2024/25

Cycle 2 Knowledge Navigator

Year 10

Name:

Form:

Morning Meeting Homework

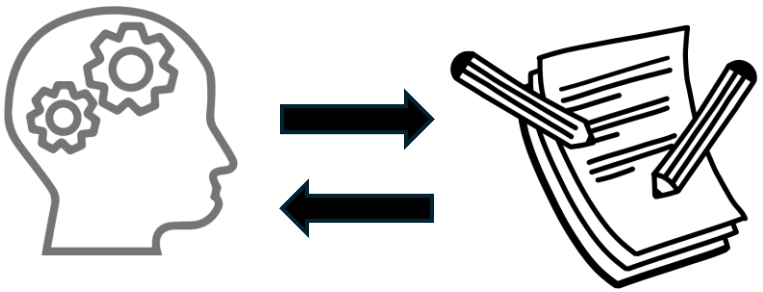
Purpose: to memorise and recall key facts from previous learning

100% Sheets

Purpose: to memorise and recall key facts for current learning

RCWC repeat!

Read the information and try to memorise it.
Cover up the information so you can't see it.
Write down as much as you can remember.
Check what you've written down against the information, and green pen what you've missed.
Repeat this to fill a minimum of 2 A4 sides. The more you repeat this process, the more facts you will remember for your exams!



Contents

1		Homework Schedule	CYCLE 2	Year 10

	Week 1		Week 2		Week 3		Week 4		Week 5	
Monday	**9/12/24**	French	**16/12/24**	French	**06/01/25**	French	**13/01/25**	French	**20/01/25**	French
Tuesday	**10/12/24**	Science B4 Box 1 & 2	**17/12/24**	Science B4 Box 3, 4 & 5	**07/01/25**	Science B4 Box 6 & 7	**14/01/25**	Science P2 Box 1 & 2	**21/01/25**	Science P2 Box 3 & 4
Wednesday	**11/12/24**	RE	**18/12/24**	RE	**08/01/25**	RE	**15/01/25**	RE	**22/01/25**	RE
Thursday	**12/12/24**	English Box A *Sparx Maths*	**19/12/24**	English Box B *Sparx Maths*	**09/01/25**	English Box C *Sparx Maths*	**16/01/25**	English Box D *Sparx Maths*	**23/01/25**	English Box E *Sparx Maths*
Friday	**13/12/24**		**20/12/24**	Geography 1 & 2 / History A	**10/01/25**	Geography 3 / History B	**17/01/25**	Geography 4 / History C	**24/01/25**	Geography 5 / History D

	Week 6		Week 7		Week 8		Week 9		Week 10	
Monday	**27/01/25**	French	**03/02/25**	French	**10/02/25**	French	**24/02/25**	French	**03/03/25**	French
Tuesday	**28/01/25**	Science B4 Box 1&2	**04/02/25**	Science B4 Box 3,4 & 5	**11/02/25**	Science B4 Box 6 & 7	**25/02/25**	Science P2 Box 1 & 2	**04/03/25**	Science P2 Box 3 & 4
Wednesday	**29/01/25**	RE	**05/02/25**	RE	**12/02/25**	RE	**26/02/25**	RE	**05/03/25**	RE
Thursday	**30/01/25**	English Box F *Sparx Maths*	**06/02/25**	English Box G *Sparx Maths*	**13/02/25**	English Box H *Sparx Maths*	**27/02/25**	English Box A *Sparx Maths*	**06/03/25**	
Friday	**31/01/25**	Geography 6 / History E	**07/02/25**	Geography 7 / History F	**14/02/25**		**28/02/25**	Geography 8 / History G	**07/03/25**	

	Week 11		Week 12		Week 13	
Monday	**10/03/25**	French	**17/03/25**	French	**24/03/25**	French
Tuesday	**11/03/25**	Science B4 Box 1 & 2	**18/03/25**	Science B4 Box 6 & 7	**25/03/25**	Science P2 Box 3 & 4
Wednesday	**12/03/25**	RE	**19/03/25**	RE	**26/03/25**	RE
Thursday	**13/03/25**	English Box B *Sparx Maths*	**20/03/25**	English Box C *Sparx Maths*	**27/03/25**	English Box D *Sparx Maths*
Friday	**14/03/25**	Geography 9 / History H	**21/03/25**	Geography 10 / History A	**28/03/25**	Geography 11 / History B

DIXONS COTTINGLEY ACADEMY

2	French	Travel and Tourism	CYCLE 2	Year 10

Week 1				Week 2		Week 3	
Countries/Places				Weather		Forms of Travel	
aux États-Unis	in/to the USA	marocain	Moroccan	le météo	the weather forecast	en avion	by plane
au Maroc	in/to Morrocco	belge	Belgian	il fait beau	it's nice	en train	by train
en Suisse	in /to Switzerland	chinois	Chinese	il y fait du soleil	it's sunny	en autobus	by bus
en Espagne	in/to Spain	francophone	French speaking	il fait chaud	it is hot	en car	by coach
en Angleterre	in/to England	québécois	From Québec (Canada)	il fait froid	it is cold	en voiture	by car
au Pays de Galles	in/to Wales	suisse	Switzerland	il pleut	it's raining	en bateau	by boat
en Tunisie	in/to Tunisia	arabe	Arabic	il neige	it's snowing	en TGV	by high speed train
en Belgique	in/to Belgium	africain	African	il fait du vent	it's windy	à pied	on foot
en Écosse	in/to Scotland	mondial	global	la pluie / la neige	rain / snow	à vélo	by bike
la Manche	the Channel			le brouillard	fog	à métro	by underground

Week 4				Week 5			
Places to stay/facilities				Verbs/Activities			
un gite	a holiday home	une vue	a view	rester	to stay	aller à la montagne	to go to the mountains
une tente	a tent	une piscine	a swimming pool	louer	to hire	aller à un parc d'attractions	to go to an amusement park
un château	a castle	la plage	the beach	partir	to leave	visiter un musée	to visit a museum
un chalet	a wooden house in the mountains	la climatisation	air con	voler	to steal	acheter des souvenirs	to buy souvenirs
au bord de la mer	by the sea	une douche/ un bain	a shower / a bath	profiter de	to make the most of	faire une promenade	to go on a walk
une chambre	a room	un grand lit	a double bed	dormir	to sleep	faire les magasins	to go shopping
une île	an island	la porte	door	passer du temps	to spend time	faire du tourisme	to do tourist activities
un spectacle	a show	l'accueil	reception / welcome	voyager	to travel	sortir en ville	to go out into the town
le pont	the bridge	l'étage	floor	perdre	to lose	essayer voir	to try to see

Week 6		Week 7		Week 8		Week 9	
Past Perfect		**Hobbies verbs**		**Hobbies verbs**		**Hobbies nouns**	
Je suis allé	I went	jouer	to play	marcher	to walk	un passe-temps	a hobby
Je suis resté	I stayed	faire	to do	ouvrir	to open	un journal	a newspaper
J'ai fait	I did	aller	to go	s'intéresser à	to be interested in	un jeu	a game
J'ai nagé	I swam	écouter	to listen	monter	to climb	le prix	the prize
J'ai commandé	I ordered	regarder	to watch	gagner	to win/earn	un stade	a stadium
J'ai traversé	I crossed	manger	to eat	acheter	to buy	un livre	a book
J'ai rêvé	I dreamt	se relaxer	to relax	perdre	to lose	un voyage	a trip
J'ai dormi	I slept	chanter	to sing	sortir	to go out	un vêtement	clothing
J'ai acheté	I bought	danser	to dance	participer à	to participate in	un plat	a dish
J'ai organisé	I organised	lire	to read	visiter	to visit	la formation	training

Week 10		Week 11		Week 12		Week 13	
Opinions		**Sports**		**Adjectives**		**Adjectives**	
j'aime	I like	la natation	swimming	sportif	sporty	intéressant	interesting
j'adore	I love	la gymnastique	gymnastics	ouvert	open	ennuyeux	boring
je n'aime pas	I don't like	la voile	sailing	complet	full	super	super
je déteste	I hate	le ski	skiing	actif	active	atroce	atrocious
je préfère	I prefer	le cyclisme	cycling	jeune	young	marrant	funny
mieux que	better than	le foot	football	populaire	popular	nul	rubbish
pire que	worse than	le volley	volleyball	gratuit	free (no cost)	amusant	fun
le meilleur	the best	la boxe	boxing	sûr	safe	fantastique	fantastic
le pire	the worst	la plongée	diving	dangereux	dangerous	barbant	dull, tiresome
ce qui est bien/mal	what is good/bad	le tennis	tennis	passionant	exciting	relaxant	relaxing

1. Photosynthesis

Photosynthesis as an endothermic reaction in which energy is transferred from the environment to the chloroplasts by light. Photosynthesis can be represented by the following word and symbol equations;

$$\text{Carbon dioxide + Water} \xrightarrow{\text{light}} \text{Glucose + Oxygen}$$

$$6\,CO_2 + 6\,H_2O \xrightarrow{\text{light}} C_6H_{12}O_6 + 6\,O_2$$

Carbon dioxide: Enters the leaf through diffusion, via small holes called stomata.

Water: Enters the roots via osmosis and then travels up from the roots due to transpiration

Sunlight: Absorbed by the chlorophyll; found in the chloroplasts, located in the leaf

Chlorophyll: Green pigment in which chemical reactions take place

2. Limiting factors of Photosynthesis

Limiting factor: environmental condition which limit the growth of a plant

Temperature	If it gets too cold, the rate of photosynthesis will decrease. Plants cannot photosynthesise if it gets too hot.
Carbon Dioxide	Sometimes photosynthesis is limited by the concentration of carbon dioxide in the air. Even if there is plenty of light, a plant cannot photosynthesise if there is insufficient carbon dioxide.
Light	Without enough light, a plant cannot photosynthesise very quickly. Increasing the light intensity will boost the speed of photosynthesis.

Maximising growth: artificial lights so photosynthesis continues beyond daylight hours, use of paraffin lamps producing CO2 and heat.

Limiting factors are important in the economics of enhancing the conditions in greenhouses to gain the maximum rate of photosynthesis while still maintaining profit.

3. Uses of glucose from photosynthesis

The glucose produced in photosynthesis may be:

- used for respiration
- converted into insoluble starch for storage
- used to produce fat or oil for storage
- used to produce cellulose, which strengthens the cell wall
- used to produce amino acids for protein synthesis.

To produce proteins, plants also use nitrate ions that are absorbed from the soil.

4. Aerobic respiration

Cellular respiration is an exothermic reaction which happens all the time in living cells.
It can take place aerobically (using oxygen) or anaerobically (without oxygen), to transfer energy.

Organisms need energy for:

- chemical reactions to build larger molecules
- movement
- keeping warm.

The equation for aerobic respiration is:
Glucose + oxygen → carbon dioxide + water (+ energy)

$$C_6H_{12}O_6 + 6\,O_2 \rightarrow 6\,CO_2 + 6\,H_2O$$

5. Anaerobic respiration

The equation for anaerobic respiration in muscles is:

Glucose → lactic acid

As the oxidation of glucose is incomplete in anaerobic respiration much less energy is transferred than in aerobic respiration.

Anaerobic respiration in plant and yeast cells is:

Glucose → ethanol + carbon dioxide

Anaerobic respiration in yeast cells is called fermentation and has economic importance in the manufacture of bread and alcoholic drinks.

6. Response to exercise

During exercise the human body reacts to the increased demand for energy. The heart rate, breathing rate and breath volume increase during exercise to supply the muscles with more oxygenated blood.

If insufficient oxygen is supplied anaerobic respiration takes place in muscles. The incomplete oxidation of glucose causes a build up of lactic acid and creates an oxygen debt. During long periods of vigorous activity muscles become fatigued and stop contracting efficiently.

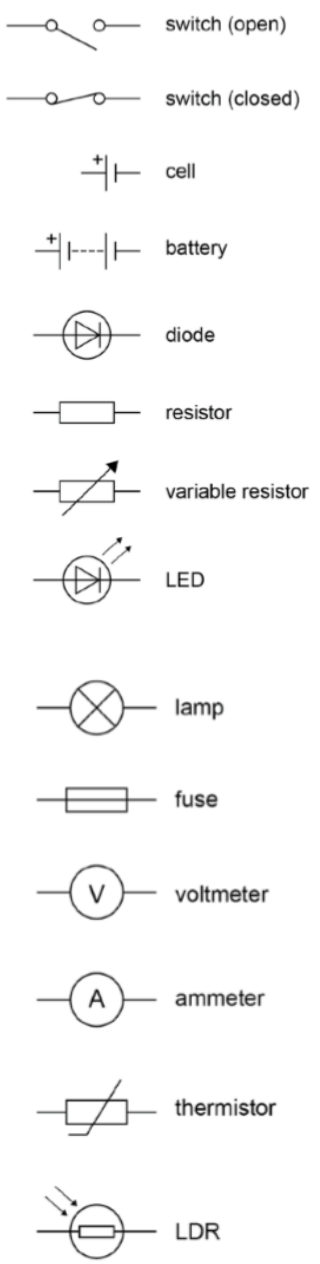
Blood flowing through the muscles transports the lactic acid to the liver where it is converted back into glucose. Oxygen debt is the amount of extra oxygen the body needs after exercise to react with the accumulated lactic acid and remove it from the cells.

7. Metabolism

Metabolism is the sum of all the reactions in a cell or the body.
The energy transferred by respiration in cells is used by the organism for the continual enzyme-controlled processes of metabolism that synthesise new molecules.
Metabolism includes:

- conversion of glucose to starch, glycogen and cellulose
- the formation of lipid molecules from a molecule of glycerol and three molecules of fatty acids
- the use of glucose and nitrate ions to form amino acids which in turn are used to synthesise proteins
- respiration
- breakdown of excess proteins to form urea for excretion.

1. Circuit symbols

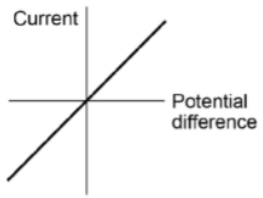


2. Current, potential difference and resistance

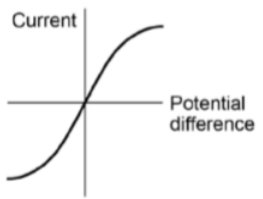
For electrical charge to flow through a closed circuit the circuit must include a source of potential difference.
Electric current is a flow of electrical charge. The size of the electric current is the rate of flow of electrical charge.
Charge flow (in coulombs) = current (in Amps) × time (in seconds) [Q = I t]
A current has the same value at any point in a single closed loop.

The current (I) through a component depends on both the resistance (R) of the component and the potential difference (V) across the component. The greater the resistance of the component the smaller the current for a given potential difference (pd) across the component.
pd (in volts) = current (in Amps) × resistance (in ohms) [V = I R]

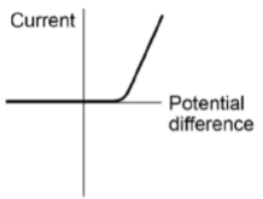
The current through an conductor (at a constant temperature) is directly proportional to the potential difference across the resistor. This means that the resistance remains constant as the current changes.



The resistance of components such as lamps, diodes, thermistors and LDRs is not constant; it changes with the current through the component. The resistance of a filament lamp increases as the temperature of the filament increases.



The current through a diode flows in one direction only. The diode has a very high resistance in the reverse direction.



The resistance of a thermistor decreases as the temperature increases.
The resistance of an LDR decreases as light intensity increases

3. Series and parallel circuits

There are two ways of joining electrical components, in series and in parallel.

For components connected in **series**:
- there is the same current through each component
- the total potential difference of the power supply is shared between the components
- the total resistance of two components is the sum of the resistance of each component.

R_{total} = R1 + R2 (in ohms, Ω)

For components connected in **parallel**:
- the potential difference across each component is the same
- the total current through the whole circuit is the sum of the currents through the separate components
- the total resistance of two resistors is less than the resistance of the smallest individual resistor.

4. Domestic uses and safety

In the UK, mains electricity is an ac supply, has a frequency of 50 Hz and is about 230 V.

Most electrical appliances are connected to the mains using three-core cable. The insulation covering each wire is colour coded for easy identification: live wire – brown, neutral wire – blue, earth wire – green & yellow stripes. The live wire carries the alternating potential difference from the supply. The neutral wire completes the circuit. The earth wire is a safety wire to stop the appliance becoming live.

5. Energy transfers

power = potential difference × current [P = V I] | **power = current^2 × resistance [P = I^2R]**

The amount of energy an appliance transfers depends on how long the appliance is switched on for and the power of the appliance. Work is done when charge flows in a circuit. The amount of energy transferred by electrical work can be calculated using the equation:
energy transferred = power × time [E = P t] (or) **energy transferred = charge flow × potential difference [E = Q V]**

The National Grid is a system of cables and transformers linking power stations to consumers. Step-up transformers are used to increase the potential difference from the power station to the transmission cables then step-down transformers are used to decrease the potential difference for safer domestic use.

6. Static electricity

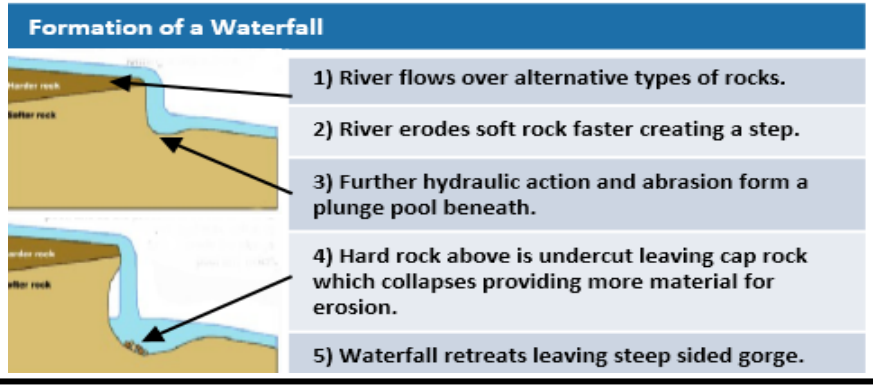
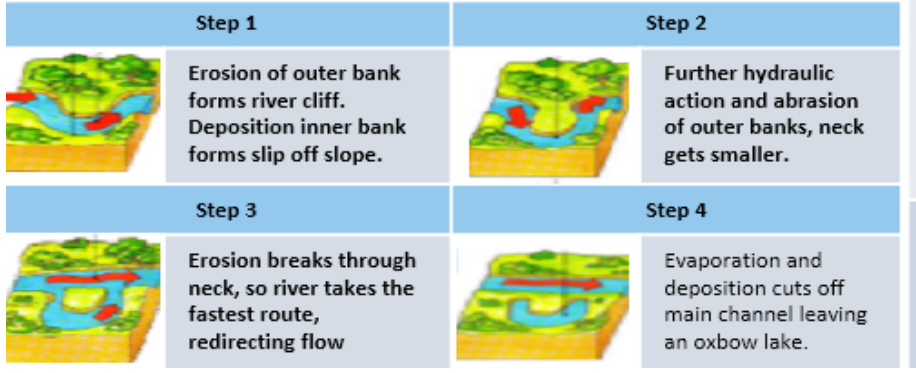
When certain insulating materials are rubbed against each other they become electrically charged. Negatively charged electrons are rubbed off one material and on to the other. The material that gains electrons becomes negatively charged. The material that loses electrons is left with an equal positive charge.
Two objects that carry the same type of charge repel. Two objects that carry different types of charge attract. Attraction and repulsion between two charged objects are examples of non-contact force.

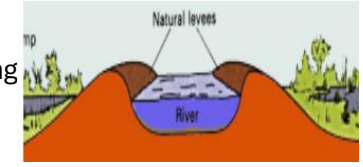
A charged object creates an electric field around itself. The electric field is strongest close to the charged object. The further away from the charged object, the weaker the field. A second charged object placed in the field experiences a force. The force gets stronger as the distance between the objects decreases.

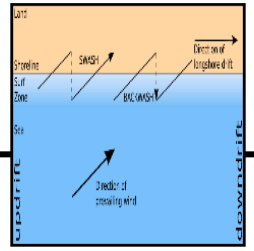
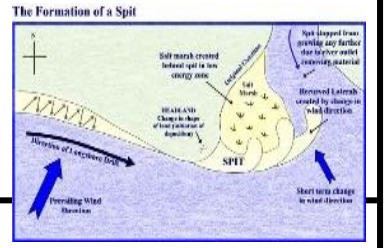
6	History	Medieval Migration	CYCLE 2	Year 10

Section A – Causation Jewish Migrants	Section B – Italian Migrants	Section C – Flemish Migrants	Section D – Diversity of Migrants
The first Jews in England • Invited by William the Conqueror following Norman conquest of 1066, as he needed their expert money skills **The contribution of the Jews in England** • Jews were moneylenders – they lent money to Kings and traders • Christians did not lend money - the Pope said it was sinful – therefore Christians relied on Jews for loans • Small amounts loaned to traders, vast amounts loaned to kings to build castles and cathedrals **Experiences for Jews living in England** • Jewish communities lived together in small areas of towns - called Jewries • Before 1250s Jews generally accepted by English society as they made the economy work • Lincoln Blood Libel – in 1255 Jews blamed for disappearance of a young boy – 93 accused of ritual murder and 18 executed • Edward I passed new law in 1275 - Statute of Jewry -Jews no longer allowed to be money lenders - all debts owed to them cancelled. • 1290 - Edward I expels all 3000 Jews left in England	**Why Italians migrated to England** • 1260 Italian bankers discovered new ways to lend money without it being a sin - invited by kings • Rich banking families arrived from Florence, Genoa, Lucca, and Venice **The impact of the bankers on England** • Italian bankers replaced Jewish money lenders - led to Jewish expulsion • Lent money to English Kings in exchange for privileged rights to trade wool and other goods • 1283- Loans helped Edward I to fund armies and castles to conquer Wales • Helped develop language and systems of banking (eg. Words 'credit' and 'debit', as well as currency symbols eg. £) **Experiences for Italians living in England** • Settled in London - very successful • 1456 - fled London after Italian merchant attacked – unusual event • Attacks on non-Jewish migrants by ordinary people were rare, but did happen. • 150 foreigners were murdered during the Peasants Revolt in 1381 having been told to say, 'bread and cheese'. • More common were complaints about privileges given to migrants. In response, Henry VI introduced the Aliens Subsidy, a tax on all migrants, in 1440.	**Why the Flemish migrated to England** • Wars and rebellions in the Low Countries • England accessible - short sea journey • England a stable country with good wages. • Kings could make more money from export taxes on cloth rather than wool so invited Flemish weavers (1270 and 1330s) **The impact of the Flemish** • Growth of towns where weavers set up cloth manufacturing – created new jobs as well as kick-starting manufacturing industry in England (eg. 1363 – development of small town of Manchester) • Flemish brick-makers influenced building styles in South East England • Dutch brewers brought new styles of beer • First printers, clock-makers, opticians **Experiences for the Flemish** • Given help by kings - allowed to set up own guilds • Often under threat – Edward III reminded mayors that no harm was to come to Flemish cloth workers • Weavers resented by English guilds - 1436-7 all recent migrants from • Low Countries ordered to leave England unless they bought a special licence and swore oath of allegiance	• Around the year 1500, around one in every one hundred people in England were born elsewhere – surprisingly high number • French - came from Gascony (ruled by English kings until 1453) • Icelandic boys often bought or kidnapped as servants • Opportunities to work as servants, labourers and merchants led to arrival of French, Scottish, Irish, Portuguese and Spanish • 1370 - Letters of Denization gave migrants the same rights and protections as English (but expensive, therefore unavailable to most migrants) • A weak king could give in to demands to treat migrants harshly eg. Henry III was weak and failed to protect Jews in the • A strong king could protect migrants eg. From the 1330s Edward III protected Flemish weavers from attack

Section E – Protestant Refugees	Section F – Economic Migrants (Palatines)	Section G – Economic Migrants (Jewish)	Section H – Wider World
Why did they come? • The Huguenots were French Protestants • They were persecuted by Catholics in France – St Bartholomew's Day Massacre in 1572 • Protestantism made illegal in France in 1685 • England Protestant and welcoming. Charles II offered denizen status in 1681 **What impact did they have?** • Crucial role in Britain's transformation into an industrial nation • Hard-working and skilled craftsmen and developed silk industry and several others including paper making and furniture. • Settled in Spitalfields in London – street names and buildings remain (eg, Fournier Street named after a successful Huguenot) **What experiences did they have?** • Many flourished and over time integrated into English society - Settled permanently, anglicised names and intermarried • Some prejudice and hostility – riot in late c17th – Londoners felt their jobs were being taken	**Why did they come?** • Warfare, religious persecution and bad harvest in Germany in 1709 • The Palatines were Protestant - England was a Protestant country • Most of the Palatines wanted to travel from Britain to America – a 'promised land' **What impact did they have?** • Limited – some skilled workers, most peasant farmers – reliant on collections and relief funds • Not in England long enough to have any impact **What experiences did they have?** • Camped on Hampstead Heath near London • Initial sympathetic reception from English, Soon seen a vagrants and a drain on resources - attacked by mobs • 3,000 failed in attempt to get to, and settle in America. Disastrous deportation to Catholic Ireland for 5,000 – given poor quality land and faced hostility from Catholic majority • Many gave up and returned to Germany in 1709	**Jewish migrants** **Why did they come?** • Persecution and hostility in Europe, including Spain • Invited back by Oliver Cromwell who was religiously tolerant and believed that Jews would help the economy **What impact did they have?** • Opened banks, Set up as traders and financiers • Prospered in trading ports of Liverpool and Hull • Poorer Jews were traveling pedlars selling second hand clothes and other goods from carts • Opened synagogues and set up communities especially in London **What experiences did they have?** • Wealthier Jews integrated, albeit by losing some of their Jewish identities • They were restricted from serving in the army, attending university or becoming lawyers	**Indian Migrants** **Why did they come?** • Lascars took employment on trading ships – often unable to find return transport to India • Ayahs (female nannies and servants) – served the families of East India Company employees when they returned on ships to England • Some Ayahs stayed as servants once in England; others were abandoned at English ports **What impact did they have?** • Benefitted the wealthy as cheap servants **What experiences did they have?** • Often accepted by white English servants -Some well-treated and free to leave • Servants sometimes considered as property **African Migrants** **Why did they come?** • From 1650s, forcible removal from Africa then West Indies No choice – brought to England as servants having been enslaved in West Indies **What impact did they have?** • Benefitted the wealthy as cheap servants • Presence led to the beginnings of racism in England **What experiences did they have?** • Some Africans were given freedom and some inherited wealth or property • Most were considered as property and some were sold, and sometimes sent back into slavery in the West Indies

Box	Key Knowledge to learn
1	**Water Cycle key terms** **Precipitation** – Moisture falling from clouds as rain, snow or hail. **Interception** – Vegetation prevent water reaching the ground. **Surface Runoff** – Water flowing over surface of the land into rivers **Infiltration** – Water absorbed into the soil from the ground. **Transpiration** – Water lost through leaves of plants
2	**Upper Course of a river** Near the source. The river flows over steep gradient from the hill/mountains. This gives the river a lot of energy, so it will erode the riverbed vertically to form narrow valleys. 
3	**Middle Course of a river – Formation of Meanders and Ox-bow Lakes** Here the gradient gets gentler, so the water has less energy and moves more slowly. The river will begin to erode laterally making the river wide. 

Box	Key Knowledge to learn
4	**Lower course of a river – Formation of Floodplains and Levees** Near the river's mouth, the river widens further and becomes flatter. Material transported is deposited. When a river floods, fine silt/alluvium is deposited on the valley floor. Closer to the river's banks, the heavier materials build up to form natural levees. The positives: ✓ Nutrient rich soil makes it ideal for farming ✓ Flat land for building houses 
5	**River Management Schemes** **Soft Engineering** **Afforestation** – Plant trees to soak up rainwater, which reduces flood risk. **Demountable Flood Barriers** – Put in place when warning is raised. **Managed Flooding** – Naturally let areas flood, protect settlements. **Hard Engineering** **Straightening Channel** – Increases velocity to remove flood water **Artificial levees** – heightens river so flood water is contained **Deepening or widening river** – to increase capacity for a flood
6	**Flood Hydrographs and River Discharge** River discharge is the volume of water that flows in a river. Hydrographs who discharge at a certain point in a river changes overtime in relation to rainfall 1. **Peak discharge** – is the discharge in a period of time 2. **Lag time** – is the delay between peak rainfall and peak discharge. 3. **Rising limb** – is the increase in river discharge 4. **Falling limb** – is the decrease in river discharge to normal level.

Week	Key Knowledge to learn	
6	**Coasts - Waves** Speed of the wind, how long the wind has being blowing for, the fetch (the distance the wind has being blowing for). **Constructive** • Low waves, long wavelengths, far storms • Bays / build up beaches / mainly summer • Strong swash (material brought up the beach) / weak backwash	**Destructive** • High waves, short wavelengths, storms • Exposed areas / destroys beaches / winter • Weak swash / strong backwash (taking material back)
7	**Coasts - Physical Processes** Weathering Processes • Chemical: chemical reaction with rocks • Mechanical: freeze-thaw (FTW) → water gets into cracks → drop in temp. → freeze → expand → rock cracks **Transportation:** • Solution: particles dissolved are carried in water • Suspension: particles carried within the water • Saltation: particles hop along sea floor • Traction: large boulders roll along sea floor 	**Mass Movement** • Sliding: material on mass moves downslope • Slumping: material moves in a straight path • Rock fall: rocks fall off cliff face due to FTW. **Erosion** • Hydraulic Action: sheer force of the water • Attrition: rocks collide with rocks / sea bed • Abrasion: rocks rub against sea bed • Solution: rocks dissolve in water 
8	**Coasts - Longshore Drift** Movement of Sediment Along a Coastline • Prevailing wind (direction where the wind is blowing from the most often) causes waves to arrive at the coast at an angle • Beach material moves up in the swash at an angle • Gravity causes the waves and sediment to return to the beach at 90^{o} in the backwash • This repeats in a zig zag motion along the beach • A natural feature such as a headland or a man-made groyne can stop the material moving and cause it to build up	**Formation of a Spit** 1. Sand or shingle ridge formed by long-shore drift 2. Longshore drift transports sand along the coast (material is carried up the beach in the swash at an angle due to the prevailing wind and back in the backwash at a right angle 3. There is a change in the shape of the coastline 4. Long shore drift continues to occur and material builds up with a spit growing out to sea 5. The spit is exposed to a change in wave direction causing a curved / hooked end 6. A saltmarsh and or mudflats form behind the spit due to the low energy depositional environment

10	Geography	Physical Landscapes in the UK - Coasts	CYCLE 2	Year 10

Week	Key Knowledge to learn	
9	**Coasts - Erosion Features Deposition Features** Headlands and Bays 1.Features of a discordant coastline. 2.Layers of hard and soft rock at right angles to the coast 3.Erosion (Hydraulic Action) erodes the softer less resistant material more quickly 4.The erosion causes a bay to form overtime 5.At either side of the bay the hard rock layers stick out into the sea and become subject to erosion 6.The headlands will be eroded overtime 7.The process repeats	Wave-cut Platform Formation 1.Features of concordant and discordant coastlines 2.Waves break against the base of the cliff and erosion (Hydraulic Action and Attrition) occurs causing a notch to form between the low and high tide level 3.The notch becomes bigger overtime 4.The cliff becomes weaker at the top due to freeze-thaw weathering 5.The cliff becomes undercut and collapses with mass movement (land slide or rock fall) 6.The cliff face is steepened and a wave cut platform is created (where the cliff used to be) 7.The process repeats overtime
10	**Coasts - Hard Engineering** All found at Hornsea: • Sea Walls Concrete wall adjacent to the cliffs made of concrete and have a curved top base of wall absorbs wave energy / top deflects energy , (+) sense of security, last for many years, strong , (-) £5,000 a metre, ugly to look at • Groynes: Wood structures at 90^0 to the coastline, trap sediment beach build up absorb wave energy, (+)windbreaks, stops long-shore drift, £5,000 each, (-) restrict sediment supply down the coast and can increase erosion rates • Gabions: Rocks in steel cages built as wall absorb wave energy, (+) £110 a metre, last 20 to 25 years, (-) dangerous when damaged hurt sea birds feet • Rock Armor: Large boulders in a row absorbs wave energy (+) £1,000 a metre, quick and easy to complete, (-) makes access to the beach difficult, rocks imported and inflates the costs.	
11	**Coasts - Soft Engineering** Found at Hornsea: • Beach nourishment: Adding sand to the beach → more wave energy absorbed • (+) wider beach means more room for users protects coastal properties, (-) costs £300,000 to hire a dredger, needs to be repeated • Beach profiling: Increasing beach height increases erosion protection from the cliffs → more energy absorbed • (+) protects a large area of land • (-) bulldozers restrict access to the beach, £200,000 a year Found at Bridlington: • Sand Dune Regeneration: Marram grass can stabilize sand dunes which act as a natural buffer between the and sea • (+) sand dunes protect land, small planting projects use volunteer labour (-) has to be checked using twice a year, sand dunes change naturally	

11	English	A Christmas Carol	CYCLE 2	Year 10

BOX A: Plot

Stave 1
Scrooge is at work. Despite the Christmas Eve cold, he refuses to spend money on coals for the fire. Scrooge turns down his nephew, Fred's, invitation to his Christmas party and he also rejects the request of two men who want money for charity. Scrooge is visited by the ghost of his dead partner, Jacob Marley, who tells Scrooge that, due to his greedy life, he has to wander the Earth wearing chains. He warns Scrooge and tells him that three spirits will visit him. Scrooge falls asleep.

Stave 2
He wakes and **the Ghost of Christmas Past** takes him on a journey. Invisible to those he watches, Scrooge revisits his childhood school days and his apprenticeship with a jolly merchant named Fezziwig, and his engagement to Belle. All of these past events shows how Scrooge wasn't always the unfriendly miser that he has become. Scrooge sheds tears
of regret before being returned to his bed.

Stave 3
The Ghost of Christmas Present shows Scrooge Christmas as it will happen that year. Scrooge watches the Cratchit family eat a tiny meal in their little home. He sees Bob Cratchit's crippled son, Tiny Tim, whose kindness and humility warm Scrooge's heart. He is told that if nothing changes, he will die. The spectre shows Scrooge his nephew's Christmas party. Scrooge asks the spirit to stay until the very end. Towards the end of the day, the ghost shows Scrooge two starved children, Ignorance and Want. He vanishes as Scrooge notices a dark, hooded figure coming.

Stave 4
Through a sequence of scenes linked to an unnamed man's death**, the Ghost of Christmas Yet to Come** shows Scrooge that nobody mourns his death and the only emotion felt is one of happiness and relief. Scrooge, is keen to learn the lesson. After seeing the death of Tiny Tim, he is desperate to change his fate and promises to change his ways. He suddenly finds himself safely tucked in his bed.

Stave 5
Scrooge rushes out onto the street hoping to share his newfound Christmas spirit. He sends a turkey to the Cratchit house and goes to Fred's party. As the years go by, he continues to celebrate Christmas with all his heart. He treats Tiny Tim as if he were his own child, gives gifts for the poor and is kind, generous and warm.

Characters and key quotations

BOX B

Ebenezer Scrooge: A selfish business man ("Humbug") who transforms into a charitable philanthropist.
- "he was a tight-fisted hand at the grindstone,…a squeezing, wrenching, grasping, scraping, clutching, covetous old sinner! Hard and sharp as flint, from which no steel had ever struck out generous fire; secret, and self-contained, and solitary as an oyster."
- "The cold within him froze his old features… and didn't thaw it one degree at Christmas."
- "It's not my business."
- "Best and happiest of all. The Time before him was his own to make amends."

Jacob Marley: Scrooge's dead partner who returns as a ghost to warn Scrooge to change his ways.
- of cash-boxes, keys, padlocks, ledgers, deeds, and heavy purses wrought in steel."
- "Mankind was my business; charity, mercy, forbearance…were, all, my business."

Fred: Scrooge's nephew whose party invitation he declines.
- "He had so heated himself with rapid walking in the fog and frost… that he was all in a glow; his face was ruddy and handsome; his eyes sparkled, and his breath smoked again."

BOX C

Ghost of Christmas Past: A strange combination of young and old, wearing white robes and looking like a candle.
- "It was a strange figure-like a child: yet not so like a child as like an old man…"
- "What was light one instant, at another was dark, so the figure itself fluctuated in its distinctness."

Ghost of Christmas Present: A portly, jovial gentleman surrounded by a warm glow. He shows Scrooge how things really are.
- "Its dark brown curls were long and free; free as its genial face, its sparkling eye, its cheery voice, its unconstrained demeanour and its joyful air."
- "I see a vacant seat…if these shadows remain unaltered by the Future, the child will die."

Ghost of Christmas Yet to Come: A robed and hooded spirit who confronts Scrooge with his own tombstone. He is frightening and shows Scrooge his future and what will become of him if he does not change his ways.
- "a solemn Phantom draped and hooded, coming like a mist along the ground, towards him."
- "Scrooge feared the silent shape so much that his legs trembled."
- "The Phantom slowly, gravely, silently approached."

BOX D

Belle: A woman who scrooge was engaged to who left him due to his greed.
- "Another idol has displaced me"

Fezziwig: Scrooge's ex-employer who is fair to all his employees and knows the true meaning of Christmas.
- "Old Fezziwig…rubbed his hands; adjusted his capacious waistcoat; laughed all over himself, from his shoes to his organ of benevolence; and called out in a comfortable, oily, rich, fat, jovial voice:"

Mrs Cratchit: Bob's wife who is critical of Scrooge and how poorly he pays her husband.
-"I'd give him a piece of my mind to feast upon, and I hope he'd have a good appetite for it."

Bob Cratchit: Scrooge's clerk who doesn't have much money. He loves his family and is shown to be happy and morally upright.
- **"**the Founder of the Feast"
- "…in came little Bob, the father…and his threadbare clothe darned up and brushed…and Tiny Tim upon his shoulder."

Tiny Tim: Bob's ill son whose story plays a part in inspiring Scrooge's transformation
- "Alas for Tiny Tim, he bore a little crutch."
- "God bless us every one!"
- "As good as gold."

BOX E: Context

1) 1824 – Dickens' father is sent to jail for debt and Dickens has to give up his education until his father inherits some money and he goes to a private school.

2) Dickens was put to work in a warehouse. He had experience of poverty.

3) Later he worked as a clerk and then became a writer of fiction and journalism, reporting on court cases and working for radical newspapers on his disillusionment with politics and the class system.

4) 1832 – The Great Reform Bill gave many middle class property owners the right to vote for the first time. Large sections of the middle classes, the working classes and women still didn't have the right to vote.

5) 1834 – Poor Law Amendment Act, which meant that the rich no longer had to pay taxes in order to help the poor. Workhouses were created which poor people would have to live and work in.

6) 1842 Report on Child Labour The report's findings shocked society and led to safety legislation in mines and factories.

7) September 1843 – Dickens visits a "Ragged School." A School for poor children offering free education.

8) December 1843 Dickens writes A Christmas Carol focusing on how many of society's ills can be blamed on greed for money and status.

BOX F: Big Ideas

Malthusian Ideology: Dickens critiques Malthusian ideas through characters like Scrooge, who initially believes that helping the poor is unnecessary and that population control would solve economic problems.

Parsimony: Scrooge embodies parsimony in his refusal to spend money, even for basic comforts, and his miserly attitude toward others.

Avarice: Scrooge's avarice is a central aspect of his character, driving his isolation and moral downfall until his eventual transformation.

Philanthropy: Scrooge's eventual change leads him toward philanthropy as he becomes generous with his wealth, helping those in need, including the Cratchit family.

Misanthropy: Scrooge initially represents misanthropy, with his cynical and cold-hearted attitude towards people, particularly the poor and less fortunate.

Benevolence: Characters like Fred, Scrooge's nephew, and Fezziwig show benevolence, which contrasts sharply with Scrooge's miserly nature at the start of the novella.

Malevolence: Although Scrooge isn't actively malevolent, his indifference to the suffering of others can be seen as morally harmful, especially in his treatment of Bob Cratchit and the poor.

Plight of the Poor: Dickens highlights the plight of the poor through characters like the Cratchit family and the symbolism of "Ignorance" and "Want" (the children seen in the Ghost of Christmas Present's vision), critiquing Victorian society's neglect of the impoverished.

Capitalism: The novella critiques unchecked capitalism, as represented by Scrooge's obsessive pursuit of profit at the expense of compassion and human connection. Dickens advocates for moral responsibility and social welfare alongside economic success.

Box G: Character Vocabulary

Ebenezer Scrooge
Parsimony: Scrooge is notorious for his extreme frugality, refusing to spend money even for basic necessities.
Avarice: His greed for wealth is relentless, driving him to neglect personal relationships and human compassion.
Enlightened: By the end of the novella, Scrooge becomes enlightened, realizing the importance of generosity and human connection.

Bob Cratchit
Submissive: Despite Scrooge's harsh treatment, Cratchit remains humble and obedient in his role as a clerk.
Benevolent: Bob consistently displays kindness and warmth, particularly in his role as a father and husband.
Resilient: He endures hardship with grace, maintaining hope and love for his family even in the face of poverty.

Tiny Tim
Innocent: Tim is characterized by his pure-heartedness and lack of bitterness despite his illness and suffering.
Fragile: His physical frailty is central to his character, symbolizing the vulnerability of the poor.
Inspiring: Tim's optimistic outlook and faith, especially his famous line, "God bless us, every one!" inspire those around him, even Scrooge.

Fred (Scrooge's Nephew)
Optimistic: Fred maintains a positive outlook on life and Christmas, even when faced with Scrooge's negativity.
Affectionate: He shows genuine care for his uncle, persistently inviting him to Christmas dinner despite repeated rejections.
Gregarious: Fred is sociable and joyous, embracing the spirit of community and celebration during the Christmas season.

The Ghost of Christmas Past
Nostalgic: This spirit evokes feelings of reflection and longing for Scrooge's lost youth and better days.
Ethereal: The Ghost's supernatural, dreamlike presence embodies a connection between time and memory.
Illuminating: By showing Scrooge his past, the spirit illuminates key moments that shaped his current character.

The Ghost of Christmas Present
Magnanimous: The Ghost embodies generosity, displaying the abundance and joy of Christmas festivities.
Candid: The Ghost is straightforward in revealing the harsh realities of poverty and how it affects those like the Cratchit family.

The Ghost of Christmas Yet to Come (Future)
Ominous: The silent, foreboding presence of this spirit strikes fear in Scrooge, representing death and future consequences.
Unyielding: The Ghost offers no words or comfort, showing Scrooge the stark reality of what awaits if he continues his current path.

Jacob Marley
Tormented: Marley is condemned to eternal suffering for his greed and warns Scrooge of the same fate.
Penitent: Despite his own damnation, Marley is repentant and seeks to save Scrooge from a similar destiny.

Fezziwig
Jovial: He brings joy and lightness to the atmosphere, treating others with warmth and good cheer.
Altruistic: Fezziwig uses his wealth to create happiness for others, contrasting sharply with Scrooge's greed.

Belle (Scrooge's former fiancée)
Affectionate: Belle was once deeply in love with Scrooge before his obsession with wealth drove them apart..
Disillusioned: Over time, she becomes disillusioned with the man Scrooge has become, as he prioritizes money over love.

BOX H: Essay Vocabulary

Criticise: To evaluate something in a detailed and analytical way, pointing out its strengths and weaknesses. In essay writing, it means discussing the flaws, limitations, or areas for improvement in a text or argument.

Expose: To reveal or uncover something that was hidden or not immediately obvious, often pointing out issues, contradictions, or deeper truths within a text or argument.

Furthermore: Used to introduce an additional point or argument that supports or builds upon the previous one. It signals that more evidence or reasoning is being added to strengthen the case.

Highlights: To draw attention to or emphasize a particular point, idea, or detail. In essay writing, it shows what the writer believes is important or noteworthy in the analysis.

Implies: Suggests or indicates something without directly stating it. In an essay, this term is used when discussing how a text or argument hints at deeper meanings or ideas.

Significantly: Used to indicate that something is important or has a major impact. In essays, this word helps emphasize the weight or importance of a particular point, theme, or finding.

13	RE	Christian Practice	CYCLE 2	Year 10

1 - Worship

- Liturgical worship: set words and actions for worship, based on the Bible.
- Informal worship: worship that is less formal and more relaxed; may be in a café, home or workplace.
- The bible is at the heart of ALL forms of Christian worship.
- Private worship: an individual or family worshipping at home or in a private place away from others (Jesus taught that private worship is the most important as we should never worship just to look devout.)
- Charismatic worship involves singing and people speaking from the heart when the spirit of God moves them to do so (typical in some Evangelical churches).
- Some prefer liturgical worship as it is a familiar ritual that makes them feel like part of a bigger Christian. community saying the same thing at the same time and reminds them of the never changing nature of God, as it is the same in all churches that use it.
- Others prefer informal or private worship as it enables them to directly experience God for themselves, rather than going through ministers who may have different or misleading understanding of God; it is also easier to join in with if you are new to that particular church. All forms of worship use the Bible (could be in the sermon, readings, hymns or prayers).

2 – Prayer

- The Lord's Prayer: teaches Christians that God is "our Father" and what he is like, and what they should want. Jesus taught his disciples this prayer in the Bible so it is his exact words.
- Set prayers: prayers with fixed words that never change (eg the Lord's Prayer and the Jesus Prayer).
- Informal prayer: prayers made up by the person praying.
- Arrow prayers: very quick prayers sent up quickly to God in a moment eg "Help me God" or "Let him live".
- Jesus taught Christians should pray in private "When you pray, go into your room and close the door."
- Some prefer set prayers as they are sure they are praying in the way the Bible and the Church want them to, and they trust them to have a greater understanding of God than the individual believer.
- Others prefer informal prayers that they make up themselves because they may fit the situation better and allow believers to have direct communication with God, which gives them their own understanding of Him and avoids misleading impressions others may give them.
- Prayer is an important part of Christian worship which helps them develop their relationship with God and to understand God through direct communication with Him.

3 Sacrament- Baptism

- Jesus was baptised by John the Baptist in the River Jordan.
- At the moment of his Baptism all three parts of the trinity were present. Jesus the Son, the voice of God the Father and the Holy Spirit descending as a dove.
- In the bible, Jesus taught "None can enter the Kingdom of God unless they are born again of water and spirit."
- Water is poured over the head, or the person is fully immersed in water, to symbolise their sins being washed away.
- Baptism cleanses sin and welcomes a new believer into the Christian Church family and community.
- White clothes are often worn to symbolise purity.
- Some believe infant baptism is not necessary as a just God would not send a baby to hell for not being baptised; infant baptism is pointless as the child is too young to commit to being a disciple of Jesus; the Bible only mentions adults being baptised.
- Others say Jesus clearly taught that all must be baptised as soon as possible after birth in case they die and need to enter heaven very young (see Scripture on the left).
- It is also a good way to mark the birth of a baby and welcome them into the Christian church community.
- Parents make promises to bring their children up as good Christians.

4 Sacrament- Eucharist

- The Eucharist celebrates the Last Supper the night before Jesus was crucified.
- The Last Supper was the final meal that Jesus shared with his disciples when instructed them to remember him.
- At the last supper Jesus blessed and shared bread and wine.
- It helps Christians remember and reflect on Jesus's sacrifice for them on the cross – his body was broken and his blood spilled to save them from death and the consequences of sin.
- Scripture says: "Take, eat, this is my body. Take, drink, this is my blood. Do this in remembrance of me." (Bible)
- Some churches eg Catholic use wine at the Eucharist as Jesus used it at the Last Supper.
- Others eg Methodists use non-alcoholic juice as they believe alcohol can cause problems and they don't want to encourage people to use it.
- Catholics believe in transubstantiation – the bread and wine really become Christ's body and blood when they are blessed by the priest.
- Catholics call the Eucharist "Holy Communion" or Mass
- Others eg Methodists believe the bread and wine are simply symbols that help us remember Jesus' sacrifice on the cross

5 – Pilgrimage

- Pilgrimage means going on a journey to spend time in the presence of God, visit holy sites and reach new spiritual insights
- Christians believe the Virgin Mary appeared to a girl called Bernadette in the village of Lourdes in 1844 and that she said that should build a chapel so that people could pray
- Other pilgrimage sites are dedicated to quiet reflection and spend some time living in a community based on Christian values eg Iona.
- Iona is a Scottish Island which pilgrims have visited since the 7th Century. It was the home of one of the first and most important monasteries in Britain.
- Pilgrimage can also be about visiting places connected to the life of Jesus so that they can get closer to Jesus the man.
- Christians call this place the Holy Land and visit places such as Bethlehem and Jerusalem
- Some say it is important because it enables you to leave secular life behind and focus fully on understanding God.
- Others say it is not commanded in the Bible so not necessary; you could achieve the same insights by reading about holy people and places, and donate the cost of the journey to charity instead

6 - Celebration

- Christmas is a time to thank God for the incarnation of Jesus and to go to Church and pray
- Christmas is a time to spend with family and show love through exchange of gifts;
- Christmas is a time to remember and give to those who like Jesus were born and grew up in poverty.
- Christmas can include the following: midnight Mass; nativity plays; Christmas cards and presents; carols; charity donations; spending time with friends and family; volunteering with the homeless on or around Christmas Day
- The season before Christmas is ADVENT. This is a time of preparation for Christmas
- Easter remembers' Jesus suffering and death then celebrates his resurrection
- Easter recalls the act of reconciliation between God and humanity that Jesus' death represented and enabled to happen
- The 40 days before Eater are known as the season of LENT. During this time Christians prepare through fast and prayer.
- Easter week starts with Palm Sunday which celebrates Jesus entry into Jerusalem
- Maundy Thursday celebrates the Last Supper
- Good Friday is the day the Jesus crucifixion is remembered
- Easter Sunday celebrates the Resurrection
- Easter: Easter vigil, going to church, decorating eggs, lighting the Paschal candle; reflecting on Jesus's death and resurrection
- Many see Easter as more significant than Christmas because it is Jesus' resurrection that showed he was the Son of God and that death was overcome. Jesus atoned fro sin through the crucifixion and so led humanity to salvation

7 – The role of the Church in the local community

- Food banks help those who are in poverty by giving parcels containing donated food to last three days
- Street pastors help those who are vulnerable to crime and alcohol abuse late at night in city centres
- Scripture: Both show Christians performing the duty to "Love they neighbour" and help the needy as taught in the Parables of the Sheep and Goats and the Good Samaritan
- In the Parable of the Sheep and Goats suggests
- Some say doing your Christian duty through actions in the community is more important than showing faith through worship in church; others feel worship and prayer are more important because they are direct contact with God and so are truer reflections of faith.

8 – A growing Church

- Mission" means sending – the idea that Christians have been sent to achieve a purpose by God, eg help the poor or victims of crime
- "Evangelism" means spreading the Gospels, usually with the aim of converting people to Christianity
- CASE STUDY: The Church Army's Sorted Project in Bradford is an example of mission and evangelism in our local community
- Scripture: "Go, and make disciples of all nations, baptising them…and teaching them to obey all that I have taught you."
- Missionary work happens in the UK and overseas, particularly in developing countries, to grow the church and spread the teachings of Jesus. Serving in Mission works in the UK and West Africa: they support Christians to go and work in education and medicine in overseas and preach to those whom they have helped, if they wish to hear it.
- Evangelical churches are growing in the UK; they plant new churches to spread Jesus' message and worship him. Their structure is different to traditional denominations with cells which meet in people's homes as well as wider congregations and celebrations across a number of churches. Church Planting = opening new churches eg the Leeds Vineyard Project

9 - The Worldwide Church Working for reconciliation

- Jesus' death was an act of reconciliation between humans and God
- Christians believe that reconciliation with former enemies is extremely difficult, but Jesus taught to love your enemy and bless those who curse you, so they must try to do this
- Christians believe people should be reconciled to each other, just as Jesus reconciled God and humankind.
- Scripture: Jesus taught "love your enemy and bless those who curse you"
- The Bible teaches that Jesus' death reconciled God and humans.
- CASE STUDY: the Community of the Cross of Nails in Coventry reconciled with Germany who bombed their cathedral in World War Two. Today, they work with groups in conflict worldwide to guide them in talking and listening to each other to increase understanding of each other's point of view; this reduces tensions so they can forgive and be reconciled so they can live in peace.

10 – The Worldwide Church Responding to persecution

- Jesus taught that we should love our enemies and pray for those who persecute us; this would lead to rewards in heaven
- St Peter wrote to Christians who were persecuted that they should see persecution as a form of purification to make them more fit for eternal life with God; they were sharing in Jesus' sufferings and should trust God to help them in their time of need.
- Christians will attempt to fight persecution and help those who are preventing from worshipping openly
- CASE STUDY: Open Doors is an organisation that helps persecuted Christians worldwide today by providing lawyers to help Christians who are taken to court for blasphemy in countries where Christianity is not the main religion, and by raising awareness in Christian countries of the risks other Christians face of persecution so they can pray for them or donate money
- They work and pray for peace, justice and an end to persecution worldwide

11– Christian responses to poverty

- Jesus taught in the Parable of the Sheep and Goats that for Christians to achieve salvation they must help those who are in need
- The Golden Rule "treat others as you wish to be treated" suggests we should help people in difficult situations, since we would want them to do the same to us – including poverty
- Christians respond to poverty by donating to food banks or volunteering to help them because of the Parable of the Sheep and Goats.
- The Parable of the Sheep and Goats is in Matthew 25
- The Parable says that "But when the Son of Man comes in his glory, and all the holy angels with him, then he will sit on the throne of his glory. Before him all the nations will be gathered, and he will separate them one from another, as a shepherd separates the sheep from the goats."
- The sheep represent those that have followed Christian teaching and the goats are those that have not followed teaching.
- They therefore may respond by giving money to charities that help the poor worldwide such as Christian Aid, or helping Christian Aid raise money by going door to door in their fundraising campaign in May every year

12 - Christian Aid Overseas

- Christian Aid's work overseas:
- Christian Aid was set up in 1945.
- It was first set up by British and Irish Churches to help refugees.
- Emergency aid helps in natural disasters with food and bottled water, shelter and medical care, as well as sending doctors and rescue workers to disaster zones
- Short term aid comes next to rebuild communities, reunite families who have been separated and get children back to school, especially if orphaned
- Long term development aid is essential to deal with the cause of poverty such as unfair debt owed by LICs to HICs, corruption in LICs: it involves setting up schools, digging wells and training health and medical workers.

13 – Christian Aid At home

- Christian Aid campaign so that the government helps those in need in the UK and worldwide more through funding welfare benefits and poverty charities like Oxfam, and letting LICs off debt
- Increasing public awareness eg getting celebrities to speak out against poverty in the media and through education programmes in schools
- Fundraising: raising money to help those in poverty and emergency situations plus longer term development to reduce poverty for the future.
- They knock on doors and hold a fundraising campaign in May every year to do this.
- They encourage Christians to give their time ands act as volunteers, becoming Christian aid speakers, ambassador and teachers.
- They campaign for the use of clean renewable energy.

BOX 1: Ratios & fractions

RATIO	
Ratio	**Compares** the size of one part to **another part**.
Ratio Notation	The ratio of A to B is written as **A:B**
Proportion	Proportion **compares** the size of one part to the size of the **whole**.
Part (*Share)*	A **proportion** of the original amount.
Whole	The **total** amount.
Unit	A **standard** amount used to **measure** something
Compound Units	A unit made of **two other units**. *e.g. speed is distance per time m/s.*

BOX 2: Percentages and interest

PERCENTAGE CALCULATIONS		
Multiplier	A percentage written as a **decimal.** You can then use multiplication to find the percentage.	
Percentage increase	**Adding** a percentage to the original amount.	
Percentage decrease	**Subtracting** a percentage from the original amount.	
Percentage Change	The change between the **old value** and the **new value** as a percentage	$\frac{Difference}{Original} \times 100$
Reverse Percentage	Working **backwards** to find **100%**	

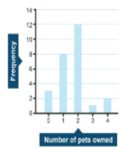
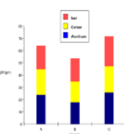
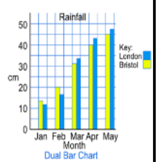
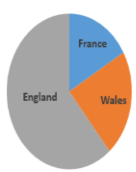
Simple Interest	Interest calculated as a percentage of the original amount, so the **same amount** is added each year.
Exponential Growth	When we multiply a number **repeatedly** by the same number (**more than** 1), so it **increases** by the same proportion each time.
Compound Interest	An example of exponential growth. Interest paid on the original amount and the accumulated interest, so each year a **larger amount** of interest is paid. **$R = A \times M^n$** R is the **end value**. A is the **starting value**. M is the **multiplier**. n is the **number of years.**
per annum	per **year**
Exponential Decay	When we multiply a number **repeatedly** by the same number (**less than** 1), so it d**ecreases** by the same proportion each time.

BOX 3: Probability

LIKELIHOOD VOCABULARY	
Impossible	When there is **no chance** – it will not happen. An outcome with a probability of **0**.
Unlikely	When it will **probably not happen**. An outcome with a probability between **0** and **0.5.**
Even	When there is an **equal chance** of something happening or not happening. An outcome with a probability of **0.5**
Likely	When it will **probably happen**. An outcome with a probability between **0.5** and **1**.
Certain	When it is inevitable – it will **definitely** happen. An outcome with a probability of **1**.
Fair	When all outcomes are **equally likely**.
Bias	When something is **not fair**.

BOX 4: Collecting, representing and interpreting data

DISPLAYING CATEGORICAL DATA

Frequency	The **number of times** an event or a value occurs	
Frequency table	A table, usually a tally, showing the **totals** of data.	
Bar chart	A chart where the **height** of the bars represents the frequency. There are **gaps** between bars.	
Compound / composite bar chart	A bar chart showing data **stacked on top** of each other.	
Comparative / dual bar chart	A bar chart showing data **side by side**	
Pictogram	A chart where each **picture** represents a set frequency It has a **key** to tell you what each picture is worth.	
Pie Chart	A chart where the size of the **sector** of the circle represents the frequency	

SPREAD OF DATA

Range	A measure of **spread** calculated by: **the largest value subtract the smallest value**
Interquartile Range	A measure of **spread** calculated by: the **upper quartile subtract the lower quartile**
Outlier	A value that '**lies outside**' most of the other values in a set of data. An outlier is **much smaller** or **much larger** than the other values in a set of data.

COMPARING DATA

Comparing Data	Compare **averages** to say who is **better**/faster/taller. Compare **ranges** to say who is more **consistent** / less varied.

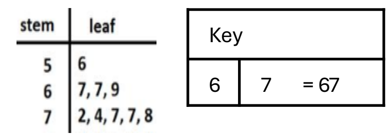
TYPES OF DATA

Qualitative	Data that can only be written in **words**, not numbers, e.g. eye colour, favourite animal
Quantitative	**Numerical** data, e.g. shoe size, height of a plant.

AVERAGES

Average	A number expressing the central or typical value in a set of data
Mean	Method: **add up all the amounts, and then divide the total by the number of amounts**
Mode	The value which **occurs the most**. Bi-modal is where there are **two modes.** There sometimes is **no mode.**
Modal Class	In grouped data, the class (group) with the **highest frequency**
Median	The **middle value** (**half way** through the data). Method: **put the data in numerical order, and state the middle value.**

DISPLAYING UNGROUPED DISCRETE NUMERICAL DATA

Stem and leaf diagram	A way of displaying a **list of numbers.** The **stem** goes down and the **leaves** go out to the right. It has a **key.**	
Vertical line graph	Like a bar chart, but the bars have no width, they are just **straight lines** up the page.