Naming Salts

Acid used	Salt produced
Hydrochloric	Chloride
Sulfuric	Sulfate
Nitric	Nitrate

## Extraction of Metals

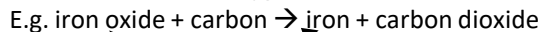
- Extraction = remove metal from an ore or a compound.

**Ore** = a rock containing enough metal to make extracting metal worthwhile.

### How to extract metals:

**Less reactive than carbon** – reduction with carbon

Reduction = loss of oxygen



Oxygen has been removed to extract iron.

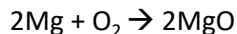
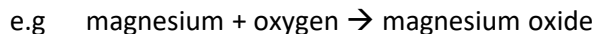
Carbon and the oxygen removed from the iron react to make carbon dioxide

**More reactive than carbon** – electrolysis is used.

- Some metals are found in **native** form (not reacted, so in element form) – usually platinum and gold as **very unreactive**.

## Reaction of metals with oxygen

- Metal + oxygen → metal oxide



Oxidation reaction as metal gained oxygen

- Oxidation = gaining oxygen

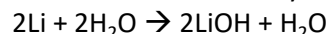
- Reduction = losing oxygen

## Reaction of metals with water

- Most metals don't react well with water

- Group 1 and group 2 react to form alkalis

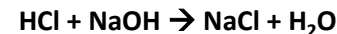
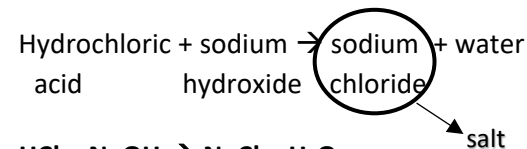
- Metal + water → metal hydroxide + hydrogen



Metal hydroxides are alkaline

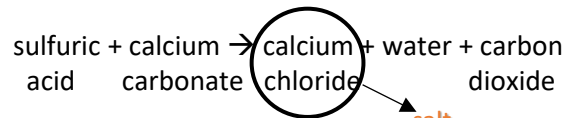
## Reactions of acids with alkalis

- Acid + alkali → salt + water neutralisation



## Reactions of acids with carbonates

- Acid + carbonate → salt + water + carbon dioxide



### T3 10GS C4 – Chemical Changes

1. What is meant by displacement?

2. Name a very reactive metal

3. Name two metals which are less reactive than hydrogen.

1. State the general equation for the reaction of metal with acid.

2. State the salts produced from hydrochloric acid, sulfuric acid and nitric acid.

1. Define extraction.

2. What is an ore?

3. How do you extract a metal less reactive than carbon?

1. State the general equation for the reaction of metal with oxygen.

2. Write a word equation for the reaction of iron with oxygen.

1. State the general equation for the reaction of acid with an alkali.

4. What is meant by reduction?

1. State the general equation for the reaction of metal with water.

5. What is meant by a 'native metal'?

2. Are hydroxides acid/alkaline?

1. State the general equation for the reaction of acid with carbonates.

6. Give an example of a metal found in native form.

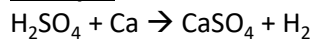
## T3 10GS C4 – Chemical Changes

### Redox Reactions (HT only)

- Redox = reduction and oxidation takes place at same time in a reaction.

- Metal + acid = redox reaction

#### Example



Ionic equation:  $2\text{H}^+ + \text{Ca} \rightarrow \text{Ca}^{2+} + \text{H}_2$  Lost 2 electrons (oxidation)

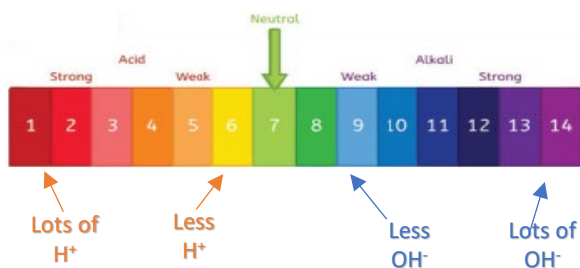
Half equation 1:  $\text{Ca} \rightarrow \text{Ca}^{2+} + 2\text{e}^-$

Half equation 2:  $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$  Gained 2 electrons (reduction)

### pH Scale

- Shows how acidic or alkaline solution is.

- pH 1-6 = acid
- pH 7 = neutral
- pH 8-14 = alkali

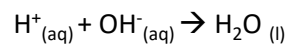


#### In aqueous solutions:

Acids – produce  $\text{H}^+$  ions

Alkalis – produce  $\text{OH}^-$  ions

In neutralisation reactions:



### Strong/Weak Acids (HT only)

**Strong acid** = completely dissociates in a solution

e.g.  $\text{HCl} \rightarrow \text{H}^+ + \text{Cl}^-$

Examples = nitric acid and sulfuric acid

**Weak acid** = partially dissociates in solution.

e.g.  $\text{CH}_3\text{COOH} \rightleftharpoons \text{CH}_3\text{COO}^- + \text{H}^+$   
 $\rightleftharpoons$  = reversible reaction

Hasn't fully turned into ions – only partially

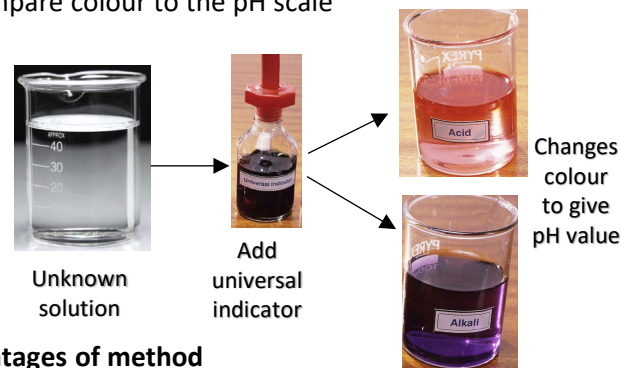
**Concentration** = how much is dissolved in every  $\text{cm}^3$

**Strong/weak** = how well it ionises

As **pH** decreases by 1 unit, **hydrogen ion concentration** of solution increases by factor of 10

### Measuring pH of a solution

- Can use **universal indicator**
- Gives the solution a colour
- Can compare colour to the pH scale



#### Disadvantages of method

- Colour is **subjective** – different people may see different colours
- Doesn't give an exact pH number (could use **pH probe** to make more **accurate**).



## T3 10GS C4 – Chemical Changes

1. What is a redox reaction?
2. In terms of electrons, what does oxidation mean?
3. In terms of electrons, what does reduction mean?

1. Define a strong acid.
2. Give an example of a strong acid.
3. Define a weak acid.
4. What happens to  $H^+$  concentration as the pH value decreases by 1?

1. What is the pH range for an acid?
2. What is the pH range for an alkali?
3. If a substance has a pH of 7, what type of substance is it?
4. What ions do acids produce in solution?
5. What ions do alkalis produce in a solution?
6. State the ionic equation for neutralisation reactions.

1. Describe a simple method to test the pH of an unknown solution.
2. State 2 disadvantages of using universal indicator.
3. How can pH be measured more accurately?

## T3 10GS C4 – Chemical Changes– Required Practical – Preparation of soluble salts

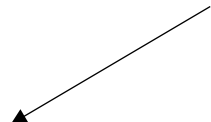
### Aim

Prepare a pure, dry sample of a soluble salt from an insoluble **oxide** or **carbonate**.

### Equipment

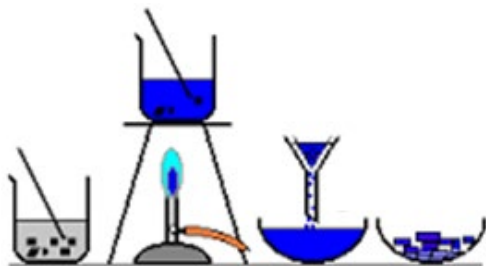
- Beaker
- Measuring cylinder
- Bunsen burner and safety mat
- Filter funnel and filter paper
- Named acid (e.g. hydrochloric acid)
- Metal oxide or carbonate.
- Spatula
- Glass stirring rod

Change method  
depending on reactants in  
the question.



### Method (example copper oxide and sulfuric acid to make copper sulfate)

1. Using measuring cylinder – 20cm<sup>3</sup> **sulfuric acid** → beaker
2. Warm the acid gently (not boiling)
3. Using spatula add **copper oxide** to the acid and stir
4. Keep adding until no more oxide will dissolve (excess).
5. Using a filter funnel and filter paper – filter excess copper oxide.
6. Evaporate some of the filtrate using a water bath.
7. Pour remaining filtrate into an evaporating basin – leave overnight to evaporate water
8. Pat the crystals dry.



### Common questions

**Q1)** Why do you heat the acid before adding the oxide?

**A1)** To speed up the reaction (particles have more energy to react).

**Q2)** Why is the oxide added in excess?

**A2)** To make sure that all the acid has been neutralised.

**Q3)** Why is the solution filtered?

**A3)** Remove any unreacted, excess solid.

**Q4)** Why is the solution left overnight in a warm, dry place?

**A4)** To evaporate excess water, to form crystals (crystallise).

**Q5)** Name 2 safety precautions you should take during this practical.

**A5)** Safety goggles and allow equipment to cool before putting away

### T3 10GS C4 – Chemical Changes – Required Practical – Preparation of soluble salts

1. Write a method to prepare a pure, **dry** sample of copper sulfate crystals (6 marks).

Q2) Why do you heat the acid before adding the oxide?

Q3) Why is the oxide added in excess?

Q4) Why is the solution filtered?

Q5) Why is the solution left overnight in a warm, dry place?

Q6) Name 2 safety precautions you should take during this practical.

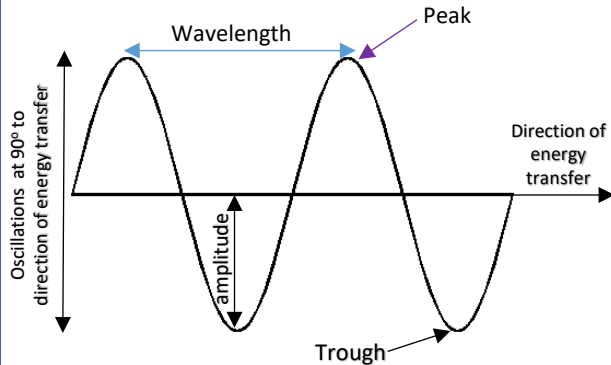
# Year 11 Term 1 Science/Physics P6 Waves

## Transverse Waves

- Oscillations (vibrations) **perpendicular** to direction of energy transfer.

### Examples:

- Electromagnetic waves
- Ripples on water.

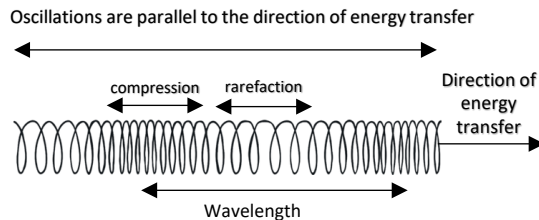


## Longitudinal Waves

- Oscillations (vibrations) are **parallel** to direction of energy transfer.

### Examples:

- Sound waves



Sound waves have areas of compression and rarefaction.

Compression = particles pushed closer together

Rarefaction = particles are further apart

## Properties of Waves

**Amplitude** – maximum displacement from undisturbed position.

**Wavelength** – distance from a point on one wave to the equivalent point on the next wave.

**Frequency** – number of waves passing a point each second.

Frequency is measured in Hertz (Hz)  
1Hz = 1 wave per second.

**Wave speed** – the speed at which energy is transferred through a medium.

$$v = f \times \lambda$$

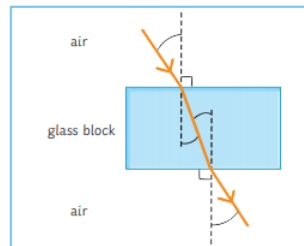
You need to memorise

wave speed (m/s)
frequency (Hz)
wavelength (m)

## Refraction

Refraction occurs at the boundary between two mediums because the speed and wavelength of the wave changes at the boundary.

If wave hits medium at an angle of 90° then the ray will slow down but will not be refracted.



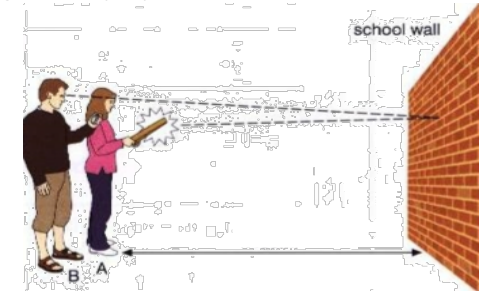
## Measuring speed of sound waves in air

- Stand 50m from a large flat wall.
- One person claps/bangs bricks
- Measure time taken to hear the echo.
- Calculate speed of sound using:

$$\text{Speed} = \text{distance} \times \text{time}$$

- Remember distance is double (in this case, 100m) as it travels to the wall and back.
- Take several measurements and calculate the mean to reduce error.

This is unlikely to produce an accurate value for sound in air (330 m/s) as the reaction time of the person operating the stopwatch is likely to be a significant proportion of the time measurement.

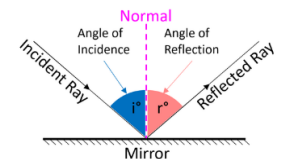


## Reflection

Definition: The change of direction of a light ray or wave at a boundary when the incident ray stays within the medium.

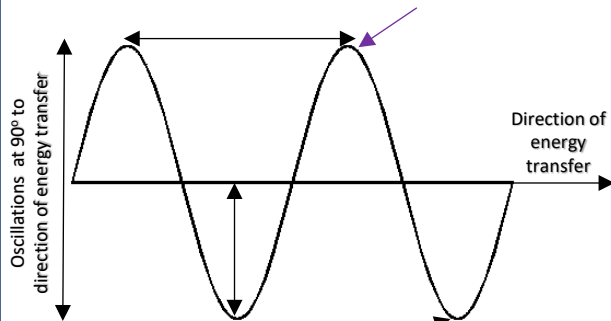
### Law of reflection

The angle of incidence = angle of reflection



## P6 Waves

1. How are transverse waves produced?
2. Label the wave features below.



1. Describe a longitudinal wave
2. Give an example of a longitudinal wave.
3. Label an area of compression and rarefaction in the diagram below



1. Define the following:

Amplitude

Wavelength

Frequency

2. What are the units for frequency?

3. What is the equation linking frequency, speed and wavelength?

1. When does refraction occur?

2. What happens to the speed, wavelength and frequency of a wave when it is refracted?

1. Describe a method to investigate the speed of sound waves in air.

2. What is the biggest source of error in this investigation?

3. What is the speed of sound in air?

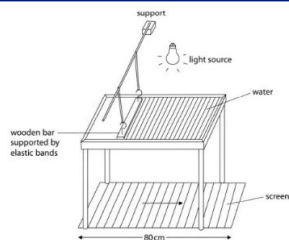
1. What is the law of reflection?

## P6 Waves Required Practical – investigating wave in a solid and a ripple tank

### Measuring waves in a liquid

#### Equipment

- Ripple tank
- Measuring ruler
- Stop watch



#### Method

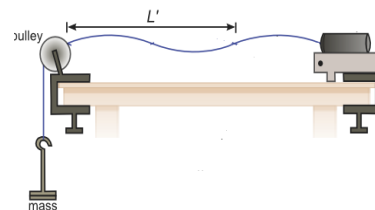
1. Set up the equipment as shown and turn on the motor to produce low frequency waves so that they are able to be counted.
2. Adjust the lamp until pattern is seen clearly on white screen underneath
3. Use a ruler to measure the length of a number of waves (e.g 10) and divide the length by the number of waves to give wavelength. This improves the accuracy of the measurement.
4. Record the waves using a camera or mobile phone. Count the number of waves passing a point in 10 seconds using a stopwatch and slowing the recording down.
5. Divide the number of waves counted by the time to give frequency.
6. Use  $v = f \times \lambda$  to calculate the wave speed. Repeat for different frequencies of the motor.

Exp	Length of 10 waves (cm)	Wavelength of 1 wave (cm)	Number of waves in 10 s	Frequency (Hz)	Speed (cm/s)
1	65	0.65	121	12.1	7.9
2	50	0.5	155	15.5	7.9
3	42	0.42	187	18.7	7.9

### Measuring waves in a solid

#### Equipment

- string, vibration generator, hanging mass set and pulley



#### Method

1. Set up the equipment as shown.
2. Turn on the vibration generator
3. Adjust the length of the string until a standing wave is achieved
4. The frequency can be read from the vibration generator
5. Measure as many complete waves as possible using a ruler
6. Divide the length by the number of waves to give wavelength
7. Calculate speed using  $v = f \times \lambda$

#### Conclusion:

In both experiments, when you increase the frequency, the wavelength decreases – the speed remains the same in the same medium

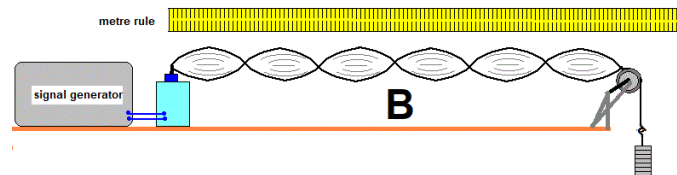
## P6 Waves – Required Practical – Ripple Tank

- Complete the table below to explain the method in calculating the speed of waves in a ripple tank.

Step	Reason
Fill the ripple tank with water, switch on a lamp and place white card underneath the tank.	
Switch on the motor and adjust it to give low frequency waves	
Place a stopwatch next to the card and record the waves, with the stopwatch in view for 10 seconds	
Play the recording in slow motion, count the number of waves passing a certain point and divide this by 10	
Measure the length of 10 waves by taking a picture of the card with a ruler on it.	
Divide the length by 10	

- If the length of 10 waves is 55cm, what is the wavelength of 1 wave?
- If there are 210 waves in 10 seconds, what is the frequency?

- When investigating waves produced by a vibration generator on a string, how do we know the frequency?



- How many complete waves are shown in the image above?
- If the length from the generator to the pulley was measured at 66 cm, what is the wavelength?
- Why is it better to measure multiple waves and divide to find wavelength rather than measure one single wave?
- What happens to wavelength when frequency increases?
- What happens to wavelength when frequency decreases?

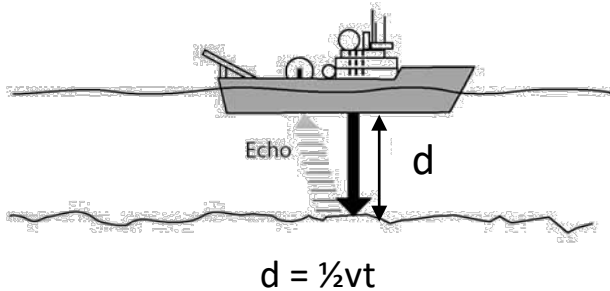
# P6 Waves

## Sound Waves

- The pitch of a note increases if the frequency of the sound wave increases.
- The loudness of a note increases if the amplitude of the sound wave increases.
- Sound waves cause the eardrum to vibrate, these vibrations send signals to the brain.
- The conversion of sound waves to vibrations of solids only works over a limited frequency range, limiting the range of frequencies a human can hear. (20-20000 Hz)

## Echo sounding

- Uses pulses of high frequency sound waves to measure the depth of objects in deep water.

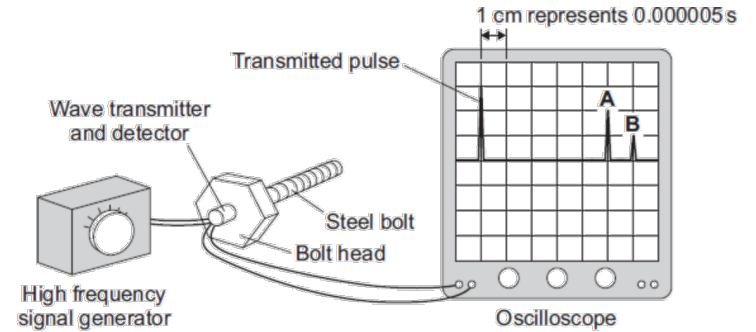


- $v$  = speed of the sound wave
- $t$  = time between transmitting the signal and receiving the echo.
- $d$  = distance to the object

## Ultrasound

- Ultrasound waves are sound waves with a frequency above 20 000 Hz.
- Ultrasound waves are partly reflected at a boundary between two different types of body tissue.
- Ultrasound waves reflected at boundaries are timed, and the timings are used to calculate distances.
- Ultrasound scans are non ionising so are safer than x-rays.

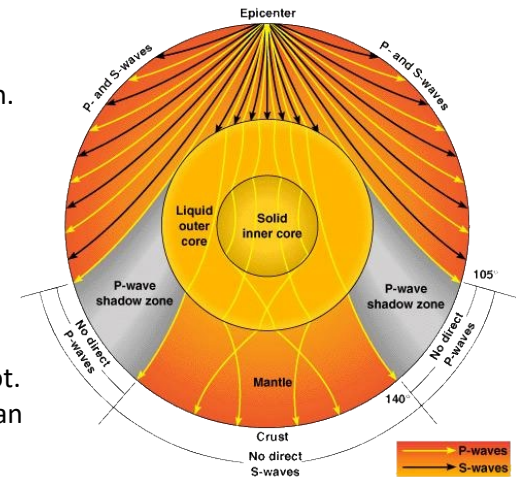
- The diagram shows how a very high frequency sound wave can be used to check for internal cracks in a large steel bolt. The oscilloscope trace shows that the bolt does have an internal crack.



- Ultrasound is not only used in medicine, it can also be used to look for flaws or cracks in objects.

## Seismic Waves

- Seismic waves are waves that travel through the Earth.
- Seismic waves are produced in an earthquake and spread out from the epicentre.
- Primary seismic waves (P-waves) are longitudinal
- Secondary waves (S-waves) are transverse waves.
- The movement of seismic waves through the Earth following an earthquake provide information on the inner structure of the Earth.
- P waves can move through solids, but S waves cannot.
- Only P waves are detected opposite the epicentre of an earthquake, suggesting that the centre of the Earth is solid.





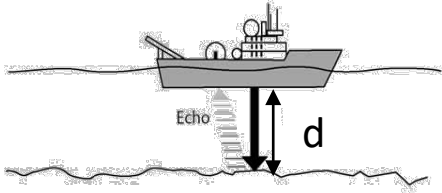
## P6 Waves

### Sound Waves

1. What part of a sound wave is related to the pitch of the note?
2. What part of a sound wave is related to the loudness of a note?
3. What is hearing range of a human?

### Echo sounding

1. What is echo sounding?



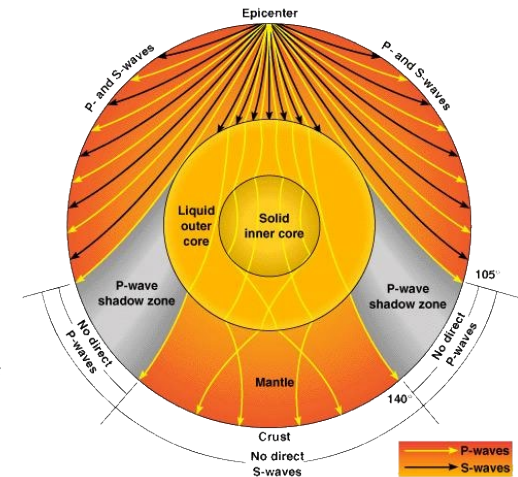
2. What is the equation used to find the depth of the ocean floor (d) under the boat?

### Ultrasound

1. What frequency are ultrasound waves? Ultrasound waves are sound waves with a frequency above 20 000 Hz.
2. What happens to ultrasound waves when they hit a boundary between two mediums?
3. Why are ultrasound scans safer than x-rays?
4. Give a non-medical use of ultrasound waves.

### Seismic Waves

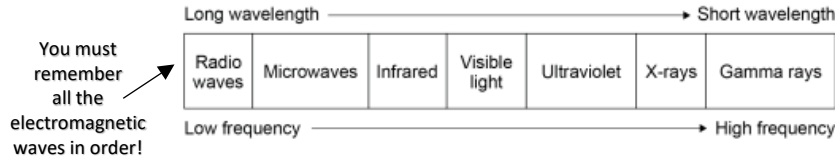
1. What are seismic waves?
2. What is the difference between a P-wave and an S-wave?
3. What do seismic waves tell us about the structure of the Earth.



# P6 Waves

## The Electromagnetic Spectrum

- All **transverse waves**
- Transfer energy from the source of waves to an absorber.
- All travel at the same **velocity** through a vacuum or air – **speed of light**.
- Speed of light = 300,000,000 m/s

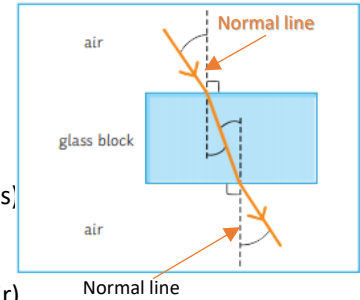


Wave	Use	Other information
Radio waves	Television and radio	Easily transmitted through the air. Harmless if absorbed by the body.
Microwaves	Satellite communications and cooking food	Can be harmful when internal body cells become heated by over exposure.
Infrared	Electrical heaters, cooking food and infrared cameras	Can cause burns to skin
Visible light	Fibre optic communications	Only EM wave detectable by human eye.
Ultraviolet	Energy efficient lamps, sun tanning	Causes skin tanning and can lead to burns or <b>skin cancer</b> .
X-rays	Medical imaging and airport security scanners.	Very little energy is absorbed by body tissues. Passes through the body.
Gamma rays	Sterilising medical equipment or food and treatment for some cancers.	They can lead to gene mutation and cancer.

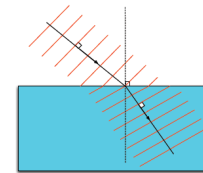
## Ray diagrams

- You need to construct **ray diagrams** to show how a wave is **refracted** at the boundary of a different medium.

- Less dense → More dense (e.g. air to glass)
- Ray **slows down** and bends **towards the normal line**.
- More dense → Less dense (e.g. glass to air)
- Ray **speeds up** and bends **away from the normal line**.



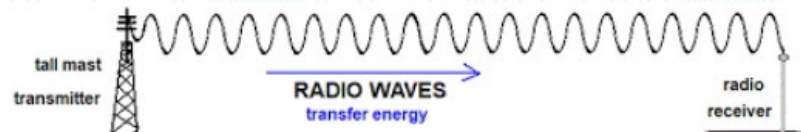
The ray bends because different parts of the wavefront cross the boundary at slightly different times –



If wave hits medium at an angle of 90° then the ray will slow down but will not be refracted.

## Radio waves (HT only)

- Radio waves can be produced by **oscillations in electrical circuits**.
- Those radio waves can travel for long distances to receivers.
  - When absorbed by the receiver, the radio wave creates an **alternating current** with same **frequency** as the wave itself.
  - This is how TV and radio are broadcast.



## P6 Waves

- |   |  |
|---|--|
| <ol style="list-style-type: none"><li>1. State two properties of electromagnetic waves.</li><li>2. Write the EM spectrum in order of <b>increasing</b> wavelength</li><li>3. Write the EM spectrum in order of <b>increasing</b> frequency</li><li>4. How fast do electromagnetic waves travel?</li><li>5. State the uses of:<ol style="list-style-type: none"><li>a) radio waves</li><li>b) microwaves</li><li>c) infrared</li><li>d) visible light</li><li>e) ultraviolet</li><li>f) x-rays</li><li>g) gamma rays</li></ol></li></ol> | <ol style="list-style-type: none"><li>1. What happens when a ray goes from a less dense → more dense medium?</li><li>2. What happens when a ray moves from a more dense → less dense medium?</li><li>3. What is the line at 90° to a surface called?</li><li>4. 4. What happens if a ray hits a medium at 90°?</li></ol> |
|   | <ol style="list-style-type: none"><li>1. What type of current do radio waves create when absorbed?</li><li>2. What is the frequency of the current produced by a radio wave of frequency 250Hz?</li></ol>  |

## P6 Waves – Required Practical – Infrared radiation

### Aim

Investigate how the amount of infrared radiation **emitted** (given out) by a surface depends on the nature of that surface.

In this investigation you are finding out which type of surface emits the most infrared radiation:

- **Dark and matt**
- **Dark and shiny**
- **Light and matt**
- **Light and shiny**

### Method

1. Place **Leslie cube** on a heat proof mat.
2. Once the kettle has boiled, fill the Leslie cube with water.
3. Hold the infrared thermometer 5cm from the first surface
4. Record the temperature
5. Repeat the experiment three times on each surface and calculate mean for each surface.

**Independent variable:** surface

**Dependent variable:** temperature of the air (infrared radiation emitted)

**Control variables:** Temperature of the water inside, the distance between the cube surface and the infrared thermometer



In this investigation you are finding out which type of surface absorbs the most infrared radiation:



### Method

1. Fill a black and a silver can with water from the tap.
2. Take the temperature of the water in each can
3. Place the infrared thermometer 5cm from the cans
4. Leave for at least 10 minutes
5. Record the temperature of the water in each can and calculate the rise in temperature

**Independent variable:** surface of the can

**Dependent variable:** Temperature increase of the water (infrared radiation absorbed)

**Control variables:** Temperature of the water inside, the distance between the cube surface and the infrared thermometer

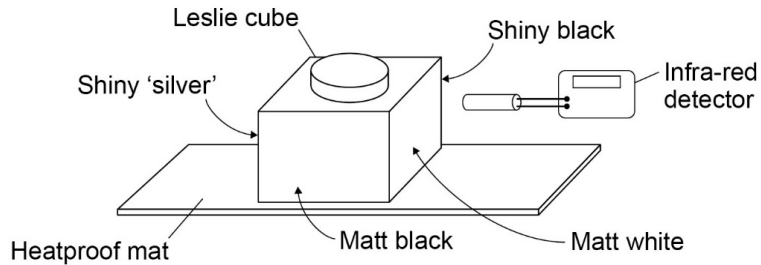
### Conclusion

Black matt surfaces absorb and emit the most infrared radiation.

White/silver and shiny surfaces are poor emitters and poor absorbers of infrared radiation

## P6 Waves – Required Practical – Infrared radiation

1. Describe how you could use the equipment below to investigate the emission of infrared by different surfaces.



1. A student was investigating the amount of infrared radiation absorbed by water in cans with different surfaces.



Name the...

Independent variable:

Dependent variable :

Control variables :

2. What kind of surfaces are the best emitters of infrared radiation?
3. Why does the water in the silver can heat up less than the black can?

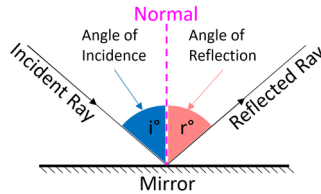
# P6 Waves

## Reflection

Definition: The change of direction of a light ray or wave at a boundary when the incident ray stays within the medium.

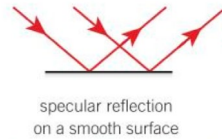
### Law of reflection

The angle of incidence = angle of reflection



## Specular reflection

Definition: Reflection from a smooth surface. Each light ray is reflected in a single ray.



## Diffuse reflection

Definition: Reflection from a rough surface. The light rays are scattered in different directions



## Ray diagrams

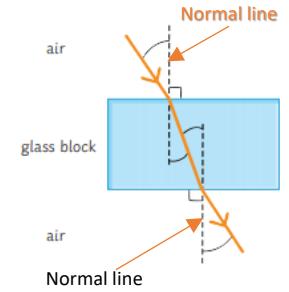
- You need to construct **ray diagrams** to show how a wave is **refracted** at the boundary of a different medium.

Less dense → More dense (e.g. air to glass)

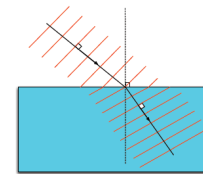
- Ray **slows down** and bends **towards the normal line**.

More dense → Less dense (e.g. glass to air)

- Ray **speeds up** and bends **away from the normal line**.



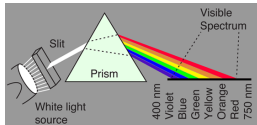
The ray bends because different parts of the wavefront cross the boundary at slightly different times –



If wave hits medium at an angle of 90° then the ray will slow down but will not be refracted.

## Colour

White light can be split into the colours of the rainbow, each with a different wavelength



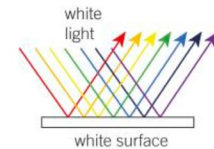
### Primary and secondary colours

Red + yellow = green

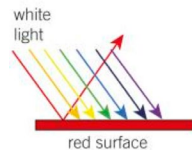
Green + blue = cyan

Blue + red = magenta

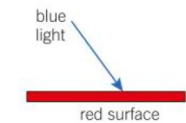
Green + blue + red = white



A white object looks white because it **reflects** all the wavelengths of visible light that reach it.



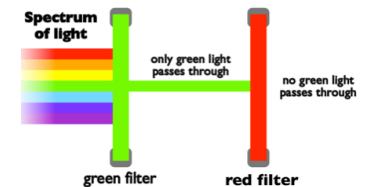
A red object looks red because it **absorbs** all the wavelengths of light except red. Only red light is **reflected**.



If only blue light is shone on a red surface it is **absorbed**, and no light is **reflected**, so the surface looks black

## Filters

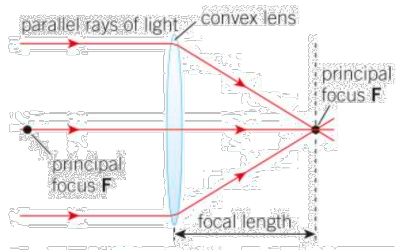
Filters change the colour objects appear as the only let certain wavelengths of light through. A green filter absorbs all colours except green, and **transmits** only green light



## P6 Waves

- |  |  |
|--|--|
| <ol style="list-style-type: none"><li>1. What is reflection?</li><li>2. Draw a labelled diagram to show reflection of a ray of light by a mirror.</li><li>3. What is specular reflection?</li><li>4. What is diffuse reflection?</li></ol> | <ol style="list-style-type: none"><li>1. What happens when a ray goes from a less dense <math>\rightarrow</math> more dense medium?</li><li>2. What happens when a ray moves from a more dense <math>\rightarrow</math> less dense medium?</li><li>3. What is the line at <math>90^\circ</math> to a surface called?</li><li>4. 4. What happens if a ray hits a medium at <math>90^\circ</math>?</li></ol> |
| <ol style="list-style-type: none"><li>1. What are the primary colours of light?</li><li>2. Why does a red object look red?</li><li>3. Why does a blue filter make everything appear blue?</li></ol>  |  |

## P6 Waves

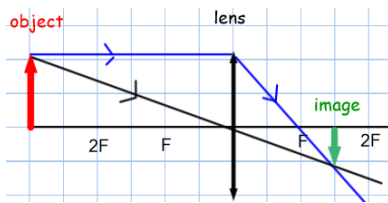


**Convex (Converging) Lenses** make parallel rays of light converge to meet at the principal focus. Focal length = distance from centre of lens to principal focus

### To draw a ray diagram:

Draw two rays from the top of the object

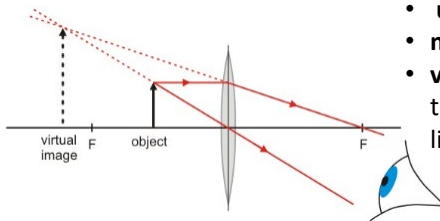
1. A ray parallel to the principal axis, which is refracted through the principal focus.
2. A ray through the centre of the lens, which does not change direction.
3. To create the image, draw an arrow from the principal axis to the point where the rays meet.



The image above is **inverted** (upside down), **diminished** (smaller than the object) and **real** (the rays of light pass through it).

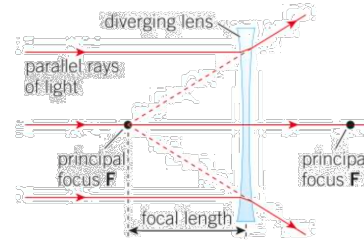
This image is

- **upright** (right way up),
- **magnified** (larger than the object)
- **virtual** (rays of light don't pass through it); represented by dotted lines



**Convex** lenses can produce **real** or **virtual** images.

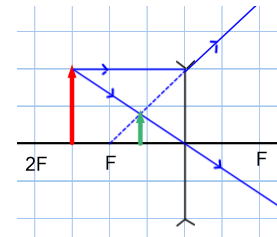
**Concave (Diverging) Lenses** make parallel rays of light diverge (spread out), as if they have come from the principal focus of the lens



### To draw a ray diagram:

Draw two rays from the top of the object

1. A ray parallel to the principal axis, which is refracted as if it came from the principal focus on the same side of the lens.
2. A ray through the centre of the lens, which does not change direction
3. To create the image, draw an arrow from the principal axis to the point where these rays appear to meet.



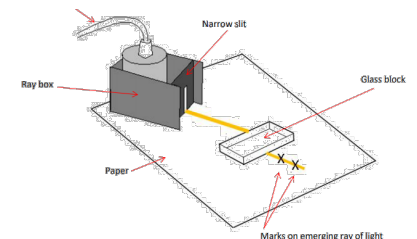
**Concave** lenses always produce **virtual** images.

**Magnification:** If the image is bigger than the object the magnification is greater than 1. If the image is smaller than the object, the magnification is less than 1.

Magnification is a ratio and so does not have units.

$$\text{Magnification} = \frac{\text{Image size}}{\text{Actual size}}$$

**Required Practical:** use different substances and surfaces to investigate refraction and reflection of light





## P6 Waves

1. What does a convex lenses do to parallel rays of light?

2. How do you draw a ray diagram for a convex lens?

3. What is a real image?

4. What is a virtual image?

5. What type of does a concave lens produce?

1. What does a concave lenses do to parallel rays of light?

2. How do you draw a ray diagram for a concave lens?

3. What type of does a concave lens produce?

1. What is the formula to calculate magnification?

2. What does a magnification of less than 1 mean?

1. What equipment would you use to investigate the refraction of light through a glass block.



### 9. Global atmospheric circulation

Factor	Explanation
Global atmospheric circulation	Worldwide system of winds, which transport heat from the equator to the poles. Wind is large scale movement of air from HIGH to LOW pressure.
Key information	This is caused by differences in temperature at the Equator and the poles. The circulation is divided into loops called CELLS. Low pressure = Rising air = Rain. High pressure = Sinking air = Clear skies.
	At the poles, cool air sinks creating high pressure. (<250mm rainfall).
	At 60°N air rises between the <u>Ferrel</u> and Polar cell creating an area of low pressure. The UK gets lots of <u>low pressure</u> weather blown in from the Atlantic.
	At 30°N air sinks between the <u>Ferrel</u> /Hadley cell creating high pressure (deserts <250mm rain).
	On the equator air rises as the sun's heat is most concentrated. This creates a <u>low pressure</u> area with high rainfall. (Rainforests >2000mm of rain).
	Surface winds blow towards the equator (trade winds). Direct hurricanes to west.
	Here winds blow towards the poles and are called Westerlies. (From the west).
	The winds curve due to the spin of the earth (Coriolis effect).

### 10. Weather hazards in the UK

Hazard	Example
Extreme weather	A weather event that is significantly different from the average pattern and is especially severe or unseasonal.
Strong winds	Damage property / disrupt transport. 2018 Storm Ali killed 2 people.
Heavy rain	Can cause flooding, costing millions. Cockermouth 2009 314 mm in 24 hrs.
Snow	Injury, death, travel disruption. March 2018 Beast from East. 50 cm.
Drought	Crop failure, rules to conserve water. April 10-March 12 only 75% of rain.
Heatwaves	Pollution builds up- breathing problems. Death. BUT tourism benefits. 2018.

### 12. An example of a recent extreme weather event in the UK

Name	Somerset Floods, 2014
Causes	350mm rain fell in Jan and Feb High tides, rivers not dredged for 20 yrs
Impacts	<ol style="list-style-type: none"> <li>£10 million damage</li> <li>14,000 ha of farmland flooded</li> <li>600 homes flooded</li> <li>Moorland and <u>Muchelney</u> cut-off</li> <li>Floodwaters contaminated</li> <li>Soil damaged for 2 years after</li> </ol>
Management strategies	<b>Immediate responses</b> <ul style="list-style-type: none"> <li>Army helped with rescue boats</li> <li>Volunteers and community groups</li> <li>Locals used boats to go shopping/school</li> </ul> <b>Long term responses</b> <ul style="list-style-type: none"> <li>£20 million flood action plan</li> <li>Rivers dredged</li> <li>Road levels raised</li> <li>Tidal barrage by 2024</li> </ul>

### 11. Evidence that weather is becoming more extreme...

Our weather is naturally variable BUT extreme events are becoming more common and severe.

Hazard	Example
Temperature	10 warmest yrs all occurred since 1990 2018 joint hottest summer on record. Dec 2010 coldest month for 100 years.
Rainfall	More rainfall records broken between 2010 - 2014 than in any other decade. Dec 2015 wettest month on record.



9. Global atmospheric circulation	
Factor	Explanation
Global atmospheric circulation	
Key information	
<p>The diagram illustrates the three-cell model of global atmospheric circulation. It shows the Earth with latitude lines at 60°N, 30°N, 0° (Equator), 30°S, and 60°S. The cells are labeled as follows:         <ul style="list-style-type: none"> <li><b>Polar cell:</b> Located between the poles and 60° latitude. Air descends at the poles and rises at 60° latitude.</li> <li><b>Ferrel cell:</b> Located between 30° and 60° latitude. Air descends at 30° latitude and rises at 60° latitude.</li> <li><b>Hadley cell:</b> Located between the equator and 30° latitude. Air descends at 30° latitude and rises at the equator.</li> </ul>         Wind patterns are shown: Westerlies between 30° and 60° latitude, and Trade winds between the equator and 30° latitude in both hemispheres. High (H) and Low (L) pressure systems are indicated at the boundaries of the cells.         </p>	

10. Weather hazards in the UK	
Hazard	Example
Extreme weather	
Strong winds	
Heavy rain	
Snow	
Drought	
Heatwaves	

11. Evidence that weather is becoming more extreme...	
Temperature	

12. An example of a recent extreme weather event in the UK	
Name	
Causes	
Impacts	
Management strategies	



**13. Tropical storms**

Hurricanes, cyclones, typhoons. An area of low pressure with winds moving in a spiral around the calm central point called the eye of the storm. Winds are powerful and rainfall is heavy.

Factor	Explanation
Global distribution	5° – 30° north and south of equator (sea temp warm, wind shear low). More in the northern hemisphere. Move towards the west.
Relationship with ACM	Trade winds (from high to low pressure) send tropical storms to west.
Structure	Circular, can be 100s of km wide. Eye- calm in centre (air ↓, LOW). Eyewall- strong winds, torrential rain. Edges- Wind speed falls, rain reduces.



**How will climate change affect them?**

Distribution	Increase to higher latitudes (warmer sea temperatures).
Frequency	Number could increase. (Longer season)
Intensity	Stronger? More evaporation.

**14. Formation of tropical storms**

Include processes and ensure correct sequence.

Conditions	5-30° latitude. Ocean depth > 60m deep. Sea temperature > 27°C. Form summer and autumn.
	<ol style="list-style-type: none"> <li>1. Sun heats the ocean (27°C) &gt; <b>rapid evaporation</b>.</li> <li>2. <b>Condensation</b> occurs quickly leading to a large amount of cloud forming (<b>tropical depression</b>).</li> <li>3. Due to the earth's rotation, this cloud mass starts to spin. An eye is formed in the centre.</li> <li>4. Due to rising air, a <b>low pressure</b> area forms below. Air rushes into this creating high wind speeds. (&gt;74mph = <b>tropical storm</b>)</li> <li>5. The <b>low pressure</b> results in the ocean being uplifted forming a <b>storm surge</b>.</li> </ol>


**15. How can we reduce the impacts?**

Strategy	Explanation
Prediction / monitoring	Satellites and aircraft to monitor storms. Computer models calculate the predicted track. Allows warnings so people can evacuate or protect their home.
Planning	New developments avoid high risk areas. Emergency services train and prepare. Plan evacuation routes. Reduces the injuries and deaths.
Protection	Building design- reinforced concrete, stilts to reduce flood risk. Flood defences along rivers and coasts. Reduces the number of buildings destroyed so fewer injuries and deaths.

**16. Tropical storms affect people and environments.**

	Generic	Typhoon Haiyan 2013 Philippines
Primary effects	Direct results of strong winds, high rainfall, storm surges. Flooding, buildings destroyed, death.	<ul style="list-style-type: none"> <li>† 6,201 deaths. (Most drowned in storm surge.)</li> <li>† 1.1 million houses damaged.</li> <li>⊖ 90% of Tacloban city destroyed.</li> </ul>
Secondary effects	Homelessness > lead to poor health. Lack of sanitation > diseases (cholera) Food shortages, price increase.	<ul style="list-style-type: none"> <li>† 4.1 million homeless.</li> <li>⊖ Damage cost US\$12 billion.</li> <li>⊖ 1.1 million tonnes of crops destroyed (rice).</li> </ul>
Immediate responses	Evacuate before the storm. Rescue those affected. Provide food, water, blankets. Aid workers arrive from abroad. Recover dead bodies (prevent disease).	<ul style="list-style-type: none"> <li>➢ Over 1200 evacuation shelters set up.</li> <li>➢ Philippines Red Cross delivered basic food aid.</li> <li>➢ UK sent shelter kits.</li> <li>➢ 800,000 evacuated (warnings given 2 days early).</li> </ul>
Long term responses	Repair homes and infrastructure. Promote economic recovery.	<ul style="list-style-type: none"> <li>➢ More cyclone shelters built.</li> <li>➢ No build zones.</li> <li>➢ 'Cash for work' programmes.</li> </ul>



13. Tropical storms	
<b>Factor</b>	<b>Explanation</b>
Global distribution	
Relationship with ACM	
	
<b>How will climate change affect them?</b>	
Distribution	
Frequency	
Intensity	

14. Formation of tropical storms	
Conditions	

15. How can we reduce the impacts?	
Strategy	Explanation
Prediction / monitoring	
Planning	
Protection	

16. Tropical storms affect people and environments.		
	Generic	Typhoon Haiyan 2013 Philippines
Primary effects		<ul style="list-style-type: none"> <li>↓</li> <li>⊖</li> </ul>
Secondary effects		<ul style="list-style-type: none"> <li>↓</li> <li>⊖</li> </ul>
Immediate responses		<ul style="list-style-type: none"> <li>➤</li> <li>➤</li> <li>➤</li> <li>➤</li> </ul>
Long term responses		<ul style="list-style-type: none"> <li>➤</li> <li>➤</li> <li>➤</li> </ul>

# Climate Change

Background:	
1.	Since the 1860s the global climate has been recorded.
2.	Since then the climate globally has increased by 0.8° Celsius.
3.	Climate scientists can use methods to find out about the global climate before we started recording it. <b>(B)</b>
4.	From this evidence we can see that the planet has always gone through periods of warming and cooling. <b>(A)</b>
5.	However, the rapid increase of carbon dioxide in the atmosphere from burning fossil fuels, is causing the enhanced greenhouse effect. <b>(D)</b>
6.	The enhanced greenhouse effect is causing changes to the planet, such as the melting of Arctic sea ice, rising temperatures, and an increase in extreme weather events such as tropical storms. <b>(E, F)</b>
7.	Countries are trying to resolve the climate change issue by limiting the amount of carbon dioxide released into the atmosphere, this is known as mitigation. <b>(G, H)</b>
8.	Some countries are trying to adapt to climate change by building flood barriers and growing drought resistant crops. <b>(G, H)</b>

A. Changes in climate (3)	
Climate change	The process of the Earth's climate changing over time.
Glacial periods	Cold periods.
Inter-glacial periods	Warm periods.

B. Measuring climate change (3)	
Ice cores	Each layer of ice in a core represents a different year. CO <sub>2</sub> can be measured in each layer, and therefore the temperature.
Tree rings	Each ring represents a different year. Thicker rings show a warmer climate.
Historical evidence	Paintings and diaries e.g. paintings of ice fairs on the frozen Thames 500 years ago.

C. Natural climate change (3)	
Volcanic eruptions	Ash from volcanic eruptions can block sunlight, making it colder.
Sun spots	The sun can give out more energy due to an increase in sun spots.
Orbital change	The orbit of the sun changes from oval (ellipse) to circular approx. 98,000 yrs.

E. Effects on people (6)	
Tropical storms	Increase in frequency and intensity so more damage.
Sea-level rise	Increased risk of floods, damaging property and businesses.
Melting Arctic ice	Affects trading routes in the Arctic Circle.
More droughts/ floods	Crop failure, could lead to starvation and famine.
Cost of defence	Governments have to spend more money on disasters instead of developing.
Environmental Refugees	Pressure on countries to accept refugees.

G. Strategies to resolve climate change (4)	
Adaptation	Adapting to climate change to make life easier.
Adaptation examples (3)	1. Building flood defences. 2. Growing new crops to suit the new climate. 3. Irrigation channels, sending water from areas of surplus to deficit.
Mitigation	Trying to stop climate change from happening by reducing greenhouse gases.
Mitigation examples (3)	1. International agreements. 2. Alternative energies. 3. Carbon capture.

D. Human-induced climate change (5)	
Greenhouse effect	The way that gases in the atmosphere trap heat from the sun. Like glass in a greenhouse they let heat in, but prevent most from escaping.
Greenhouse gases	Gases like carbon dioxide and methane that trap heat around the Earth, leading to climate change.
Transport	More cars, so more CO <sub>2</sub> causing the enhanced greenhouse effect.
Farming	Farming livestock produces methane, this is a greenhouse gas.
Energy	More energy required, meaning more fossil fuels burnt, so more CO <sub>2</sub> .

F. Effects on the environment (4)	
Sea temperature rises	Coral bleaching and destruction of marine ecosystems.
More droughts	Migration/ death of species which can not survive drought conditions.
Melting glaciers (ice rivers)	Will send more fresh water into the sea, causing the sea level to rise.
Melting Arctic ice	Loss of habitats for animals, such as polar bears.

H. Place specific examples (2)	
Adaption	<b>The Thames Barrier.</b> Positive: Stops flooding due to rising sea levels. Negative: Expensive
Mitigation	<b>The Paris Agreement.</b> Positive: Countries are trying to lower CO <sub>2</sub> emissions. Negative: The USA pulled out and China did not sign up.

# Climate Change

Background:	
1.	Since the 1860s the global climate has been recorded.
2.	Since then the climate globally has increased by 0.8° Celsius.
3.	Climate scientists can use methods to find out about the global climate before we started recording it. <b>(B)</b>
4.	From this evidence we can see that the planet has always gone through periods of warming and cooling. <b>(A)</b>
5.	However, the rapid increase of carbon dioxide in the atmosphere from burning fossil fuels, is causing the enhanced greenhouse effect. <b>(D)</b>
6.	The enhanced greenhouse effect is causing changes to the planet, such as the melting of Artic sea ice, rising temperatures, and an increase in extreme weather events such as tropical storms. <b>(E, F)</b>
7.	Countries are trying to resolve the climate change issue by limiting the amount of carbon dioxide released into the atmosphere, this is known as mitigation. <b>(G, H)</b>
8.	Some countries are trying to adapt to climate change by building flood barriers and growing drought resistant crops. <b>(G, H)</b>

A.	Changes in climate (3)
Climate change	
Glacial periods	
Inter-glacial periods	

B.	Measuring climate change (3)
Ice cores	
Tree rings	
Historical evidence	

C.	Natural climate change (3)
Volcanic eruptions	
Sun spots	
Orbital change	

E.	Effects on people (6)
Tropical storms	
Sea-level rise	
Melting Arctic ice	
More droughts/floods	
Cost of defence	
Environmental Refugees	

G.	Strategies to resolve climate change (4)
Adaptation	
Adaptation examples (3)	
Mitigation	
Mitigation examples (3)	

D.	Human-induced climate change (5)
Greenhouse effect	
Greenhouse gases	
Transport	
Farming	
Energy	

F.	Effects on the environment (4)
Sea temperature rises	
More droughts	
Melting glaciers (ice rivers)	
Melting Arctic ice	

H.	Place specific examples (2)
Adaption	
Mitigation	

<b>What we are learning this term:</b>
3.1 Ideas about the cause of disease and illness 3.2 Approaches to treatment and prevention 3.3 Key Individuals and fighting cholera in London, 1854

<b>A.</b>	<b>Can you define these key words?</b>
microbes	Any living organism that is too small to see without a microscope. Microbes include bacteria.
vaccination	Treatment with a vaccine to produce immunity against a disease
spontaneous generation	Claimed rotting matter created microbes.
bacteriology	The study of bacteria.
inoculate	Deliberately infecting yourself with a disease to avoid a more severe case later on.

<b>C.</b>	<b>Fighting cholera in London , 1854 (3.3)</b>
What is Cholera a?	Cholera was a terrible water borne disease that spread quickly across England from 1831. There were lots of cases in slum dwellings.
Attempts to prevent it	Some steps were taken to clean up the filthiest areas of the city. Idea that it was caused by miasma was widespread, so local councils focused on cleaning up the mess in which they were living
John Snow	John Snow was surgeon who investigated the 1854 epidemic. He created a spot map to show the deaths and noticed they were concentrated around a water pump in Broad Street, SoHo. Clear the water pump was the source of the outbreak
Impact of Snows work	In the short-term Snow removed the handle from the Broad Street pump and the deaths in that area went away. Long-term Snow presented his work to the government arguing clean water needed to be supplied. Many rejected his work and clung to the idea of miasma causing cholera

<b>B. Change and continuity in ideas about disease and illness in the 18<sup>th</sup> and 19<sup>th</sup> Century. (3.1-3.2)</b>		
<b>Causes</b>	<b>Prevention</b>	<b>Treatments</b>
Religion – People no longer believed that God was responsible for illnesses and world events	Vaccinations – the work of Edward Jenner in the 18 <sup>th</sup> century led to the first vaccination being created for smallpox. This led the way to other vaccinations being produced as Pastuer and Robert Koch isolated microbes which caused certain diseases	Continuance – despite the new ideas about the cause of disease and illness in the 18 <sup>th</sup> century, it took a while for medical science to catch up. Not a great deal of understanding how to remove germs as part of treatment
Age of Enlightenment/Scientific Revolution – people started to look for answers in the world about disease and illness. There was also great change across science influencing ideas about cause	Public Health Act 1875 – in the 18 <sup>th</sup> Century the government had a very <i>laissez-faire</i> attitude to public health. This changed when more men could vote. The government realised changes were needed and passed the Public Health Act. This Act stated that clean water, sewage system, public parks, housing officers and street lighting had to be provided	Hospitals – Florence Nightingale was a pioneer in changing hospitals and hospital care in the 19 <sup>th</sup> Century. Following her success at the war hospital in the Crimea, Nightingale changed the way that hospitals were designed to having separate wards and more ventilation. Also set up a training school for nurses to give better care
Miasma – people still believed in the theory that disease and illness was caused by harmful fumes in the air. BUT it was becoming less popular	Role of the government – Took a more active role in preventing disease, making smallpox vaccinations compulsory	Anaesthetics – one of the big problems in the 18 <sup>th</sup> and 19 <sup>th</sup> centuries was pain during surgery. Ether and laughing gas had been used but they were not good enough. <b>John Simpson</b> discovered that chloroform could be used as a pain relief – this led to more complex surgeries being performed
Spontaneous Generation – this theory stated that rotting matter caused bacteria to form, causing people to get ill		Antiseptics – another big problem with surgery was infections. <b>Joseph Lister</b> built on Pasteur's work and discovered that carbolic acid could be used to prevent infections. Used on wounds and Sterilised equipment, but some surgeons did not like the change
Germ Theory – this correct theory put forward by Louis Pastuer was that germs caused matter to rot. He linked this to disease and illness, stating that germs caused people to get ill		

<b>D. Key People (3.3)</b>		
<b>Edward Jenner</b>	<b>John Snow</b>	<b>Edwin Chadwick</b>
Country doctor who realised that milkmaids who got cowpox did not catch smallpox – decided they must be connected. Tested his theory by infecting a local boy with cowpox and then tried to infect him with smallpox but he did not get ill. Wrote up his findings to make sure doctors could follow. Had successfully developed the first vaccine, which was supported by the government.	Used scientific methods to prove that cholera was a water borne disease in the 1850's. Snow presented his findings to the government, recommending that the sewer systems were improved, which they were eventually.	Published his <i>Report on the Sanitary Conditions of the Labouring Classes</i> in 1842. he spent time researching the urban poor and discovered that people living in cities had a lower life expectancy than people living in the countryside. Campaigned for all cities to set up boards of health, responsible for clean water and disposing sewage.



**What we are learning this term:**  
 3.1 Ideas about the cause of disease and illness  
 3.2 Approaches to treatment and prevention  
 3.3 Key Individuals and fighting cholera in London, 1854

A.	Can you define these key words?
microbes	
vaccination	
spontaneous generation	
bacteriology	
inoculate	

C.	Fighting cholera in London , 1854 (3.3)
What is Cholera?	
Attempts to prevent it	
John Snow	
Impact of Snows work	

B. Change and continuity in ideas about disease and illness in the 18 <sup>th</sup> and 19 <sup>th</sup> Century. (3.1-3.2)		
Causes	Prevention	Treatments

D. Key People (3.3)		
Edward Jenner	John Snow	Edwin Chadwick

## GCSE History : Medicine in 18<sup>th</sup> and 19<sup>th</sup> Century Britain

<b>What we are learning this term:</b>
3.1 Ideas about the cause of disease and illness
3.2 Approaches to treatment and prevention
3.3 Key Individuals and fighting cholera in London, 1854

<b>A.</b>	<b>Can you define these key words?</b>
microbes	Any living organism that is too small to see without a microscope. Microbes include bacteria.
vaccination	Treatment with a vaccine to produce immunity against a disease
spontaneous generation	Claimed rotting matter created microbes.
bacteriology	The study of bacteria.
inoculate	Deliberately infecting yourself with a disease to avoid a more severe case later on.

<b>C.</b>	<b>Fighting cholera in London , 1854 (3.3)</b>
What is Cholera?	Cholera was a terrible water borne disease that spread quickly across England from 1831. There were lots of cases in slum dwellings.
Attempts to prevent it	Some steps were taken to clean up the filthiest areas of the city. Idea that it was caused by miasma was widespread, so local councils focused on cleaning up the mess in which they were living
John Snow	John Snow was surgeon who investigated the 1854 epidemic. He created a spot map to show the deaths and noticed they were concentrated around a water pump in Broad Street, SoHo. Clear the water pump was the source of the outbreak
Impact of Snows work	In the short-term Snow removed the handle from the Broad Street pump and the deaths in that area went away. Long-term Snow presented his work to the government arguing clean water needed to be supplied. Many rejected his work and clung to the idea of miasma causing cholera

<b>B. Change and continuity in ideas about disease and illness in the 18<sup>th</sup> and 19<sup>th</sup> Century. (3.1-3.2)</b>		
<u>Causes</u>	<u>Prevention</u>	<u>Treatments</u>
Religion – People no longer believed that God was responsible for illnesses and world events	Vaccinations – the work of Edward Jenner in the 18 <sup>th</sup> century led to the first vaccination being created for smallpox. This led the way to other vaccinations being produced	Continuance – despite the new ideas about the cause of disease and illness in the 18 <sup>th</sup> century, treatments to remove germs took longer to find
Miasma – people still believed in the theory that disease and illness was caused by harmful fumes in the air. BUT it was becoming less popular	Public Health Act 1875 – in the 18 <sup>th</sup> Century the government did not care much about public health.  This changed when more men could vote. The government realised changes were needed and passed the Public Health Act.  This Act stated that clean water, sewage system, public parks and street lighting had to be provided	Hospitals – Florence Nightingale helped to change hospitals and nursing.  Nightingale changed the way that hospitals were designed to having separate wards and more ventilation.  Also set up a training school for nurses to give better care
Spontaneous Generation – this theory stated that rotting matter caused bacteria to form, causing people to get ill	Role of the government – Took a more active role in preventing disease, making smallpox vaccinations compulsory	Anaesthetics – one of the big problems in the 18 <sup>th</sup> and 19 <sup>th</sup> centuries was pain during surgery.  Ether and laughing gas had been used but they were not good enough.  <b>John Simpson</b> discovered that chloroform could be used as a pain relief – this led to more complex surgeries being performed
Germ Theory – this correct theory put forward by Louis Pastuer was that germs caused matter to rot. He linked this to disease and illness, stating that germs caused people to get ill		Antiseptics – another big problem with surgery was infections.  <b>Joseph Lister</b> built on Pasteur's work and discovered that carbolic acid could be used to prevent infections.  Used on wounds and Sterilised equipment, but some surgeons did not like the change

<b>D. Key People (3.3)</b>		
<b>Edward Jenner</b>	<b>John Snow</b>	<b>Edwin Chadwick</b>
Country doctor who realised that milkmaids who got cowpox did not catch smallpox – decided they must be connected. Tested his theory by infecting a local boy with cowpox and then tried to infect him with smallpox but he did not get ill.  Had successfully developed the first vaccine, which was supported by the government.	Used scientific methods to prove that cholera was a water borne disease in the 1850's.  Snow presented his findings to the government, recommending that the sewer systems were improved, which they were eventually.	Published his <i>Report on the Sanitary Conditions of the Labouring Classes</i> in 1842.  He spent time researching the poor in cities and discovered that people living in cities had a lower life expectancy than people living in the countryside. Asked for boards of health to be set up to make cities cleaner.

# GCSE History : Medicine in 18<sup>th</sup> and 19<sup>th</sup> Century Britain

What we are learning this term:		B. Change and continuity in ideas about disease and illness in the 18 <sup>th</sup> and 19 <sup>th</sup> Century. (3.1-3.2)		
3.1 Ideas about the cause of disease and illness 3.2 Approaches to treatment and prevention 3.3 Key Individuals and fighting cholera in London, 1854		<u>Causes</u>	<u>Prevention</u>	<u>Treatments</u>
		Religion –	Vaccinations – the work of _____ in the 18 <sup>th</sup> century led to the first vaccination being created for _____. This led the way to other vaccinations being produced	Continuance – despite the new ideas about the cause of disease and illness in the 18 <sup>th</sup> century, _____ took longer to find
		Miasma – people still believed in the theory that _____ was caused by harmful fumes in the air. BUT it was becoming _____	Public Health Act 1875 – in the 18 <sup>th</sup> Century the government did not care much about _____.  This changed when more men could vote. The government realised changes were needed and passed the _____.  This Act stated that clean _____, _____, public parks and street lighting had to be provided	Hospitals – _____ helped to change hospitals and nursing.  Nightingale changed the way that hospitals were _____ to having separate wards and more _____.  Also set up a _____ for nurses to give better care
		Spontaneous Generation – this theory stated that _____, causing people to get ill	Role of the government – Took a more _____ in preventing disease, making smallpox vaccinations _____	Anaesthetics – one of the big problems in the 18 <sup>th</sup> and 19 <sup>th</sup> centuries was _____ during surgery.  Ether and laughing gas had been used but they were _____  <b>John</b> _____ discovered that chloroform could be used as a _____ – this led to more complex surgeries being performed
		Germ Theory – this correct theory put forward by _____ was that germs caused matter to rot. He linked this to _____ and illness, stating that _____		Antiseptics – another big problem with surgery was _____  <b>Joseph</b> _____ built on Pasteur's work and discovered that _____ could be used to prevent infections.  Used on wounds and Sterilised _____, but some surgeons did not like the change
C. Fighting cholera in London , 1854 (3.3)		D. Key People (3.3)		
What is Cholera ?	Cholera was a terrible _____ disease that spread quickly across England from _____. There were lots of cases in _____ dwellings.	<b>Edward Jenner</b>	<b>John Snow</b>	<b>Edwin Chadwick</b>
Attempts to prevent it	Some steps were taken to clean up the _____ areas of the city. Idea that it was caused by _____ was widespread, so local councils focused on _____ up the mess in which they were living	Country doctor who realised that _____ who got _____ did not catch smallpox – decided they must be connected. Tested his _____ by infecting a local boy with cowpox and then tried to infect him with smallpox but he _____.	Used _____ to prove that cholera was a _____ disease in the 1850's.  Snow presented his findings to the _____, recommending that the sewer systems were _____, which they were eventually.	Published his <i>Report on the Sanitary Conditions of the Labouring Classes</i> in _____.
John Snow	John Snow was _____ who investigated the 1854 epidemic. He created a _____ to show the deaths and noticed they were concentrated around a water pump in _____. SoHo. Clear the water pump was the source of the outbreak	Had successfully developed the first _____, which was supported by the government.		He spent time researching the _____ and discovered that people living in cities had a _____ expectancy than people living in the countryside. Asked for boards of health to be set up to make cities _____.
Impact of Snows work	In the short-term Snow removed the _____ from the Broad Street pump and the deaths in that area _____. Long-term Snow presented his work to the government arguing _____ needed to be supplied. Many _____ his work and clung to the idea of _____ causing cholera			

A.	Can you define these key words?
microbes	Any living organism that is too small to see _____. Microbes include _____
vaccination	Treatment with a vaccine to _____ against a _____
spontaneous generation	Claimed _____ created microbes.
bacteriology	The study of _____
inoculate	Deliberately _____ yourself with a disease to avoid a _____ case later on.



Keywords		What we are learning in this unit		B.	The 5 Pillars - Salah
Tawalla	Showing love for God and for those who follow Him	A. The 5 Pillars and 10 Obligatory Acts B. Salah C. Sawm D. Zakah E. Hajj F. Jihad G. Id-ul-Adha H. Id-ul-Fitr		What is it?	<ul style="list-style-type: none"> <li>• <b>"Salah is a prescribed duty that has to be performed at the given time by the Qur'an"</b></li> <li>• <b>Muslims pray 5 times per day and this allows them to communicate with Allah.</b></li> <li>• The prayers are done at dawn (fajr), afternoon (zuhr), late afternoon (asr), dusk (maghrib) and night (isha)</li> <li>• Muslims face the holy city of Makkah when paying.</li> </ul>
Tabarra	Disassociation with God's enemies	A.	5 Pillars of Islam and 10 obligatory acts	Wuzu	<ul style="list-style-type: none"> <li>• The washing process to purify the mind and body for prayer</li> <li>• Muhammad said the key to Salah is cleanliness</li> <li>• Hands, arms, nose, mouth, head, neck and ears are cleaned as well as both feet up to the ankle.</li> </ul>
Khums	The obligation to pay one-fifth of acquired wealth	What are the 5 pillars	<ul style="list-style-type: none"> <li>• 5 key practices or duties for Muslims</li> <li>• Both Sunni and Shi'a keep these (Shi'a have them as part of the 10 obligations)</li> <li>• They are seen as pillars "holding up the religion" and are all of equal importance</li> </ul>	Rak'ahs and recitations	<ul style="list-style-type: none"> <li>• These are the movements that Muslims make during prayer</li> <li>• Takbir – raise hands to ears and say 'Allahu Akbar'</li> <li>• Qiyam – Standing, Muslims recite Surah</li> <li>• Then bow to the waist saying <b>"Glory be to my Great Lord and praise be to Him"</b></li> <li>• Then sink to their knees saying <b>"Glory be to my Lord, The Most Supreme..."</b></li> </ul>
Lesser jihad	The physical struggle or holy war in defence of Islam	What are the 10 obligatory acts	<ul style="list-style-type: none"> <li>• There are 10 obligations for a Muslim according to the Shi'a branch of Islam.</li> <li>• These include prayer, fasting, almsgiving, pilgrimage, jihad, khums, directing others towards good, forbidding evil, tawalla and tabarra</li> </ul>	Salah at home	<ul style="list-style-type: none"> <li>• Salah is a big part of family life</li> <li>• Meals and other activities are usually scheduled to fit around prayer times</li> <li>• Families pray all together and might have a room set aside for prayer</li> </ul>
Greater jihad	The <b>daily</b> struggle and inner spiritual striving to live as a Muslim	Shahadah	<ul style="list-style-type: none"> <li>• Shahadah is the first of the 5 pillars</li> <li>• It is the Muslim declaration of faith</li> <li>• <b>"there is no God but Allah, and Muhammad is His messenger"</b></li> <li>• This is a statement that Muslims reject anything but Allah as their focus of belief</li> <li>• It also recognises that Muhammad has an important role and his life is an example to follow</li> </ul>	Salah in the mosque	<ul style="list-style-type: none"> <li>• All mosques have a qiblah wall which is to show where to face Makkah</li> <li>• Men and women pray in separate rooms at the Mosque</li> </ul>
Sunni	Muslims who believe in the successorship of Abu Bakr, Umar, Uthman and Ali as leaders after the Prophet Muhammad			Jumma	<ul style="list-style-type: none"> <li>• Jumma is congregational prayer held on a Friday at the mosque where the imam leads the prayer</li> <li>• Praying together as a community develops the feeling of unity amongst Muslims</li> <li>• Men are obliged to attend unless they are sick or too old</li> <li>• Women do not have to go – they may pray at home instead</li> </ul>
Shi'a	Muslims who believe in the Imamah, leadership of Ali and his descendants			Differences between Sunni and Shi'a	<ul style="list-style-type: none"> <li>• Shi'a Muslims combine some prayers so they may only pray 3x a day</li> <li>• Shi'a use natural elements e.g. clay where their head rests</li> </ul>
Niyah	Intention during prayer - having the right intention to worship God				
Du'a	A personal prayer that is done in addition to Salah e.g. asking Allah for help				
		<i>Jihad</i>			
Lesser Jihad		<ul style="list-style-type: none"> <li>• Originated when Prophet Muhammad and early Muslims were being attacked and oppressed by the Meccans and had no choice but to engage</li> <li>• <b>"Fight in the way of God those who fight against you but do not transgress"</b></li> <li>• Conditions for declaration                             <ul style="list-style-type: none"> <li>• self-defense</li> <li>• proportionate</li> <li>• legitimate authority</li> <li>• no harm to civilians</li> </ul> </li> </ul>			
Greater Jihad		<ul style="list-style-type: none"> <li>• A struggle within oneself to follow the teachings of Islam and be a better person</li> <li>• e.g. perform the Five Pillars, follow Sunnah and avoid temptation</li> <li>• <b>"encourage what is right and forbid what is wrong"</b></li> </ul>			



Keywords		What we are learning in this unit		B.	The 5 Pillars - Salah		
Tawalla		A. The 5 Pillars and 10 Obligatory Acts B. Salah C. Sawm D. Zakah E. Hajj F. Jihad G. Id-ul-Adha H. Id-ul-Fitr		What is it?			
Tabarra				A.	5 Pillars of Islam and 10 obligatory acts	Wuzu	
Khums				What are the 5 pillars		Rak'ahs and recitations	
Lesser jihad				What are the 10 obligatory acts		Salah at home	
Greater jihad				Shahadah		Salah in the mosque	
Sunni				<i>Jihad</i>		Jummah	
Shi'a						Lesser Jihad	
Niyah						Greater Jihad	
Du'a			Differences between Sunni and Shi'a				



The 5 Pillars - Zakah	
The role of giving alms	<ul style="list-style-type: none"> <li>• <b>Muslims believe it is their duty to ensure Allah's wealth has been distributed equally as everyone is the same</b></li> <li>• The Qur'an commands to give to those in need</li> </ul>
The significance of giving alms	<ul style="list-style-type: none"> <li>• Giving 2.5% of savings/wealth to charity</li> <li>• Wealth can cause greed which is evil, so Zakah purifies wealth – wealth is given by God and must be shared</li> <li>• The Prophet Muhammad practiced Zakah as a practice in Medina</li> <li>• Given to the poor, needy and travellers</li> <li>• <b>Sadaqah</b> is giving from the heart out of generosity and compassion</li> </ul>
Khums	<ul style="list-style-type: none"> <li>• Shi'a Islam – one of the 10 obligatory acts</li> <li>• 20% of any profit earned by Shi'a Muslims paid as a tax</li> <li>• Split between charities that support Islamic education and anyone who is in need</li> <li>• <b>"know that whatever of a thing you acquire, a fifth of it is for Allah, for the Messenger, for the near relative, and the orphans, the needy, and the wayfarer"</b></li> </ul>

The 5 Pillars - Sawm	
The role of fasting	<ul style="list-style-type: none"> <li>• Fasting during Ramadan (9<sup>th</sup> month in Muslim calendar)</li> <li>• Muslims give up food, drink, smoking and sexual activity in daylight hours</li> <li>• Pregnant people, children under 12, travellers and elderly people are exempt from fasting.</li> </ul>
The significance of fasting	<ul style="list-style-type: none"> <li>• Ramadan is believed to be the month that Prophet Muhammad began to receive revelations of the Qur'an</li> <li>• Helps Muslims to become spiritually stronger</li> </ul>
Reasons for fasting	<ul style="list-style-type: none"> <li>• Obeying God and exercising self-discipline</li> <li>• Develops empathy for the poor</li> <li>• Appreciation of God's gifts</li> <li>• Giving thanks for the Qur'an</li> <li>• Sharing fellowship and community with other Muslims</li> </ul>
Night of power	<ul style="list-style-type: none"> <li>• The night when the Angel Jibril first appeared to Muhammad and began revealing the Qur'an.</li> <li>• The most important event in history – <b>"better than a thousand months"</b> <b>[Surah 97:3]</b></li> <li>• Laylat Al-Qadr is the holiest night of the year. Muslims try to stay awake for the whole night to pray and study for the Qur'an</li> </ul>

The 5 Pillars - Hajj	
The role of pilgrimage	<ul style="list-style-type: none"> <li>• A pilgrimage to Makkah which is compulsory for Muslims to take at least once as long as they can afford it and are healthy</li> </ul>
The significance of pilgrimage	<ul style="list-style-type: none"> <li>• God told Ibrahim to take his wife and son on a journey and leave them without food or water</li> <li>• Hajira ran up and down two hills in search of water, could not find any and prayed to God. Then water sprung from the ground. This is the Zamzam well</li> <li>• When Ibrahim returned he was commanded to build the Ka'ba as a shrine dedicated to Allah</li> <li>• Hajj is performed in the month of Dhu'l-Hijja</li> </ul>
Actions	<ul style="list-style-type: none"> <li>• Ihram – dressing in two pieces of white cloth</li> <li>• Circling the Ka'aba 7 times (tawaf)</li> <li>• Drinking water from the Zamzam well like Hajar</li> <li>• walking between Al-Safa and Al-Marwa hills seven times</li> <li>• Throwing stones at 3 pillars (jamarat) to represent casting out the devil and remembering Ibrahim throwing stones at the devil to drive him away</li> <li>• Asking Allah for forgiveness at Mt Arafat</li> <li>• Collecting pebbles at Muzdalifah</li> </ul>

Id-ul-Adha, Id-ul-Fitr, Ashura	
Id-ul-Adha  Not an official holiday in UK	<ul style="list-style-type: none"> <li>• <b>Festival of sacrifice</b></li> <li>• Marks the end of Hajj and is a chance for whole Ummah to celebrate</li> <li>• <b>Origins</b> – Ibrahim's commitment to God in being willing to sacrifice his son, Ishmael. God was testing Ibrahim</li> <li>• <b>Key events</b> – new clothes, sacrificing an animal, visiting the Mosque.</li> <li>• People ask a butcher to slaughter a sheep for them and share the meat with the community</li> </ul>
Id-ul-Fitr  Public holiday in Muslim majority countries, not UK	<ul style="list-style-type: none"> <li>• <b>Festival of fast-breaking</b></li> <li>• Marks the end of Ramadan</li> <li>• <b>Key events</b> – Decorate homes with colourful light and banners, dress in new clothes, gather in Mosques, give gifts and money, give to the poor</li> <li>• <b>Zakah ul-Fitr</b> – donation to the poor so that everyone can eat a generous meal at the end of Ramadan.</li> </ul>
Ashura	<ul style="list-style-type: none"> <li>• Sunni celebration – many fast on this day which was established by Prophet Muhammad</li> <li>• Shi'a mourning – Husayn was murdered and beheaded. Muslims remember his death and betrayal</li> <li>• <b>Key events</b> – public displays of grief, day of sorrow, wear black, re-enactments of martyrdom, not a public holiday in Britain but Muslims may have day off school</li> </ul>



<i>The 5 Pillars - Zakah</i>	
The role of giving alms	
The significance of giving alms	
Khums	

<i>The 5 Pillars - Sawm</i>	
The role of fasting	
The significance of fasting	
Reasons for fasting	
Night of power	

<i>The 5 Pillars - Hajj</i>	
The role of pilgrimage	
The significance of pilgrimage	
Actions	

<i>Id-ul-Adha, Id-ul-Fitr, Ashura</i>	
Id-ul-Adha Not an official holiday in UK	
Id-ul-Fitr Public holiday in Muslim majority countries, not UK	
Ashura	

# Year 10 Spanish Knowledge Organiser

## Term 3

ESPAÑOL 

This is some of the vocabulary that you will learn / come across in **Term 3**. Use this knowledge organiser to revise / go over vocabulary. These words have been added in by the exam board (Edexcel) so the more you learn, the better your grade!



¡HOLA!



¡HOLA!

### Techniques for learning vocab:

- Look / cover / write / check – ask your teacher for a sheet and to show you how.
- Mind maps
- Post it notes / flash cards
- Record yourself saying them
- Get a family member to quiz you – they say the English, you say the Spanish
- Write the word in a sentence – put it into context

**Spare copies of this kept in class. Just ask your teacher if you need one.**



## ¡Qué rico! (pages 80–81):

Para ...  
el desayuno / la comida  
la merienda / la cena

una comida típica  
un **plato** popular

¿De qué país es cada  
plato?

El/La ... es de ...

Los/Las ... son de ...

México / España / Perú

Chile / Argentina / Cuba

argentino/a / chileno/a  
colombiano/a / cubano/a  
español(a) / inglés/inglesa  
mexicano/a / peruano/a  
venezolano/a

¿En qué consiste(n)?

Está hecho/a con ...

For ...  
*breakfast / lunch*  
*afternoon snack / dinner*

*a typical meal*  
*a popular dish*

*What country is each dish*  
*from?*

*... is from ...*

*... are from ...*

*Mexico / Spain / Peru*

*Chile / Argentina / Cuba*

*Argentinian / Chilean*  
*Colombian / Cuban*  
*Spanish / English*  
*Mexican / Peruvian*  
*Venezuelan*

*What is it / are they made of?*

*It is made with ...*

Están hechos/as con ...  
Consiste(n) en ...  
verdura/carne/\*pollo  
pescado/arroz

¿Qué comida o bebida te  
gustaría probar?

Me gustaría **probar** (la paella).

¿Por qué te gustaría  
probarlo/la/los/las?

Porque ...

**parece/suena** rico/a

me gusta(n) ...

es (muy) sano/a.

tiene muchos **beneficios** para  
la salud.

¡A comer!

¡Buen provecho!

They are made with ...  
It consists / They consist of ...  
vegetables/meat/chicken  
fish/rice

What food or drink would  
you like to try?

I would like to try (paella).

Why would you like to try it/  
them?

Because ...

it looks/sounds tasty

I like ...

it is (very) healthy.

it has lots of health benefits.

Let's eat!

Enjoy your meal!

## ¿Llevas una vida sana? (pages 82–83):

¿Cómo es tu *rutina?	<i>What is your routine like?</i>
Por la mañana/tarde/noche ...	<i>In the morning/afternoon/night ...</i>
<b>Durante</b> el día/la semana ...	<i>During the day/week ...</i>
El fin de semana ...	<i>At the weekend ...</i>
Los domingos ...	<i>On Sundays ...</i>
todos los días / fines de semana	<i>every day / weekend</i>
algunos días / fines de semana	<i>some days/weekends</i>
Primero / Luego ...	<i>First / Later/Afterwards ...</i>
Finalmente ...	<i>Finally ...</i>
<b>Antes de / Después de</b> ...	<i>Before / After ...</i>
hacer los deberes	<i>doing homework</i>
levantarme / vestirme	<i>getting up / getting dressed</i>
terminar las clases	<i>finishing classes</i>
tomar el desayuno	<i>having breakfast</i>
volver a casa / <b>acostarme</b>	<i>returning home / going to bed</i>
¿Qué costumbres sanas tienes?	<i>What healthy habits do you have?</i>
Duermo (bien) / *entreno	<i>I sleep (well) / I train</i>
Hago diez minutos de ejercicio.	<i>I do ten minutes of exercise.</i>

<b>Llevo</b> una botella de agua.	<i>I carry a bottle of water.</i>
Me levanto / Me acuesto ...	<i>I get up / I go to bed ...</i>
a las ... / a la misma hora	<i>at ... (o'clock) / at the same time</i>
tarde / temprano	<i>late / early</i>
Tomo un descanso / <b>Me relajo</b>	<i>I have a rest / I relax</i>
<b>Suelo</b> comer / hacer *meditación	<i>I usually eat / do meditation</i>
Tengo / Tienes / Tiene ...	<i>I am / you are / he/she is ...</i>
sed/hambre	<i>thirsty/hungry</i>
sueño/calor	<i>sleepy/hot</i>
¿Tienes costumbres malsanas?	<i>Do you have any unhealthy habits?</i>
Si tengo hambre/sed, ...	<i>If I'm hungry/thirsty, ...</i>
tomo / como / bebo ...	<i>I have / eat / drink ...</i>
mucha agua.	<i>lots of water.</i>
algunos/muchos *dulces.	<i>some/lots of sweets.</i>
algunas/muchas verduras.	<i>some/lots of vegetables.</i>
chocolate/fruta/pasta.	<i>chocolate/fruit/pasta.</i>

## ¿Somos lo que comemos? (pages 84–85):

¿A qué hora tomas ... el desayuno/almuerzo? la merienda/cena?	<i>What time do you have ... breakfast/lunch? afternoon snack/dinner?</i>
Normalmente/Generalmente lo/la tomo ... entre las ... y las ... A veces como a las ...	<i>Normally/Generally I have it ... between ... and ... Sometimes I eat at ...</i>
¿Te gustaría probarlos/las? Te recomiendo ... Hay que probar ... Es un postre / una bebida ... rico/a / típico/a.	<i>Would you like to try them? I recommend ... You have to try ... It is a ... dessert/drink. tasty/typical</i>
Me gustaría <b>probarlo/la/ probarlos/las</b> ... porque <b>parece/suena</b> ... porque <b>parecen/suenan</b> ...	<i>I would like to try it/them ...  because it looks/sounds ... because they look/sound ...</i>

¿Cómo es tu dieta? (No) Tengo una dieta sana porque ... soy vegano/a / vegetariano/a como comida sana/malsana como demasiados *dulces/ pasteles	<i>What is your diet like? I (don't) have a healthy diet because ... I am vegan / vegetarian I eat healthy/unhealthy food I eat too many sweets/cakes</i>
¿Qué hay que hacer para tener una dieta sana? Hay que / Se necesita ... Hace falta ... comer una dieta equilibrada tener <b>cuidado</b> con la cantidad de azúcar que tomas	<i>What do you have to do to have a healthy diet? You have to / need to ... It is necessary to ... eat a balanced diet be careful with the amount of sugar you have</i>

## ¡Los tiempos cambian! (pages 86–87):

¿Cómo eras antes?	<i>What were you like before?</i>
Cuando era pequeño/a ...	<i>When I was little</i>
Cuando era más joven ...	<i>When I was younger ...</i>
Antes / Cuando tenía ... años, ...	<i>Before / When I was ... years old, ...</i>
dormía bien/mal	<i>I slept well/badly</i>
me levantaba / <b>me acostaba</b> ...	<i>I got up / I went to bed ...</i>
temprano/pronto / tarde	<i>early / late</i>
(no) era muy activo/a.	<i>I was (not) very active.</i>
(no) tenía ...	<i>I had / I didn't have ...</i>
(mucho) energía	<i>(lots of) energy</i>
una vida sana	<i>a healthy life</i>
(nunca) iba al <b>gimnasio</b>	<i>I (never) went to the gym</i>

¿Qué te gustaba comer y beber?	<i>What did you like to eat and drink?</i>
Solía comer / beber ...	<i>I usually ate / drank ...</i>
(No) Comía ...	<i>I ate / I didn't eat ...</i>
Bebía demasiado café.	<i>I drank too much coffee.</i>
Me encantaban los postres.	<i>I loved desserts.</i>
Me gustaba comer *dulces.	<i>I liked eating sweets.</i>

¿Qué hacías en tu tiempo libre cuando eras pequeño/a?	<i>What did you do in your free time when you were little?</i>
(No) Hacía (mucho/suficiente) ejercicio/deporte.	<i>I did / didn't do (lots of/enough) exercise/sports.</i>
(No) Iba a la piscina (tres veces a la semana).	<i>I went / didn't go to the pool (three times a week).</i>
(No) Montaba en *bici (cada día).	<i>I rode / didn't ride my bike (every day).</i>
(No) Jugaba ...	<i>I played / didn't play ...</i>

(Siempre) Estaba cansado/a y enfermo/a. *I was (always) tired and sick.*

¿Cómo es tu \*rutina ahora? *What is your routine like now?*  
Cuido más mi dieta. *I look after my diet more.*

¿Cómo eres ahora? *What are you like now?*  
**Me siento** mucho mejor. *I feel a lot better.*  
Soy bastante activo/a. *I am quite active.*  
No / **Ya no** ... *I don't / no longer ...*  
hago (mucho) ejercicio/deporte *do (lots of) exercise/sports*  
hago nada para **mantenerme** en forma *do anything to stay in shape*  
me levanto temprano como antes *get up early like before*

¿Qué te gusta comer y beber? *What do you like to eat and drink?*  
(No) Como comida rápida/malsana. *I (don't) eat fast/unhealthy food.*  
(**Ya no**) Bebo/Como ... *I (no longer) eat/drink ...*  
Prefiero las bebidas con azúcar. *I prefer sugary drinks.*  
Me gusta comer comida sana. *I like to eat healthy food.*

¿Qué haces en tu tiempo libre? *What do you do in your free time?*  
(No) Hago ejercicio/deporte. *I (don't) do exercise/sports.*  
(No) **Voy** al **gimnasio**/cine. *I (don't) go to the gym/cinema.*  
(No) Juego a \*los videojuegos. *I (don't) play videogames.*

## ¡Qué mal estoy! (pages 88–89):

¿Qué te pasa?	<i>What's the matter with you?</i>
Me / te / le duele(n) ...	<i>My / your / his/her ... hurt(s)</i>
el brazo / el estomago	<i>arm / stomach</i>
el pie / la boca / la mano	<i>foot / mouth / hand</i>
la cabeza / la espalda	<i>head / back</i>
la garganta / la nariz	<i>throat / nose</i>
la rodilla / la pierna	<i>knee / leg</i>
los oídos / los ojos / los dedos	<i>ears / eyes / fingers</i>
los dientes / (todo) el cuerpo	<i>teeth / (whole) body</i>
Estoy (muy) enfermo/a.	<i>I am (very) sick.</i>
<b>Me siento</b> (muy) mal.	<i>I feel (very) unwell.</i>
No <b>me siento</b> bien porque	<i>I don't feel well because</i>
tengo ...	<i>I have ...</i>
<b>fiebre / dolor de cabeza</b>	<i>a fever / a headache</i>
una <b>herida</b>	<i>an injury</i>
Ayer / La semana pasada ...	<i>Yesterday / Last week ...</i>
me rompí / me corté ...	<i>I broke my / I cut my ...</i>
<b>me quemé</b> ...	<i>I burned my ...</i>

la pierna/**piel**

leg/skin

¿Desde cuándo estás así?	<i>Since when have you been like this?</i>
desde (ayer)	<i>since (yesterday)</i>
<b>desde hace</b> una hora / más de (dos días)	<i>for an hour / more than (two days)</i>
Debes / Necesitas ...	<i>You must / You need to ...</i>
Tienes que ...	<i>You have to ...</i>
quedarte en la cama / en casa	<i>stay in bed / at home</i>
descansar/dormir	<i>rest/sleep</i>
comprar medicinas (en la farmacia)	<i>buy medicine (at the chemist's)</i>
<b>evitar</b> el sol	<i>avoid the sun</i>
<b>recuperarte/relajarte</b>	<i>recover/relax</i>
ir al <b>médico</b> /hospital	<i>go to the doctor's/hospital</i>
Voy a pedir cita con el <b>médico</b> .	<i>I am going to ask for a doctor's appointment.</i>

## Mi salud, de la cabeza a los pies (pages 90–91):





¿Cómo cambiarás tu estilo de vida?	<i>How will you change your lifestyle?</i>
Si dejo de comer/beber/fumar, ...	<i>If I stop eating/drinking/smoking, ...</i>
Si duermo (al menos ocho horas), ...	<i>If I sleep (at least eight hours), ...</i>
Si practico más deporte, ...	<i>If I practise more sport, ...</i>
Si tengo (una vida más activa), ...	<i>If I have (a more active life), ...</i>
<b>me sentiré</b> más feliz	<i>I will be happier</i>
mi salud física/mental mejorará	<i>my physical/mental health will improve</i>
dormiré mejor	<i>I will sleep better</i>
me levantaré con más energía	<i>I will wake up with more energy</i>

¿Qué harás para mejorar tu salud en el futuro?	<i>What will you do to improve your health in the future?</i>
Para cambiar esta mala costumbre, ...	<i>To change this bad habit, ...</i>
Para mejorar mi dieta/salud ...	<i>To improve my diet/health ...</i>
dormiré más tiempo / beberé agua	<i>I will sleep longer / I will drink water</i>
no usaré el móvil (después de las nueve)	<i>I won't use my mobile (after nine o'clock)</i>
iré (al <b>gimnasio</b> )	<i>I will go (to the gym)</i>
<b>evitaré</b> beber alcohol y fumar	<i>I will avoid drinking alcohol and smoking</i>
<b>empezaré</b> a practicar deporte	<i>I will start practising sport</i>

# Year 10 Computer Science – Term 1 Answers

A.	Terms
<b>Abstraction</b>	The process of removing all unnecessary details from a problem.
<b>Algorithm</b>	The sequence of steps required to carry out a specific task.
<b>Assignment</b>	Setting the value of a variable in a computer program.
<b>Data</b>	Units of information which are acted upon by instructions.
<b>Decomposition</b>	Breaking down a problem into smaller steps that are easier to work with and solve.
<b>Flowchart</b>	A diagram which shows the step-by-step flow of an algorithm.
<b>Input</b>	Data which is inserted into a system to be processed or stored.
<b>Output</b>	Data which is sent out of a system.
<b>Process</b>	An action taken by the program without input from the user.
<b>Pseudocode</b>	A method of writing an algorithm using plain English.
<b>Variable</b>	A memory location within a computer where values are stored.

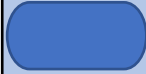



What we are learning this term:		
A. Terms B. Common Algorithms C. Flowcharts D. Data Types		
B.	Common Algorithms	Worked Example
<b>Binary Search</b>	Compares the search object to the middle point of a sorted list. If they are not equal, the half in which the target cannot lie is eliminated and the search continues on the remaining half, again taking the middle point to compare to the search object, and repeating this until the target value is found or the end is reached.	2,5,6 searching for 6 Midpoint 5 5 < 6, remove left side of list 2,5,6 Midpoint 6 6 == 6 Item found
<b>Bubble Sort</b>	Sorts a list by continuously stepping through a list, swapping items until they appear in the correct order.	5, 1, 3 1, 3, 5 1st pass complete 1, 3, 5 1, 3, 5 2nd pass complete - sorted
<b>Linear Search</b>	Compares the search object with each item in the list in order from the beginning until it is found or the end is reached.	2,6,5 searching for 6 2 != 6 2,6,5 6==6 Item found
<b>Merge Sort</b>	Sorts a list by repeatedly dividing a list into two until all the elements are separated individually. Pairs of elements are then compared, placed into order and combined. The process is then repeated until the list is recompiled in the correct order as a whole.	5, 1, 3 5, 1 3 Break list into sublists 5 1 3 Until sublists contain 1 # 1, 5 3 Merge pairs 1, 3, 5 Until all sublists merged

C.	Flowchart Symbol		
	Symbol	Usage	Symbol Name
		The start or end of the algorithm.	Terminator
		An action which occurs during the algorithm.	Process
		Data is either inputted to or outputted from the algorithm.	Input/ Output
		A Yes/No, True/False decision.	Decision
D.	Data Types		Example
	<b>Boolean</b>	TRUE/FALSE or 1/0	<b>TRUE or 1</b>
	<b>Character</b>	A single, alphanumeric character.	<b>1 or A or !</b>
	<b>Integer</b>	Whole numbers	<b>15</b>
	<b>String</b>	One or more alphanumeric characters.	<b>1A!</b>
	<b>Real/Float</b>	Decimal numbers	<b>15.5</b>

# Year 10 Computer Science – Term 1

A.	Terms
Abstraction	
Algorithm	
Assignment	
Data	
Decomposition	
Flowchart	
Input	
Output	
Process	
Pseudocode	
Variable	

What we are learning this term:		
B.	Common Algorithms	Worked Example
A. Terms B. Common Algorithms C. Flowcharts D. Data Types		
Binary Search		2,5,6 searching for 6
Bubble Sort		5,1,3
Linear Search		2,6,5 searching for 6
Merge Sort		5,1,3

C. Flowchart Symbol		
Symbol	Usage	Symbol Name
		
		
		
		
D.	Data Types	Example
Boolean		
Character		
Integer		
String		
Real/Float		

**17. Business Aims & Objectives****Businesspeople like to use the term SMART objectives**

Which Objective?	Explanation of Objective
<b>Specific</b>	Businesses set very specific targets that are very clear and to the point
<b>Measurable</b>	Businesses set measurable targets that can be measured. For example: Business set themselves specific sales targets over a set period.
<b>Achievable</b>	Businesses set realistic targets that are ambitious yet achievable.
<b>Realistic</b>	Businesses set realistic targets that will motivate employees at the same time they will be achievable
<b>Time- Bound</b>	Businesses set their targets over a <u>period of time</u> as this creates a sense of excitement and urgency.

**18. Aims and Objectives in Business****Businesses have both financial and non-financial aims**

Type of Objectives	Explanation
<b>Financial Objectives</b>	Profit. Sales. Market Share. Reduce costs.
<b>Non-Financial Objectives</b>	Social objectives. Independence. Control.

**19. Business Revenue, Costs & Profits**

Term	Definition
<b>Fixed Costs</b>	Costs that don't vary just because output varies for example 'rent'.
<b>Profit (gross/net)</b>	The difference between revenue and total costs; if the figure is negative the business is making a loss
<b>Revenue</b>	The total value of the sales made within a set period, such as a month.
<b>Total Costs</b>	All the costs for a set period, such as a month
<b>Variable Costs</b>	Costs that vary as output varies such as raw materials

**20. Business Revenue, Costs & Profits**

Term	Formulae
<b>Sales Revenue</b>	<b>Price x Quantity Sold</b>
<b>Total Costs</b>	<b>Variable costs + Fixed Costs</b>
<b>(Gross) Profit</b>	<b>Total Revenue – Total Costs</b>

**21. Breaking Even**

Term	Definition
<b>Break - Even</b>	The level of sales at which total costs are equal to total revenue. At this point the business is making neither a profit nor a loss.
<b>Break-even Chart</b>	A graph showing a company's revenue and total costs at all possible levels of output
<b>Margin of Safety</b>	The amount by which demand can fall before the business starts making losses



**17. Business Aims & Objectives**

Businesspeople like to use the term SMART objectives

Which Objective?

**Specific**

**Measurable**

**Achievable**

**Realistic**

**Time- Bound**

**19. Business Revenue, Costs & Profits**

Term

Definition

**Fixed Costs**

**Profit  
(gross/net)**

**Revenue**

**Total Costs**

**Variable Costs**

**20. Business Revenue, Costs & Profits**

Term

Formulae

**Sales Revenue**

**Total Costs**

**(Gross) Profit**

**18. Aims and Objectives in Business**

Businesses have both financial and non-financial aims

Type of Objectives

Explanation

**Financial  
Objectives**

**Non-Financial  
Objectives**

**21. Breaking Even**

Term

Definition

**Break - Even**

**Break-even Chart**

**Margin of Safety**

## 22. The Importance of Cash

Question	Answer
Why does Cash matter to a Business?	Cash matters because, without it, bills go unpaid and a business can fail. If you have no cash, you can't pay suppliers or employees.
Why is cash important to a business?	Cash is required to pay suppliers, employees or other costs. Typical overheads include: <b>Salaries/ Rent and Rates/ Utilities and Bills</b>
What is the difference between cash and profit?	Cash flow shows the immediate impact of a transaction on a company's bank account; profit shows the longer-term impact after costs have been taken into account.

## 23. The Importance of Cash (definitions)

Term	Definition
Cash	The money the firm holds in notes and coins, and in its bank accounts
Cash Flows	The movement of money into and out of the firm's bank account.
Insolvency	When a business lacks the ability to pay its debts
Overdraft	A short-term form of credit. A bank will allow a business to spend more money than it actually has.
Overdraft Facility	An agreed maximum level of overdraft

## 25. Short Term Sources of Finance

Term	Definition
Bank Overdraft	If a company requires some short term finance they can negotiate to extend their overdraft facility with the bank
Trade Credit	When a supplier provides goods without immediate payment – This gives the business time to sell products in order to pay off the debt.

## 24. Cash Flow Forecasts

Cash flow forecasting means predicting the future flows of cash into and out of a Business.

Successful cash flow forecasts require:

- Accurate prediction of monthly sales
- Accurate predictions of when customers will pay for the goods they have bought
- Careful allowance of operating costs and the timing of payments
- Careful allowance for in flows and outflows of cash

Key Term	Definition
Opening Balance	The amount of cash in the bank at the start of the month
Net Cash Flow	Cash inflow minus cash outflow over the course of a month
Negative Cash Flow	When cash outflows are greater than cash inflows
Closing Balance	The amount of cash left in the bank at the end of the month

## 26. Long Term Sources of Finance

Term	Definition
Crowdfunding	Raising Capital online from many small investors (but not through the stock market).
Share Capital	Raising finance by selling a share of the business, Shareholders have the right to question the directors and take profit out the firm.
Venture Capital	A combination of share capital and loan capital, provided by an investor.
Retained Profit	Profit kept within the Business that is used for business growth.

### 22. The Importance of Cash

Question	Answer
Why does Cash matter to a Business?	
Why is cash important to a business?	
What is the difference between cash and profit?	

### 23. The Importance of Cash (definitions)

Term	Definition
Cash	
Cash Flows	
Insolvency	
Overdraft	
Overdraft Facility	

### 25. Short Term Sources of Finance

Term	Definition
Bank Overdraft	
Trade Credit	

### 24. Cash Flow Forecasts

Cash flow forecasting means predicting the future flows of cash into and out of a Business.

Successful cash flow forecasts require:












- Accurate prediction of monthly sales
- Accurate predictions of when customers will pay for the goods they have bought
- Careful allowance of operating costs and the timing of payments
- Careful allowance for in flows and outflows of cash

Key Term	Definition
Opening Balance	






### 26. Long Term Sources of Finance





Term	Definition
Crowdfunding	
Share Capital	
Venture Capital	
Retained Profit	










A. Physical & Working Properties	
Physical properties are the traits a material has before it is used.	
<b>Absorbency</b> 	Ability to soak up moisture, light or heat
<b>Density</b> 	How solid a material is
<b>Fusibility</b> 	Ability of a material to be heated and joined to another material when cooled
<b>Electrical Conductivity</b> 	Ability to conduct electricity
<b>Thermal Conductivity</b> 	Ability to conduct heat
Working properties are how a material behaves when it is manipulated.	
<b>Strength</b> 	Ability of a material to withstand compression, tension and shear
<b>Hardness</b> 	Ability to withstand impact without damage
<b>Toughness</b> 	Materials that are hard to break or snap are tough & can absorb shock
<b>Malleability</b> 	Being able to bend or shape easily would make a material easily malleable
<b>Ductility</b> 	Materials that can be stretched are ductile
<b>Elasticity</b> 	Ability to be stretched and then return to its original shape

**What we are learning this term:**  
 A. Physical & Working Properties B. Forces & Stressors C. Types of Motion  
 D. Paper & Card/Boards E. 6 R's F. Natural & Manufactured Timbers

B. Forces and Stressors	
Forces apply stress to objects, causing them to break or change shape.	
Different materials can withstand different forces.	
<b>Tension</b> 	Is a stretching or pulling force. E.g. the ropes of a suspension bridge
<b>Compression</b> 	Is a pushing or squashing force, e.g. the weight of a building on its foundation
<b>Bending</b> 	Is a combination of tension and compression. It exerts tension on one side and compression on the other, e.g. bending anything
<b>Shear</b> 	Is a cutting force. The opposing forces are not directly opposite each other, e.g. cutting paper with scissors.
<b>Torsion</b> 	Is a twisting force that attempts to rotate two ends of a material in opposite directions, e.g. wringing out a wet cloth.

C. Types of Motions	
<b>Linear</b> 	Moves something in a straight line. E.g. a train moving down a track
<b>Reciprocating</b> 	Has a repeated up and down motion or back-and-forth motion. E.g a piston or pump
<b>Rotary</b> 	Is where something moves around an axis or pivot point. E.g a wheel
<b>Oscillating</b> 	Has a curved backwards and forwards movement that wings on an axis or pivot point. E.g a swing or clock pendulum

D. Paper & Card/Boards	
Paper and cards/boards both come from wood pulp.	
Paper	Board
Cartridge Paper	Corrugated Card
Grid Paper	Duplex Board
Layout Paper	Foil-Lined Board
Tracing Paper	Foam Core Board
Corrugated Card	Inkjet Card
	Solid White Board

E. 6 R's 	
You can use the 6R's when designing to help reduce the impact that new products have on the environment.	
<b>Repair</b> 	It's better to fix things instead of throwing them away.
<b>Reuse</b> 	You can extend a products life by passing it on or using it again.
<b>Recycle</b> 	The uses less energy than obtaining new materials.
<b>Rethink</b> 	You should think about your design carefully. Is it needed?
<b>Reduce</b> 	Making long-lasting durable products. Think rechargeable!
<b>Refuse</b> 	You can refuse to buy a product if you think it is wasteful. Such as plastic bags.

F. Natural & Manufactured Timbers	
Natural timber comes from trees.	
Hardwood	Softwood
Ash	Larch
Beech	Pine
Mahogany	Spruce
Oak	Softwoods are faster growing and cheaper to buy.
Balsa	
Manufactured Boards	
Manufactured boards are usually made from natural timber waste and adhesive.	
Medium-density fibreboard (MDF)	
Plywood	
Chipboard	



## Year 10 PRODUCT DESIGN Term 3



<p><b>A. Physical &amp; Working Properties</b></p> <p>Physical properties are _____.</p> <p>_____.</p> <p><b>Absorbency</b> </p> <p> How solid a material is</p> <p><b>Fusibility</b> </p> <p> Ability to conduct electricity</p> <p><b>Thermal Conductivity</b>  Ability to conduct heat</p> <p>Working properties are _____.</p> <p>_____.</p> <p><b>Strength</b> </p> <p> The ability to withstand impact with damage</p> <p><b>Toughness</b> </p> <p> Being able to bend or shape easily would make a material easily malleable</p> <p><b>Ductility</b> </p> <p><b>Elasticity</b>  Ability to be stretched and then return to its original shape</p>	<p><b>What we are learning this term:</b></p> <p>A. Physical &amp; Working Properties B. Forces &amp; Stressors C. Types of Motion D. Paper &amp; Card/Boards E. 6 R's F. Natural &amp; Manufactured Timbers</p> <p><b>B. Forces and Stressors</b></p> <p>Forces apply _____ to objects, causing them to _____ or _____.</p> <p>Different materials can withstand different forces.</p> <p><b>Tension</b></p> <p></p> <p> Is a pushing or squashing force, e.g. _____</p> <p>_____</p> <p>_____</p> <p><b>Bending</b></p> <p></p> <p> Is a cutting force. The opposing forces are not directly opposite each other, e.g. _____</p> <p>_____</p> <p>_____</p> <p><b>Torsion</b></p> <p></p>	<p><b>E. 6 R's</b> </p> <p>You can use the 6R's when designing to help reduce the impact that new products have on the environment.</p> <p><b>Repair</b> </p> <p> You can extend a products life by passing it on or using it again.</p> <p><b>Recycle</b> </p> <p> You should think about your design carefully. Is it needed?</p> <p><b>Reduce</b> </p> <p> You can refuse to buy a product if you think it is wasteful. Such as plastic bags.</p>														
	<p><b>C. Types of Motions</b></p> <p><b>Linear</b></p> <p></p> <p> Has a repeated up and down motion or back-and-forth motion. E.g _____</p> <p>_____</p> <p><b>Rotary</b></p> <p></p> <p> Has a curved backwards and forwards movement that wings on an axis or pivot point. E.g _____</p> <p>_____</p>															
	<p><b>D. Paper &amp; Card/Boards</b></p> <p>Paper and cards/boards both come from _____.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Paper</th> <th style="width: 50%;">Board</th> </tr> </thead> <tbody> <tr> <td>Cartridge Paper</td> <td></td> </tr> <tr> <td></td> <td>Duplex Board</td> </tr> <tr> <td>Layout Paper</td> <td></td> </tr> <tr> <td></td> <td>Foam Core Board</td> </tr> <tr> <td>Corrugated Card</td> <td></td> </tr> <tr> <td></td> <td>Solid White Board</td> </tr> </tbody> </table>	Paper	Board	Cartridge Paper			Duplex Board	Layout Paper			Foam Core Board	Corrugated Card			Solid White Board	
Paper	Board															
Cartridge Paper																
	Duplex Board															
Layout Paper																
	Foam Core Board															
Corrugated Card																
	Solid White Board															
		<p><b>F. Natural &amp; Manufactured Timbers</b></p> <p>Natural timber comes from _____.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Hardwood</th> <th style="width: 50%;">Softwood</th> </tr> </thead> <tbody> <tr> <td>Ash</td> <td></td> </tr> <tr> <td></td> <td>Pine</td> </tr> <tr> <td>Mahogany</td> <td></td> </tr> <tr> <td></td> <td>Softwoods are _____</td> </tr> <tr> <td>Balsa</td> <td>_____</td> </tr> </tbody> </table> <p><b>Manufactured Boards</b></p> <p>Manufactured boards are usually made from _____.</p> <p>_____</p> <p>Plywood</p> <p>_____</p>	Hardwood	Softwood	Ash			Pine	Mahogany			Softwoods are _____	Balsa	_____		
Hardwood	Softwood															
Ash																
	Pine															
Mahogany																
	Softwoods are _____															
Balsa	_____															

# Film Music

## Area of study 3 - Eduqas GCSE Music



Some film **SOUNDTRACKS** include specially composed **SCORES**, either for orchestra (e.g. composers like John Williams, Ennio Morricone) or songs written especially for the film (e.g. Disney films). Other films use pre-existing music e.g. popular songs from the era/place in which the film is set.

### STRINGS

- Violin
- Cello
- Viola
- Double bass
- Harp

### WOODWIND

- Flute
- Clarinet
- Oboe
- Bassoon
- Saxophone

### BRASS

- Trumpet
- Trombone
- French horn
- Tuba

### KEYBOARDS

- Piano
- Electronic keyboard
- Harpsichord
- Organ
- Synthesizer

### PERCUSSION

- Bass drum
- Snare drum
- Triangle
- Cymbal
- Drum kit (untuned)
- Timpani
- Glockenspiel
- Xylophone (tuned)

### OTHER

- Electric guitar
- Bass guitar
- Spanish/classical guitar
- Traditional world instruments

### Musical elements

Film composers use the **MUSICAL ELEMENTS** (tempo, texture, dynamics, timbre, tonality, rhythm, melody, harmony) to create mood and atmosphere to help to tell the story and enhance the action.

For example:

*In a sad, reflective scene, a composer might use slow tempo, minor tonality, soft dynamics, legato, homophonic texture, long sustained notes, and a conjunct melody.*

*An exciting car chase scene in a thriller might have a fast tempo, busy, polyphonic texture, dissonant chords, loud dynamics, syncopated rhythms, a disjunct melody and short riffs.*

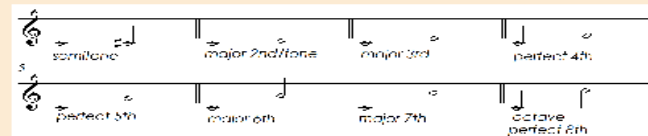
*A scene where the superhero 'saves the day' might use a major tonality, brass fanfares, loud dynamics, accents, 4<sup>th</sup> and 5<sup>th</sup> (intervals).*

Composers will often use **CONTRASTS** to create effect (e.g. using a wide range of pitch from very high to very low).

### Intervals

Film composers often use intervals to create a particular effect (e.g. a rising perfect 4<sup>th</sup> sounds 'heroic', and a semitone can sound 'menacing').

An interval is the distance between two notes.



**Rising interval:** moving upwards (ascending)

**Falling interval:** moving downwards (descending)

### Specific instrumental terms

<b>Pizzicato</b>	Plucking the strings.
<b>Divisi</b>	Two parts sharing the same musical line.
<b>Double stopping</b>	Playing two strings at the same time.
<b>Arco</b>	Using a bow to play a stringed instrument.
<b>Tremolo</b>	A 'trembling' effect, moving rapidly on the same note or between two chords (e.g. using the bow rapidly back and forth).
<b>Tongued</b>	A technique to make the notes sound separated (woodwind/brass).
<b>Slurred</b>	Notes are played smoothly.
<b>Muted</b>	Using a mute to change/dampen the sound (brass/strings).
<b>Drum roll</b>	Notes/beats in rapid succession.
<b>Glissando</b>	A rapid glide over the notes.
<b>Trill</b>	Alternating rapidly between two notes.
<b>Vibrato</b>	Making the notes 'wobble' up and down for expression.

### Composers also use:

<b>Theme</b>	The main tune/melody.
<b>Motif</b>	A short musical idea (melodic or rhythmic).
<b>Leitmotif</b>	A recurring musical idea linked to a character/object or place (e.g. Darth Vader's motif in Star Wars).
<b>Underscoring</b>	Music playing underneath the dialogue.
<b>Scalic</b>	Melody follows the notes of a scale.
<b>Triadic</b>	Melody moves around the notes of a triad.
<b>Fanfare</b>	Short tune often played by brass instruments, to announce someone/something important; based on the pitches of a chord.
<b>Pedal note</b>	A long, sustained note, usually in the bass/lower notes.
<b>Ostinato/riff</b>	A short, repeated pattern.
<b>Conjunct</b>	The melody moves by step.
<b>Disjunct</b>	The melody moves with leaps/intervals.
<b>Consonant harmony</b>	Sounds 'good' together.
<b>Dissonant harmony</b>	Sounds 'clashy'.
<b>Chromatic harmony</b>	Uses lots of semitones/accidentals that's not in the home key.
<b>Minimalism</b>	A style of music using repetition of short phrases which change gradually over time.

Question	Answer	Question	Answer
What is a <b>Theme</b> in film music?		What does the word <b>Interval</b> mean?	
Define <b>Pizzicato</b>		A _____ <b>Texture</b> is typically used for a sad scene	<b>Polyphonic</b> <b>Monophonic</b> <b>Homophonic</b>
What is <b>Minimalism</b> ?		A <b>Major tonality</b> is used for what kind of scene?	
How does a <b>Rising Perfect 4<sup>th</sup></b> sound?		What is a <b>Trill</b> ?	
Define <b>Ostinato</b>		The term for a piece of music written for a film is a.....	<b>Score</b> <b>Soundtrack</b>
What <b>Dynamics</b> could be used in a car chase scene?	<i>pp p f ff mp mf</i>	What is a <b>Falling interval</b> ?	
Circle the correct definition for <b>Conjunct</b>	<ol style="list-style-type: none"> <li>The melody moves in leaps</li> <li>The melody moves in steps</li> <li>The melody moves in octaves</li> <li>The melody repeats the same 3 notes</li> </ol>	List 3 film composers	
What is <b>Vibrato</b> ?		If notes are <b>Slurred</b> they are played?	<b>Short and snappy</b> <b>Smoothly</b>
What do composers use to create effect? Circle the correct answer	<b>Contrast</b> <b>Brass Fanfares</b> <b>Dynamics</b>	What interval is an <b>Octave</b> ?	<b>Perfect 4<sup>th</sup></b> <b>Major 2<sup>nd</sup></b> <b>Minor 2<sup>nd</sup></b> <b>Perfect 8<sup>th</sup></b>
What is the term for a theme that is repeated throughout a film?		What does <b>Scalic</b> mean?	



Main assessment objectives	
<b>Learning outcome:</b> Know the personal qualities, styles, roles and responsibilities associated with effective sports leadership.	
Be able to plan sports activity sessions.	

What we are learning this term:	
<b>A. Different leadership roles</b> <b>B. Role-related responsibilities</b> <b>C. Personal qualities</b> <b>D. Leadership styles</b> <b>E. Key considerations when planning sports activity</b>	

Can you give examples of managers from different sports?	
Gareth Southgate Eddie Jones	

Role models	
Positive Mo Farah Nicole Adams	Negative Luis Suarez Nick Kyrgios

Key sections	
Different leadership roles and opportunities	

Captain Coach Expedition leader	Manager Teacher Role model
---------------------------------------	----------------------------------

Role related responsibilities	
-------------------------------	--

Knowledge of; Activity Safety Child protection Basic first aid	Enthusiasm for activity
--	----------------------------

A. The different leadership roles within sport	
Role	Definition
Coach	A person involved in the direction, instruction and training of the operations of a sports team
Manager	Responsible for handling the business matters of athletes and sports teams
Captain	The leader of the team who is usually also a player
Teacher	A person who teaches, especially in a school
Expedition leader	Someone who leads groups on adventurous activities
Role model	A person looked to by others as an example

A. Role related responsibilities	
Knowledge of activity Enthusiasm for activity Knowledge of safety Knowledge of child protection issues Knowledge of basic first aid	

G. Considerations when planning sports activities	
Session content	Objectives for the session appropriate venue Equipment needs Supervision needs Timing of activities Introduction/conclusion of session Basic warm up/cool down Skills and technique development Engaging Organisation

Personal qualities	
Reliability Punctuality Confidence Communication Creativity	

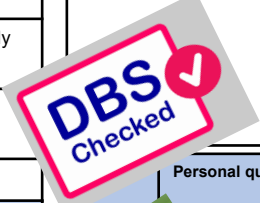
Safety	Risk assessments- facilities, equipment/clothing checks, activity-specific risks  Corrective action- wiping up puddles, removing litter, reporting faulty equipment  Emergency procedures- procedures in the event of an accident, procedures in the event of other emergencies, summoning qualified help, completion of relevant documents
--------	---

Personal qualities	
--------------------	--

Reliability Punctuality Communication Confidence Creativity
---

Leadership styles	
-------------------	--

Autocratic Democratic Laissez-faire
---







**Main assessment objectives**

**Learning outcome:** Know the personal qualities, styles, roles and responsibilities associated with effective sports leadership.  
Be able to plan sports activity sessions.



**What we are learning this term:**

- A. Different leadership roles
- B. Role-related responsibilities
- C. Personal qualities
- D. Leadership styles
- E. Key considerations when planning sports activity

C.	<b>Can you give examples of managers from different sports?</b>
<b>Role models</b>	
Positive	Negative

A.	<b>Role related responsibilities</b>

G.	<b>Considerations when planning sports activities</b>
<i>Session content</i>	
<i>Safety</i>	

A.	<b>Personal qualities</b>

**Key sections**

**Different leadership roles and opportunities**

--	--

**Role related responsibilities**

--	--

**Personal qualities**

--	--

**Leadership styles**

--	--

A.	<b>The different leadership roles within sport</b>
<b>Role</b>	<b>Definition</b>
Coach	
Manager	
Captain	
Teacher	
Expedition leader	
Role model	

A.	<b>Leadership styles</b>



**What we are learning this term:**

A. Health & Safety

B. Manufacturing processes

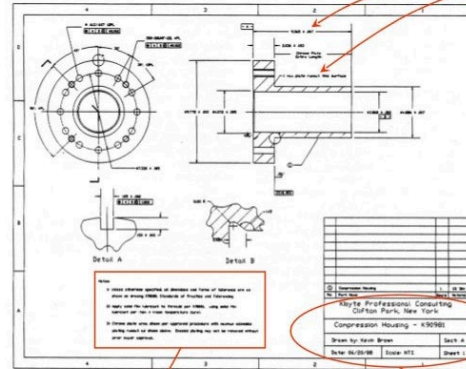
C. reading technical drawings

D. Tools & Equipment



A. Health & Safety	
<b>Risk Assessment</b>	A risk assessment is the analysis of the risks involved when using equipment or performing a process.
<b>Hazard</b> – something that may harm someone. <b>Risk</b> – how likely a hazard is to happen. <b>Control measure</b> – actions taken to reduce the risk of harm	
<b>Ejection hazard</b> – material being thrown out of the machine toward the user	<b>Entrapment hazard</b> – the user being caught and pulled into the moving parts of the machine
<b>Inhalation hazard</b> – people in the vicinity of the hazard breathe in harmful dust or chemicals	<b>Sharp force hazard</b> – the user is cut, stabbed or scraped by the sharp material.
<b>Slip, trip and fall hazards</b> – common hazards caused by unclean or cluttered workspaces.	<b>Blunt force hazard</b> – a victim is crushed, hit or bruised by the blunt object. Major blunt trauma can cause fractures or internal bleeding.

**C. Reading technical drawings**



**Dimension & Notes**

Technical drawings always include a border and title block to identify them and give the reader important information. You may also write notes on a technical drawing, if relevant.

The scale factor shows how big the real product is compared to the drawing.

TITLE WHEEL BEARING	
NAME John Smith	CHECKED <i>[Signature]</i>
VERSION 1.1	DATE 16/10/98
NO NEED TO MEASURE. ALL MEASUREMENTS IN MM	SCALE 1:1
ITI ENGINEERING	

The type of orthographic drawing is shown by this symbol.

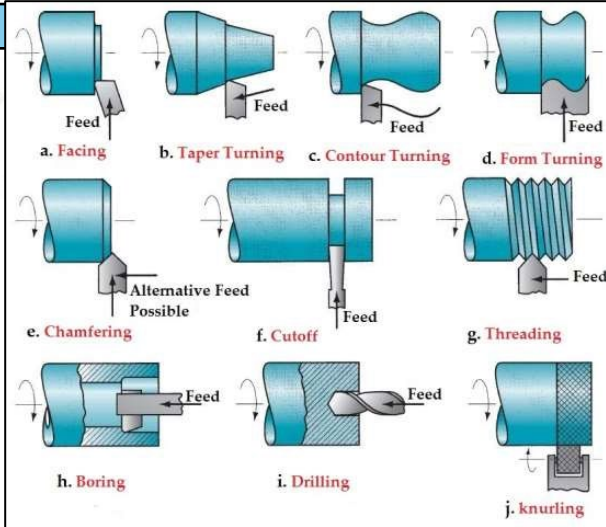
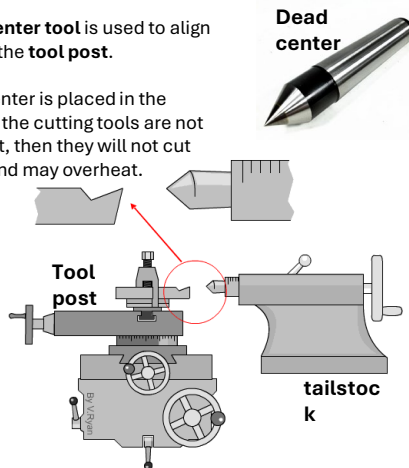
**Notes**

Lec. Bhuiyan Shameem Mahmood

**B. Manufacturing processes**

The **dead center tool** is used to align the tools in the **tool post**.

The dead center is placed in the **tailstock**. If the cutting tools are not in line with it, then they will not cut efficiently and may overheat.



**D. Tools & Equipment**



**External calliper** – used for measuring the external dimensions of a workpiece



**Lathe tools** – cutting tools for a range of functions. From left to right; Parting tool, right-hand cutting tool, threading tool, left-hand cutting tool



**Knurling tool** - an attachment for the lathe that allows you to impress a diamond pattern into the material. Example shown here.



**Tap and die set** – these tools are attached to wrenches and allow you to cut an internal or external thread (spiral) in a hole. The hole must be pre-drilled 0.5mm smaller than the intended size of the final hole.



**What we are learning this term:**

A. Health & Safety

B. Manufacturing processes

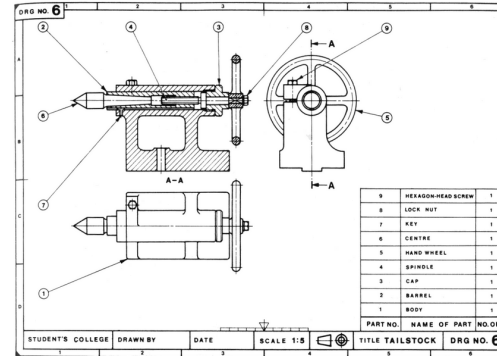
C. reading technical drawings

D. Tools & Equipment



A. Health & Safety	
<b>Risk Assessment</b>	A risk assessment is the analysis of the risks involved when?
<b>Hazard –</b> <b>Risk –</b> <b>Control measure –</b>	
<b>Give an example of an Ejection hazard –</b>	<b>Give an example of an Entrapment hazard –</b>
<b>Give an example of an Inhalation hazard –</b>	<b>Give an example of a Sharp force hazard –</b>
<b>Give an example of Slip, trip and fall hazards –</b>	<b>Give an example of a Blunt force hazard –</b>

**C. Reading technical drawings**



**Task -Annotate this technical drawing**

**B. Manufacturing processes**

The **tailstock** is used to support the tools in the lathe.

The dead center is placed in the **tailstock**. If the cutting tools are not **ground** then they will not cut efficiently and may **chatter**.

Feed





Alternative Feed Possible

**D. Tools & Equipment**

	– used for measuring the external dimensions of a workpiece
	– cutting tools for a range of functions. From left to right; tool, tool, cutting tool, cutting tool
	- an attachment for the lathe that allows you to impress a pattern into the material. Example shown here.
	– these tools are attached to wrenches and allow you to cut an internal or external (spiral) in a hole. The hole must be pre-drilled smaller than the intended size of the final hole.





What we are learning this term:	
A.	Key words
B.	What are the main life stages
C.	What are the 4 areas of growth and development (PIES)?
D.	How do Humans develop physically (P)?

A.	Key words for this Unit
Characteristics	Something that is typical of people at a particular life stage.
Life stages	Distinct phases of life that each person passes through.
Growth	Increased body size such as height, weight.
Development	Involves gaining new skills and abilities such as riding a bike.
Gross motor development (G)	Refers to the development of large muscles in the body e.g. Legs
Fine motor development (F)	Refers to the development of small muscles in the body e.g. Fingers
Language development	Think through and express ideas
Contentment	An emotional state when people feel happy in their environment, are cared for and well loved
Self-image	How individuals see themselves or how they think others see them
Self-esteem	How good or bad an individual feels about themselves and how much they value their abilities.
Informal relationships	Relationships formed between family members
Friendships	Relationships formed with people we meet in the home or in situations such as schools, work or clubs
Formal relationships	relationships formed with non-family/friends – such as teachers and doctors.
Intimate relationships	romantic relationships.






B	What are the main life stages?		C	What are the 4 areas of growth and development (PIES)?
Age Group	Life Stage	Developmental Characteristics and Progress	 Physical Development (P)  Intellectual Development (I)  Emotional Development (E)  Social Development (S)	P = growth patterns and changes in the mobility of the large and small muscles in the body that happen throughout life.  I = how people develop their thinking skills, memory and language.  E = how people develop their identity and cope with feelings.  S = describes how people develop friendships and relationships.
0-2 years	Infancy	Sill dependent on parents but growing quickly and developing physical skills.		
3-8 years	Early Childhood	Becoming increasingly independent, improving thought processes and learning how to develop friendships.		
9-18 years	Adolescence	Experiencing puberty, which bring physical and emotional changes.		
19-45 years	Early Adulthood	Leaving home, making own choices about a career and may start a family.		
46-65 years	Middle Adulthood	Having more time to travel and take up hobbies as children may be leaving home; beginning of the aging process.		
65+ years	Later Adulthood	The aging process continues, which may affect memory and mobility.		





D.	How do humans develop physically (P)?
<b>0-2</b>	<ul style="list-style-type: none"> <li>Gross Motor Development (G) = life head, roll over, sit unaided, walk holding onto something, walk unaided, climb stairs, kick and throw, walk upstairs, jump.</li> <li>Fine Motor Development (F) = hold a rattle for short time, reach for an item, pass item from one hand to other, hold between finger and thumb, scribble, build a tower, use a spoon, draw lines and circles, turn page of a book.</li> </ul>
<b>3-8</b>	<ul style="list-style-type: none"> <li>G = ride a tricycle, catch a ball with two hands, walk backwards and step to the side, bounce a ball, run on tiptoes, ride a bike, catch a ball with one hand, balance along a thin line.</li> <li>F = hold a crayon to make circles and lines, thread small beads, copy letters and shapes with a pencil, make detailed models with construction bricks, joined up writing, use a needle to sew.</li> </ul>
<b>9-18</b>	<ul style="list-style-type: none"> <li>Girls = puberty starts at 10-13 years, breasts grow, hips widen, menstruation begins, uterus and vagina grow.</li> <li>Boys = voice deepens, muscles and strength increase, erections, facial hair, produce sperm.</li> <li>Both = pubic and underarm hair, growth spurts.</li> </ul>
<b>19-45</b>	<ul style="list-style-type: none"> <li>Physically mature, sexual characteristics are fully formed, peak of physical fitness, full height, women at most fertile.</li> <li>Later in the life stage people may put on weight, hair turn grey and men may lose hair, women's menstrual cycle was slow down</li> </ul>
<b>46-65</b>	<ul style="list-style-type: none"> <li>People may put on weight, hair turn grey and men may lose hair, women's menstrual cycle was slow down.</li> <li>Women go through the menopause – when menstruation ends and they can no longer become pregnant.</li> <li>Men may continue to be fertile throughout life but decrease in sperm production in this life stage.</li> </ul>
<b>65+</b>	<ul style="list-style-type: none"> <li>Women's hair becomes thinner, men may lose most of their hair, skin loses elasticity and wrinkles appear, nails hard and brittle, bones weaken, higher risk of contracting infections disease and illness.</li> <li>Stamina, reaction time, muscle and senses (hearing, sight, taste) all reduce.</li> </ul>

What we are learning this term:	
A. Key words	
B. What are the main life stages	
C. What are the 4 areas of growth and development (PIES)?	
D. How do Humans develop physically (P)?	
A.	Key words for this Unit
Characteristics	
Life stages	
Growth	
Development	
Gross motor development (G)	
Fine motor development (F)	
Language development	
Contentment	
Self-image	
Self-esteem	
Informal relationships	
Friendships	
Formal relationships	
Intimate relationships	

B	What are the main life stages?		C	What are the 4 areas of growth and development (PIES)? Explain them.
Age Group	Life Stage	Developmental Characteristics and Progress		
0-2 years			Physical Development (P) 	
3-8 years				
9-18 years			Intellectual Development (I) 	
19-45 years			Emotional Development (E) 	
46-65 years				
65+ years			Social Development (S) 	

D.	<u>How do humans develop physically (P)?</u>
<b>0-2</b>	
<b>3-8</b>	
<b>9-18</b>	
<b>19-45</b>	
<b>46-65</b>	
<b>65+</b>	





What we are learning this term:		F. How do humans develop emotionally (E)?	
E. How do humans develop intellectually (I)? F. How do humans develop emotionally (E)? G. How do humans develop socially (S)?			
<b>E. How do humans develop intellectually (I)?</b>			
<b>Infancy</b>  	At birth brains are already well developed. Infants use all of their senses to learn about the world around them. Infancy is a time of rapid intellectual development. At 3 months infants can remember routines. At 9-12 months infants are developing their memory. At 12 months to 2 years infants understand processes and how things work. Language begins to develop during this stage.	<b><u>Bonding and Attachment</u></b> Bonding and attachment describe the emotional ties an individual forms with others. It starts in the first year of life between infants and their main carer because that person fulfils the infants needs which makes them feel safe and secure.	<b><u>Adolescence and adulthood</u></b>  <b><u>Self-image and Self-esteem</u></b> Self-image is heightened during adolescence because of the physical changes we experience. Our self-esteem can change from day to day based on a variety of factors including employment and health status.
		<b><u>Security</u></b> For infants and young children, security is mainly the feeling of being cared for, being safe and loved – it is closely linked with attachment.	<b><u>Security</u></b> Adolescence may feel insecure because of puberty. Adults may feel insecure about relationships, job security of income. Later in life adults may feel insecure about staying in their own home or going into a care home. Feeling secure helps us cope better with everyday situations.
		<b><u>Contentment</u></b> Infants and young children are content if they have had enough food, love, are clean and dry and all other needs are met.	<b><u>Contentment</u></b> When people feel discontented with aspects of their life – for example, relationships or work – their emotions can be negatively affected.
<b>Early childhood</b>  	At 3-4 years of age children become more inquisitive and enjoy exploring objects and materials. They ask lots of questions and enjoy solving simple problems. At 5-6 years old children’s memory is becoming well developed. This helps them to talk about the past and anticipate the future.	<b><u>Independence</u></b> Independence is to care for yourself and make your own decisions. Infants are completely dependent on their carer. As children enter early childhood they develop more independence – feed self and get dressed. However, children still need a lot of help from their carer.	<b><u>Independence</u></b> Adolescence are dependent on their parents but are beginning to enjoy more independence and freedom to make their own choices. Adults enjoy living independently and controlling their own lifestyle and environment. Later in adulthood people become more dependent on others again.
<b>G. How do humans develop socially (S)?</b>			
<b>Life Stage</b>		Types of relationships and social development	
<b>Adolescence</b>  	During this time abstract thought is developed – thinking logically and solving complex problems are possible by the end of this life stage. Adolescents may find it difficult to understand the consequences of their actions but they are developing empathy – seeing things from another’s point of view.	<b>Infancy</b> <ul style="list-style-type: none"> <li>• Solitary Play - From birth to 2 years, infants tend to play alone although they like to be close to their parent or carer; they may be aware of other children but not play with them.</li> </ul>	
		<b>Early childhood</b> <ul style="list-style-type: none"> <li>• Parallel Play - From 2 to 3 years, children enjoy playing next to other children but are absorbed in their own game; they are not socialising or playing with other children.</li> <li>• Cooperative or social play – from 3 years upwards, children start to play with other children; they have developed social skills that help them to share and talk together; they often make up games together, such as being a shopkeeper and customer.</li> </ul>	
		<b>Adolescence</b> <ul style="list-style-type: none"> <li>• People become more independent and build more informal and formal relationships.</li> <li>• Social development closely linked to emotions.</li> <li>• Often strongly influenced by peers – ‘peer group pressure’.</li> </ul>	
<b>Early and Middle Adulthood</b>  	By these life stages most adults have a good range of general knowledge. They use this knowledge and experience to solve problems that they come across in their personal and work lives.	<b>Early adulthood</b> <ul style="list-style-type: none"> <li>• Increased independence means greater control of decisions about informal relationships.</li> <li>• People may be developing emotional and social ties with partners and their own children.</li> <li>• Social life often centred on the family but social skills are required to build and maintain formal relationships.</li> </ul>	
		<b>Middle adulthood</b> <ul style="list-style-type: none"> <li>• Children have often left home, but there are likely to still be strong family relationships.</li> <li>• Social circles may expand through travel, spending more time on hobbies or joining new groups.</li> </ul>	
<b>Later adulthood</b>  	During this life stage people continue to learn and develop intellectually, however, their speed of thinking and memory may decline. This may affect their ability to think through problems and make logical decisions.	<b>Later adulthood</b> <ul style="list-style-type: none"> <li>• Retired by this stage and so may enjoy more social time with family and friends or join new groups.</li> <li>• However, later in the life stage people may begin to feel isolated if they struggle to get out or if partners and friends pass away.</li> </ul>	

What we are learning this term:		F. How do humans develop emotionally (E)? Explain each.	
E. How do humans develop intellectually (I)? F. How do humans develop emotionally (E)? G. How do humans develop socially (S)?			
E. <i>How do humans develop intellectually (I)?</i>			
Infancy  		<u>Infancy and Early Childhood</u>	
		<u>Adolescence and adulthood</u>	
		<u>Bonding and Attachment</u>	
		<u>Self-image and Self-esteem</u>	
		<u>Security</u>	
		<u>Security</u>	
		<u>Contentment</u>	
		<u>Contentment</u>	
		<u>Independence</u>	
		<u>Independence</u>	
		<b>G. How do humans develop socially (S)?</b>	
		<b>Life Stage</b> Types of relationships and social development	
		Infancy	
		Early childhood	
		Adolescence	
		Early adulthood	
		Middle adulthood	
		Later adulthood	
Adolescence  			
Early and Middle Adulthood  			
Later adulthood  			

What we are learning this term:	
H.	Key words
I.	How do physical factors affect development?
J.	How does lifestyle affect development?
K.	How do social and cultural factors affect development?
L.	How do relationships and isolation affect development?
M.	How do economic factors affect development?

H	Key words:
Genetic inheritance	Genes the person inherits from their parents
Genetic disorders	Health conditions that are passed on from parent to child through their genes. e.g. cystic fibrosis
Lifestyle Choices	Include the food you eat and how much exercise you do. They also include whether you smoke, drink alcohol or take illegal drugs.
Appearance	The way that someone or something looks
Factor	A circumstance, fact, or influence that contributes to a result
Gender role	The role and responsibilities determined by a person's gender.
Culture	ideas, customs, and social behaviour.
Role models	Someone a person admires and strives to be like.
Social Isolation	Lack of contact with other people
Material possessions	Things that are owned by an individual
Economic	To do with person's wealth and income.

I.	How do physical factors affect development?	
	Genetic Disorders	Disease and Illness
Physical Development	A person's physical build can affect physical abilities. Inherited diseases may affect strength and stamina needed to take part in exercise.	May affect the rate of growth in infancy and childhood. Could affect the process of puberty. Could cause tiredness and/or mobility problems. Could limit of prevent participation in physical activity.
Intellectual Development	Some genetically inherited diseases may result in missed schooling, or have a direct impact on learning – conditions such as Edward's syndrome impact learning.	School, college, university, work or training could be missed. Memory and concentration could be affected.
Emotional Development	Physical appearance affects how individuals see themselves (self-image), and how others respond to them impacts on their confidence and wellbeing.	May cause worry and/or stress. Individuals may develop negative self-esteem. Could lead to feelings of isolation.
Social Development	Physical characteristics or disease may affect opportunities or confidence in building friendships and becoming independent.	May cause difficulty in having opportunities to socialize with other and build wider relationships.



J.	How does lifestyle affect development?	
<b>Lifestyle choices</b> include; diet, exercise, alcohol, smoking, sexual relationships and illegal drugs, appearance.		
<b>Positive lifestyle choices lead to:</b> <ul style="list-style-type: none"> <li>• Healthy hair, skin, nails and teeth</li> <li>• Positive self-image</li> <li>• Energy and stamina</li> <li>• Good health</li> <li>• Emotional security</li> </ul> 		<b>Negative lifestyle choices lead to:</b> <ul style="list-style-type: none"> <li>• Being overweight or underweight</li> <li>• Lack of energy</li> <li>• Ill health</li> <li>• Negative self-image</li> <li>• Sexually transmitted diseases (STDs)</li> <li>• Unplanned pregnancy</li> </ul> 
Our <b>appearance</b> includes: body shape, facial features, hair and nails, personal hygiene and our clothing. Our appearance can affect the way we view ourselves- self-image		
<b>Positive self-image:</b> <ul style="list-style-type: none"> <li>• Feel good about yourself.</li> <li>• Healthy hair, skin, nails and teeth</li> <li>• Big social circle.</li> <li>• High self-esteem.</li> <li>• High self-confidence.</li> </ul> 		<b>Negative self-image</b> <ul style="list-style-type: none"> <li>• Low self-esteem</li> <li>• Low self-confidence</li> <li>• Can lead to eating disorders e.g. anorexia</li> <li>• Can lead to anxiety or depression</li> <li>• Can lead to self-harm</li> <li>• Negative impact on building relationships- social circle decreases.</li> </ul> 



What we are learning this term:	
H.	Key words
I.	How do physical factors affect development?
J.	How does lifestyle affect development?
K.	How do social and cultural factors affect development?
L.	How do relationships and isolation affect development?
M.	How do economic factors affect development?

H	Key words:
Genetic inheritance	
Genetic disorders	
Lifestyle Choices	
Appearance	
Factor	
Gender role	
Culture	
Role models	
Social Isolation	
Material possessions	
Economic	

I.	How do physical factors affect development?	
	<u>Genetic Disorders</u>	<u>Disease and Illness</u>
Physical Development		
Intellectual Development		
Emotional Development		
Social Development		

J.	How does lifestyle affect development?	
Lifestyle choices include; diet, exercise, alcohol, smoking, sexual relationships and illegal drugs, appearance.		
<u>Positive lifestyle choices lead to:</u>		<u>Negative lifestyle choices lead to:</u>
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>		<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>
Our <b>appearance</b> includes: body shape, facial features, hair and nails, personal hygiene and our clothing. Our appearance can affect the way we view ourselves- self-image		
<u>Positive self-image:</u>		<u>Negative self-image</u>
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>		<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>



<b>K</b>	<b>How do social and cultural factors affect development</b>
Development can be influenced by the persons <b>culture or religion</b> because it affected their: <ul style="list-style-type: none"> <li>• <b>Values</b>: how they behave</li> <li>• <b>Lifestyle choices</b>: diet, appearance</li> </ul>	
<u>Positive affects of a persons culture/religion:</u> <ul style="list-style-type: none"> <li>• A sense of security and belonging from sharing the same values and beliefs with others.</li> <li>• Good self-esteem through being accepted and valued by others</li> </ul>	<u>Negative affects of a persons culture/religion:</u> <ul style="list-style-type: none"> <li>• Feeling discriminated against by people who do not share their religion/culture which leads to low self-image</li> <li>• Feeling excluded and isolated because their needs like diet, are not catered for.</li> </ul>
<b>Community</b> refers to: local area where people live, school, religious group or hobby clubs. They have common values and goals.	
<u>Belonging to a community:</u> <ul style="list-style-type: none"> <li>• Brings sense of belonging essential for emotional development.</li> <li>• Building and maintaining relationships- social development</li> <li>• Feeling of security.</li> <li>• Increases self-image and self-confidence</li> </ul>	<u>Not belonging to a community:</u> <ul style="list-style-type: none"> <li>• Minimal contact with others- isolation</li> <li>• Anxiety leading to depression</li> <li>• Making negative lifestyle choices</li> <li>• Feeling less secure</li> <li>• Difficulty in building relationships</li> <li>• Slow self-image and self-confidence</li> </ul>
Traditionally, men and women had distinctive responsibilities and expectations which for their gender called <b>gender roles</b> . However, nowadays UK equality legislation stops people being discriminated against because of their gender.	
What happens when people face discrimination because of gender: <ul style="list-style-type: none"> <li>• They might be excluded from a group</li> <li>• They may be refused promotion at work</li> <li>• They may be expected to carry out a particular role</li> <li>• They may be paid less.</li> </ul>	

<b>What we are learning this term:</b>
K. How do social and cultural factors affect development?
L. How do relationships and isolation affect development?
M. How do economic factors affect development?

<b>L</b>	<b>How do relationships and isolation affect development?</b>
1	In adolescence, young people often argue with parents because they want more independence- negative affect on family relationships- can lead to isolation from them.
2	In later life, older people might need to rely on their children for support. This then has a positive affect on their development because all their need are catered for.
3	Relationships are important because they provide emotional security, contentment and positive self- esteem.
4	The breakdown of personal relationships can have a negative effect on persons PIES development: Low self-esteem, loss of confidence, stress.
5	Isolation can happen when individuals do not have the opportunity of regular contact with others. They have no one to share their feelings, thoughts and worries with resulting in feeling insecure and anxious.
6	Isolation can happen because they live alone, are unemployed or retired, are discriminated against or have an illness or a disability.
7	People have role models- infants learn by copying others, and adolescence base their identity on their role models. Role models can influence how people see themselves compared to others and their lifestyle choices can be positive or negative.

<b>M</b>	<b>How do economic factors affect development</b>	
	Having enough money gives individuals and their families feeling of content and security	Not having enough money causes stress and anxiety.
	Having enough money means that the whole family is eating healthy.	Not having enough money can mean that the family is not about to eat well balanced diet, and this has a negative effect on their physical development
	Elderly people rely on state pension to live which is not enough and have to cut down on travel, shopping, bills, therefore it speeds their aging process and lead to health decline.	
	<u>Living in good housing with open spaces:</u> <ul style="list-style-type: none"> <li>• Feeling good about themselves</li> <li>• Be more likely to stay healthy,</li> <li>• Space to take exercise</li> <li>• Feel safe ad secure</li> <li>• Warmth</li> </ul>	<u>Living in a poor housing with cramped and damp conditions:</u> <ul style="list-style-type: none"> <li>• Have low self-esteem and self-image</li> <li>• Be more likely to experience ill health</li> <li>• Be lessson likely to exercise</li> <li>• Anxious and stressed.</li> </ul>
	Material possession like a new phone or coat has a positive effect on the persons development because they might have more friends as they look nicer, high self-image.	Not having a phone or the newest trainers can have a negative affect in the persons self-image and self-esteem. They might feel isolated from others.



**K How do social and cultural factors affect development**

Development can be influenced by the persons **culture or religion** because it affected their:

- **Values:** how they behave
- **Lifestyle choices:** diet, appearance

Positive affects of a persons culture/religion:

- 
- 

Negative affects of a persons culture/religion:

- 
- 

**Community** refers to:

Belonging to a community:

- 
- 
- 
- 
- 

Not belonging to a community:

- 
- 
- 
- 
- 

Traditionally, men and women had distinctive responsibilities and expectations which for their gender called **gender roles**. However, nowadays UK equality legislation stops people being discriminated against because of their gender.

What happens when people face discrimination because of gender:

- 
- 
- 
- 

**What we are learning this term:**

- K. How do social and cultural factors affect development?
- L. How do relationships and isolation affect development?
- M. How do economic factors affect development?

**L How do relationships and isolation affect development?**

1

2

3

4

5

6

7

**M How do economic factors affect development**

Having enough money....

- 
- 

Not having enough money .....

- 
- 



Having enough money means that....

- 
- 

Not having enough money can mean that...

- 
- 



Elderly people rely on state pension to live which is not enough and have to cut down on travel, shopping, bills, therefore it speeds their aging process and lead to health decline.

Living in good housing with open spaces:

- 
- 
- 
- 
- 

Living in a poor housing with cramped and damp conditions:

- 
- 
- 
- 
- 

Material possession like a new phone or coat has a positive effect on the persons development because.....

- 
- 
- 
- 

Not having a phone or the newest trainers can have a negative affect on.... Because....

- 
- 
- 
- 



What we are learning this term:	
<p>N. What are life events?                      O. How do people deal with life events?                      P. How is dealing with life events supported?</p>	
N.	What are life events?
Life Events	Life events are expected or unexpected events that can affect development. Examples include starting nursery, getting married or becoming ill.
Expected Life Events	Expected life events are life events that are likely to happen. Examples include starting primary school aged four and secondary school aged 11.
Unexpected Life Events	Unexpected life events are events which are not predictable or likely to happen. Examples could include divorce and bereavement (the death of a loved one).
Physical Events	Physical events are events that make changes to your body, physical health and mobility. Examples include illnesses such as diabetes and injuries and accidents such as car accidents.
Relationship Changes	Relationship changes could be new relationships such as the birth of a sibling, a new friendship or romantic relationship. Relationship changes can also be changes to existing relationships such as divorce.
Life Circumstances	Life circumstances are different situations that arise in our life that we must deal with. Examples include redundancy (losing a job), moving house or retirement (finishing work in later adulthood).

O.	How do people deal with life events?
Individual	<ul style="list-style-type: none"> <li>The effects of life events vary from person to person based on how they deal with their new situation.</li> <li>Some people react to able to react to life events positively, others find it more difficult due to a range of factors.</li> </ul>
Factors	<ul style="list-style-type: none"> <li>Factors that may affect how people cope with life events: age, other life events happening at the same time, the support they have, their disposition (their mood, attitude and general nature), their self-esteem, their resilience (how quickly they recover).</li> </ul>
Adapting	<ul style="list-style-type: none"> <li>Adapt – to adjust to new conditions or circumstances.</li> <li>Expected on unexpected life events can often force people to make changes to their lives. Individuals must find their own way to adapt to the changes that life throws at them.</li> </ul>
Resilience	<ul style="list-style-type: none"> <li>Resilience – a person's ability to come to terms with, and adapt to, events that happen in life.</li> <li>Resilience is stronger in people who have a positive outlook on life, accept that change happens, has supportive family and friends and plans for expected life events.</li> </ul>
Time	<ul style="list-style-type: none"> <li>Sometimes people need a long time to adapt to unexpected life events.</li> <li>It can take time for people to move on from and accept difficult changes in their life.</li> </ul>

P.	How is dealing with life events supported?
Types of Support	How this helps individuals deal with life events
Emotional Support	Emotional support is needed to help individuals deal with all life events – expected and unexpected. Having someone to talk to helps people feel secure and adapt to change. Sometimes individuals can find this support in family and friends or professionals to process difficult life events – such as bereavement.
Information and Advice	Life events, particularly unexpected ones, can cause people to feel like they do not know what to do. Information and advice can help people to have a better understanding of their situation, which allows them to deal with it more successfully. Information and advice help them know where to go for help, the choices that are available to them and how to make healthy choices.
Practical Help	<ul style="list-style-type: none"> <li>Financial help – an individual may need money to help them adapt to a life change i.e. money to pay for a stair lift if their mobility has been effected.</li> <li>Childcare – an individual may need support looking after their children i.e. a lone parent after a divorce that needs to go to work.</li> <li>Transport – an individual may need support with transport if they have mobility problems i.e. a car could be adapted to support a person who has had an accident and can no longer walk.</li> </ul>
Informal Support	Informal support is the support an individual receives from partners, family and friends. It is usually the first form of support an individual experiences after and expected or unexpected life event. Informal support can provide reassurance, encouragement, advice, a sense of security, someone to talk through options with and practical help.
Professional Support	Formal support may be provided by statutory care services (the state), private care services and charitable organizations. Professional support may include counsellors, teachers, careers advisers, occupational therapists, social workers and health specialists. Professional support may be needed to help people with a health condition, regain mobility, deal with life changes and emotions, get advice and information or change their lifestyle.
Voluntary Support	Organizations offering voluntary support are charities, community groups and religious groups. At voluntary support services, many staff are volunteers ( they work for free), but they also employ qualified people who are paid by donations. Community groups work at a local level to meet the needs of people living in a specific neighbourhood i.e. foodbanks. Religious groups are formed by people who share the same religious or spiritual beliefs but they help all people in need regardless of their beliefs and background i.e. a church run soup kitchen for the homeless.

<b>What we are learning this term:</b>	
N. What are life events? O. How do people deal with life events? P. How is dealing with life events supported?	
<b>N.</b>	<b>What are life events?</b>
Life Events	
Expected Life Events	
Unexpected Life Events	
Physical Events	
Relationship Changes	
Life Circumstances	

<b>O.</b>	<b>How do people deal with life events?</b>
Individual	
Factors	
Adapting	
Resilience	
Time	
<b>P.</b>	<b>How is dealing with life events supported?</b>
<b>Types of Support</b>	<b>How this helps individuals deal with life events</b>
Emotional Support	
Information and Advice	
Practical Help	
Informal Support	
Professional Support	
Voluntary Support	

# SWINDON ACADEMY READING CANON

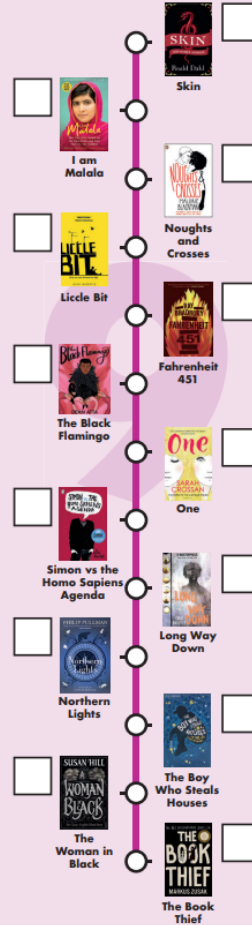
## Year 7



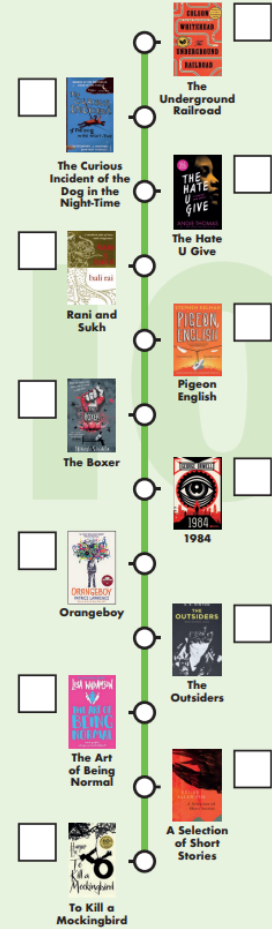
## Year 8



## Year 9



## Year 10



#ReadingisPower