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School**

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Knowledge Book 2024-25

Name:

Form:

YEAR

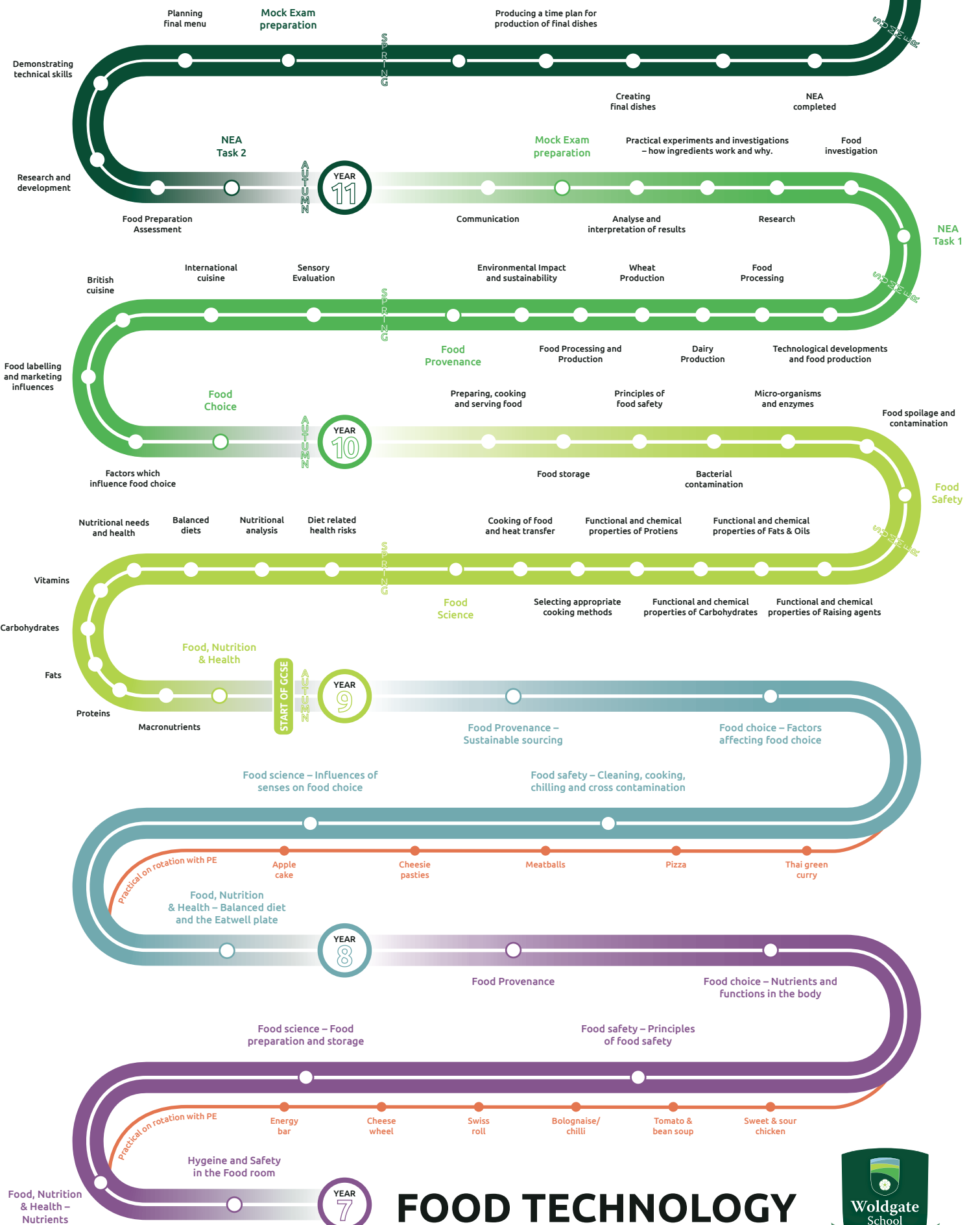
8



GCSE EXAMINATIONS

1x GCSE Examination Paper

Revision of Key Topics



FOOD TECHNOLOGY



Knowledge Organiser – Year 8 Food Preparation & Nutrition

Practical



H - Tie back long hair and wash your hands



A - Put on your apron



T - Wipe down your table



T - Collect your cutlery tray



I - Gather ingredients



E - Collect and prepare any equipment you need

Cooking Methods:

- Baking
- Simmering
- Boiling
- Sauteing

Preparation

- Skills:**
- Knife skills
 - Bread making
 - Pastry making
 - Sauce making
 - Handling meat

Measurements:

- g = gram
- kg = kilogram
- tsp = teaspoon (5g)
- tbsp = tablespoon (15g)
- ml = millilitre
- °C = Celsius

PINCH GRIP



1. Thumb and index finger grip blade.
2. Use the rest of your fingers to grip the handle.

HANDLE GRIP



With all fingers and thumb opposite, grip handle firmly.

CARRYING A KNIFE



Carry a knife with the blade pointing downward, close by your side.

CUTTING METHODS



'PLANK': With a firm hand, push top of knife down with palm of hand, fingers away from blade.



'BRIDGE': Place your hand over top of knife holding food securely, use knife to saw food item.



'CLAW': Fingers tucked under with knife blade resting up against knuckles.

Theory

Glossary:

Strong plain flour: higher gluten content; provides a better structure to doughs such as bread and pasta

Yeast: biological raising agent

Prove: the process of resting a dough to allow fermentation

Short: another term to describe a crumbly texture - usually associated with a high fat product (shortcrust pastry, shortbread)

Roux: flour and fat paste (usually in 1:1 ratio) used to thicken sauces through gelatinisation

Vegetarian: consumes no animal flesh (animal death)

Vegan: consumes/uses no animal product (animal exploitation)

Cross-contamination: transfer of bacteria

Fairtrade: a global system of sustainable, ethical trade that connects producers, businesses, and consumers.

Baking Powder: chemical raising agent

Prevent Cross Contamination

Use correct colour coded chopping boards and knives at all times

RAW MEAT

RAW FISH

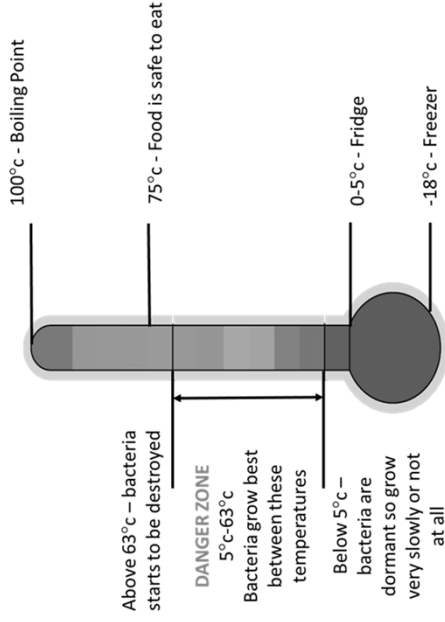
COOKED MEATS

SALADS & FRUITS

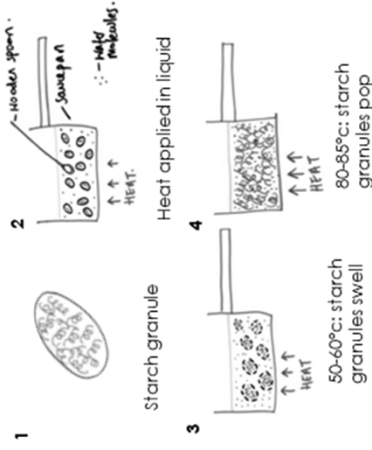
VEGETABLES

DAIRY PRODUCTS

ALLERGENS



Stages of gelatinisation



Food Choice



Mandatory information on packaging:

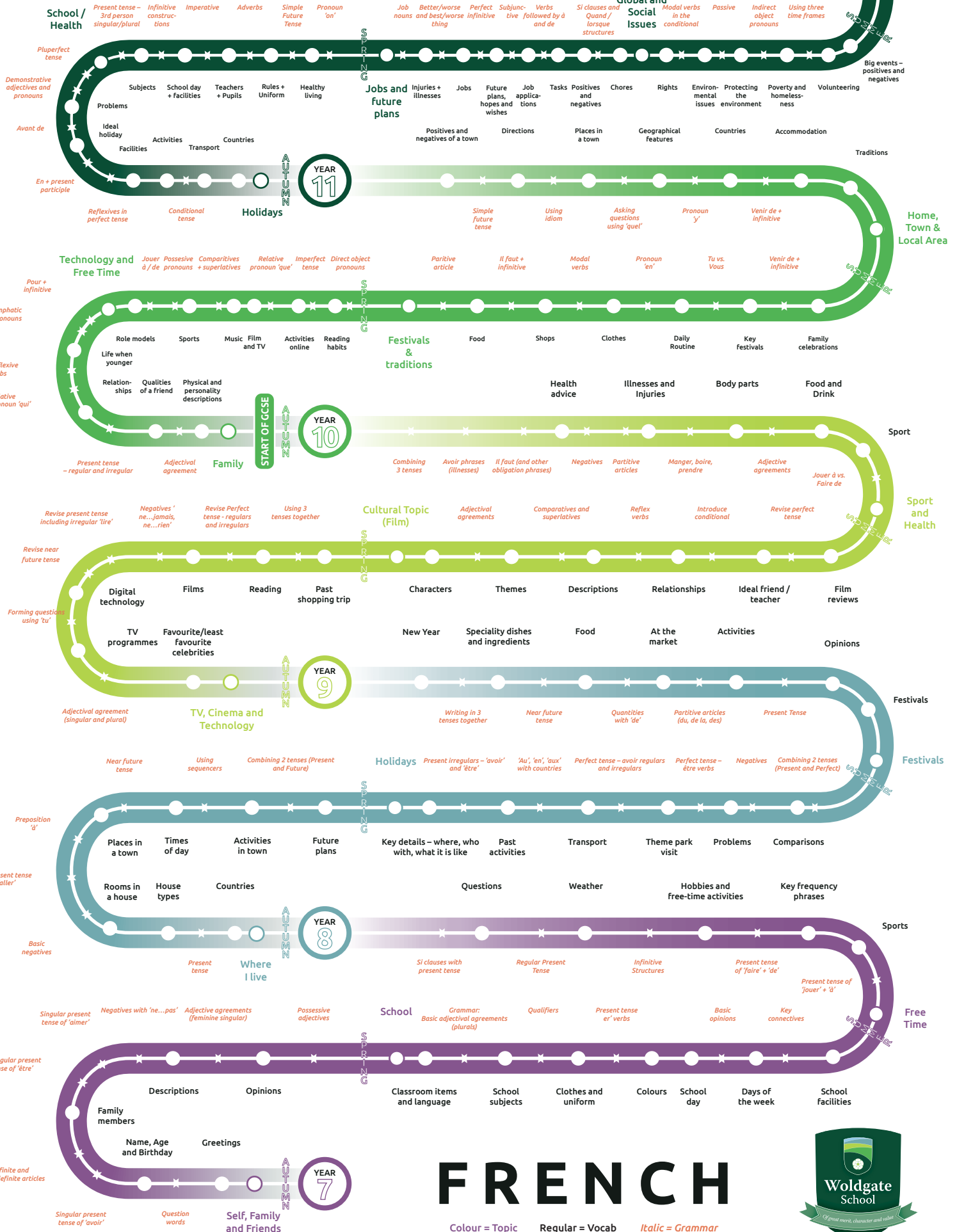
- The name of the food
- A date of minimum durability
- Instructions for use
- The country of origin
- The name & address of the manufacturer
- A nutrition declaration
- Any special storage conditions
- The net quantity of the food
- Information on allergens
- An ingredients list

	FAT	SATURATES	SUGAR	SALT
HIGH per 100g, over	17.5g	5g	22.5g	1.5g
MEDIUM per 100g, between	3g	1.5g	5g	0.3g
LOW per 100g, under				



GCSE EXAMINATIONS

Reading (25%)
Listening (25%)
Writing (25%)
Speaking (25%)



FRENCH

Colour = Topic Regular = Vocab *Italic = Grammar*





Aller en vacances – Going on holiday

D'habitude (Usually)	je vais (I go)	nous allons (we go)	en France (to/in France)	au Portugal (to/in Portugal)
Normalement (Normally)	tu vas (you go)	vous allez (you all go)	en Espagne (to/in Spain)	à la mer (to/at the seaside)
Tous les ans (Every year)	il va (he goes)	ils vont (they (m) go)	en Grèce (to/in Greece)	à la montagne (to/in the mountains)
	elle va (she goes)	elles vont (they (f) go)	en Italie (to/in Italy)	à la campagne (to/in the countryside)
	on va (one goes)		aux États-Unis (to/in the USA)	

Où vas-tu en vacances?
Je vais ...
en France.
en Espagne.
au Danemark.
aux Pays-Bas.

Where do you go on holiday?
I go...
to France
to Spain
to Denmark
to the Netherlands

J'habite ... (I live ...)
Je vais en vacances ... (I go on holiday ...)
en + feminine country, e.g.
en Angleterre/France/Belgique/Autriche
(in/to England/France/Belgium/Austria)
au + masculine country, e.g.
au pays de Galles/Royaume-Uni
(in/to Wales/the UK)
aux + plural country, e.g.
aux États-Unis/Pays-Bas
(in/to the United States/the Netherlands)

C'est comment?
What is it like?

avec mes copains/copines.
with my friends (male or mixed / female)

avec ma famille.
with my family

avec mes grands-parents.
with my grandparents

seul(e).
alone.

C'est extra/formidable!
It's amazing!

C'est bien.
It's good.

Ce n'est pas mal.
It's not bad.

C'est (un peu) ennuyeux/nul.
It's (a bit) boring / rubbish.

Je vais en vacances...	I go on holiday...
au bord de la mer.	to/on the coast
à la montagne.	to / in the mountains
à la campagne.	to / in the countryside
en colo (en colonie de vacances).	to a holiday camp
chez mes grands-parents.	to my grandparents' house

J'ai visité... - I visited...

The perfect tense is a past tense. Use it to say what you did or have done.

To form the perfect tense of most verbs, you need:

- part of the verb **avoir**
- a past participle (**joué, mangé, etc.**).







To form the **past participle** of regular -er verbs, take the -er ending off the **infinitive** and replace it with **-é**.

regarder → **regardé**

j'ai regardé I watched
tu as regardé you (singular) watched
il/elle/on a regardé he/she / we watched
nous avons regardé we watched
vous avez regardé you (plural or polite) watched
ils/elles ont regardé they watched

L'année dernière – Last year			
J'ai joué	au tennis au basket	I played	tennis basketball
J'ai mangé	des glaces des pizzas	I ate	icecreams pizzas
J'ai retrouvé	mes amis mes cousins	I met up with	my friends my cousins
J'ai écouté	de la musique des concerts	I listened	to music to concerts
J'ai acheté	des baskets des cadeaux	I bought	trainers presents
J'ai regardé	des clips vidéo des films	I watched	video clips films
J'ai nagé	dans la mer dans la piscine	I swam	in the sea in the pool
J'ai traîné	à la maison au parc	I hung out	at home in the park

Le transport - *Transport*

J'ai	voyagé	en avion. 	I		by plane
Tu as		en bateau. 	You		by boat
On a		en bus. 	We		by bus
Nous avons		en car. 	We	travelled	by coach
Vous avez		en train. 	You		by train
Ils/Elles ont		en voiture. 	They		by car

Je suis allé(e) <i>I went</i>	en vacances. en France.	J'ai voyagé <i>I travelled</i>	en avion <i>by plane</i>	C'était <i>It was</i>	vite/rapide <i>quick</i>
On est allé(e) <i>We went</i>	en Espagne. en Grèce. en Écosse. en Italie. au Maroc. aux États-Unis.	On a voyagé <i>We travelled</i>	en bateau <i>by boat</i>		lent <i>slow</i>
			en bus <i>by bus</i>		tôt <i>early</i>
			en car <i>by coach</i>		tard/en retard <i>late</i>
			en train <i>by train</i>		(in)confortable <i>(un)comfortable</i>
			en voiture <i>by car</i>		facile <i>easy</i>
					difficile <i>difficult</i>

Qu'est-ce que tu as fait ? – *What did you do ?*

	D'abord	<i>Firstly</i>
	Ensuite	<i>Next</i>
	Puis	<i>Then</i>
	Après	<i>After</i>
	Finalement	<i>Finally</i>
J'ai bu	un coca un café une limonade	<i>I drank</i> <i>coke coffee lemonade</i>
J'ai vu	un spectacle des feux d'artifices mes personnages préférés	<i>I saw</i> <i>a show fireworks my favourite characters</i>
J'ai fait	une balade en bateau une balade en train tous les manèges	<i>I did</i> <i>a boat ride/tour a train ride/tour all the rides</i>
J'ai pris	des photos de l'argent pour les magasins un pique-nique	<i>I took</i> <i>photos money for the shops a picnic</i>

Some verbs are irregular. You need to learn the **past participles** by heart!

boire (to drink) → *j'ai bu* (I drank)

voir (to see) → *j'ai vu* (I saw)

faire (to do / make)* → *j'ai fait* (I did / made)

prendre (to take) → *j'ai pris* (I took)

***faire** can have other meanings. It often means 'to go', or 'to go on'.

Je suis allé(e)... - I went

Some verbs use *être* (not *avoir*) to form the perfect tense. The **past participle** of these verbs must agree with the subject. Add an extra **-e** if the subject is **feminine** and **-s** if the subject is **plural**.

<i>aller</i>	<i>to go</i>
je suis allé(e)	I went
tu es allé(e)	you (singular) went
il est allé /elle est allée	he/she went
on est allé(e)s	we went
nous sommes allé(e)s	we went
vous êtes allé(e)s	you (plural or polite) went
ils sont allés /elles sont allées	they went

Other verbs that take *être* in the perfect tense include *arriver* (to arrive), *partir* (to leave), *rester* (to stay) and *rentrer* (to return).

Look back at exercise 1 and look at the past participles that agree, and explain why.

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Key past participles:

allé(e) – went

resté(e) – stayed

sorti(e) – went out

Quel désastre! – What a disaster!

J'ai oublié	mon passeport mon argent	I forgot	my passport my money
J'ai cassé	mon portable ma valise	I broke	my phone my suitcase
J'ai perdu	mon portable mon porte-monnaie	I lost	my phone my purse/wallet
J'ai vomi	au restaurant	I vomited	at the restaurant
Je suis tombé(e)	sur la plage	I fell over	at the beach
Je suis resté(e)	au lit à l'hôtel	I rested/stayed	in bed at the hotel
J'ai raté On a raté	l'avion le bus	I missed We missed	the plane the bus
Je suis arrivé(e) On est arrivés	en retard trop tôt	I arrived We arrived	late too early
Je n'ai pas	acheté des souvenirs pris des photos	I did not	buy souvenirs take photos
Je ne suis pas sorti		I did not go out/leave	

To make a perfect tense verb negative, put **ne ... pas** around the part of *avoir* or *être*. Remember, **ne** shortens to **n'** in front of a vowel.

Je **n'ai pas** regardé la télé.

Nous **ne** sommes **pas** allés à la plage.

After a negative, **un**, **une** and **des** become **de**:

Je **n'ai pas** acheté **de** souvenirs.

Normalement et dans le passé – *Normally and in the past*

Normalement...	L'année dernière
Je vais – <u>I go</u>	Je suis allé(e) – <u>I went</u>
Je voyage – <u>I travel</u>	J'ai voyagé – <u>I travelled</u>
Je fais – <u>I do</u>	J'ai fait – <u>I did</u>
Je mange – <u>I eat</u>	J'ai mangé – <u>I ate</u>
Je nage – <u>I swim</u>	J'ai nagé – <u>I swam</u>
J'aime – <u>I like</u>	J'ai aimé – <u>I liked</u>
C'est – <u>It is</u>	C'était – <u>It was</u>



Ma fête préférée – My favourite festival

Opinion phrases are often followed by an **infinitive**, which is translated by '-ing'.
j'aime chanter I like **singing**

J'adore J'aime beaucoup J'aime Je préfère	Noël mon anniversaire la Saint-Valentin Pâques	parce que	j'aime je déteste ...	danser / chanter / manger / ... choisir des cadeaux. rendre visite à ma mère / mes cousins. faire une soirée pyjama.
Je n'aime pas tellement Je n'aime pas Je n'aime pas du tout Je déteste	l'Aïd le Nouvel An Halloween le 14 juillet (la fête nationale)		c'est (trop)	marrant. ennuyeux. commercial. bête. militaire.

I love I really like I like I prefer	Christmas my birthday Valentine's Day Easter	because	I like I hate ...	dancing / singing / eating ... choosing presents. visiting my mum / my cousins. have a pyjama party/night.
I don't really like I don't like I don't like at all I hate	Edi New Year Halloween 14 th July (French Independence Day/Bastille Day)		it's (too)	fun. boring. commercial. stupid. military.

La fête, c'est comment? – What is the festival like?

You know how to conjugate the present tense of **-er** verbs.

There are two more groups of regular verbs: **-ir** and **-re** verbs.

	-er verbs <i>danser</i>	-ir verbs <i>finir</i>	-re verbs <i>attendre</i>
<i>je / j'</i>	<u>danse</u>	<u>finis</u>	<u>attends</u>
<i>tu</i>	<u>dances</u>	<u>finis</u>	<u>attends</u>
<i>il/elle / on</i>	<u>danse</u>	<u>finit</u>	<u>attend</u>
<i>nous</i>	<u>dansons</u>	<u>finissons</u>	<u>attendons</u>
<i>vous</i>	<u>dancez</u>	<u>finissez</u>	<u>attendez</u>
<i>ils/elles</i>	<u>dansent</u>	<u>finissent</u>	<u>attendent</u>

Be careful with pronunciation. The underlined verbs in each column all sound the same!

Useful **-ir** verbs: *finir* (to finish), *choisir* (to choose)

Useful **-re** verbs: *attendre* (to wait for), *entendre* (to hear)

Pendant la fête	il y a	une parade. des spectateurs. un groupe de gens / filles / garçons / musiciens. un groupe d'enfants.
Je suis Nous sommes	dans la rue. en ville.	
Je marche / danse / joue d'un instrument	Nous marchons / dansons / jouons d'un instrument	
Je porte Nous portons	des vêtements	traditionnels / colorés / bizarres / incroyables. blancs / bleus / noirs / ...
Je porte / Nous portons	des drapeaux.	
Je préfère	Noël / Halloween / mon anniversaire parce que ...	
During the festival	there is/there are	a parade. spectators. a groups of people / girls / boys / musicians. a group of children.
I am We are	in the street. in town.	
I walk / dance / play an instrument	We walk / dance / play and instrument	
I wear We wear	traditional / colourful / strange / incredible white / blue / black ...	clothes.
I carry / We carry	flags.	
I prefer	Christmas / Halloween / my birthday because ...	

Au marché – At the market

When buying food, you can use:

- the indefinite article:
une banane
- a number: **six bananes**
- a quantity followed by **de**:
deux kilos de bananes.

Remember that **de** shortens to **d'** before a vowel or silent **h**:
300 grammes d'olives.

vouloir	to want (to)
<i>je veux</i>	I want
<i>tu veux</i>	you want
<i>il/elle/on veut</i>	he/she wants / we want
<i>nous voulons</i>	we want
<i>vous voulez</i>	you want
<i>ils/elles veulent</i>	they want

20	vingt	85	quatre-vingt-cinq
30	trente	90	quatre-vingt-dix
40	quarante	95	quatre-vingt-quinze
50	cinquante	100	cent
60	soixante	200	deux-cents
70	soixante-dix	350	trois-cent-quinze
75	soixante-quinze	1 000	mille
80	quatre-vingts	2 000	deux-mille

Buying food at a market is an example of a formal situation. To be polite:

- use the formal word for you: **vous**
- address the stallholder as **monsieur** or **madame**
- use **je voudrais** (I would like), **s'il vous plaît** and **merci**.

200 grammes de ...	200 grams of ...
un demi-kilo de ...	half a kilo of ...
un kilo de ...	a kilo of ...
une tranche de ...	a slice of ...
un morceau de ...	a piece of ...

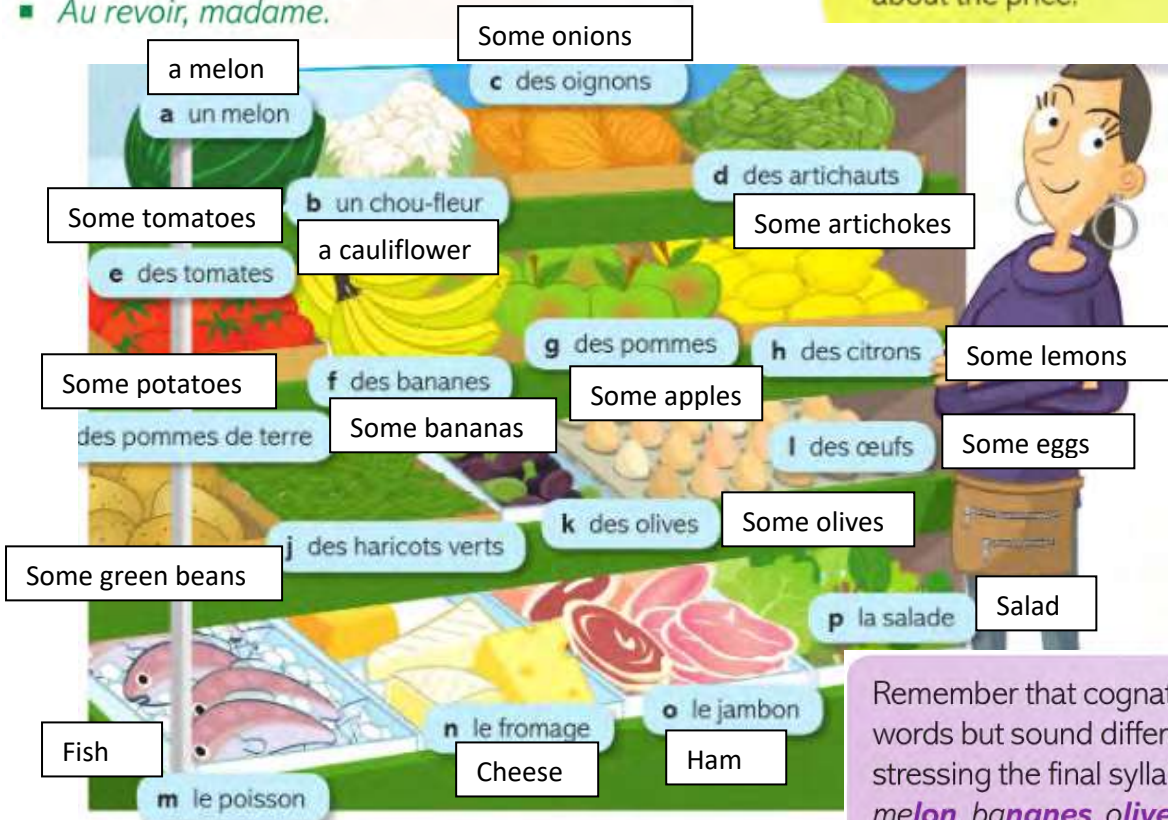
Model dialogue:

- *Bonjour, monsieur. Vous désirez?*
- *Je voudrais un kilo de tomates, s'il vous plaît.*
- *Et avec ça?*
- *Je voudrais quatre artichauts, s'il vous plaît.*
- *C'est tout?*
- *C'est tout, merci. Ça fait combien?*
- *Ça fait 10€15, s'il vous plaît.*
- *Voilà.*
- *Merci, bonne journée.*
- *Au revoir, madame.*

When you are taking part in a role play, you have to answer unexpected questions and ask questions.

! means you have to answer an unexpected question like the ones in exercise 7. Try to answer in a full sentence.

? means you have to ask a question: for example, **? prix** means you have to ask about the price.



Remember that cognates look like English words but sound different. Try saying these, stressing the final syllable to sound more French: *melon, bananes, olives, salade.*

Les spécialités – Special dishes

C'est	un plat typique une spécialité	du nord du sud de l'est de l'ouest du nord-est du sud-ouest	de la	France. Guadeloupe.
C'était	vraiment un peu trop	délicieux / léger / sucré / salé / savoureux.		
It's	a typical dish a speciality	of the north of the south of the east of the west of the north-east of the south-west	of	France. Guadeloupe.
It was	really a bit too	delicious / light / sweet / salty / tasty.		

You are writing about a trip you took and food you ate, so remember to use verbs in the perfect tense:
je suis allé(e) (I went),
j'ai mangé (I ate),
j'ai choisi (I chose),
j'ai bu (I drank).
 You also need to use **c'était ...** (it was ...) to give an opinion.

Tu vas faire un voyage scolaire? – Are you going to go on a school trip?

To talk about what is going to happen in the future, use part of the verb **aller** followed by the **infinitive**.

aller (to go) + **infinitive**

je **vais écouter**

tu **vas écouter**

il/elle/on **va écouter**

nous **allons écouter**

vous **allez écouter**

ils/elles **vont écouter**

je **vais choisir** I am going to choose

To say that you are also going to do something, put **aussi** between the part of *aller* and the **infinitive**.

je **vais aussi regarder** ... I am **also** going to watch ...

G

Je vais + infinitive =

I am going to...

Questions using the near future tense look like this:

question word + *est-ce que* + verb

Comment est-ce que tu vas voyager?

How are you going to travel?

est-ce que doesn't really have a specific meaning; it is used to indicate a question. It can be translated in different ways, depending on the tense it is used with:

present tense: *Pourquoi est-ce que tu visites Nice?*

Why **do you visit** Nice? / Why **are you visiting** Nice?

future tense: *Pourquoi est-ce que tu vas visiter Nice?*

Why **are you going to visit** Nice?

G

Le 30 novembre	on va aller à Colmar	en car.	Je vais acheter	des cadeaux	et je vais goûter	de la tarte flambée.
Le 3 décembre		en train.		des souvenirs		du jus de pomme chaud.
Demain		en voiture.		une boule de Noël		du pain d'épices.
La semaine prochaine		en avion.		du chocolat		de la choucroute.

On 30 November	we're going to go to Colmar	by coach.	I'm going to buy	presents	and I'm going to taste	a pizza-like tart.
On 3 December		by train.		souvenirs		hot apple juice.
Tomorrow		by car.		a chocolate log		spiced bread.
Next week		by plane.		chocolate		sauerkraut (fermented cabbage).

Bonne année! – Happy New Year!

Use the present tense to talk about what is happening at the moment, or what usually happens.

Je **finis** mes devoirs. I **finish** my homework.

Use the near future tense to say what is going to happen in the future.

Je **vais finir** mes devoirs. I **am going to finish** my homework.

G

The **fête des Rois** is a festival marking Epiphany. Over 30 million **galettes des Rois** are sold every year, with a charm (**une fève**) hidden inside. Whoever finds *la fève* wears a gold or silver cardboard crown and is queen or king for the day.

passer le 31 décembre à la maison / chez ma mère / en France

danser / **retrouver** des copains

regarder le feu d'artifice dans la rue / à la télé

manger des chips / de la pizza / de la galette des Rois

aller en ville / chez mes grands-parents

acheter des cadeaux / des souvenirs

faire la grasse matinée

spend the 31st Dec at home / at my mum's / in France

dance / **meet** (some) friends

watch the fireworks in the street / TV
eat crisps / pizza / 3 Kings cake

go to town / to my Nana and G/dad's

buy some presents / souvenirs

lie in (stay in bed) late



Revision

UK in the 21st century

Physical Geography of the UK
London's booming population
The UK's global role and our influence in conflicts, media and food

Resources & shortages

Food, Water and Energy security

Food security

Development case study

Human Geography of the UK
The UK's ageing population
The UK's changing economy and post-industrial UK

Resource reliance

Farming & fishing for food

Theories on the future

Fieldwork

Barriers to development

Dynamic development

Cities case study

Urban population explosion and growth of slums

Super-sized cities in an urban world

Human impacts on the TRF

Polar environments

Characteristics and value of a tropical rainforest

Distributions of biomes & their climate, flora and fauna

Uneven development

YEAR 11

The global development divide and measuring development

Defining development

Urban trends in the UK

How cities began and grew

Urban futures

Characteristics of polar regions

Human Impacts on a tropical rainforest

Ecosystems and interdependence

Contrasting case studies of natural weather

Plate boundaries and tectonic cases studies

Distinctive Landscapes

The physical and human landscape of the UK

Coastal erosional and depositional landforms

Rivers

Fieldwork

Sustaining ecosystems

Tropical storms, drought & El Nino

Structure of the Earth

Mitigation of tectonic hazards

What makes a distinctive landscape

Geomorphic processes

River landforms

Coasts case study

Extreme weather conditions

Global hazards

UK impacts of climate change

Greenhouse effect

Natural causes of climate change

Patterns of climate change

Changing Climates

Global circulation system and climate zones

Global impacts of climate change

Human causes of climate change

Evidence of climate change

Glaciation

Movement

Evidence of glaciation in the Lake district

Glacier formation

Russia – What are the opportunities and challenges facing Russia?

Biomes

Human Issues

Middle East – Why is the Middle East an important region?

Biomes

Human Issues

Transition to GCSE

Loss of Culture

Clone Towns

Changing glaciers

Location

Skills

Physical Issues

Location

Skills

Physical Issues

BREXIT

UK's place in the wider world

Going global

YEAR 9

Physical Issues

Skills

Location

Flood hazards and management

Fluvial process including weathering

Water cycle

Tectonic Hazards – Why do people remain at risk?

Plate margins & movement

Earthquake processes

Rocks

Biosphere

Natural resources for energy

Changing Economies – How have shifting economies impacted cities across the globe?

Sectors of industry

Industrialisation of NEEs

Hydrology – Why are rivers important?

Addressing inequality

Earth structure

Volcano processes

Tsunami

Resource risk – Are we running out of natural resources?

Soils

Hydrosphere

Sustainability

Urban problems

Deindustrialisation

Sustainable development

Earth structure

Volcano processes

Tsunami

Resource risk – Are we running out of natural resources?

Soils

Hydrosphere

Sustainability

Urban problems

Deindustrialisation

Poverty

Measuring development

Distribution of Wealth

Development – Why are some places more developed than others?

Human Issues

Biomes

Africa – What are the opportunities and challenges facing Africa?

Migration

Population distribution and settlement factors

Population change

Change over time

Measuring development

Distribution of Wealth

Development – Why are some places more developed than others?

Human Issues

Biomes

Africa – What are the opportunities and challenges facing Africa?

Migration

Population distribution and settlement factors

Population – Can we solve the problem of overpopulation?

Difference between weather and climate

Extreme weather

Beast from the East

Coasts – Should we defend our coastlines?

Landforms

Coastal case study

Rainforests

Tourism

Weird Weather – Is Weather becoming more extreme?

Coastal processes

Coastal management

Economy Vs Environment – Are we risking our natural world in order to make money?

Antarctica

Hydrocarbons

Map skills

How do Geographers think?

YEAR 7

Locational knowledge

What is a geographer?

GEOGRAPHY



RESOURCE RISK

KEY WORDS

Biological weathering	when rocks are weakened and broken down by plants, animals and microbes
Biome	a large community (large ecosystem) of plants and animals found in a major habitat such as rainforests, tundra, etc.
Chemical weathering	when rocks and materials are weakened and eroded by chemical reactions from substances dissolved in water (such as salts, acids, etc.)
Clay	a figure or line representing northward distance on a map (expressed by convention as the second part of a grid reference, after easting)
Crude oil	naturally occurring and unrefined petroleum that can be refined into diesel, petrol, gasoline, kerosene and other petrochemicals
Fossil fuel	a natural hydrocarbon fuel such as petroleum, coal or natural gas, which is formed by the fossilised (preserved) remains of ancient plants and animals that are deposited over millions of years
Freeze-thaw weathering	when rocks are broken down and weakened when water seeps into cracks then freezes and expands, which breaks rocks apart over time
Geologists	expert scientists who study the structure of the Earth and its rocks
Impermeable	when materials cannot let liquids in, are water resistant
Natural resources	substances that are found in nature which can be used by humans for our benefit, such as water, soil, coal, minerals, wood, animals, etc.
Non-renewable	substances which are limited and so will run out one day or cannot be replaced during our lifetime, such as natural gas, coal, etc.
Industrial revolution	a period of time when places became heavily industrialised, relying on machines for agriculture or transport or manufacturing, such as in the UK during the late 1700s and early 1800s when innovations saw machinery and factories appear rapidly across the nation
Porous	when materials such as rocks have small pores (holes) which allow liquids or air to pass in and out
Raw materials	the basic materials or substances from which products can be made, such as wood that can be transformed into furniture, etc.
Renewable	resources that can be replaced over time, and will not run out, such as water, wind, forests, etc.
Water scarcity	lack of freshwater resources available to meet the demands of water use in an area
Weathering	the process by which rocks and materials are broken down due to biological and weather processes such as rainfall, ice, wind, plant roots, etc.

WEATHERING

Freeze-thaw weathering occurs when water gets into a crack in a rock and freezes. As the water turns to ice it expands and causes the crack to widen. Repeated freezing and thawing weakens the rock, which eventually splits into pieces.

Chemical weathering occurs when rainwater, which is slightly acidic, comes into contact with rock. The acid attacks the rock, causing it to rot and crumble.

Biological weathering is when plants and animals break down rock. The roots of plants and trees can get into cracks in rocks, causing them to split. Burrowing animals and worms can also weaken rock.

HOW COAL WAS FORMED

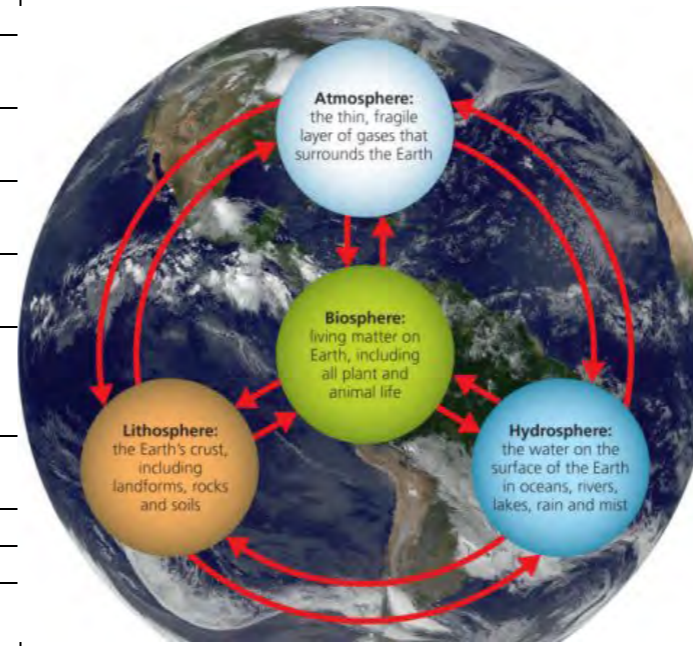
How coal was formed

- Plant matter fell to the bottom of the swamp and began to decay.
- The levels of decaying plant matter built up.
- More water and dirt washed into the swamp and halted the decay.
- The plant matter became peat.
- The weight of the water and dirt compacted the peat.
- Under the heat and pressure oxygen was forced out of the peat.
- Rich hydrocarbon deposits were left behind.
- The plants had gradually turned into coal.

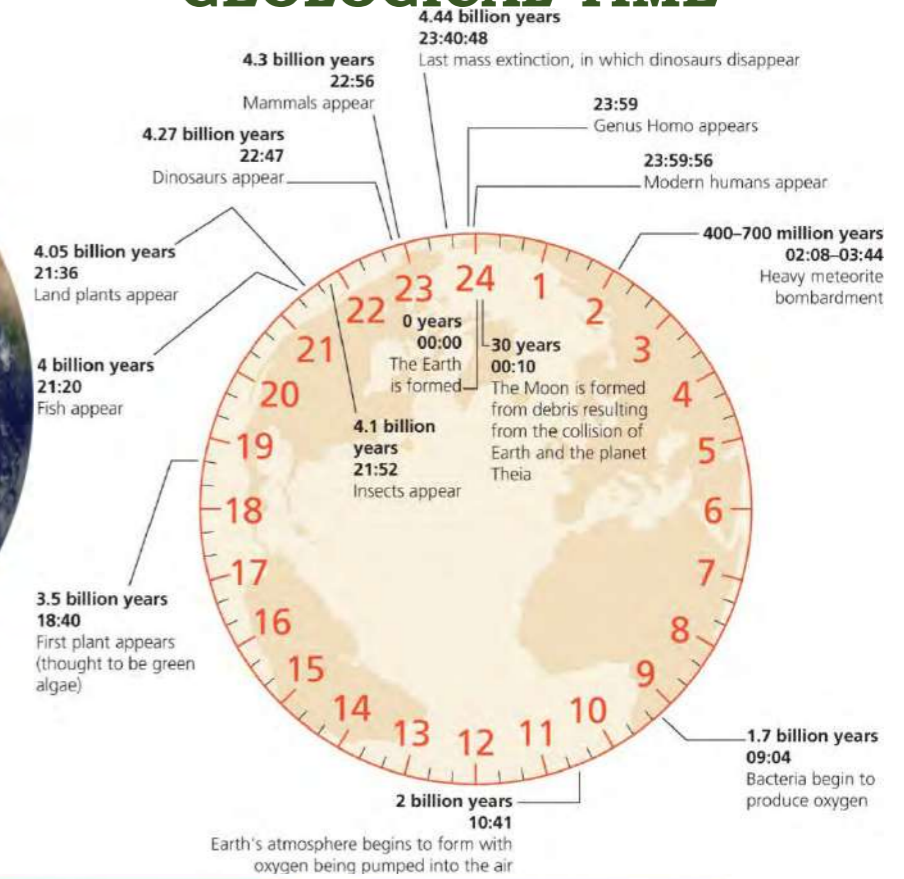
KNOWLEDGE ORGANISER



THE EARTH'S SPHERES



GEOLOGICAL TIME



TYPES OF ROCK

Igneous rock

This is formed from molten rock often linked to volcanoes. The molten rock may cool slowly, allowing time for minerals to form large crystals, which lock together. Granite and basalt are types of igneous rock. Igneous rocks are very hard and durable. In the UK they form mountainous areas. People use igneous rocks to construct some buildings. Crushed granite is often used to surface roads. Igneous rocks are also important sources of minerals like diamonds.

Sedimentary rocks

Most of these types of rocks are formed under the sea. Rock particles carried by rivers were washed out to sea, and settled on the sea floor. On the sea bed they were buried by newer sediment, squeezed and cemented together over thousands of years to form new rock. These rocks also include the fossilised remains of sea creatures. Chalk and limestone are examples of sedimentary rocks that are made up almost entirely from fossils. Sedimentary rocks include valuable rocks such as coal and iron ore. Salt and potash are also important raw materials for the chemical industry. Sand and gravel are used for making concrete and cement. Clay is used to make house bricks.

Metamorphic rocks

These rocks form from existing rocks that are transformed by great heat or pressure. These changes lead to the existing minerals melting and forming new minerals. Marble and slate are examples of metamorphic rocks. The sedimentary rock, mudstone, is transformed into slate, and limestone into marble. Slate is very durable and is formed in thin layers, which can be cut into thin, strong tiles, ideal for making roof tiles. Marble is used as a building stone, and to make sculptures.

HOW OIL AND GAS WAS FORMED

- Tiny sea plants and animals died and were buried on the ocean floor
- Over a long period of time, they were covered by layers of sediment and rock
- Over millions of years the enormous heat and pressure from the layers pressing down on them turned them into oil and gas

USES OF OIL

What can just one barrel of oil produce?

- Distillate fuel to keep a large truck going for nearly 40 miles
- Wax for 170 birthday candles or 27 crayons
- Enough petrol to keep a medium-sized car going for more than 280 miles
- Four pounds of charcoal briquettes
- Two pints of motor oil
- Almost 70 kilowatt-hours of electricity at a power plant that is generated by residual fuel
- Liquefied gases to fill 12 small cylinders which can be used for camping
- Asphalt to make about one gallon of tar for streets or roofs

Oil

What can be made from the petrochemicals that are left?

- 39 polyester shirts
- 135 rubber balls
- 65 plastic drinking cups
- 750 pocket combs
- 23 hula hoops
- 540 toothbrushes
- 195 one cup measuring cups
- 65 plastic dustpans
- 11 plastic telephone housings

UK ENERGY POLICY

Investment in renewable energy has increased 42% since 2010

In 2014 30% of all of Europe's renewable energy investment took place in the UK

The government announced in 2016 that it would build more nuclear power stations in the UK to provide "clean, secure energy"

In 2016 the government committed to closing coal fired power stations

But then:

In 2022 the government approved the first new UK coal mine in 30 years despite concern about its climate impacts among Conservative MPs and experts.

The proposed mine in Cumbria would dig up coking coal for steel production in the UK and across the world.

Critics say the mine would undermine climate targets and demand for coking coal is declining.

SOIL PROFILE

3 This is a layer of organic matter that is about 2–3 cm thick and is made up of dead plant material, such as leaves and twigs.

1 This layer is 5–20 cm thick. It consists of organic matter and minerals. This is the soil layer where most plants and organisms live.

5 This layer has minerals as well as organic matter, which have been washed down by rainwater. It has little humus. Tree roots reach down to this layer.

4 This layer contains rocks from the lowest layer, weathered and broken into chunks. The upper soil layers have developed from this.

2 This layer is made up of a solid mass of underlying rock.

B Earthworms burrow through the soil

The rainforest biome, contains 75 per cent of the world's plants, and about 50 per cent of the animals. The largest rainforest, the Amazon, is 5.5 million km². The different vegetation layers found in every rainforest are shown in Photo B. Plants and animals of the biosphere have to adapt to the conditions, coping with too much water, the poor soils, and lack of daylight on the forest floor. The dense trees protect the fragile soil from the rainfall. This is a system in harmony, with all of the Earth's spheres working together.

THE RAINFOREST BIOME

Tropical rainforests in our daily lives

Do you think of tropical rainforests as faraway places that have nothing to do with your daily life? Think again. You rely on forests more than you know.

Food

The world's most popular fruit, the banana, comes from the rainforest as do avocado, cashews, Brazil nuts, spices like vanilla, and sugar, coffee, tea, and cocoa.

Medicine

Many of the Western medicines that we use today are derived from plants found in tropical forests including medications to treat or cure rheumatism, diabetes, muscle tension, surgical complications, malaria, heart conditions, skin diseases, arthritis, glaucoma and many others.

Timber

Tropical forests grow some of the most beautiful and valuable woods in the world, such as teak, mahogany, rosewood, balsa, sandalwood, and countless lesser-known species. We use this wood for furniture, doors and panelling. Other forest products show up in your home and office, too. Tropical forest fibres are found in rugs, mattresses, ropes, strings, and fabrics.

Cosmetics

Tropical oils are key ingredients in cosmetics, soaps, shampoos, perfumes, disinfectants and detergents.

Role in the Earth's system

Rainforest make a vital contribution to the Earth's systems. The thick vegetation protects the soil from the heavy rainfall. The dense forests absorb carbon dioxide from the atmosphere.

HOW NATURAL RESOURCES CAN GENERATE ELECTRICITY

J Natural resources that can generate electricity

Solar power is the conversion of the Sun's energy into electricity. This method is ideal in hot, cloudless conditions, but less effective in areas that have a lot of cloudy days or are located at high latitudes, which effects the angle of the Sun. Locations at mid-latitudes are more suitable.

Wind power is becoming more and more common. The wind turns the large turbine blades to generate electricity. The turbines need to be located in areas with regular strong winds. This method will obviously only generate electricity when there is wind, so it is inconsistent. Wind farms are expensive to build and they have a negative visual impact on the landscape.

Hydroelectric power uses fast-flowing water to turn generators to produce electricity. A reliable supply of fast-flowing water is needed. This may be near a waterfall. The dams are expensive to build and can lead to the flooding of farmland. There is a limited choice of locations with the necessary requirements. This method produces very little pollution.

Nuclear reaction releases energy. Atoms of the mineral uranium are split creating heat energy, which turns water to steam and drives huge turbines to create electricity. This is expensive to build and there are risks of radioactive leaks.

Fossil fuels such as natural gas, coal and oil are all used to produce electricity on a large scale. They can generate huge amounts of electricity in just a single location. They are efficient and have been cheap. They can keep generating all the time. The process involves burning the fuel to produce steam that drives the turbines. This unfortunately pollutes the atmosphere. The fossil fuel reserves are also running out, and are expected to last only another 100 years, given our current rate of consumption.

Geothermal energy uses heat produced continuously inside the Earth's crust. Hot rocks present below the Earth's surface heat up the water that produces steam. The steam is then captured to turn the turbines. There are limited locations where this is possible. These power stations are expensive to build and maintain and these sorts of locations are prone to volcanoes and earthquakes.

Tidal energy uses the rise and fall of tides to convert incoming and outgoing tides into electrical energy. Barrages have to be built across coastal estuaries and this can be expensive, disruptive for shipping and damaging to the environment. There are also limited coastal locations with a wide enough tidal range.

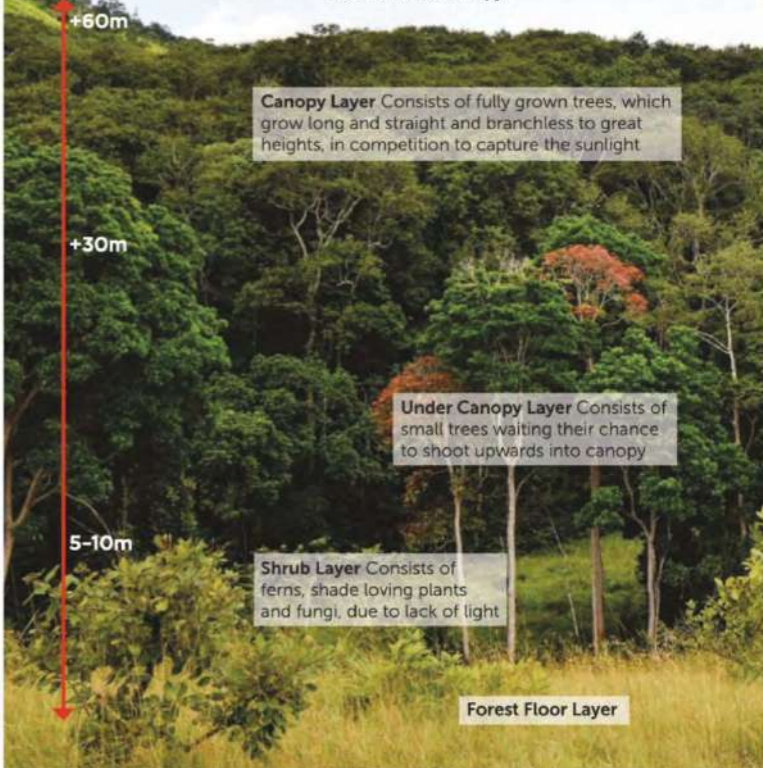
Biomass burns plants, trees and organic matter to heat steam to drive turbines. This method releases a lot of carbon dioxide, a greenhouse gas, into the atmosphere.

B The layers of a rainforest

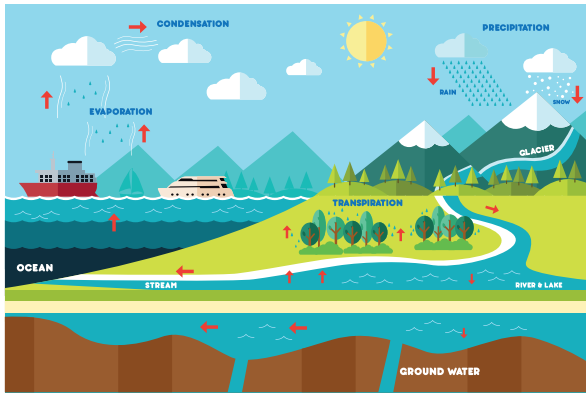
Hydrosphere – high humidity in the air, heavy rainfall, water on the vegetation, and rivers

Atmosphere – almost daily heavy rainfall and high temperatures throughout the year, which is ideal for continual rapid plant growth

Emergent Layer Isolated tall trees, that rise above the canopy



HYDROLOGICAL CYCLE

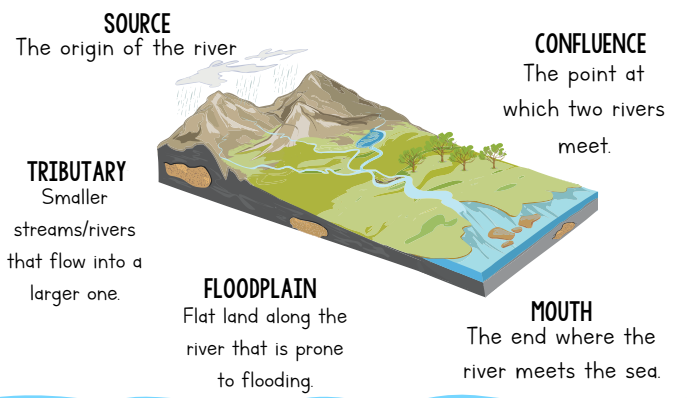


Rivers

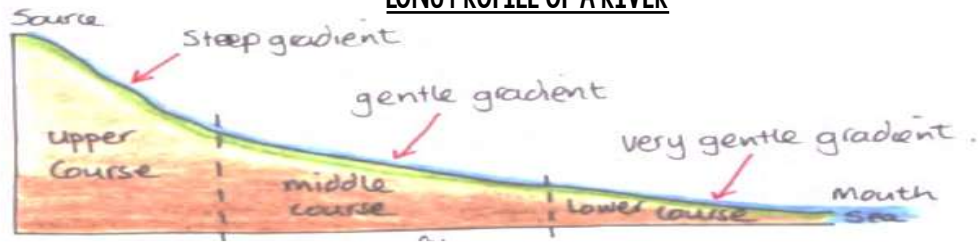
RIVER PROCESSES

EROSION where rocks are worn away and the land changes shape.
TRANSPORTATION where eroded material is carried by the river downstream.
DEPOSITION where transported material is dropped when the river loses energy, such as when it enters the sea.

DRAINAGE BASIN



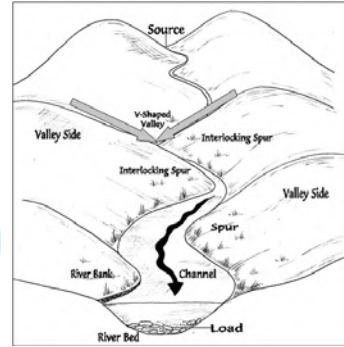
LONG PROFILE OF A RIVER



THE UPPER COURSE

FEATURES

Steep-sided V-shaped valleys, interlocking spurs, rapids, waterfalls and gorges.



When a river is near its source, it often develops a V-shaped valley as the river erodes down (this is called **vertical erosion**).

At the same time, weathering breaks up material on the valley slopes. Weathered material from the valley sides gets deposited in the river.

THE MIDDLE COURSE

FEATURES

Wider, shallower valleys, meanders, and oxbow lakes

MEANDERS

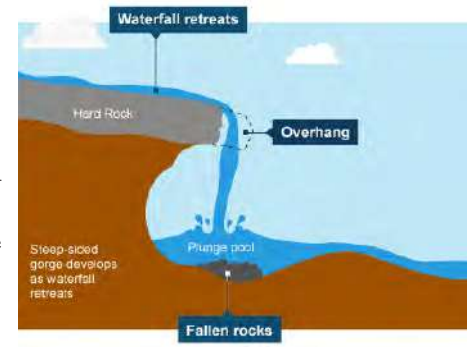


1. The formation of meanders is due to both **deposition** and erosion and meanders gradually move downstream.
2. The force of the water **erodes** and undercuts the river bank on the outside of the bend where water flow has most energy.
3. On the inside of the bend, where the river flow is slower, material is **deposited**, as there is more friction.
4. Over time the horseshoe become tighter, until the ends become very close together. As the river breaks through the ends join, the loop is cut-off from the main channel.
5. The cut-off loop is called an **oxbow lake**.

OXBOW LAKE



1. The soft rock erodes more quickly, **undercutting** the hard rock.
2. The hard rock is left **overhanging** and eventually collapses.
3. The fallen rocks crash into the **plunge pool**. They swirl around, causing more erosion.
4. Over time, this process is **repeated** and the waterfall moves upstream.
5. A steep-sided **gorge** is formed as the waterfall retreats.



THE LOWER COURSE

FEATURES

Wide flat-bottomed valleys, floodplains and deltas



A floodplain is the area around a river that is covered in times of flood. It is a very fertile area. This makes floodplains a good place for agriculture. A build-up of alluvium on the banks of a river can create levees, which raise the riverbank.

FLOODING

A flood occurs whenever a river overflows its banks (exceeds its 'bankfull' discharge). However, a flood becomes a problem when the water rises to a level where it threatens property and/or life. Rivers usually flood due to a range of physical factors

These physical factors can be divided into **climatic factors** and **drainage basin characteristics**. **Human intervention** can also make flooding worse

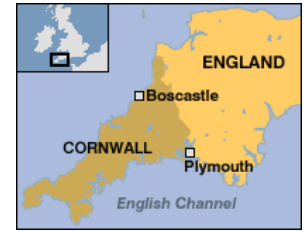
HUMAN CAUSES OF FLOODING



PHYSICAL CAUSES OF FLOODING



BOSCASTLE



CAUSES

There was a spell of heavy localised rainfall - 89 mm of rain fell in an hour on saturated ground from previous rainfall. Topography of the land. The landscape upstream of Boscastle, a steep-sided valley, acted as a funnel directing vast volumes of water into the village.

WHAT HAS BEEN DONE?

- £45 million has been spent on a flood defence scheme.
- The scheme incorporates drainage, sewerage systems and land re-grading.
- Boscastle car park has been raised in height, which will stop the river from bursting its banks so easily.
- New drains allow water to run into the lower section of the river quickly.
- The river channel has been made deeper and wider so that it can accommodate more water.

BANGLADESH



CAUSES

Much of Bangladesh lies on a floodplain. Over half of the country lies 6m below sea level. There are 3 major rivers: The Ganges, Brahmaputra and Meghna. Meltwater from the Himalayas

RESPONSES - SHORT TERM

- Food aid from the Government and other countries.
- Water purification tablets.
- People repaired embankments and helped to rescue people.
- Free seed given to farmers

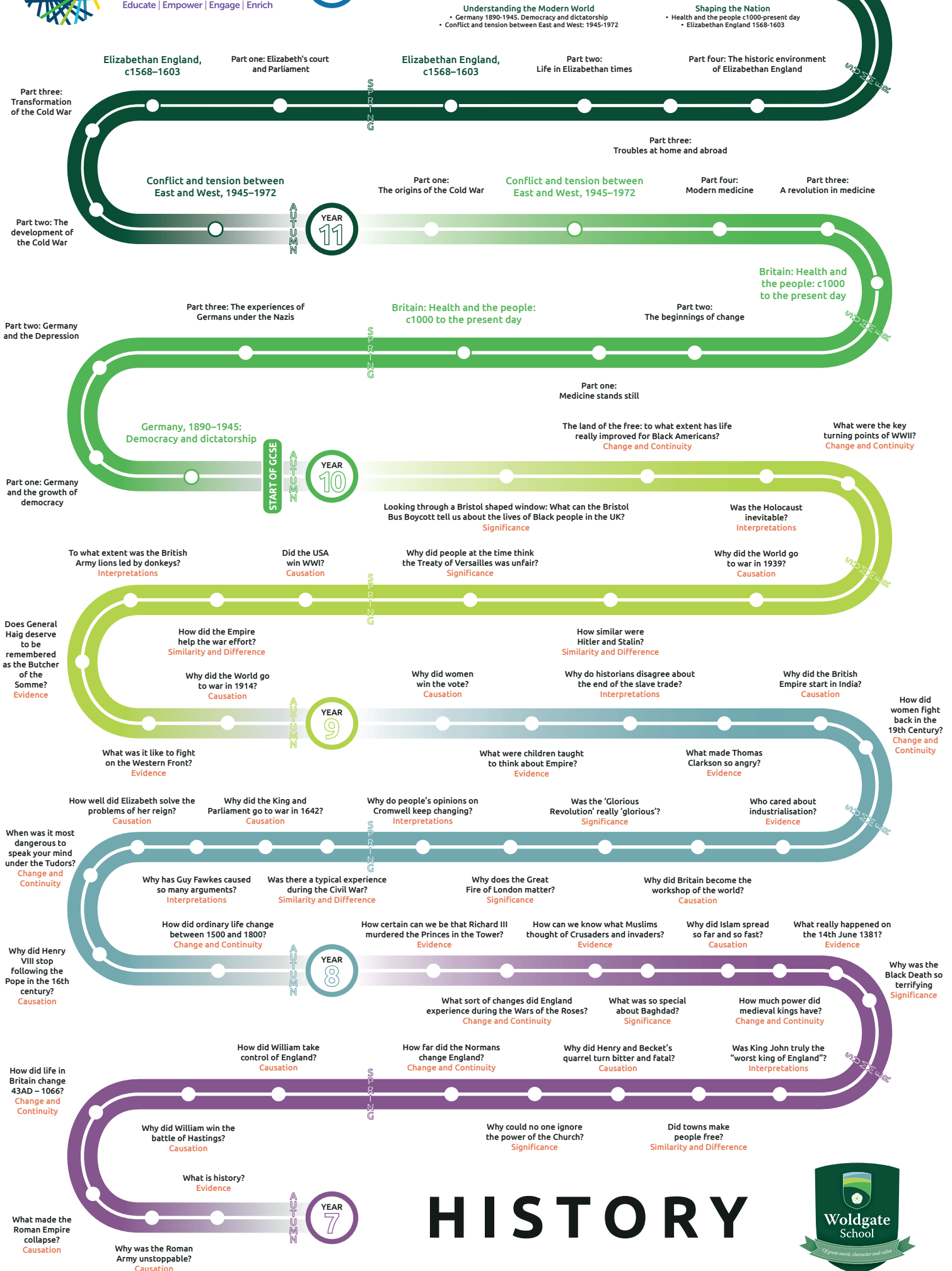
RESPONSES - LONG TERM

- Introducing flood warning systems.
- Emergency planning.
- Dams planned.
- Reducing deforestation.
- Building embankments.
- Building raised flood shelters.

CAUSE	SOURCE	<u>KEYWORDS</u>	DEPOSITION	WATERSHED
EFFECT	MOUTH	CONFLUENCE	MEANDER	V-SHAPED VALLEY
RESPONSE	LONG PROFILE	WATERFALL	OXBOW LAKE	HYDROLOGICAL CYCLE
DRAINAGE	FLOODPLAIN	EROSION	DELTA	



GCSE EXAMINATIONS



HISTORY



THE KING AND PARLIAMENT

KEY WORDS

Civil War	A war fought within a country
Government	A group of people governing a country
Parliament	A body made up of elected people who run a country
Divine Right	Belief that Kings received their authority from God
Roundheads	Parliamentarians, who supported Parliament in the Civil War
Cavaliers	Royalists, who supported the King in the Civil War
Puritans	Strict Protestants
Lord Protector	Replacement for the King following the Civil War
Restoration	Reintroduction of the monarchy after the death of Cromwell

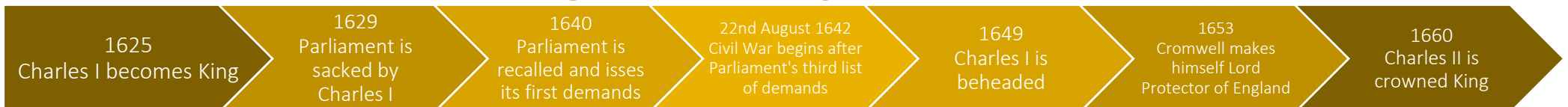
GUNPOWDER PLOT

- * In 1605, Catholics were accused of attempting to blow up Parliament
- * There are two interpretations of this event:
 - * **One** – the Catholics, led by Guy Fawkes, planted gunpowder in the cellar. However, Francis Tresham wrote a letter to warn of the plot, and it was discovered on 4th November 1605
 - * **Two** – Robert Cecil, who hated the Catholics, framed them by encouraging them to rent a cellar which was then filled with gunpowder by Cecil's men

EVENTS OF 1625-1642

1. Charles I married princess Henrietta Maria, a French Catholic
2. Charles sent 2 MPs to prison after Parliament tried to punish Lord Buckingham
3. Charles sacks Parliament after they try to stop him from getting money
4. Charles tried to raise money himself by asking for Ship Money. This was unpopular
5. Some of Charles' reforms of the church were seen as 'too Catholic'
6. Charles tries to take Coat and Conduct Money after riots in Scotland
7. After being recalled, Parliament wrote a list of demands, which Charles agreed to
8. A year later, they wrote more demands. Charles burst into the House of Commons with 400 soldiers and arrested 5 MPs
9. Rumours spread of a rebellion in Ireland in which 200,000 Protestants had been killed by the Catholics. Parliament took control of the army
10. In June 1642, they issued the Nineteen Propositions, which were 19 more rules. Charles had had enough, and raised his own army. The English Civil War began

TIMELINE OF THE KING AND PARLIAMENT



KNOWLEDGE ORGANISER

EXPERIENCES OF THE CIVIL WAR

* Roundheads and Cavaliers similarities and differences:

Similarities	Differences
<ul style="list-style-type: none"> * Both sides wore sashes – Cavaliers often wore red, and Roundheads often wore orange or blue * Both sides used similar weapons, and favoured muskets * People would sometimes swap sides depending on who was winning 	<ul style="list-style-type: none"> * Roundheads were often middle-class Protestants * Cavaliers were often wealthy Catholics who favoured the King * Cavaliers fought on horses more than Roundheads

THE ENGLISH CIVIL WAR

- * **The English Civil War 1642-1645:**
- * **Battle of Edgehill 1642** - Even match. Roundheads withdrew but Cavaliers failed to press on and take London.
- * **Battle of Adwalton Moor 1643** - Roundheads started well but were forced to retreat at end.
- * **Battle of Roundaway Down 1643** - Cavalier victory: Roundheads fled.
- * **Battle of Marston Moor 1644** - Roundhead victory: first time they beat Cavalier cavalry.
- * **Second battle of Newbury 1644** - Draw. Royalists able to escape overnight.
- * **Battle of Naseby 1645** - Big Roundhead victory: Charles fled for his life.

OLIVER CROMWELL

- * Cromwell led the army to defeat the Scottish, who were led by Charles I
- * Charles I was executed in 1649. Parliament ruled England, and they had to be nice to the army as they still had a lot of power
- * When Charles Stuart tried to attack England from Scotland, Cromwell defeated them at Dunbar once and for all
- * Cromwell sided with the army and had Parliament arrested. He made himself Lord Protector of England for life. He introduced very unpopular Puritan policies
- * When parliament voted to end Cromwell being Lord Protector, he sacked them
- * When Cromwell died, his son was appointed Lord Protector. He resigned, and Charles II was restored to the throne

FIRE & REVOLUTION

KNOWLEDGE ORGANISER



KEY WORDS

Drought	A lack of rain which causes a lack of water
Firebreak	Act of blowing up houses to stop the fire from spreading
Absolute	A monarchy where the King or Queen holds most of the power
Constitutional	A monarchy where power is shared with Parliament
Bill of Rights	A set of rules which William and Mary had to follow
Seven Nobles	The seven men who wrote to William asking him to invade
Revolution	A sudden or complete change in way people live, work or are governed
Divine Right	Belief that Kings received their authority from God

BRITAIN AND INDUSTRIALISATION

* Why was Britain first to have an Industrial Revolution?

- * The population boomed which allowed for more workers and meant there were more people wanting to buy goods
- * Britain had a large empire which it could trade with, and import raw materials from. It had lots of ports to ship the goods into
- * New forms of transport such as railways and canals allowed the easy transportation of goods
- * Inventions were encouraged through the use of the patent system
- * Britain had lots of raw materials, such as coal and iron

BRITAIN AND ENTREPRENEURS

* The Spinning Frame:

- * Richard Arkwright invented the spinning frame, which replaced the domestic system which was much slower at making cloth
- * His invention used a waterwheel and was based in special factories, known as mills. More cloth could be made than ever before

* The Steam Engine:

- * In the 1720s, Thomas Newcomen invented the first steam engine, which produced simple up and down movements, useful for mines
- * In 1769, James Watt invented a newer version which was quicker. Matthew Boulton provided the money to continue working on his invention
- * In 1782, William Murdoch came up with the rotary engine which was eventually used in steam trains

GREAT FIRE OF LONDON

- * Just after midnight on 2nd September 1666, a fire broke out at a bakery owned by Thomas Farriner in Pudding Lane, London
- * The fire spread through the central part of London, which remained on fire for four days. Temperatures reached 1250°C
- * **Reasons the fire spread so fast:**
 - * London's houses, built of wood and thatch were tightly packed together, with jetties making them even closer together
 - * London had been suffering from a drought
 - * London's Mayor, Sir Thomas Bloodworth, would not allow a firebreak
 - * The wind was very strong and blew the fire eastwards. It swept away embers which set fire to other places
 - * Roads were blocked with people trying to leave and the riverfront had caught fire

FIVE Rs OF SIGNIFICANCE

- * **Remarkable** – it stands out from other events at the time
- * **Remembered** – people chose to record it at the time so we have documents on it
- * **Resonant** – it matches our experience in some way
- * **Revealing** – it tells us a great deal about life and ideas in the past
- * **Results in change** – events go in a different direction after it

GLORIOUS REVOLUTION

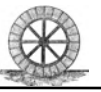
- * King James II, who was Catholic, took the throne in 1685, at a time when tensions were still high between Protestants and Catholics
- * In 1687, James dissolved Parliament to try and appoint one that would support him
- * Many saw the monarchy as too powerful and wanted Parliament to have more power
- * In 1688, seven English nobles wrote to Dutch Prince William of Orange, husband of James' daughter Mary, asking him to invade and restore Protestantism
- * He did, and James II fled to France after the English army refused to take orders from their Catholic officers
- * William II and Mary II became co-monarchs, and England became a constitutional monarchy. Parliament passed the Bill of Rights and became more powerful

TIMELINE 1660-1750



INDUSTRIALISATION

KNOWLEDGE ORGANISER



KEY WORDS

Industrialisation	Change to more industrial methods of production such as factories
Reform	To change something, often for the better
Epidemic	Widespread occurrence of an infectious disease in a community
Cholera	A waterborne disease, often fatal at the time
Chartism	Movement for political reform between c.1838 - c.1848
Elections	Method by which people choose their representatives
Whitechapel	Area of London
The Five	The five women murdered by 'Jack the Ripper' in Whitechapel

CHILDREN AND FACTORIES

- * What was life like for children in factories?
 - * Often deformed by the work that they did, or got 'cotton lung'
 - * Often treated cruelly and were beaten and had little access to education
 - * They often worked long hours which had an impact on the rest of their lives
- * What was done to try and reform factories?
 - * **1802** – First Factory Act. Children could not work more than 12 hours a day, receive some education and sleep no more than 2 to a bed. **Largely ignored**
 - * **1819** – Second Factory Act. Children under 9 must not work and 9-16-year olds could not work more than 12 hours. **Largely followed**
 - * **1833** – Third Factory Act. Children aged 9-13 could not work more than 8 hours and had to have 2 hours of education a day. Children under 18 must not work at night. Factories were inspected. **Largely followed**
 - * **1844** – Fourth Factory Act. 12-hour shifts had to include a 90-minute break, ages of children had to be verified, machinery must be fenced in and owners had to thoroughly clean every 14 months. **Largely followed**

DOCTORS AND TOWNS

- * As people rushed to towns for work, there weren't enough houses for everyone
- * Slums and back-to-back housing were built. People lived in awful conditions
- * Sewer systems couldn't cope with demand and people lived in attics and cellars
- * Cholera first hit Britain in 1831. No one knew what caused it
- * In 1854, John Snow made the connection between Cholera and contaminated water

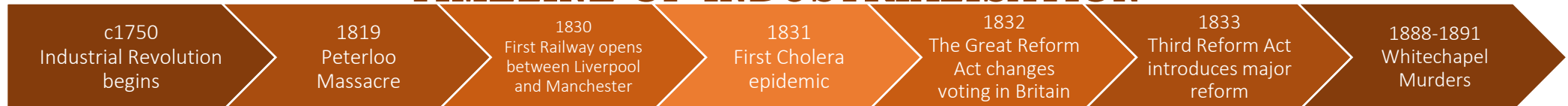
POLITICAL & VOTING REFORM

- * On 16th August 1814, 18 people were killed at a demonstration in Manchester for voting reform. This was known as the Peterloo Massacre
- * People didn't have the same amount of representation. Some large towns had no MPs at all, whereas some places had a tiny population and still elected an MP
- * **What was done to reform politics and voting?**
 - * **The Great Reform Act (1832)** – Middle-class got the vote, rotten boroughs were abolished and large towns got MPs. But, only 813,000 of 24 million could vote.
 - * **Chartism (1840s)** – Chartists wrote a total of 3 separate charters, and delivered them to Parliament along with petitions, to try and reform the voting system. All three were rejected and the movement ended.
 - * **The Second Reform Act (1867)** – Gave 2.1 million men the vote. These people were mostly upper working class
 - * **The Third Reform Act (1884)** – Gave working-class men in the countryside the vote. A total of 5.7 million men now had the vote

WOMEN IN THE 19TH CENTURY

- * 27% worked, mostly as servants or in factories
- * Women could not afford to eat well so their bodies were smaller and less developed. This, along with a lack of pain relief, made childbirth dangerous
- * The ideal role of a woman was as the 'angel of the house', and domestic violence became a serious concern in the later 19th Century
- * Once a woman married, she had no rights to her money or property. They could not vote and had no legal right to their children
- * Between 1888 and 1891, 5 women were murdered in Whitechapel, London.
- * Whitechapel was perfect for crime as it was overcrowded, the police were scared to go there, it had lots of allies and yards and had a thick smog
- * **How did women fight back?**
 - * Matchstick Girls Strike – women who worked in matchstick factories campaigned for better working conditions.
 - * Kensington Society – Drafted the 'Ladies' Petition' to demand the vote for female householders
 - * Caroline Norton – campaigned for Marriage Rights for women to be able to divorce their husbands

TIMELINE OF INDUSTRIALISATION



THE BRITISH EMPIRE

KEY WORDS

Empire	A group of territories controlled by one country
East India Company	A British company created to trade with India
Slavery	The condition in which one human being is owned by another
Enslaved Person	A person forced to work for no pay with a loss of freedom
Indigenous	People who lived in a place before colonisation
Plantation	A place which grew crops such as sugar and tobacco
Imperialism	The policy of building up and strengthening an Empire
Colonise	To send settlers to, and take control of a place
Middle Passage	Transport of enslaved people from Africa to the Americas
Freedom Fighter	Enslaved people who fought to gain their liberty from slavery
Abolitionist	Group/person who encouraged the ending of slavery
Emancipation	The freeing of enslaved people

‘THE BRITISH EMPIRE’

- * **The British Empire is difficult to define for the following reasons:**
 - * The Empire was different at different times in its history
 - * The Empire was different in different places
 - * The experience of Empire was different for different people
 - * The British Empire is controversial
 - * Historians are changing our view on the British Empire

BRITAIN IN IRELAND

- * **Medieval colonisation:** Henry II invades Ireland. He gives land to English Lords, and Ireland becomes England’s first colony
- * **Tudor attempts at control and expansion:** Elizabeth wanted more control over Ireland. This led to war between the two, and England was victorious. The remaining Irish Lords surrendered their titles and land
- * **Ulster:** In 1607, James I tried to colonise Ulster. This led to conflicts between the Catholics and Protestants. A truce was signed in 1643
- * **Cromwell’s invasion:** Cromwell wanted full control. His troops attacked rebel towns. They confiscated land from the Irish rebels

KNOWLEDGE ORGANISER



THE EAST INDIA COMPANY

- * The East India Company was set up to trade with India. The East India Company used their own army to take over parts of India.
- * The Nawab of Bengal (local leader), Siraj-ud-Daulah fought back after the British tried to avoid paying taxes and increased the size of their base. The British retaliated, and won. They could then dominate Bengal and controlled the area
- * At the Battle of Buxar, the Mughal Emperor was defeated, and the British effectively became the rulers of Bengal. The East India Company gradually expanded, controlling most of modern-day India

THE CARIBBEAN AND SLAVERY

- * **European countries, such as Britain, colonised Caribbean countries**
- * They developed them into a region of port cities and plantations
- * Farming in the Caribbean was hard and dangerous. Colonisers used enslaved African people, and created the Transatlantic Slave Trade

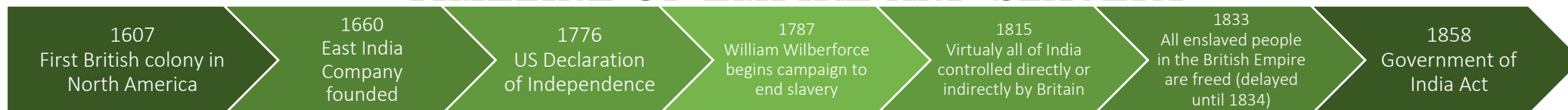
THE END OF THE SLAVE TRADE

- * In 1807, the Slave Trade was abolished
- * In 1833, all enslaved people in the British Empire were freed, technically. Freed people had to work as apprentices (on the same plantations for no pay) until 1838.
- * Freed people were discriminated against, and the Caribbean remained dominated by white plantation owners
- * There are different interpretations on why the Slave Trade was abolished:
 1. Individuals (such as William Wilberforce) and the abolitionist movement
 2. The Slave Trade became unprofitable
 3. Rebellions by enslaved people – e.g. Tacky’s Revolt and the Haitian Revolution

IMPACT OF THE EMPIRE

- * **India:** The British Raj introduced new rules to control the people, such as taxes, religious division and restricting voting power.
- * **China:** After the Opium Wars, Britain gained territory such as Hong Kong, and forced China to open ports for trade. This had social and economic impacts
- * **Australia and New Zealand:** Indigenous people lost their land, and fought back against British expansion

TIMELINE OF EMPIRE AND SLAVERY



WOMEN'S SUFFRAGE KNOWLEDGE ORGANISER



KEY WORDS

Suffrage	The right to vote in elections
Parliament	Consists of the House of Commons, where MPs sit, and the House of Lords. They make the laws of the UK
Election	When voters choose who to represent them in Parliament
Government	The largest party in Parliament. They have the most votes and so can make most of the laws
Suffragettes	Campaigned for the vote for women using violent methods
Suffragists	Campaigned for the vote for women using non-violent methods
Militant	Favouring violent methods for a political cause
Propaganda	Information presented in a potentially misleading way
Martyr	A person who is killed for their beliefs
MP	A Member of Parliament who represents their constituency

WHO'S WHO?



Emmeline Pankhurst:

Creator of the Women's Social and Political Union (WSPU), known as the Suffragettes. She was helped by her two daughters, Christabel and Sylvia. Emmeline and her daughters were regularly arrested and imprisoned. They welcomed this as it meant that they made news headlines which helped their cause.



Millicent Fawcett:

Leader of the National Union of Women's Suffrage Society, known as the Suffragists. Held peaceful protests and used persuasion to convince male MPs that women should get the vote. Fawcett was a moderate but committed campaigner.



Emily Wilding Davison:

A Suffragette who was often imprisoned for her protests. On 4th June 1913 she stepped in front of King George V's horse at Epsom. She died from her injuries. It is still debated whether she deliberately meant to step in front of the horse or not.

LIFE FOR WOMEN IN 1900

Everything a woman owned became her husband's when she got married	It was harder for women to divorce a man than it was for a man to divorce a woman	Husbands did not have to support their wives with money after they were divorced
Women were not supposed to be seen in public when they were pregnant	Fathers made the important decisions about their child's upbringing	Women had to give up working when they were married

ARGUMENTS FOR AND AGAINST

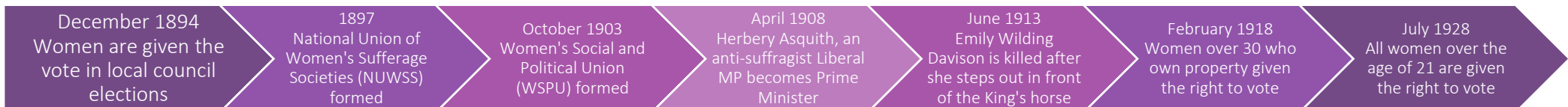
These are some of the arguments given in the 20th Century on why women should or should not get the vote:

Women cannot fight in wars. Why should they have the vote?	Britain is supposed to be a democratic country yet only men have the vote
Women are too emotional to have the vote. Men's brains are more logical	Unmarried women can have important jobs such as lawyers and doctors
Women can already influence their husbands or father's vote. Why do they need their own?	Women can already vote for councillors and can serve as councillors themselves. They can govern well

WOMEN IN WORLD WAR ONE

- Before the war, women carried out the majority of domestic work, such as cooking and cleaning within the home
- After the outbreak of war, there was a labour shortage as men went off to fight
- Women worked in munitions factories and in other agricultural roles
- In 1916, the Women's Land Army was formed
- The war helped to change people's perspectives and attitude towards women in the workplace
- However, work was still limited and reduced after the conclusion of WW1

TIMELINE OF WOMEN'S SUFFRAGE



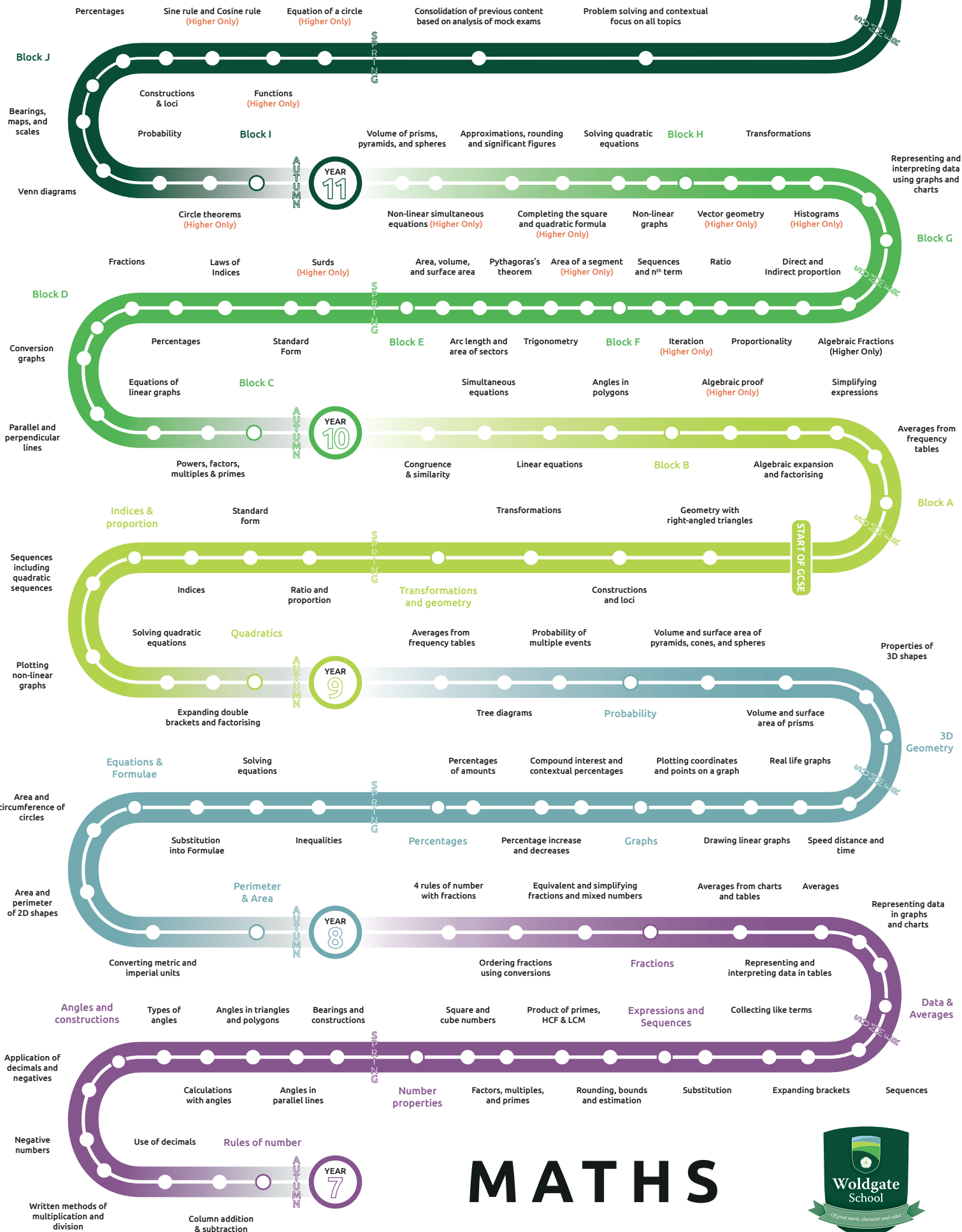


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GCSE EXAMINATIONS

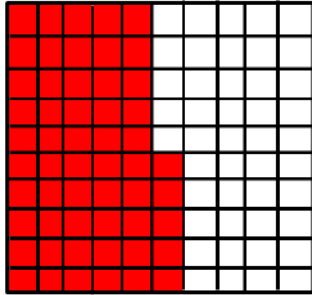
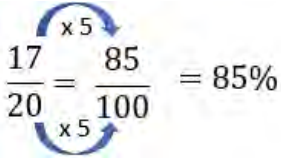
3 papers – 1 non-calculator and 2 calculator papers



MATHS





Topic/Skill	Definition/Tips	Example
Percent	A proportion out of 100.	55% means 55 out of 100 
Converting percentages to fractions	The percentage is the numerator and 100 is the denominator. Simplify where possible.	$82\% = \frac{82}{100} = \frac{41}{50}$
Converting fractions to percentages	<i>Non-calculator:</i> Convert the fraction into an equivalent fraction with 100 in the denominator, then the numerator is your percentage. <i>Calculator:</i> $\frac{\text{numerator}}{\text{denominator}} \times 100$	 $\frac{17}{20} = \frac{85}{100} = 85\%$ $\frac{11}{35} = \frac{11}{35} \times 100 = 31.4\% (1d.p)$
Finding percentages of amounts (<i>non-calculator</i>)	You can find <ul style="list-style-type: none"> • 50% by dividing the original by 2 • 10% by dividing the original by 10 • 1% by dividing the original by 100 Then you can use multiples of these to work out any percentage. It's also useful to know you can swap around the amount and the percentage, this sometimes makes it easier to work out.	Find 32% of 70: 10% = $70 \div 10 = 7$ 30% = $7 \times 3 = 21$ 1% = $70 \div 100 = 0.7$ 2% = 1.4 32% = $30\% + 2\% = 21 + 1.4 = 22.4$ Find 28% of 50: 28% of 50 = 50% of 28 = 14
Multiplier	The decimal equivalent of a percentage. You can calculate a multiplier by dividing the overall percentage you need by 100.	The multiplier for finding 12% is 0.12 The multiplier for increasing by 12% is 1.12, because overall you need 112%. The multiplier for decreasing by 12% is 0.88, because overall you need 88%.
Finding percentages of amounts (<i>calculator</i>)	Multiply your original amount by the multiplier.	Find 32% of 70 $70 \times 0.32 = 22.4$



<p>Increasing or decreasing by a percentage</p>	<p>Non-calculator: Work out the increase then add it on to the original, or subtract it from the original for a decrease.</p> <p>Calculator: Multiply by the multiplier</p>	<p><i>Increase 70 by 32%</i> $32\% \text{ of } 70 = 22.4$ So, 32% increase of 70 = $70 + 22.4 = 92.4$</p> <p><i>Increase 70 by 32%:</i> $70 \times 1.32 = 92.4$ <i>Decrease 70 by 32%</i> $70 \times 0.68 = 47.6$</p>
<p>Successive percentages</p>	<p>If a percentage change is applied over and over again, you can multiply the original by the multiplier to the power of the number of times the percentage change is applied.</p> <p>For example, compound interest over n years: <i>Original amount</i> \times <i>multiplier</i>^{n}</p>	<p>Jane invests £6000 in a bank account with compound interest of 2.8%. Calculate how much interest she earns over 5 years. At the end of the 5th year her investment is worth $6000 \times 1.028^5 = \text{£}6888.38$ Total amount of interest earned = $6888.38 - 6000 = \text{£}888.38$</p>
<p>Reverse percentages</p>	<p>Reverse percentages are where you know the amount something is worth after a percentage change but need to work out the original amount.</p> <p>Start by working out the total percentage something is NOW worth.</p> <p><i>Non-calculator:</i> break this down into 10%, or 25%, etc. and then build it up to work out 100%</p> <p><i>Calculator:</i> Divide the new amount by the multiplier that would have been used</p> <div style="text-align: center;"> </div>	<p>A t-shirt in a 20% off sale is now worth £12.80. What was its price before the sale? $80\% = \text{£}12.80$ $20\% = \text{£}12.80 \div 4 = \text{£}3.20$ $100\% = \text{£}16.00$</p> <p>The price of a ticket costs £30 inclusive of 12% tax. What is the pre-tax cost of the ticket?</p> <p style="text-align: center;">$100\% + 12\% = 112\% = 1.12$</p> <div style="text-align: center;"> </div> <p style="text-align: center;">Original price $= \text{£}30 \div 1.12 = \text{£}26.79$</p>
<p>Simple Interest</p>	<p>This is where interest is calculated as a percent of the original loan.</p> <p><i>(Simple interest is rarely used in the real world)</i></p>	<p>Jane invests £6000 in a bank account with simple interest of 3%. Calculate how much interest she earns over 5 years. $(6000 \times 0.03) \times 5 = \text{£}900$</p>

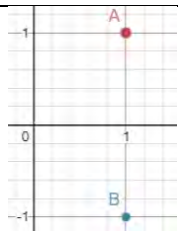
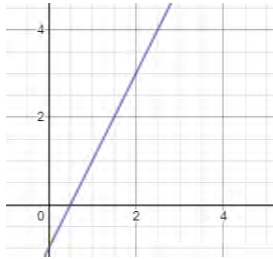

Year 8 – Spring 1, Percentages



<p>Finding the whole when given part</p>	<p><i>Non-calculator:</i> break down the percentage you have (into 10%, or 25%, etc.) and then build it up to work out 100%</p> <p><i>Calculator:</i> Divide by the multiplier for the percentage you have.</p>	<p>Jenny scored 75% on an exam, she got 24 marks. What was the exam out of?</p> <p><i>Non-calculator:</i> $75\% = 24$ marks $25\% = 24 \div 3 = 8$ $100\% = 25\% \times 4 = 8 \times 4 = 32$ marks</p> <p><i>Calculator:</i> $24 \div 0.75 = 32$ marks</p>
<p>Writing quantities as a percentage</p>	<p>Write it as a fraction first, where the denominator is the total. Then convert your fraction into a percentage</p>	<p>A football club has 27 male members and 18 female members. What percentage are female.</p> $\frac{18}{45} = \frac{2}{5} = \frac{4}{10} = \frac{40}{100} = 40\%$
<p>Calculating a percentage change</p>	$\frac{\text{Difference}}{\text{Original}} \times 100\%$ <p>If you do not have a calculator, try to convert your fraction into an equivalent fraction with a denominator of 100</p>	<p>A games console is bought for £200 and sold for £250.</p> $\% \text{ change} = \frac{50}{200} \times 100 = 25\%$ <p>OR $\frac{50}{200} = \frac{25}{100} = 25\%$</p>


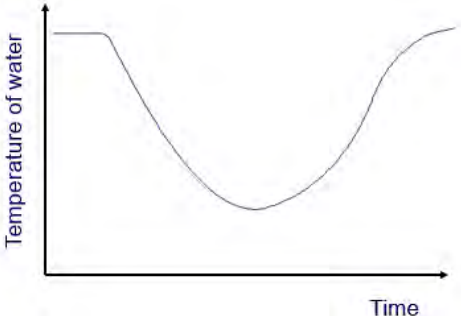
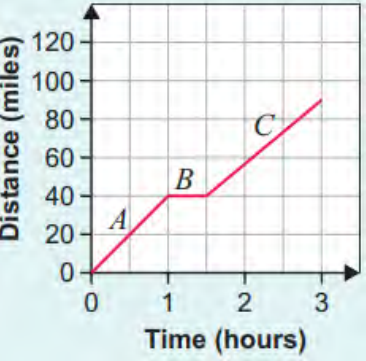
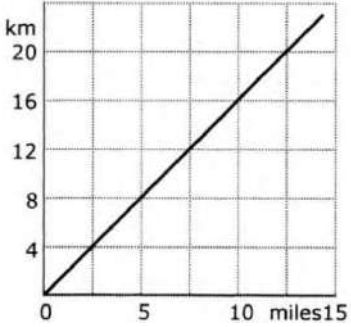
Year 8 – Spring 2, Graphs Knowledge Organiser



Topic/Skill	Definition/Tips	Example																
Co-ordinates	Coordinates are written (x,y) . “Along the corridor and up the stairs”.	 A: (1 , 1) B: (1 , -1)																
Midpoint of a Line	The point that is exactly half-way in between two other points. You can calculate the midpoint by adding the x coordinates and divide by 2, then adding the y coordinates and divide by 2.	Find the midpoint between (2 , 1) and (6 , 9) $\frac{2+6}{2} = 4$ and $\frac{1+9}{2} = 5$ So, the midpoint is (4 , 5)																
Straight Line Graph	The standard equation of a linear graph is $y = mx + c$ where m is the gradient and c is the y-intercept . The equation can look different; if m or c are zero, or if the equation has been rearranged	 $y = 2x - 1$ Different examples: $x = y$ $y = 4$ $x = -2$ $y + x = 10$ $2y - 4x = 12$																
Plotting a Linear Graph	Method : Table of Values Construct a table of values to calculate coordinates.	Find some coordinates of the line $y = x + 3$ <table border="1" data-bbox="949 1451 1401 1563"> <tr> <td>x</td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>y= x +3</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> </table>	x	-3	-2	-1	0	1	2	3	y= x +3	0	1	2	3	4	5	6
x	-3	-2	-1	0	1	2	3											
y= x +3	0	1	2	3	4	5	6											
Parallel Lines	Parallel lines have the same gradient 	The lines $y = 4x + 2$ and $y = 4x - 1$ are parallel because they have the same gradient (4)																
Perpendicular Lines	Perpendicular lines meet at 90 °. Their gradients will be the negative reciprocal of each other. The product of two perpendicular gradients is always -1.	The lines $y = 2x + 2$ and $y = -\frac{1}{2}x - 1$ are perpendicular because their gradients are the negative reciprocal of each other. Also $2 \times -\frac{1}{2} = -1$																

Year 8 – Spring 2, Graphs Knowledge Organiser



<p>Graphical Simultaneous Equations</p>	<p>To solve two simultaneous equations using a graphical method: plot them both and look up the coordinate where the lines intersect.</p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>$y = 4 - x$ and $y = 2x + 1$</p> <p>Solution is (1,3) Or $x = 1, y = 3$</p> </div> </div>
<p>Real Life Graphs</p>	<p>Graphs that are used to model a real-life situation.</p> <p>The actual meaning of the values depends on the labels and units on each axis.</p> <p>The gradient might have a contextual meaning. The y-intercept might have a contextual meaning. The area under the graph might have a contextual meaning.</p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>This graph shows how the temperature of the water in a pan changes when frozen peas are added. The gradient shows the rate of change of the temperature, the y-intercept shows the initial temperature of the pan.</p> </div> </div>
<p>Distance Time Graphs</p>	<p>You can find the speed from the gradient of the line (Distance ÷ Time) The steeper the line, the quicker the speed.</p> <p>A horizontal line (like part B on the example) means the object is not moving (stationary).</p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>In Part A of the journey, the distance travelled was 40 miles and the time was 1 hour.</p> <p style="text-align: center;">$40 \div 1 = 40$</p> <p>The speed was 40mph.</p> </div> </div>
<p>Conversion Graphs</p>	<p>A line graph to convert one unit to another.</p> <p>Can be used to convert units (eg. miles and kilometres) or currencies (\$ and £)</p> <p>Find the value you know on one axis, read up/across to the conversion line and read the equivalent value from the other axis.</p>	<p style="text-align: center;">Conversion graph miles ↔ kilometres</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>$8 \text{ km} = 5 \text{ miles}$</p> </div> </div>

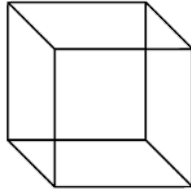
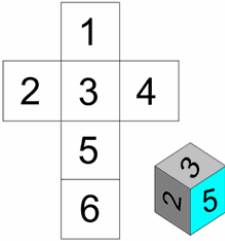

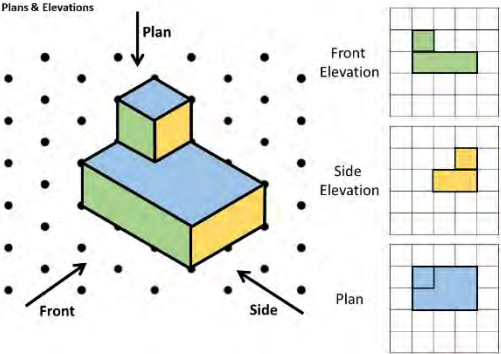
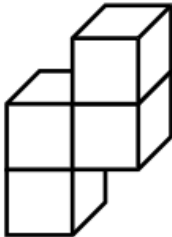
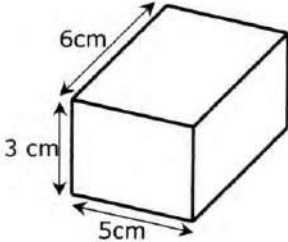
Year 8 – Spring 2, Graphs Knowledge Organiser



<p>Speed, Distance, Time</p>	<p>Speed = Distance ÷ Time Distance = Speed x Time Time = Distance ÷ Speed</p> <div style="text-align: center;"> </div> <p>Remember the correct units.</p>	<p>Speed = 4mph (4 miles every hour) Time = 2 hours</p> <p>Find the Distance.</p> $D = S \times T = 4 \times 2 = 8 \text{ miles}$
<p>Inequality Graphs</p>	<p>Plot the line as you would an equation and then shade the relevant side.</p> <p>Dotted line for $<$ or $>$ Solid line for \leq or \geq</p>	<div style="text-align: center;"> </div> <p>$y < x + 2$</p>

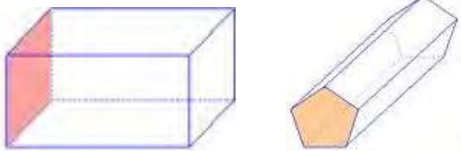
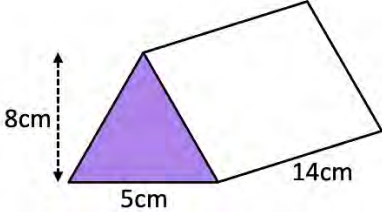

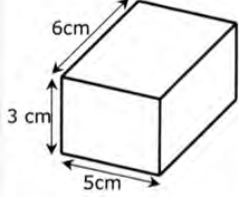
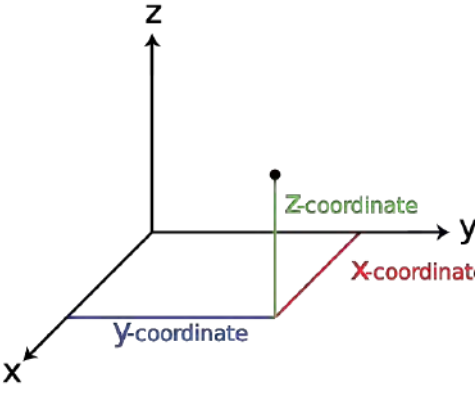
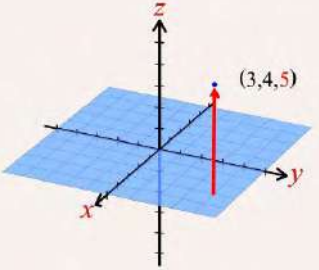
Year 8 – Summer 1, 3D Geometry Knowledge Organiser



Topic/Skill	Definition/Tips	Example
Properties of Solids	<p>Faces = flat surfaces</p> <p>Edges = sides/lengths</p> <p>Vertices = corners (vertex is the singular version)</p>	<p>A cube has 6 faces, 12 edges and 8 vertices.</p> 
Nets	<p>A pattern that you can cut and fold to make a model of a 3D shape.</p>	
Isometric Drawings	<p>3D drawings on dotted isometric paper.</p> <p>Lines are only ever drawn vertically or on the diagonals.</p>	
Plans and Elevations	<p>A plan is a view from above.</p> <p>Side and front elevations are the views looking directly at either the side or the front.</p> <p>Plans and elevations are always 2D drawings.</p>	<p>Plans & Elevations</p> 
Volume	<p>Volume is a measure of the amount of 3D space inside a solid shape.</p> <p>Units: mm^3, cm^3, m^3 etc.</p>	<p>Volume: $4cm^3$</p> <p>Because it is made of 4 cm-cubes.</p> 
Volume of a Cuboid	<p>$V = \text{Length} \times \text{Width} \times \text{Height}$</p> <p>$V = L \times W \times H$</p>	 <p>volume = $6 \times 5 \times 3$ = 90 cm^3</p>

Year 8 – Summer 1, 3D Geometry Knowledge Organiser



<p>Cross-section</p>	<p>The cross-section of a prism is the shape we get when cutting straight through it. It is the shape of a slice.</p>	
<p>Volume of a Prism</p>	<p>V= Area of Cross Section x Depth</p> <ul style="list-style-type: none"> • Calculate the area of the cross-section first • Then multiply this by the depth of the prism <p>You can also use the Volume of a Prism formula for a cylinder</p>	 <p>Area of $\Delta = \frac{5 \times 8}{2} = 20\text{cm}^2$</p> <p>Volume = $20\text{cm}^2 \times 14 = 280\text{cm}^3$</p>
<p>Volume of Pyramids and Cones</p>	<p>$\frac{1}{3}$ Area of the base x Height</p> <ul style="list-style-type: none"> • Calculate the area of the base first • Then multiply by the height • Then divide by 3 	 <p>Area of the base: $3 \times 4 = 12$</p> <p>Volume = $12 \times 4 \div 3 = 16\text{cm}^3$</p>
<p>Surface Area</p>	<p>The total area of all the faces</p> <p>Work out the area of each face and then add these areas up to get the total surface area.</p> <p>Count the number of faces to make sure you don't miss one.</p> <p>Label the faces so that you don't repeat one.</p>	 <p>Area of front and back = $3 \times 5 \times 2 = 30\text{cm}^2$</p> <p>Area of left and right = $3 \times 6 \times 2 = 36\text{cm}^2$</p> <p>Area of top and bottom = $5 \times 6 \times 2 = 60\text{cm}^2$</p> <p>Surface area = $30 + 36 + 60 = 126\text{cm}^2$</p>
<p>3D Coordinates</p>	 <p>3D coordinates are written (x, y, z)</p>	 <p>3 in the direction of the x-axis, 4 in the direction of the y-axis, 5 in the direction of the z-axis Hence (3, 4, 5)</p>

Year 8 – Summer 2, Statistics and Probability Knowledge Organiser



Topic/Skill	Definition/Tips	Example																																																	
Probability	The likelihood/chance of something happening. It is expressed as a fraction, decimal or percentage between 0 (impossible) and 1 (certain).																																																		
Calculating Probability	$\frac{\text{Number of Successful Outcomes}}{\text{Total Number of Outcome}}$	The probability of rolling a 3 on a dice = $\frac{1}{6}$ The probability of choosing a day of the week starting with T = $\frac{2}{7}$																																																	
Venn Diagrams	A Venn diagram is used to sort information. You can use a Venn diagram to work out probabilities. The overlap section represents things that belong to both groups. The things outside the circles belong to neither group.	<p>Probability of a number that is a multiple of 3 = $\frac{3}{10}$</p>																																																	
Two Way Tables	Use a two-way table to present data with two variables. You must be able to fill in gaps by adding or subtracting given information so that each row and column adds up to give the correct total.	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th style="background-color: #d9ead3;">Like Skateboards</th> <th style="background-color: #d9ead3;">Do Not Like Skateboards</th> <th style="background-color: #d9ead3;">Totals</th> </tr> </thead> <tbody> <tr> <th style="background-color: #d9ead3;">Like Snowmobiles</th> <td style="background-color: #d9ead3;">80</td> <td style="background-color: #d9ead3;">25</td> <td style="background-color: #d9ead3;">105</td> </tr> <tr> <th style="background-color: #d9ead3;">Do not like Snowmobiles</th> <td style="background-color: #d9ead3;">45</td> <td style="background-color: #d9ead3;">10</td> <td style="background-color: #d9ead3;">55</td> </tr> <tr> <th style="background-color: #d9ead3;">Totals</th> <td style="background-color: #d9ead3;">125</td> <td style="background-color: #d9ead3;">35</td> <td style="background-color: #d9ead3;">160</td> </tr> </tbody> </table> <p style="text-align: right; font-size: small;">MathBits.com</p> <p>25 people out of 160 asked do not like skateboards but do like snowmobiles.</p>		Like Skateboards	Do Not Like Skateboards	Totals	Like Snowmobiles	80	25	105	Do not like Snowmobiles	45	10	55	Totals	125	35	160																																	
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Sample space diagram	The set of all possible outcomes of an experiment. For example, the diagram shows all the different possible outcomes of rolling two dice and adding the scores. You can then use this to work out probabilities.	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #d9ead3;">+</th> <th style="background-color: #d9ead3;">1</th> <th style="background-color: #d9ead3;">2</th> <th style="background-color: #d9ead3;">3</th> <th style="background-color: #d9ead3;">4</th> <th style="background-color: #d9ead3;">5</th> <th style="background-color: #d9ead3;">6</th> </tr> </thead> <tbody> <tr> <th style="background-color: #d9ead3;">1</th> <td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> <tr> <th style="background-color: #d9ead3;">2</th> <td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td> </tr> <tr> <th style="background-color: #d9ead3;">3</th> <td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <th style="background-color: #d9ead3;">4</th> <td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> <tr> <th style="background-color: #d9ead3;">5</th> <td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td> </tr> <tr> <th style="background-color: #d9ead3;">6</th> <td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td> </tr> </tbody> </table> <p>The probability of getting a total of 4 = $\frac{3}{36}$</p>	+	1	2	3	4	5	6	1	2	3	4	5	6	7	2	3	4	5	6	7	8	3	4	5	6	7	8	9	4	5	6	7	8	9	10	5	6	7	8	9	10	11	6	7	8	9	10	11	12
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<p>Mutually Exclusive Events</p>	<p>Events are mutually exclusive if they cannot happen at the same time.</p> <p>The probabilities of an exhaustive set of mutually exclusive events adds up to 1.</p>	<p>Examples of mutually exclusive events:</p> <ul style="list-style-type: none"> - Turning left and right - Heads and Tails on a coin <p>Examples of non mutually exclusive events:</p> <ul style="list-style-type: none"> - King and Hearts from a deck of cards, because you can pick the King of Hearts
<p>Experimental Probability</p>	<p style="text-align: center;">$\frac{\text{Number of Successful Trials}}{\text{Total Number of Trials}}$</p> <p>This is also called Relative Frequency</p> <p>You can use relative frequency to work out an estimate number of times something might happen:</p> <p style="text-align: center;">$\text{Relative Frequency} \times \text{No. of Trials}$</p>	<p>A coin is flipped 50 times and lands on Tails 29 times.</p> <p>The relative frequency of getting Tails = $\frac{29}{50}$.</p> <p>If I flip the coin 100 times I would expect around 58 tails.</p>
<p>Bias</p>	<p>A biased coin, or biased dice is a coin or dice where the probability of each outcome is not equal.</p>	<p>A coin is flipped 50 times and lands on Tails 39 times. It is highly likely it is biased towards tails as we would have expected only 25 tails if it was fair.</p>
<p>Tree Diagrams</p>	<p>Tree diagrams show all the possible outcomes of an event and calculate their probabilities.</p> <p>All branches must add up to 1 when adding downwards.</p> <p>This is because the probability of something not happening is 1 minus the probability that it does happen.</p> <p>Multiply going across a tree diagram to work out the probability of both events happening.</p> <p>Fractions or decimals, the process is the same</p>	<div style="text-align: center;"> <p>Bag A Bag B</p> </div> <p>The probability of getting a Black from Bag A and a Red from Bag B is</p> $\frac{4}{5} \times \frac{1}{3} = \frac{4}{15}$

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Averages from Frequency Tables

Mean – Add a 'number x frequency' column and divide its total by the total frequency

Median – Add a cumulative frequency column (running total). Find the middle value.

Mode – Find the highest frequency, then look to the left to see what this represent

Data value	Tally	Frequency	Frequency x Data value
2		3	6
3		2	6
4		5	20
5		3	15
6		4	24
7	-1	6	42
8		3	24
9		4	36
SUM =		30	173

Mean: $173 \div 30 = 5.77$

Median: 6 (because we need the 15th and 16th)

Mode: 7 (because it has the highest frequency)

Grouped Frequency Tables

Add a 'midpoint' column to find the middle of each group. Add a column for 'midpoint x frequency' and repeat as above.

Modal group – is the group with the highest frequency

Employees	Companies Frequency f	Midpoint m	f x m
1 - 5	1	3	3
6 - 10	3	8	24
11 - 15	16	13	208
16 - 20	4	18	72
21 - 25	1	23	23
TOTALS	25		330

Mean: $330 \div 25 = 13.2$

Modal group: 11-15

Stem and Leaf Diagrams

A stem and leaf diagram is formed by splitting the numbers into two parts – for example, tens and ones. The tens form the 'stem' and the ones form the 'leaves'.



Scatter Graphs

Each cross represents the data of one participant.

A line trending upwards shows a positive correlation between the two variables and a line trending downwards suggests a negative correlation.

A line of best fit is a straight line that shows the general trend of the data. You can use it to find an estimate from your scatter graph.

