Woldgate School

Of great merit, character & value

Part of the Family

Wonder Learning Partnership

Educate | Empower | Engage | Enrich

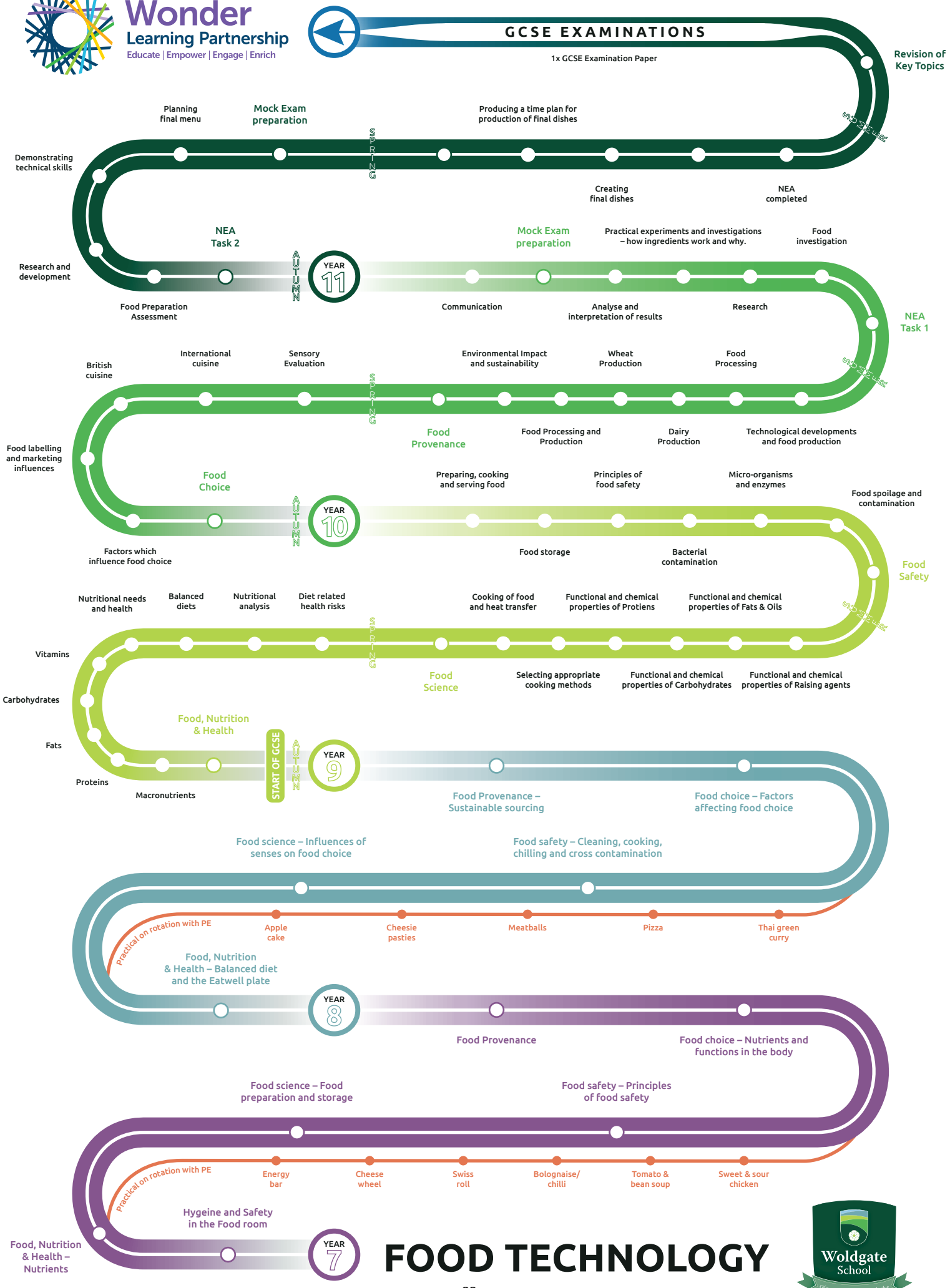
Knowledge Book 2024-25

Name:

Form:

YEAR 10

Wonder Learning Partnership
Educate | Empower | Engage | Enrich



FOOD TECHNOLOGY

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Job Roles

Front of House

- Head waiter
- Waiting Staff
- Sommelier
- Maître d'hôte
- Concierge
- Receptionist
- Porter
- Chauffeur

Housekeeping

- Chambermaid
- Cleaner
- Maintenance
- Caretaker

Management

- Hotel
- Food & Beverage
- Restaurant
- Housekeeping
- Marketing

Types of Provision

Commercial

Non-Commercial

Residential

Non-Residential

Types of Service

Food

Table:

- Plate
- Silver
- Banquet
- Family-style
- Gueridon

Counter:

- Cafeteria
- Fast Food
- Buffet

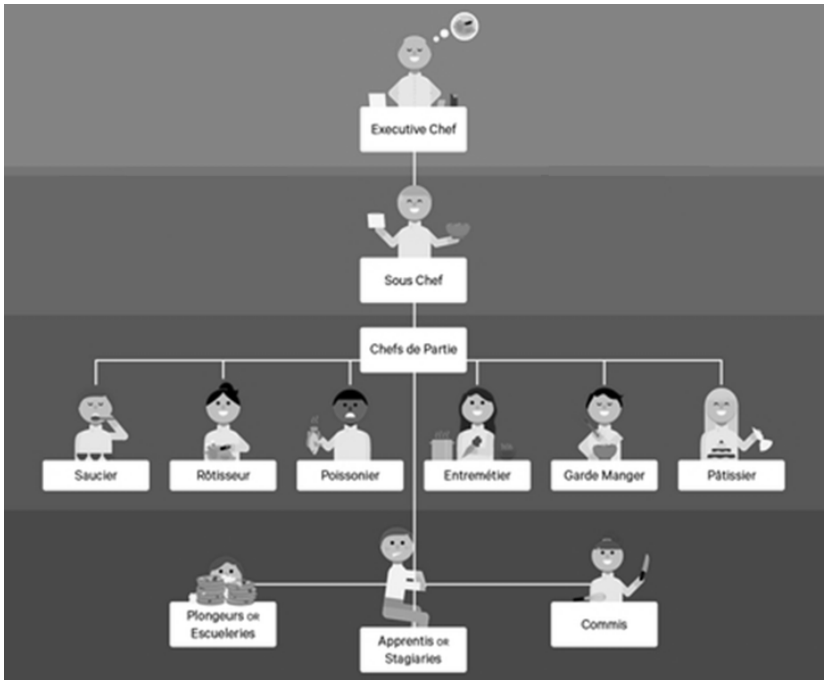
Personal:

- Tray or Trolley
- Home delivery
- Takeaway

Residential

- **Rooms**: single/double/suite/family
- **Hygiene** facilities: en-suite/shared
- **Refreshments**: breakfast/lunch/evening meal; restaurant; room service
- **Leisure**: spa/gym/pool
- **Conference/function** facilities

Kitchen Brigade



Qualifications

KS4

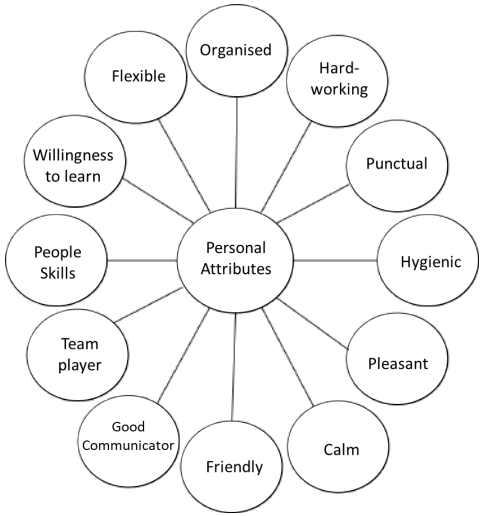
- Level 1/2 vocational award

Post-16

- Certificate in H&C
- Certificate in culinary skills
- Diploma in professional cookery
- Diploma in H&C

University

- BSc/BA degree



Ratings

Contracts

Full-time: set days/times set - entitled to holiday/sick pay

Part-time: same as FT but fewer hours

Casual: usually agency – not entitled to holiday/sick pay

Seasonal: usually Christmas/Summer to suit business need for specific time frame

Zero-hour: no hours or days stated – not entitled to holiday/sick pay

Renumeration

- Salary
- Holiday pay
- Pension
- Sick pay
- Tips
- Bonus

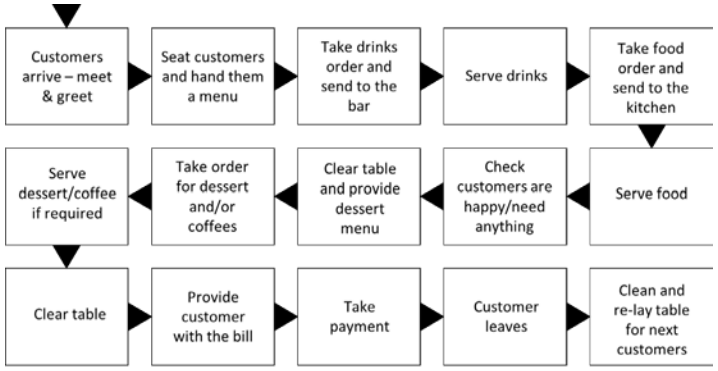
Front of House

Dress Code

Areas

- Reception
- Lounge/waiting area
- Seating/dining area
- Counter
- Bar
- Equipment stations
- Toilets/Cloakroom
- Stairs/Lifts
- Safety Equipment

Workflow



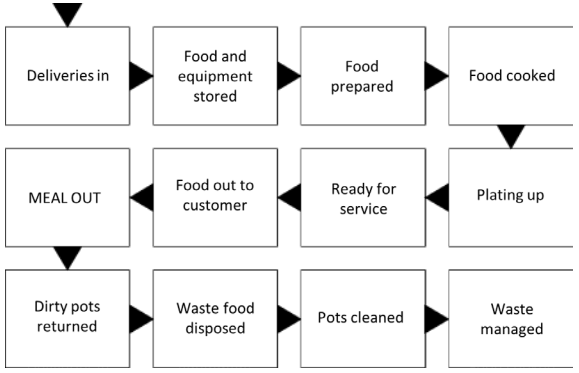
Back of House

Dress Code

Areas

- Delivery
- Storage
- Staffing
- Preparation
- Cooking
- Serving
- Cleaning
- Waste

Workflow



Documentation

- Accident forms
- Risk Assessments

F A C T O R S

Media

Printed:

- Posters
- Flyers
- Magazines/newspapers
- Business cards

Broadcast:

- TV
- Radio

Internet:

- Social media
- Websites
- Blogs
- Podcasts
- Email

E Q U I P M E N T

Large

Storage: walk-in fridge, blast chiller
Preparation: standing floor mixer
Cook: Deep-fat fryer, griddle
Clean: pass-through dishwasher; glass washer

Mechanical

Preparation: blender, weighing scales
Cook: temperature probe
Specialist: pizza oven, coffee machine

Small

Preparation: mixing bowls, chopping boards
Cook: pans, tongs baking dish/tray
Serving: plates, glassware

Safety

Cleaning: detergents, cloths, waste bags
Preparation: date labels, foil
Safety: fire extinguisher, first aid box, oven gloves

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FRENCH

GCSE EXAMINATIONS

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

Verbs followed by 'à' or 'de' | Using infinitives as nouns | Verbs that take 'être' in the perfect tense

Future career paths | Talking about travelling

Numbers and percentages | Francophone countries | *Comparatives and superlatives* | *using 'en' + present participle* | **My personal world** | *Demonstrative articles: 'ce, cet, cette, ces'* | *Translating with 'depuis'* | Talking about shopping for clothes | *'si' clauses* | *'après avoir' + past participle*

Our planet

Accomodation | The environment | Geography and climate | Environmental problems | *The passive voice* | Discussing new technologies | Describing your town / village | *Using pronoun 'y'* | Understanding directions | Your ideal home | **My future plans** | Future plans and hopes | Talking about earning money

The perfect tense of modal verbs | Discussing holidays | Describing illnesses and accidents | *Modal verbs – devoir, vouloir, pouvoir* | *The imperative* | Opinions on dishes

Festivals | Food and drink items

YEAR 11

The conditional | Dream holidays | **Travel and tourism** | *The simple future* | Giving advice | Mental health | *The partitive article*

Lifestyle and wellbeing

My family and friends | Appearances | *Direct object pronouns* | Family | **My school life** | Opinions on school subjects | Discussing school rules | *Imperfect past tense*

Near future tense | *Wide range of negatives*

Making plans to go out | *Perfect past tense* | Weekend routines | Friendship | Role models | *Adjectival agreement* | Celebrations | School in Francophone countries | *Comparative adjectives* | Talking about what school used to be like

Forming and answering questions | My life online | Health advice | Illnesses and Injuries | Body parts | Food and Drink

TV

START OF GCSE

YEAR 10

An active life | The present tense | **Media and technology** | *Combining 3 tenses* | *Avoir phrases (illnesses)* | *Il faut (and other obligation phrases)* | *Negatives* | *Partitive articles* | *Manger, boire, prendre* | *Adjective agreements* | *Jouer à vs. Faire de*

Sport

Sport and Health

Revise present tense including irregular 'lire' | *Negatives ' ne…jamais, ne…rien'* | *Revise Perfect tense - regulars and irregulars* | *Using 3 tenses together* | **Cultural Topic (Film)** | *Adjectival agreements* | *Comparatives and superlatives* | *Reflex verbs* | *Introduce conditional* | *Revise perfect tense*

SPRING TERM

Revise near future tense | Digital technology | Films | Reading | Past shopping trip | Characters | Themes | Descriptions | Relationships | Ideal friend / teacher | Film reviews

Forming questions using 'tu' | TV programmes | Favourite/least favourite celebrities | New Year | Speciality dishes and ingredients | Food | At the market | Activities | Opinions

AUTUMN TERM

YEAR 9

Adjectival agreement (singular and plural) | **TV, Cinema and Technology** | *Writing in 3 tenses together* | *Near future tense* | *Quantities with 'de'* | *Partitive articles (du, de la, des)* | *Present Tense*

Festivals

Festivals

Near future tense | *Using sequencers* | *Combining 2 tenses (Present and Future)* | **Holidays** | *Present irregulars – 'avoir' and 'être'* | *'Au', 'en', 'aux' with countries* | *Perfect tense – avoir regulars and irregulars* | *Perfect tense – être verbs* | *Negatives* | *Combining 2 tenses (Present and Perfect)*

SPRING TERM

Preposition 'à' | Places in a town | Times of day | Activities in town | Future plans | Key details – where, who with, what it is like | Past activities | Transport | Theme park visit | Problems | Comparisons

Present tense of 'aller' | Rooms in a house | House types | Countries | Questions | Weather | Hobbies and free-time activities | Key frequency phrases

AUTUMN TERM

YEAR 8

Basic negatives | *Present tense* | **Where I live** | *Si clauses with present tense* | *Regular Present Tense* | *Infinitive Structures* | *Present tense of 'faire' + 'de'* | *Present tense of 'jouer' + 'à'*

Sports

Free Time

Singular present tense of 'aimer' | *Negatives with 'ne…pas'* | *Adjective agreements (feminine singular)* | *Possessive adjectives* | **School** | *Grammar: Basic adjectival agreements (plurals)* | *Qualifiers* | *Present tense er' verbs* | *Basic opinions* | *Key connectives*

SPRING TERM

Singular present tense of 'être' | Descriptions | Opinions | Classroom items and language | School subjects | Clothes and uniform | Colours | School day | Days of the week | School facilities

Family members

Name, Age and Birthday | Greetings

Definite and indefinite articles

AUTUMN TERM

YEAR 7

Singular present tense of 'avoir' | *Question words* | **Self, Family and Friends**

Colour = Topic | Regular = Vocab | *Italic = Grammar*

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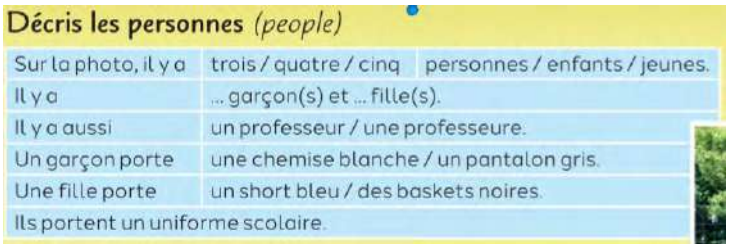
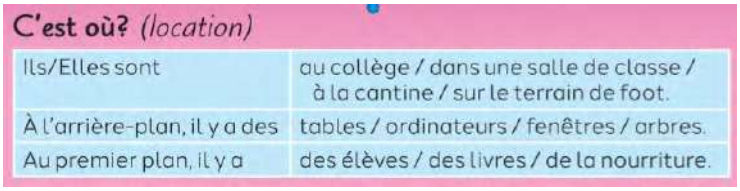
Y10 French Knowledge Organiser: Module 3 'Ma vie scolaire'

Point de départ 1:

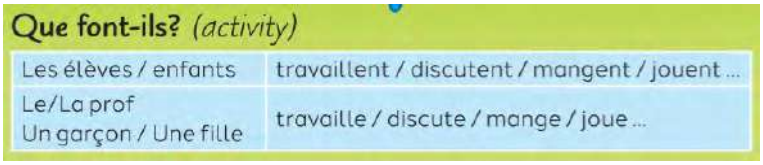
Describing photos:



On the photo, there is / are	3 / 4/ 5 people / children / young people.
There is / are	… boy(s) and … girl(s).
There is / are also	a teacher (m. / f.).
A girl is wearing	Blue shorts / black trainers.
They wear school uniform.	



They are	at school / in a classroom / in the canteen / on the football pitch.
In the background, there are	tables / computers / windows / trees.
In the foreground, there are / is	pupils / books / food.



The pupils / children	are working / are talking / are eating / are playing …
The teacher / a boy / girl	is working / talking / eating / playing.

1 Quelle est ta matière préférée ?

Which subjects do you like and which subjects don't you like?

What do you think to the teachers in your school?

What is your school like?

A typical day at school

What do you do during break / lunch time?

hat do you do

Comparing the school day:

Ici, Chez nous, Dans mon collège,	la journée scolaire est plus courte la pause-déjeuner est plus longue	qu'au Canada. qu'au Sénégal. qu'en France. qu'à la Martinique.
	les cours commencent à ... et finissent à ...	
Au Canada, Au Sénégal, En France, À la Martinique,	ils ont cours le samedi ils n'ont pas cours le mercredi après-midi les cours commencent à ... et finissent à ...	et je trouve ça important/intéressant/utile.

Here, At ours, In my school,	the school day is shorter the lunchbreak is longer	than in Canada. than in Senegal. than in France. than in Martinique.
	the lessons start at … and finish at …	
In Canada, In Senegal, In France, In Martinique,	they have lessons on Saturdays theyb don't have lessons on Wednesday afternoons lessons start at … and finish at …	and I find that important / interesting / useful.

En Angleterre (In England) En Écosse (In Scotland) En Irlande du Nord (In Northern Ireland) Au pays de Galles (In Wales)	on va à l'école de ... ans à ... ans (we go to school from ... to ...years old) on commence la journée scolaire à (we start the school day at...) on termine la journée scolaire à... (we end the school day at...) on apporte notre propre déjeuner (we bring our own lunch) on porte un uniforme scolaire (we wear a school uniform) on n'achète pas nos propres cahiers (we don't buy our own exercise books) on ne redouble pas (we don't repeat the year) on étudie... (we study...) on n'étudie pas... (we don't study ...)	mais (but) pourtant (however) cependant (meanwhile) néanmoins (nevertheless) en revanche (on the other hand) tandis qu' (while) alors qu' (whereas) quoi qu' (even though)	en France (in France) à Monaco (in Monaco) au Cameroun (in Cameroon) en Belgique (in Belgium)	ils/elles vont à l'école de ... ans à ... ans (they go to school from ... to ...years old) ils/elles commencent la journée scolaire à... (they start the school day at...) ils/elles terminent la journée scolaire à... (they end the school day at...) ils/elles n'apportent pas leur propre déjeuner (they don't bring their own lunch) ils/elles ne portent pas d'uniforme scolaire (they don't wear a school uniform) ils/elles achètent leurs propres cahiers (they buy their own exercise books) ils/elles redoublent (they repeat the year) ils/elles étudient (they study) ils/elles n' étudient pas ... (they don't study ...)

2 C'est injuste

The rules in your school

il faut (you must) il est necessaire de (it is necessary to) on peut (you can)	être à l'heure (be on time) porter l'uniforme scolaire (wear a school uniform)			
il est interdit de/d' (it is forbidden to) il ne faut pas (you must not) on ne peut pas (you can not)	être en retard (to be late) mâcher du chewing-gum (chew chewing gum) manquer les cours (miss lessons) utiliser son portable en classe (use your phone) porter des bijoux (wear jewellery) porter des piercings (wear piercings) porter trop de maquillage (wear too much makeup) harceler d'autres élèves (harass other students) tricher pendant un contrôle (cheat during a test) sortir de l'école pendant l'heure du déjeuner (leave school during lunch)	je trouve ça (I find it) je pense que c'est (I think that it's) à mon avis, c'est (in my opinion, it's)	raisonnable (reasonable) juste (fair) logique (logical) injuste (unfair) ridicule (ridiculous) frustrant (frustrating)	car c'est dangereux (because it's dangerous) parce que ce n'est pas dangereux (because it's not dangerous) parce qu'il faut protéger les jeunes (because you must protect young people) parce qu'on n'est pas des bébés (because we are not babies) parce qu'il faut respecter les autres (becuase you must respect others) car la mode n'a pas de place à l'école (because fashion doesn't have a place in school) parce que ce n'est pas important (because it's not important) car l'école, c'est pour apprendre (because school is for learning)

Quel est ton avis sur les règles?					
À mon avis, Je pense que	c'est	un peu assez très trop	important juste	parce que parce qu' car	c'est important pour les examens. c'est essentiel pour le travail scolaire.
					il faut respecter les autres.
			injuste nul stupide strict / sévère		l'uniforme scolaire (n')est (pas) confortable / pratique.
					j'ai des problèmes avec le bus. j'ai toujours faim en classe.

What is your opinion on the rules?					
In my opinion, I think that	it is	a bit quite very too	important fair	because	it is important for exams. it is essential for school work.
					it is necessary to respect others.
			unfair rubbish stupid strict		school uniform is (not) comfortable / practical.
					I have problems with the bus. I am always hungry in class.

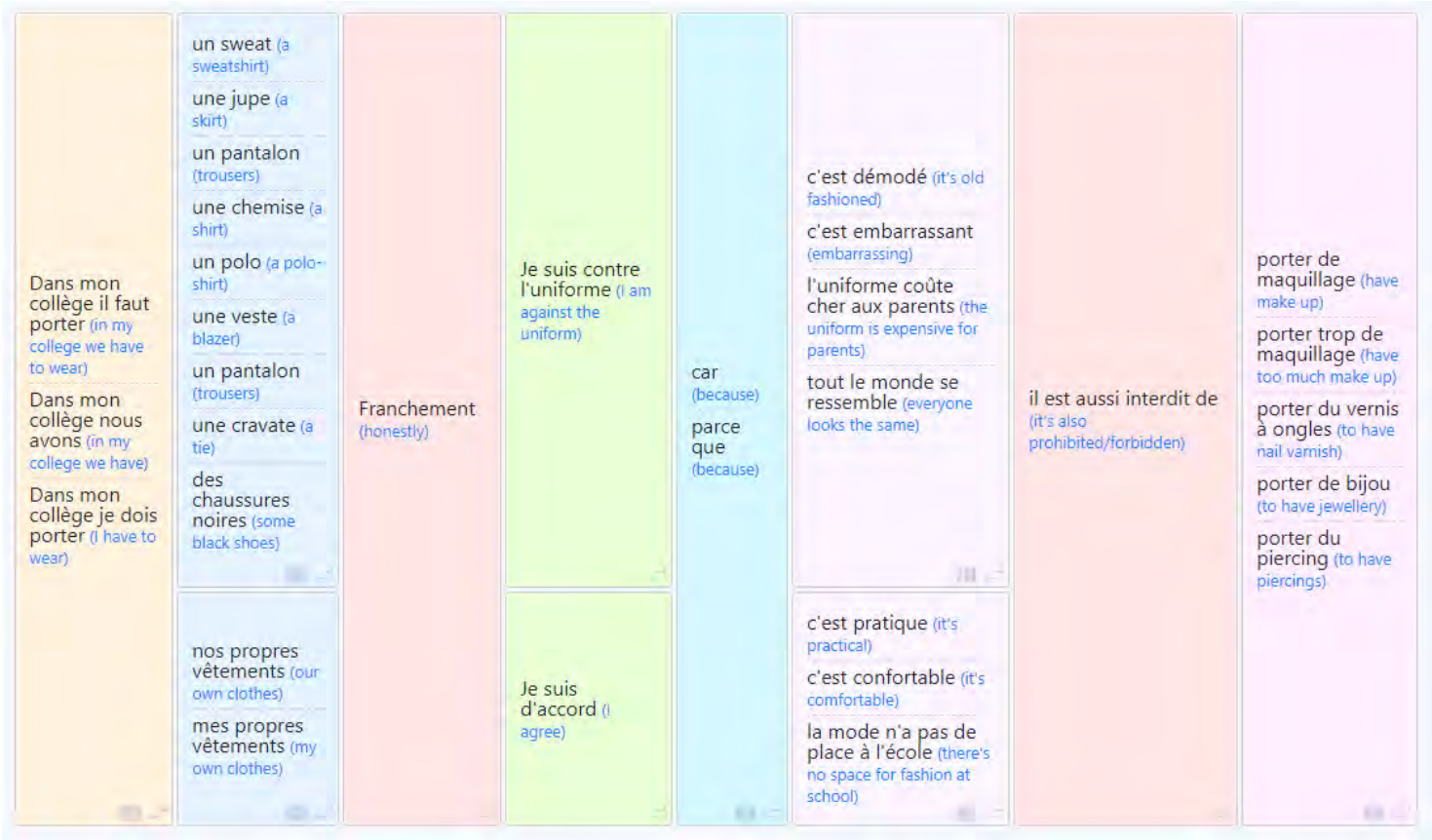
To talk about rules, use:

il faut + infinitive
Il faut porter l'uniforme scolaire.
You have to wear school uniform.

il ne faut pas + infinitive
Il ne faut pas arriver en retard.
You must not arrive late.

il est + adjective + *de* + infinitive
Il est interdit de manger en classe.
It is forbidden to eat in class.
Il est important de faire ses devoirs.
It is important to do your homework.

School Uniform



3 As-tu fait des progrès ?

What you used to do at school:

J'ai appris beaucoup de choses.	I learnt lots of things.
J'ai bu du coca en classe.	I drank cola in class.
J'ai écrit une histoire extraordinaire.	I wrote an extraordinary story.
J'ai fait beaucoup de progrès.	I made lots of progress.
J'ai reçu de mauvaises notes.	I got bad grades.
J'ai lu beaucoup d'articles.	I read lots of articles.
J'ai pris des photos exceptionelles.	I took exceptional photos.
J'ai couru dans le couloir.	I ran in the corridor.
J'ai ri pendant un examen.	I laughed during an exam.

What did you do yesterday?

Hier (Yesterday) Avant-hier (The day before yesterday) La semaine dernière (Last week)	j'ai eu (I had)	une journée très occupée (a very busy day)	une journée assez relaxante (a quite relaxing day)	une journée plutôt normale (a rather normal day)	
En premier (firstly) Tout d'abord (first of all) Hier matin (Yesterday morning)	à six heures (at 6 o'clock) à sept heures et demie (at half past 7) à neuf heures et quart (at quarter past 9) à onze heures moins le quart (at quarter to 11)	je me suis réveillé(e) (I woke up) je me suis levé(e) (I got up) je me suis fait le petit-déjeuner (I made myself breakfast)	je me suis brossé(e) les dents (I brushed my teeth) je me suis douché(e) (I showered)	et j'ai mis (and I put on)	une robe verte (a green dress) une chemise bleue (a blue shirt) une veste noire (a black jacket) une jupe violette (a purple skirt) un pantalon en coton (cotton pants) des bottes en cuir (some leather boots)
Puis (Then) Ensuite (Next) Hier après-midi (Yesterday afternoon)	à midi (at midday) à treize heures et demie (at half past 1) à quatorze heures et quart (at quarter past 2)	j'ai déjeuné. J'ai mangé (I had lunch. I ate)	un croissant avec du beurre et de la confiture (a croissant with butter and jam) de la soupe (some soup) da la salade (some salad) du jambon (some ham) du saucisson (some cured sausage) des pâtes (some pasta) du riz (some rice) des légumes (some vegetables)	et (and)	j'ai bu du café au lait (I drank some coffee with milk) j'ai bu du thé (I drank some tea) j'ai bu du chocolat chaud (I drank some hot chocolate) j'ai bu de l'eau (I drank some water)
Après l'école (After school) Pendant l'après-midi (During the afternoon) Hier soir (Yesterday evening) Un peu plus tard (A bit later)	je suis allé(e) au centre commercial (I went to the shopping centre) je suis rentré(e) chez moi (I returned home) je suis sorti(e) avec mes amis (I went out with my friends) je suis descendu(e) du bus (I got off the bus) je suis resté(e) chez moi (I stayed at home)	et (and)	j'ai fait mes devoirs (I did my homework) j'ai promené le chien (I walked the dog) j'ai joué de la guitare (I played guitar) j'ai joué au foot (I played soccer) j'ai fait du shopping (I did shopping) j'ai aidé mes parents (I helped my parents) j'ai écouté de la musique (I listened to music) j'ai regardé une émission de télévision (I watched a TV show)		

4 Souvenirs d'école

What was your primary school like?

A l'école primaire (At my primary school)	J'avais (I used to have)	beaucoup de temps libre (a lot of free time) beaucoup d'amis (lots of friends) up peu de devoirs (little homework)	pourtant (however) cependant (hovewer) mais (but) Et (and) aussi (also)	Maintenant (Now)	Je joue (I play)	Au hand (handball) Au volley (volleyball)
	J'allais (I used to go)	Au zoo (the zoo) À la piscine (the swimming pool)			Je chante (I sing)	dans la chorale (in a choir) dans une bande (in a band)
	J'étais (I used to be)	Dans une chorale (in a choir) Membre de l'équipe de foot (a member of a football team)			Je participe (I participate)	Au spectacle de Noël (at the Christmas show) A une competition (in a competition)
	Je faisais (I used to do)	Du judo (judo) Du piano (piano)			Je fais (I do)	du karate (karate) de la cuisine (cooking)
	test) sortir de l'école pendant l'heure du déjeuner (leave school during lunch)					

The **imperfect tense** is used to talk about what things were like in the past / what used to happen.
To form the imperfect tense, remove the *-ons* from the *nous* form of the verb in the present tense, e.g.
regarder (to watch) → *nous regardons* → *regard-*
Then add these endings:

je regard**ais**	nous regard**ions**
tu regard**ais**	vous regard**iez**
il/elle/on regard**ait**	ils/elles regard**aient**

The verb être has the stem ***ét-***, e.g. *j'**étais*** (I was/I used to be).

Indirect object pronouns mean 'to me', 'to us', etc.
They are used to replace **à + noun**, e.g. after the verbs *donner à* (to give to) and *parler à* (to speak to). The word 'to' is not always used in English.

Indirect object pronouns go before the verb.
(to) me ***me*** or ***m'***
(to) us ***nous***

*Il **me** parlait.* He used to talk **to me**.
*Elle **nous** donnait des cadeaux.*
She used to give **us** presents/presents **to us**.

5 Les langues et l'avenir

ne ... pas	not
ne ... jamais	never
ne ... rien	nothing
ne ... que	only
ne ... aucun(e)	no/not any/not a single ...
ne ... ni ... ni ...	neither ... nor ...

Most **negatives** are in two parts and go around the verb.

*Je **ne** regarde **que** des films sous-titrés.*
I **only** watch subtitled films.
*Je **n'**écoute **aucun** podcast en allemand.*
I **don't** listen to **a single** podcast in German.
Note that ***aucun*** agrees with the noun.

Ne** ... **ni** ... **ni is in three parts. The ***ne*** comes before the verb. Put a noun after each ***ni***.
*Je **n'**etudie **ni** l'anglais **ni** le français.*
I study **neither** English **nor** French.

Use the imperfect to talk about what **used to** happen (*j'allais*).

Use the present to talk about what **is** happening **now** (*je vais*).

Use the near future to talk about what **is going to** happen (*je vais aller*).

À l'école primaire, est-ce que tu apprenais une langue étrangère?	Oui, j'apprenais ... Oui, je n'apprenais que ...
	Non, je n'apprenais aucune langue étrangère.
Au collège, tu apprends quelles langues étrangères?	Au collège, je n'apprends que ... En ce moment, j'apprends ..., mais je n'apprends pas ...
Est-ce que tu aimes parler une autre langue?	J'aime / Je n'aime pas apprendre ... parce que ...
	À mon avis, c'est intéressant / important / inutile.
À l'avenir, comment est-ce que tu vas améliorer ton français?	À l'avenir, je vais regarder des films sous-titrés. écouter des podcasts en français. utiliser une appli sur mon portable. lire des blogs en français.

At primary school, did you learn a foreign language?	Yes, I used to learn … Yes, I only learn …	
	No, I don't learn any foreign language.	
At school, which foreign languages do you learn?	At school, I only learn … At the moment, I learn … , but I don't learn …	
Do you like speaking another language?	I like / I don't like learning … because …	
	In my opinion, it's interesting / important / useless.	
In the future, how are you going to improve your French?	In the future, I am going to	watch films with subtitles.
		listen to podcasts in French.
		use an app on my mobile phone.
		read blogs in French.

Future school visit

Dans X ans (In X years) L'année prochaine (Next year) La semaine prochaine (Next week) Après-demain (The day after tomorrow) Bientôt (Soon)	je vais faire une échange scolaire (I'm going to do a school exchange) tu vas faire une échange scolaire (you're (sing.) going to do a school exchange) il, elle, on va faire une échange scolaire (he, she, we are going to do a school exchange) nous allons faire une échange scolaire (we're going to do a school exchange) vous allez faire une échange scolaire (you're (pl.) going to do a school exchange) Ils/elles vont faire une échange scolaire (they are going to do a school exchange)	cela aide à (this helps to) cela permet de (this allows to) amoins de (in order to) pour (to)	faire de nouvelles connaissances (meet new people) faire de nouveaux amis (make new friends) suivre des cours (attend classes) comprendre plus facilement une autre langue (understand another language more easily) perfectionner une autre langue (become fluent in another language) voyager à de nouveaux endroits (travel to new places) connaître un autre pays (get to know another country) apprendre d'autres cultures et traditions (learn of other cultures and customs) vivre une grande aventure (experience a great adventure) profiter d'une nouvelle expérience (experience something new)	Je pense que les échanges ont des bienfaits inestimables (I think that exchanges have invaluable benefits) Je pense que l'échange scolaire va être cool (I think that the school exchange is going to be cool) Je suis pour les échanges scolaires (I'm in favour of school exchanges)

What subjects would you like to study next year?

Wonder Learning Partnership
Educate | Empower | Engage | Enrich

GCSE EXAMINATIONS

Revision

YEAR 11

AUTUMN
- UK in the 21st century
- Development case study
- Barriers to development
- Uneven development
- Dynamic development
- The global development divide and measuring development
- Defining development

SPRING
- Physical Geography of the UK
- London's booming population
- The UK's global role and our influence in conflicts, media and food
- Human Geography of the UK
- The UK's ageing population
- The UK's changing economy and post-industrial UK

SUMMER
- Resources & shortages
- Food, Water and Energy security
- Food security
- Resource reliance
- Farming & fishing for food
- Theories on the future
- Fieldwork
- 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
- Ecosystems and interdependence
- Urban trends in the UK
- How cities began and grew
- Urban futures
- Characteristics of polar regions
- Human Impacts on a tropical rainforest
- Sustaining ecosystems

YEAR 10

AUTUMN
- Tropical storms, drought & El Nino
- Extreme weather conditions
- Global hazards
- Global circulation system and climate zones
- START OF GCSE

SPRING
- Contrasting case studies of natural weather
- Plate boundaries and tectonic cases studies
- Structure of the Earth
- Mitigation of tectonic hazards
- Distinctive Landscapes
- The physical and human landscape of the UK
- Coastal erosional and depositional landforms
- Rivers
- Fieldwork
- What makes a distinctive landscape
- Geomorphic processes
- River landforms
- Coasts case study

SUMMER
- UK impacts of climate change
- Greenhouse effect
- Natural causes of climate change
- Patterns of climate change
- Changing Climates
- Global impacts of climate change
- Human causes of climate change
- Evidence of climate change
- Transition to GCSE
- 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

YEAR 9

AUTUMN
- Glaciation
- Loss of Culture
- Globalisation
- BREXIT
- UK's place in the wider world
- Going global

SPRING
- Movement
- Evidence of glaciation in the Lake district
- Glacier formation
- Clone Towns
- Changing glaciers
- Location
- Skills
- Physical Issues
- Location
- Skills
- Physical Issues
- Physical Issues
- Skills
- Location
- Flood hazards and management
- Fluvial process including weathering
- Water cycle
- Human Issues
- Biomes
- Asia – What are the opportunities and challenges facing Asia?
- River features and landforms
- Hydrology – Why are rivers important?

SUMMER
- 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
- Addressing inequality
- Sustainable development
- Poverty
- Change over time
- Measuring development
- Distribution of Wealth
- Earth structure
- Volcano processes
- Tsunami
- Resource risk – Are we running out of natural resources?
- Soils
- Hydrosphere
- Sustainability
- Urban problems
- Deindustrialisation
- 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
- Physical Issues
- Skills
- Location
- Urbanisation
- Population – Can we solve the problem of overpopulation?

YEAR 8

AUTUMN
- Difference between weather and climate
- Weird Weather – Is Weather becoming more extreme?
- Map skills
- How do Geographers think?
- Locational knowledge
- What is a geographer?

SPRING
- Extreme weather
- Beast from the East
- Coasts – Should we defend our coastlines?
- Landforms
- Coastal case study
- Rainforests
- Tourism
- Coastal processes
- Coastal management
- Economy Vs Environment – Are we risking our natural world in order to make money?
- Antarctica
- Hydrocarbons

YEAR 7

GEOGRAPHY

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Global Hazards

Global pattern of air circulation

Atmospheric circulation is the large-scale movement of air by which heat is distributed on the surface of the Earth.

Hadley cell	Largest cell which extends from the Equator to between 30° to 40° north & south.
Ferrel cell	Middle cell where air flows polewards between 60° & 70° latitude.
Polar cell	Smallest & weakest cell that occurs from the poles to the Ferrel cell.

Climate Zones

The global circulation system controls temperatures by influencing precipitation and the prevailing winds. This creates distinctive climate zones.

Temperate Climate	Mid-latitude, 50° - 60° north &south of the Equator. Here air rises and cools to form clouds and therefore frequent rainfall. e.g. UK.
Tropical Climate	Found along the Equatorial belt, this zones experiences heavy rainfall and thunderstorms. E.g. Brazil.
Polar Climate	Within the polar zones cold air sinks causing dry, icy and strong winds. E.g. Antarctica.
Desert Climate	30° north and south of the equator, sinking dry airs leads to high temperatures without conditions for rainfall. E.g. Libya.

High and Low Pressure

High Pressure	Low Pressure
Caused by cold air sinking. Causes clear and calm weather	Caused by hot air rising. Causes stormy, cloudy weather.

What is wind?

Wind is the movement of air from an area of high pressure to one of low pressure.

Types of wind

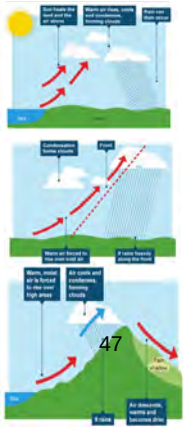
Katabatic Winds	Winds that carry air from the high ground down a slope due to gravity. e.g. Antarctic.
Trade Winds	Wind that blow from high pressure belts to low pressure belts.
Jet Streams	These are winds that are high in the atmosphere travelling at speeds of 225km/h.

What is precipitation?

This is when water vapour is carried by warm air that rises. As it gets higher, the air cools and the water vapour condenses to form a cloud. As water molecule collide and become heavier, the water will fall to Earth as precipitation.

Types of precipitation

Convectional Rainfall	When the land warms up, it heats the air enough to expand and rise. As the air rises it cools and condenses. If this process continues then rain will fall.
Frontal Rainfall	When warm air meets cool air an front is formed. As the warm air rises over the cool air, clouds are produced. Eventually steady rain is produced.
Relief Rainfall	When wind meets mountains, the warm air is forced to rise quickly and cool. This leads condensation and eventually rainfall. When the air descend however, little very rainfall falls, creating a rain shadow.

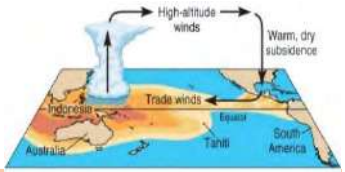


Distribution of Droughts

Drought can occur anywhere throughout the world but they are more frequent between the tropics of Cancer and Capricorn. Many countries in Africa suffer from severe drought, such as Ethiopia but Australia also suffer.

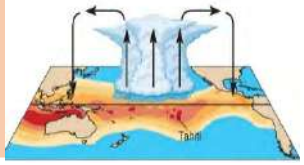
Causes of Drought and floods: El Nino effect

The El Nino effect is also associated with creating dry conditions.



Normally, warm ocean currents off the coast of Australia cause moist warm air to rise and condense causing storms and rain over Australia.

In an El Niño year (every 2-7 years) the cycle reverses. Cooler water off the coast of Australia reverses the wind direction leading to dry, sinking air causing hot weather and a lack of rainfall over Australia and warm, wet air over South America causing storms and floods.



Extremes in weather conditions

The Atacama, Chile
The Andes mountains block moist warm air from travelling further west. This causes rainfall to the east of the mountains, but a rain shallow to the west. Average annual rainfall of 15mm.

Cherrapunji, Khasi Hills, India
This town sees a lot of rain each year (11m per yr). This is due to the reversal of air conditions/directions from sea to land. As clouds travel from the bay of Bengal over Bangladesh they are forced to rise once they reach the Khasi Hills, causing relief rainfall. In the summer, this contributes to monsoons.

Changing pattern of these Hazards

Tropical Storms	Scientists believe that global warming is having an impact on the frequency and strength of tropical storms. This may be due to an increase in ocean temperatures.
Droughts	The severity of droughts have increased since the 1940s. This may be due to changing rainfall and evaporation patterns related to gradual climate change.

Distribution of Tropical Storms.

They are known by many names, including hurricanes (North America), cyclones (India) and typhoons (Japan and East Asia). They all occur in a band that lies roughly between the tropics of Cancer and Capricorn (5-15Degrees N and S of the Equator) and despite varying wind speeds are ferocious storms. Some storms can form just outside of the tropics, but in general the distribution of these storms is controlled by the places where sea temperatures rise above 27°C.

Formation of Tropical Storms

1	The sun's heats large areas of ocean in the summer and autumn. This causes warm, moist air to rise over the particular spots
2	Once the temperature is 27°, the rising warm moist air leads to a low pressure. This eventually turns into a thunderstorm. This causes air to be sucked in from the trade winds.
3	With trade winds blowing in the opposite direction and the rotation of earth involved (Coriolis effect), the thunderstorm will eventually start to spin.
4	When the storm begins to spin faster than 74mph, a tropical storm (such as a hurricane) is officially born.
5	With the tropical storm growing in power, more cool air sinks in the centre of the storm, creating calm, clear condition called the eye of the storm.
6	When the tropical storm hit land, it loses its energy source (the warm ocean) and it begins to lose strength. Eventually it will 'blow itself out'.

Case Study: The Big Dry Australian Drought

Causes

Drought in Australia is often caused by El Niño.

Effects	Management
• Crop failure and dried vegetation. • Bush fires killed 180 people. • Animals died from starvation and dehydration • The number of sheep fell by 6 million. • Rural suicide rates increased	• Severe restrictions on water usage put in place. • Building of new reservoirs and wells. • Farmers now use drought-tolerant crops. • Campaign on educating Australia's population

Case Study: Typhoon Haiyan 2013

Causes

Started as a tropical depression on 2rd November 2013 and gained strength. Became a Category 5 "super typhoon". Main impact on the Philippines.

Effects	Management
• Almost 4,000 deaths. • 130,000 homes destroyed • Water and sewerage systems destroyed causing diseases. • Emotional grief for lost ones.	• The UN raised £190m in aid. • USA & UK sent helicopter carrier ships deliver aid remote areas. • Education on typhoon preparedness.

The structure of the Earth

The Crust	Varies in thickness depending whether it is below oceans or continents. Made up of plates.
The Mantle	Thickest layer (2900km). The heat and pressure means the rock is in a liquid state that is in a state of convection.
The Inner and Outer Core	Hottest section (5000 degrees). Mostly made of iron and nickel and is 4x denser than the crust. Inner section is solid whereas outer layer is liquid.

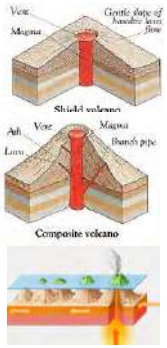
Convection Currents

The Lithosphere is divided into plates which move due to ridge pull and slab push, plus convection currents in the asthenosphere.

1	Radioactive decay of some of the elements in the core and mantle generate a lot of heat.
2	When lower parts of the asthenosphere heat up they become **less dense** and **slowly rise**.
3	As they move towards the top they cool down, become **more dense** and **slowly sink**.
4	These **circular movements** of semi-molten rock are **convection currents**
5	Convection currents create **drag** on the base of the tectonic plates and this combines with ridge push and slab pull to cause movement.

Types of volcanoes

Shield	Made of basaltic rock and form gently sloping cones from layers of runny lava. Location: hot spots and constructive margins. Eruptions: gentle and predictable
Composite	Most common type found on land. Created by layers of ash and lava as the lava is thick and viscous. Location: Destructive margins Eruptions: explosive and unpredictable due to the build of pressure within the magma chamber.
Hotspots	These happen away from any plate boundaries. They occur because a **plume of magma rises** to eat into the plate above. Where lava breaks through to the surface, **active volcanoes** can occur above the hot spot. E.g. Hawaii.



Case Study: Nepal Earthquake, 2015

Causes

- The Indian and Eurasian plates push together - Collision plate boundary.
- The main earthquake occurred 25th April 2015, magnitude 7.8. Numerous aftershocks including one of 7.3 magnitude between 25th April and 12th May.

Effects

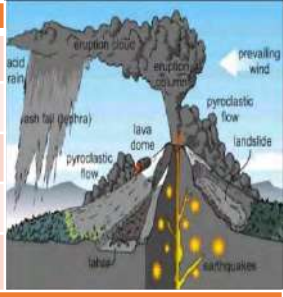
547 landslides, including several on Mt Everest.
180 buildings turned to rubble in Kathmandu.
19,009 people injured and 8635 people killed.
$10 billion worth of damage caused.
Thousands made homeless and had to sleep outside.
Schools, hospitals and other services closed.

Management

British government gave £33million.
India provided emergency aid including 50 tonnes of water and 22 tonnes of food.
NGO's e.g. Red Cross aided injured/homeless.
Long-term 'cash for work' projects were set up where people were paid to work rebuilding their own communities.

Volcanic Hazards

Ash cloud	Small pieces of pulverised rock and glass which are thrown into the atmosphere.
Gas	Sulphur dioxide, water vapour and carbon dioxide come out of the volcano.
Lahar	A volcanic mudflow which usually runs down a valley side on the volcano.
Pyroclastic flow	A fast moving current of super-heated gas and ash (1000°C). They travel at 450mph.
Volcanic bomb	A thick (viscous) lava fragment that is ejected from the volcano.



Managing Volcanic Eruptions

Warning signs	Monitoring techniques
Small earthquakes are caused as magma rises up.	Seismometers are used to detect earthquakes.
Temperatures around the volcano rise as activity increases.	Thermal imaging and satellite cameras can be used to detect heat around a volcano.
When a volcano is close to erupting it starts to release gases.	Gas samples may be taken and chemical sensors used to measure sulphur levels.

Preparation	
Creating an exclusion zone around the volcano.	Being ready and able to evacuate residents.
Having an emergency supply of basic provisions, such as food	Trained emergency services and a good communication system.

Types of Plate Margins

Destructive Plate Margin

When the denser oceanic plate subducts beneath the other plate (usually continental), friction causes it to melt and become molten magma. The magma forces its way up to the surface to form a volcano. This margin is also responsible for devastating earthquakes.

Constructive Plate Margin

Here two plates are moving apart causing new magma to reach the surface through the gap. Volcanoes formed along this fault can cause a submarine (underwater) mountain range such as those in the Mid Atlantic Ridge.

Conservative Plate Margin

A conservative plate boundary occurs where plates slide past each other in opposite directions, or in the same direction but at different speeds. This is responsible for earthquakes such as the ones that happening along the San Andreas Fault, USA.

Collision Zones

Collision zones form when two continental plates collide. Neither plate is forced under the other, and so both are forced up and form fold mountains. These zones are responsible for shallow earthquakes in the Himalayas.

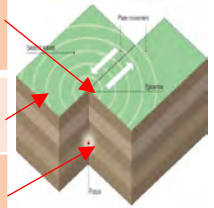
Causes of Earthquakes

Earthquakes are caused when two plates become locked causing friction to build up. From this stress, the pressure will eventually be released, triggering the plates to move into a new position. This movement causes energy in the form of seismic waves, to travel from the focus towards and the epicentre. As a result, the crust vibrates triggering an earthquake.

The point directly above the focus, where the seismic waves reach first, is called the **EPICENTRE**.

SEISMIC WAVES (energy waves) travel out from the focus.

The point at which pressure is released is called the **FOCUS**.



Depth of Earthquake

Shallow Focus	Deep Focus
-Usually small and common. -Seismic waves spread and damage wide area.	-Occur on destructive margins. -Damage is localised as seismic waves travel vertically.

How do we measure earthquakes?

Mercalli Scale

- Measures how much damage is caused, based on observations, not scientific instruments.
- Base from 'Instrument' and 'Weak' to 'Extreme' and 'Cataclysmic'.
- Limitations is that its subjective due to it being based on perception.

Richter Scale

- Is a scientific measurement based on the energy released.
- Measured by seismometers using measurement from 1 – 10
- Logarithmic – each point up the scale is 10 times greater than the one before.

Earthquake Management

PREDICTING

Methods include:

- Satellite surveying (tracks changes in the earth's surface)
- Laser reflector (surveys movement across fault lines)
- Radon gas sensor (radon gas is released when plates move so this sensor detects it)
- Seismometer
- Water table level (water levels fluctuate before an earthquake).
- Scientists also use seismic records to predict when the next event will occur.

PROTECTION

You can't stop earthquakes, so earthquake-prone regions follow these three methods to reduce potential damage:

- Building earthquake-resistant buildings
- Raising public awareness
- Improving earthquake prediction

Earthquake proof buildings ideas

1. Counter-weights to the roof to help balance any swaying.	2. Roof made from reinforced cement concrete.
3. Foundations made from reinforced steel pillars, bail-bearings or rubber.	4. Windows fitted with shatter-proof glass to reduce breakage.
5. Lightweight materials that cause minimal damage if fallen during an earthquake.	6. Ensure gas pipes have an automatic shut off to prevent risk of fire.

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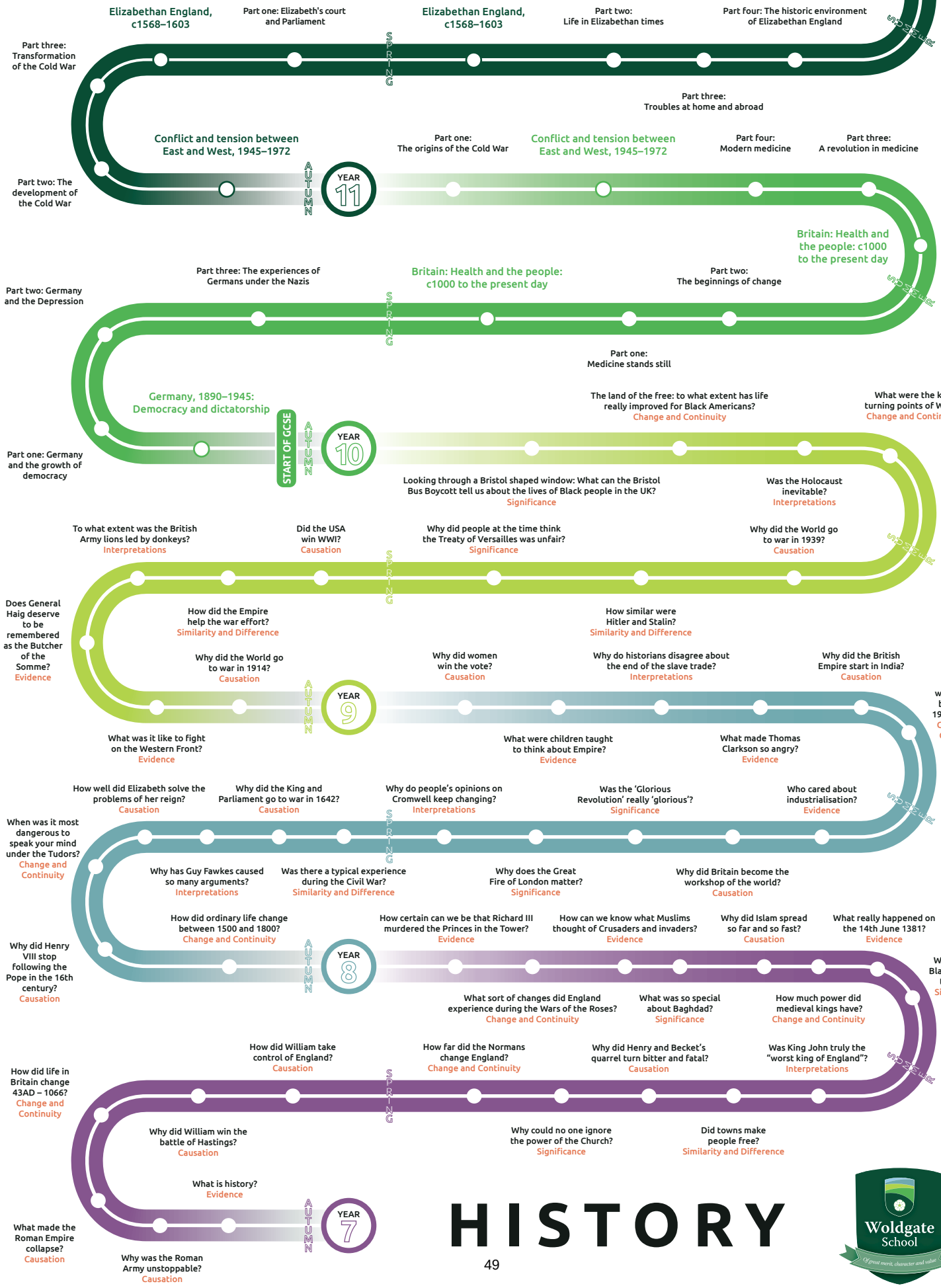
2 Papers – Understanding the Modern World & Shaping the Nation

GCSE EXAMINATIONS

Understanding the Modern World
- Germany 1890-1945. Democracy and dictatorship
- Conflict and tension between East and West: 1945-1972

Shaping the Nation
- Health and the people c1000-present day
- Elizabethan England 1568-1603



HISTORY

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Health and the People c1000 to Present Day

Part 1: Medicine stands still c1000-1500

Medieval beliefs about the causes of illness:

- Punishment from God: Most common belief that was that illness was sent as a punishment from God for sin.
- Bad air: People believed that miasma caused illness. Some people could link bad air to filth on the streets but could not explain what the link was.
- Astrology: Illness was sometimes linked to the movement of the planets and astrology.
- Unbalanced humours: British physicians had been trained using Hippocrates and Galen's books, so believed that people became ill when their humours were unbalanced.

Preventing, diagnosing and treating illness:

- Urine chart: Testing urine for colour, smell, thickness and taste.
- Bleeding: Letting blood flow from the arm, sometimes using illnesses. Some monks were bled 7-12 times a year to prevent illness.
- Cleaning the streets: 1349 – Edward III ordered the Mayor of London to clean the filth from the streets.
- Zodiac man: Chart showed doctors when to treat certain parts of the body.
- Herbal remedies: Made from herbs and minerals, from books called 'herbals'.

Medieval doctors:

Physicians	Surgeons	Wise Women	Apothecaries
University trained for 7 years on the work of Galen. Controlled by the Church who supported old ideas. No hands-on training. Very few physicians and expensive.	Trained as apprentices. Basic surgery (amputations and bleeding) and haircuts. Less respected than physicians. Some trained on the battlefield.	Natural and herbal remedies. Knowledge passed down through generations. Also acted as midwives. Reasonably priced treatment.	Dispensed medicines and herbs from a shop. Sold medicines to doctors. Apprentice for 7 years. Sold 'simples (one ingredient) and 'compounds'.

Key individuals:

Name	Description
Hippocrates of Kos	Taught that people got ill because of the Four Humours (blood, phlegm, yellow bile, and black bile). Said that these humours needed to be balanced to stay healthy. Also taught doctors to examine patients carefully.
Claudius Galen	Built on the work of Hippocrates. Developed the Theory of Opposites (that you had to balance the humours by doing the opposite). Wrote over 350 books on all areas of medicine, proved the brain controlled speech, and said that people should dissect humans to find out about the body, and if this was not possible, use apes. Supported by the Church as he claimed the human body was so perfect it must have been made by one god.
Rhazes	Wrote over 50 books on the ideas of Hippocrates and Galen. Emphasised the importance of carefully diagnosing illnesses and described smallpox and measles accurately.
Ibn Sina	Encouraged scientific observation and the importance of cleanliness. Wrote a range of books e.g. the Cannon of Medicine which described over 700 drugs and their uses. Main medical textbook until the 17th Century.
Al-Zahrawi	Expert in surgery. Produced books showing complex abdominal operations and 200 surgical instruments.
Ibn-al-Nafis	Argued against Galen's belief that blood was produced by the liver and burnt up by the body as a nutrient.
John Bradmore	Developed a new forcep to remove an arrow lodged in Prince Henry's cheek. Dressed th e wound with barley and honey and it healed, free of infection.
Henri de Mondeville	Taught that wounds should be bathed and cleaned, then closed quickly, contrary to Galen who said that pus should be allowed to form to carry away poisoned blood.

Christianity and medicine:

- Preserving knowledge: Copied ancient Greek and Roman books to prevent knowledge being lost. Monks made these copies by hand.
- Education and training: Controlled universities and supported Galen. Roger Bacon was imprisoned for saying doctors should do their own research.
- Cause and treatment: God sent illness, so the only way to prevent it was to pray and commit less sin. To look for other explanations was to challenge the Church.
- Hospitals: Hospitals were in monasteries – 500 by 1400. Cared for sick and old people with prayer, herbal remedies and rest. No infectious diseases.

Health and the People c1000 to Present Day

Part 1: Medicine stands still c1000-1500

Islam and medicine:

- Hospitals: Islam encouraged a good diet, exercise and hygiene. As such, there were many advanced hospitals with different wards and nursing care for patients. By 1100, every large town in the Islamic world had a hospital. Physicians trained in hospitals. Hospitals were open to all.
- Preserving knowledge: Greek medical textbooks were translated into Arabic. Islamic physicians built on the ideas of the Greeks and Roman, composing multi-volume medical encyclopaedias which organised medical knowledge. These books were later translated into Latin and used in Europe.

Public health in monasteries

- Health in monasteries was better. For example:
  - ✓ Water was used to flush the latrines which drained into ditches
  - ✓ Reservoirs stored incoming water for when it was needed
  - ✓ Pipes brought water into the washrooms, bakery, kitchen etc.
  - ✓ Drains took rainwater and waste away from the abbey
- This was because:
  - ✓ Monasteries were wealthy, so they could afford water supplies and sanitation
  - ✓ They were built close to rivers in isolated places, so could draw fresh water
  - ✓ Monks were expected to keep clean

Surgery in medieval times:

Treatments	Problems	Training
Most surgery was performed by barber surgeons, who offered blood-letting, tooth extraction and amputations as well as haircuts. They could also remove small tumours on the skin's surface They could not do complex operations inside the body.	• Pain: Surgeons used herbs such as opium or hemlock to make patients drowsy but performed amputations and other surgery without pain relief. • Infection: Wine, vinegar or honey could be used to clean wounds, but infection could not be prevented. • Bleeding: Large cuts were sewn up or cauterised. Surgeons could not stop heavy bleeding.	Surgeons did not go to university but trained through observing others. They improved their skills through practise and reading books on surgery.

Public health in towns

Problems	Improvements
× Water was collected from a river or pit × Cesspits for human waste were sometimes near water supplies × People threw rubbish into streets and rivers × Animals roamed the streets and left excrement × Diseases were common × Open sewers ran through streets	✓ Carts collected human waste from cesspits ✓ In Exeter, aqueducts were built ✓ In Newcastle, streets were paved to be easier to clean ✓ Cesspits were lined with brick or stone, so they didn't leak ✓ Laws were passed to punish people for throwing human or butchers' waste into streets

The Black Death (1348):

Explanations:
- **God's punishment** – plague was punishment for sin
- Miasma – bad air was spreading disease
- Astrology – the planet had moved into a new constellation of stars
- Theory of the Four Humours – people were 'stuffed with evil humours'

Prevention:
- Stopped strangers entering
- Daily services to pray for forgiveness
- Cleaned the streets
- Lit candles for God
- Fasted to repent sins
- Doors and windows sealed
- Pilgrimages to show remorse
- Sweet smelling herbs
- Kept air moving using birds/bells
- Ban on God-insulting activities
- Flagellants whipped themselves
- Butchers punished for mess

Treatments:
- Prayed for people to recover
- Holy charms around neck
- Cut open buboes to let out pus
- Leeches to bleed patient
- Used Theory of Opposites – Black Death was a fever so they used cold baths and avoid hot (strong food) such as garlic and onions

Short-term impact:	Long-term impact:
Killed over 1/3 of the population of medieval England in a year. Whole villages were wiped out, and the loss of many workers led to food shortages. The price of food increased.	Survivors became better off. There was a shortage of workers, so employers had to pay higher wages to attract them. People had more money, and some spent this on education. More people learned to read and write, which helped to spread new ideas more quickly.

Health and the People c1000 to Present Day

Part 2: The beginnings of change c1500-1800

Significance of Vesalius:

Vesalius challenged the work of Galen on anatomy. His work spread due to a printing revolution, the use of artists to produce detailed anatomical drawings, and the growing acceptance that Galen loved enquiry and that doctors should too.

Short-term significance	Long-term significance
• Improved knowledge of anatomy • Changed attitudes – doctors realised there was more to learn • Some doctors now carried out human dissection to learn more • More anatomic research – e.g. book on human skull and ear	• Gradually, people challenged traditional ideas • Paved the way for Pare and Harvey • Insistence on enquiry – by the late 1600s most students were encouraged to find things out for themselves

Significance of Pare:

Pare developed new types of artificial limbs, a new lotion for gunshot wounds, and ligatures to tie off arteries instead of cauterising wounds. His ligatures caused infection though, and so they were not routinely used for 300 years.

Short-term significance	Long-term significance
• Lotion instead of oil was widely accepted. Wrote books • Showed that new methods could be mor successful than old ideas	• Encouraged surgeons to think for themselves and try new ideas • William Clowes wrote a book detailing battlefield treatments • Raised the status of surgeons – Henry VIII set up the Company of Barber Surgeons

Significance of Harvey:

Harvey proved that blood circulated, disproving Galen's theory that blood was produced in the liver and burnt by the body as energy. He was very thorough and used a scientific method and observation before publishing his results.

Short-term significance	Long-term significance
• Initially many ignored him • Almost 50 years until his ideas were taught at University • Fewer patients went to Harvey for treatment	• Accepted over time. Many future surgical advancements depended on circulation • Left gaps in his work – e.g. the work of the liver • Malphigi later discovered capillaries • Fuelled a scientific revolution – 1660 the Royal Society was established to discuss ideas

Key individuals:

Name	Description
Andreas Vesalius	Fabric of the Human Body, published in 1543. Identified 300 mistakes in Galen's work, such as the lower jaw was in 1 part not two, and the human breastbone was in 3 parts, not 7. Carried out dissections on executed criminals.
William Harvey	De Moto Cordis, published in 1628. He discovered that blood circulates around the body, with the heart acting as a pump. He identified valves in veins to show it was a one-way system.
Ambroise Pare	Battlefield surgeon, who created over 50 types of artificial limb, developed a lotion of egg yolk, oil of roses and turpentine to deal with gunshot wounds (instead of boiling oil), and ligatures (silk threads) to tie off arteries instead of cauterisation.
John Hunter	Trained hundreds of surgeons, including Edward Jenner. Tested new surgical techniques such as tying off an aneurysm instead of amputating the limb. Opened a teaching museum to promote surgery.
Edward Jenner	Discovered that a small dose of cowpox would prevent against smallpox. Became known as vaccination and challenged the traditional practice of inoculation.
James Morrison	A famous Quack, who made his fortune selling 'Vegetable Pills', which he claimed could cure everything. Contained purgatives and many died from excessive bowel movements.

Treating illness in the Renaissance:

- Bleeding: Still one of the most common treatments
- Herbal remedies: Printing meant more people could buy 'herbals' such as The Complete Herbal by Nicholas Culpepper
- New treatments from abroad: Rhubarb to purge the bowels, quinine to treat fevers, opium as an anaesthetic and tobacco was a 'cure-all'
- Quackery: Travelling salesmen who sold pills and medicine with no training. This boomed in the Renaissance, with men like Joshua Ward(selling pills he claimed could cure any illness, which just made people sweat a lot) and James Morrison making a fortune.
- Superstitious treatments: Still very popular, such as the touch of a King (92,000 people visited Charles II between 1660-2) to cure scrofula (a skin disease), and the Bezoar Stone from the stomach of a goat to cure all poisons. This was disproven by Pare.

Health and the People c1000 to Present Day

Part 2: The beginnings of change c1500-1800

The Great Plague (1665)

Explanations:
- **God's punishment** – plague was punishment for sin
- Miasma – bad air was spreading disease
- Astrology – the planet had moved into a new constellation of stars

Prevention:
- People shut in their homes
- Dead were inspected to check for the plague
- Bedding hung in smoke
- Sweep the street outside front door
- Pigs, dogs and cats banned in cities
- Large assemblies banned
- **Measures didn't work because:**
  - They were orders not laws
  - King and council left London
  - Symptoms were not recorded
  - Too few watchmen to enforce

Treatments:
- Prayed for people to recover
- Holy charms around neck
- Cut open buboes to let out pus
- Leeches to bleed patient
- Quacks sold 'Great Medicines' – e.g. London Treacle containing wine, herbs, spices, honey and opium
- Many herbal remedies were used

Short-term impact:	Long-term impact:
Some of the methods introduced in London worked a little, but over ¼ of the population of London died of the Plague in 1665. A combination of cold weather and the Great Fire of London ended the plague.	Following the Great Fire, central London was rebuilt, with stone and brick buildings and wider paved streets. For a time, London was healthier. But as the city became more and more crowded in the Industrial Revolution, the benefits disappeared.

Renaissance hospitals:

- Organisation: Charities and some local councils set up and ran hospitals. More hospitals were established, including specialist ones like maternity hospitals.
- Staffing: Nursing sisters treated patients with herbal remedies, but nursing helpers did the heavy manual work and had no medical training.
- Patients: Treated minor complaints like leg ulcers. Infectious diseases were still not admitted. Anyone with money preferred to be treated at home by a physician.
- Treatments: Herbal remedies, food, rest, and bathing. Provided with warmth and prayer. Treatments were also still based on the Four Humours.
- Scale: By 1700, London had a population of over half a million, but only had 2 large hospitals. By the 1660s, St Bartholomew's Hospital in London had 2 wards for 300 patients, with 3 physicians and 3 surgeons.

Training and status of surgeons and physicians:

- Throughout the 1500s and 1600s, most physicians still accepted Hippocrates' Theory of the Four Humours. Training was still based on the work of Galen and Arab doctors such as Ibn Sina. But, by the late 1600s, things began to change:
  - In some hospitals, training took place on the ward. More dissections
  - Training emphasised the importance of a scientific approach
  - Better microscopes and the first thermometers helped improve treatment
- Many people still could not afford treatment from a physician. Many preferred the cheaper remedies from surgeons and apothecaries.
- In 1645, The Society was formed to discuss new scientific ideas and publish books and articles. It became The Royal Society in 1662, and Charles II paid for a laboratory and had an observatory built on one of his palaces

Significance of Hunter:

Hunter trained hundreds of new surgeons, developed new surgical methods and opened an anatomical museum in London.

Short-term significance	Long-term significance
• Encouraged a scientific approach • Wrote books on many topics • Surgeon to the King and Army and so influenced surgery • Set up a teaching museum	• Trained hundreds of surgeons • Inspired Edward Jenner • Company of Surgeons formed in 1745, became Royal College of Surgeons in 1800

Significance of Jenner:

Jenner developed a new vaccine for smallpox, replacing the traditional inoculation. He published his work in 1798.

Short-term significance	Long-term significance
• 23 experiments before publishing • Govt. gave him £30,000 • Vaccination became widely used • Deaths fell • Vaccination compulsory in 1852	• Smallpox eradicated as killer disease • Enforcement of vaccine in 1872 • Wiped out smallpox by 1970s • Other vaccines developed • One off discovery

Opposition to vaccination:

People didn't like treatment linked to animals, thought disease was God's punishment, Jenner wasn't a famous doctor, he couldn't explain it and inoculators were worried about losing their income.

Wonder Learning Partnership
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GCSE EXAMINATIONS

3 papers – 1 non-calculator and 2 calculator papers

YEAR 11

SUMMER
Percentages
Sine rule and Cosine rule (Higher Only)
Equation of a circle (Higher Only)
Consolidation of previous content based on analysis of mock exams
Problem solving and contextual focus on all topics

SPRING
Block J
Constructions & loci
Functions (Higher Only)
Bearings, maps, and scales
Probability
Block I
Volume of prisms, pyramids, and spheres
Approximations, rounding and significant figures
Solving quadratic equations
Block H
Transformations

AUTUMN
Venn diagrams
Circle theorems (Higher Only)
Non-linear simultaneous equations (Higher Only)
Completing the square and quadratic formula (Higher Only)
Non-linear graphs
Vector geometry (Higher Only)
Histograms (Higher Only)
Representing and interpreting data using graphs and charts

YEAR 10

SUMMER
Fractions
Laws of Indices
Surds (Higher Only)
Area, volume, and surface area
Pythagoras's theorem
Area of a segment (Higher Only)
Sequences and nth term
Ratio
Direct and Indirect proportion
Block G

SPRING
Block D
Conversion graphs
Percentages
Standard Form
Block E
Arc length and area of sectors
Trigonometry
Block F
Iteration (Higher Only)
Proportionality
Algebraic Fractions (Higher Only)
Equations of linear graphs
Block C
Simultaneous equations
Angles in polygons
Algebraic proof (Higher Only)
Simplifying expressions

AUTUMN
Parallel and perpendicular lines
Powers, factors, multiples & primes
Congruence & similarity
Linear equations
Block B
Algebraic expansion and factorising
Averages from frequency tables

YEAR 9

SUMMER
Indices & proportion
Standard form
Transformations
Geometry with right-angled triangles
Block A

SPRING
Sequences including quadratic sequences
Indices
Ratio and proportion
Transformations and geometry
Constructions and loci
START OF GCSE
Solving quadratic equations
Quadratics
Averages from frequency tables
Probability of multiple events
Volume and surface area of pyramids, cones, and spheres

AUTUMN
Plotting non-linear graphs
Expanding double brackets and factorising
Tree diagrams
Probability
Volume and surface area of prisms
Properties of 3D shapes

YEAR 8

SUMMER
Equations & Formulae
Solving equations
Percentages of amounts
Compound interest and contextual percentages
Plotting coordinates and points on a graph
Real life graphs
3D Geometry

SPRING
Area and circumference of circles
Substitution into Formulae
Inequalities
Percentages
Percentage increase and decreases
Graphs
Drawing linear graphs
Speed distance and time
Perimeter & Area
4 rules of number with fractions
Equivalent and simplifying fractions and mixed numbers
Averages from charts and tables
Averages

AUTUMN
Area and perimeter of 2D shapes
Converting metric and imperial units
Ordering fractions using conversions
Fractions
Representing and interpreting data in tables
Representing data in graphs and charts

YEAR 7

SUMMER
Angles and constructions
Types of angles
Angles in triangles and polygons
Bearings and constructions
Square and cube numbers
Product of primes, HCF & LCM
Expressions and Sequences
Collecting like terms
Data & Averages

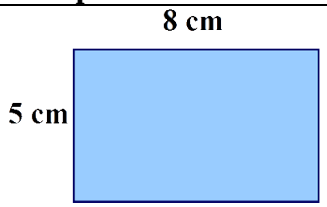
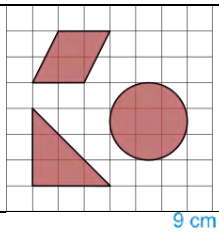
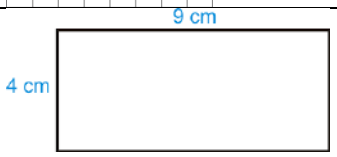
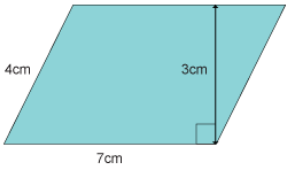
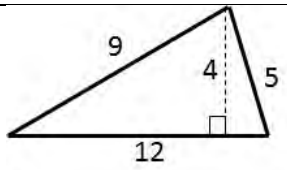
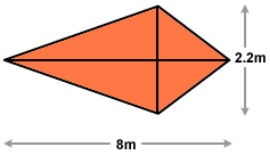
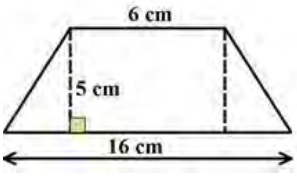
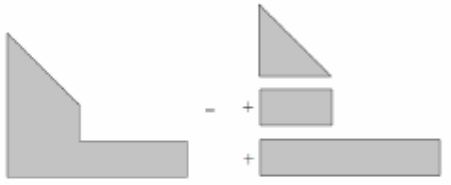
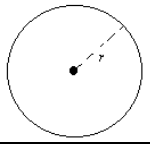
SPRING
Application of decimals and negatives
Calculations with angles
Angles in parallel lines
Number properties
Factors, multiples, and primes
Rounding, bounds and estimation
Substitution
Expanding brackets
Sequences

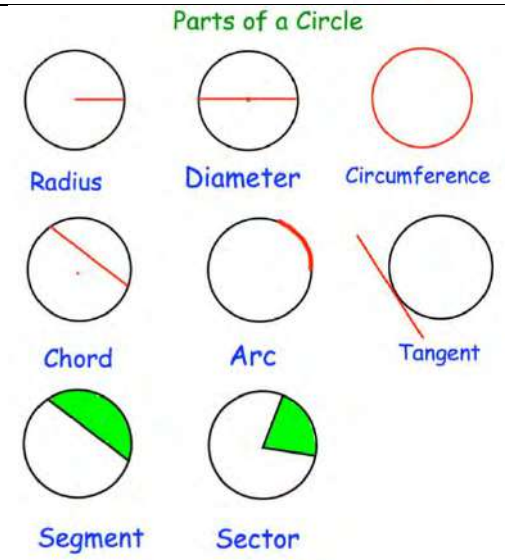
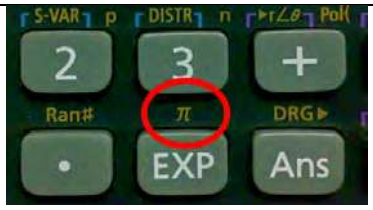
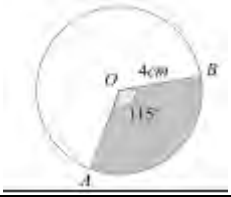
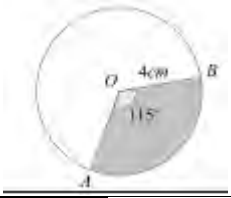
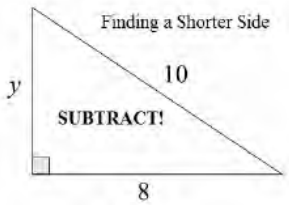
AUTUMN
Negative numbers
Use of decimals
Rules of number
Written methods of multiplication and division
Column addition & subtraction

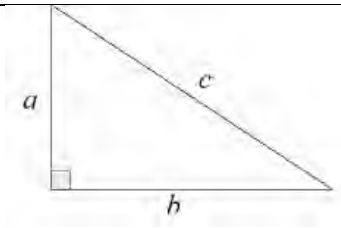
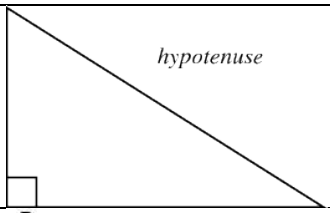
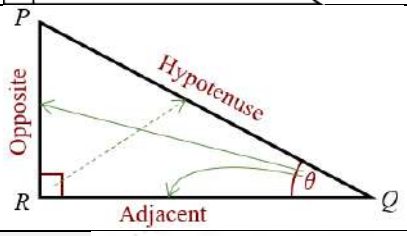
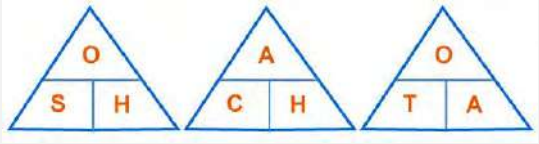
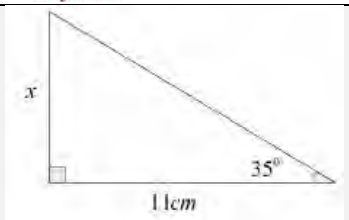
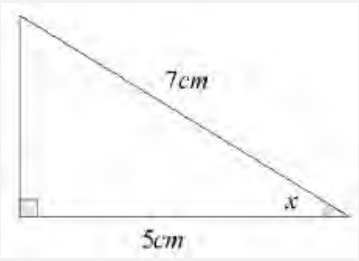
MATHS

Woldgate School
Of great merit, character and value

Block E

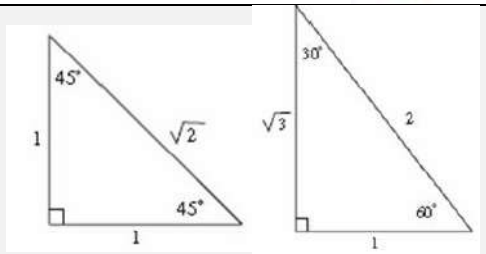
Topic/Skill	Definition/Tips	Example
1. Perimeter	The **total distance** around the **outside** of a shape. Units include: mm, cm, m etc.	 $P = 8 + 5 + 8 + 5 = 26cm$
2. Area	The amount of **space inside** a shape. Units include: mm^2, cm^2, m^2	
3. Area of a Rectangle	**Length x Width**	 $A = 36cm^2$
4. Area of a Parallelogram	**Base x Perpendicular Height** Not the slant height.	 $A = 21cm^2$
5. Area of a Triangle	**Base x Height ÷ 2**	 $A = 24cm^2$
6. Area of a Kite	Split in to **two triangles** and use the method above.	 $A = 8.8m^2$
7. Area of a Trapezium	$\frac{(a+b)}{2} \times h$ "Half the sum of the parallel side, times the height between them. That is how you calculate the area of a trapezium"	 $A = 55cm^2$
8. Compound Shape	A shape made up of a **combination of other known shapes** put together.	
9. Circle	A circle is the locus of all points equidistant from a central point.	

10. Parts of a Circle	**Radius** – the **distance** from the **centre** of a circle to the **edge** **Diameter** – the total **distance** across the **width** of a circle **through the centre**. **Circumference** – the **total distance** around the **outside** of a circle **Chord** – a **straight line** whose **end points lie on a circle** **Tangent** – a **straight line** which **touches** a circle at exactly **one point** **Arc** – a **part of the circumference** of a circle **Sector** – the **region** of a circle enclosed by **two radii** and their intercepted **arc** **Segment** – the **region** bounded by a **chord** and the **arc** created by the chord	
11. Area of a Circle	$\boldsymbol{A = \pi r^2}$ which means 'pi x radius squared'.	If the radius was 5cm, then: $A = \pi \times 5^2 = 78.5cm^2$
12. Circumference of a Circle	$\boldsymbol{C = \pi d}$ which means 'pi x diameter'	If the radius was 5cm, then: $C = \pi \times 10 = 31.4cm$
13. π ('pi')	Pi is the circumference of a circle divided by the diameter. $\boldsymbol{\pi \approx 3.14}$	
14. Arc Length of a Sector	The arc length is part of the circumference. Take the **angle** given **as a fraction over 360°** and **multiply** by the **circumference**.	Arc Length $= \frac{115}{360} \times \pi \times 8 = 8.03cm$ 
15. Area of a Sector	The area of a sector is part of the total area. Take the **angle** given **as a fraction over 360°** and **multiply** by the **area**.	Area $= \frac{115}{360} \times \pi \times 4^2 = 16.1cm^2$ 
16. Pythagoras' Theorem	For any **right angled triangle**: $\boldsymbol{a^2 + b^2 = c^2}$	

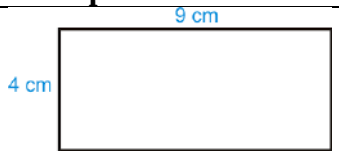
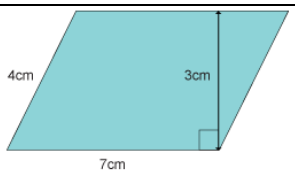
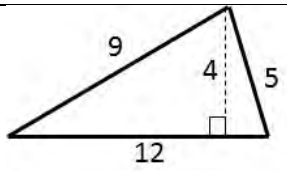
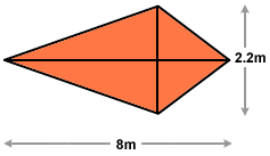
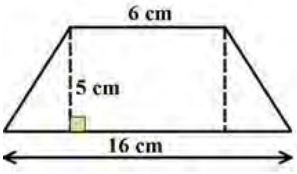
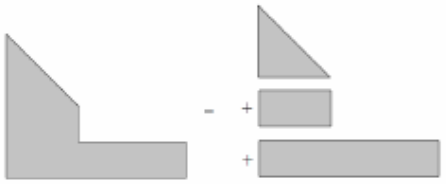
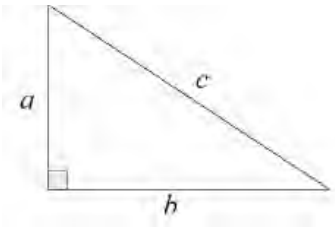
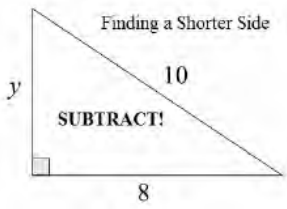
	 Used to find **missing lengths**. a and b are the shorter sides, c is the **hypotenuse** (**longest side**).	$a = y,\ b = 8,\ c = 10$ $a^2 = c^2 - b^2$ $y^2 = 100 - 64$ $y^2 = 36$ $y = 6$
17. Trigonometry	The **study** of **triangles**.	
18. Hypotenuse	The **longest side** of a **right-angled triangle**. Is always **opposite** the **right angle**.	
19. Adjacent	**Next to**	
20. Trigonometric Formulae	Use **SOHCAHTOA**. $\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$  When finding a missing angle, use the 'inverse' trigonometric function by pressing the 'shift' button on the calculator.	 Use 'Opposite' and 'Adjacent', so use 'tan' $\tan 35 = \frac{x}{11}$ $x = 11\tan 35 = 7.70cm$  Use 'Adjacent' and 'Hypotenuse', so use 'cos' $\cos x = \frac{5}{7}$ $x = cos^{-1}\left(\frac{5}{7}\right) = 44.4°$

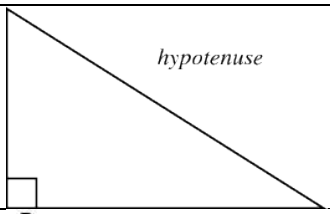
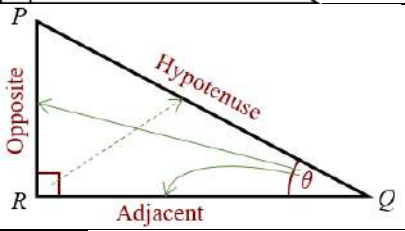
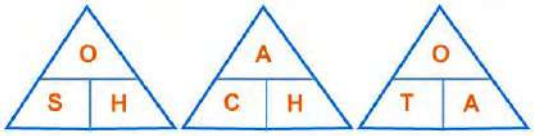
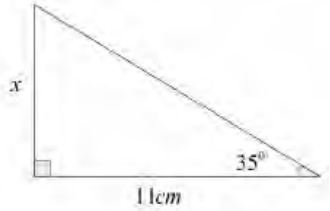
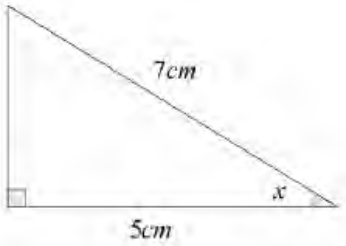
21. Exact Values for Angles in Trigonometry

	0°	30°	45°	60°	90°
sin	**0**	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	**1**
cos	**1**	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	**0**
tan	**0**	$\frac{1}{\sqrt{3}}$	**1**	$\sqrt{3}$	**----**



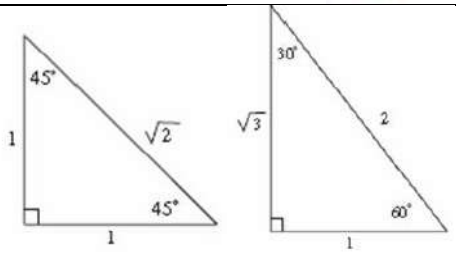
Block E

Topic/Skill	Definition/Tips	Example
1. Area of a Rectangle	**Length x Width**	 $A = 36cm^2$
2. Area of a Parallelogram	**Base x Perpendicular Height** Not the slant height.	 $A = 21cm^2$
3. Area of a Triangle	**Base x Height ÷ 2**	 $A = 24cm^2$
4. Area of a Kite	Split in to **two triangles** and use the method above.	 $A = 8.8m^2$
5. Area of a Trapezium	$\frac{(a+b)}{2} \times h$ "Half the sum of the parallel side, times the height between them. That is how you calculate the area of a trapezium"	 $A = 55cm^2$
6. Compound Shape	A shape made up of a **combination of other known shapes** put together.	
7. Pythagoras' Theorem	For any **right angled triangle**: $a^2 + b^2 = c^2$  Used to find **missing lengths**. a and b are the shorter sides, c is the **hypotenuse** (**longest side**).	 $a = y,\ b = 8,\ c = 10$ $a^2 = c^2 - b^2$ $y^2 = 100 - 64$ $y^2 = 36$ $y = 6$
8. 3D Pythagoras' Theorem	Find missing lengths by **identifying right angled triangles**.	Can a pencil that is 20cm long fit in a pencil tin with dimensions 12cm, 13cm and 9cm? The pencil tin is in the shape of a cuboid.

	You will often have to find a missing length you are not asked for before finding the missing length you are asked for.	Hypotenuse of the base = $\sqrt{12^2 + 13^2} = 17.7$ Diagonal of cuboid = $\sqrt{17.7^2 + 9^2} = 19.8cm$ No, the pencil cannot fit.
9. Trigonometry	The **study** of **triangles**.	
10. Hypotenuse	The **longest side** of a **right-angled triangle**. Is always **opposite** the **right angle**.	
11. Adjacent	**Next to**	
12. Trigonometric Formulae	Use **SOHCAHTOA**. $\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$  When finding a missing angle, use the 'inverse' trigonometric function by pressing the 'shift' button on the calculator.	 Use 'Opposite' and 'Adjacent', so use 'tan' $\tan 35 = \frac{x}{11}$ $x = 11\tan 35 = 7.70cm$  Use 'Adjacent' and 'Hypotenuse', so use 'cos' $\cos x = \frac{5}{7}$ $x = cos^{-1}\left(\frac{5}{7}\right) = 44.4°$

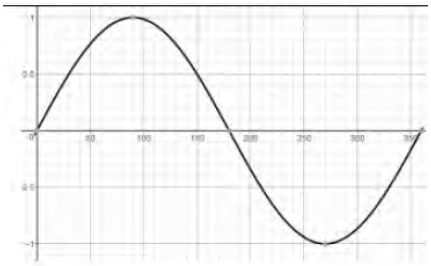
13. Exact Values for Angles in Trigonometry

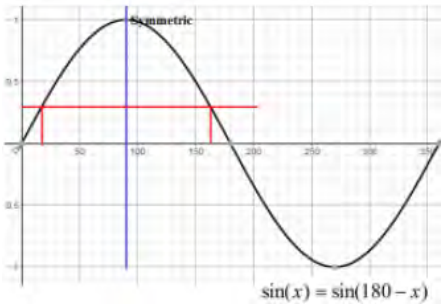
	0°	30°	45°	60°	90°
sin	**0**	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	**1**
cos	**1**	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	**0**
tan	**0**	$\frac{1}{\sqrt{3}}$	**1**	$\sqrt{3}$	**----**



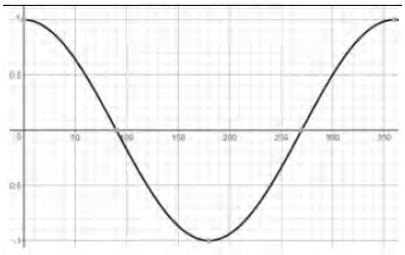
14. Graphs of Trigonometric Functions

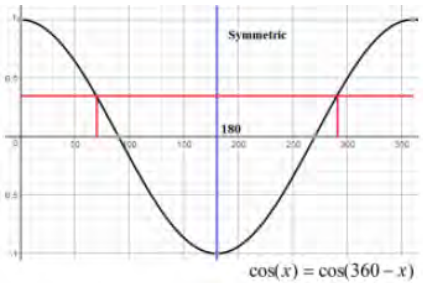
$y = \sin(x)$ for $0 \le x \le 360^o$



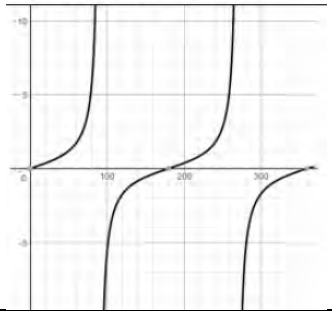


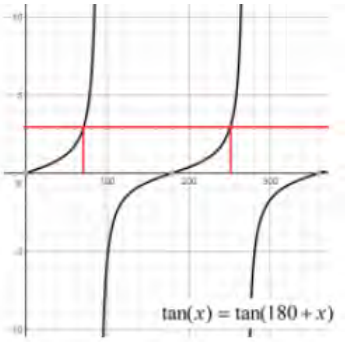
$y = \cos(x)$ for $0 \le x \le 360^o$





$y = \tan(x)$ for $0 \le x \le 360^o$

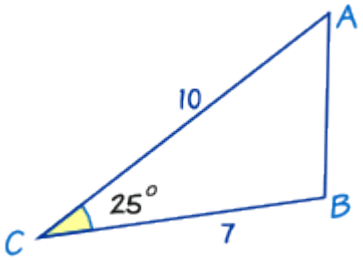


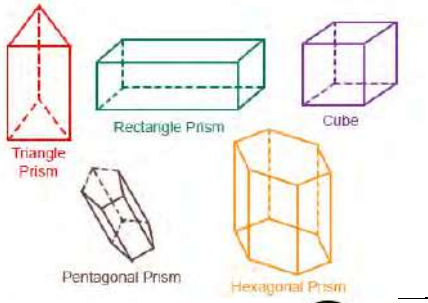
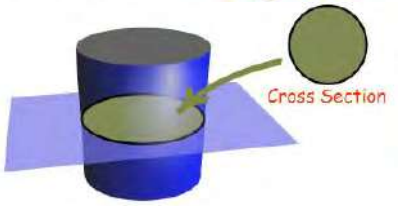
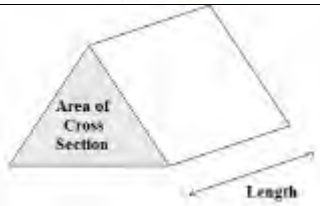
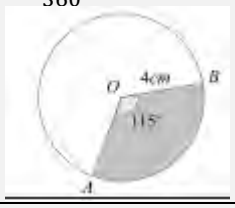
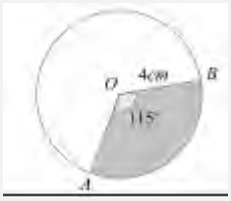


15. Area of a Triangle

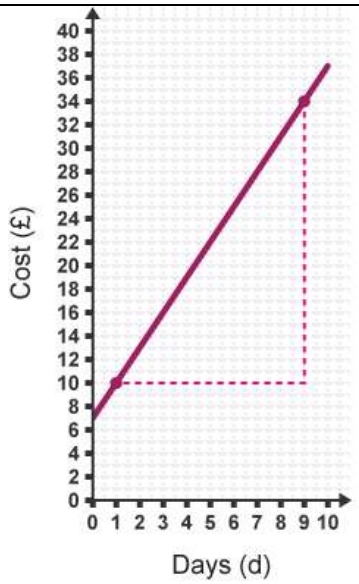
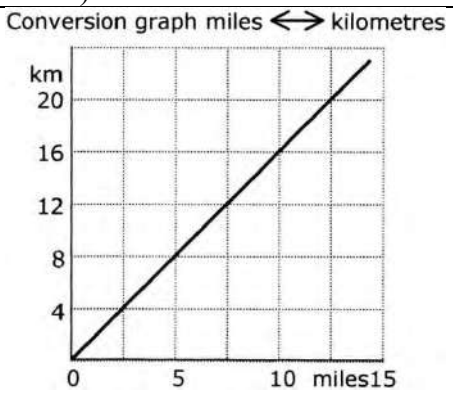
Use when given the **length of two sides and the included angle**.

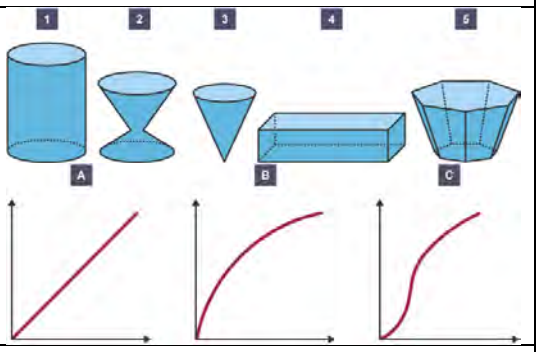
$$\textbf{\textit{Area of a Triangle}} = \frac{1}{2}ab\sin C$$



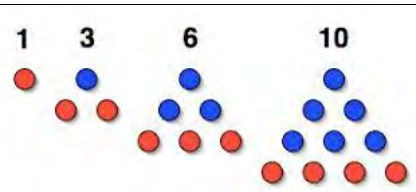
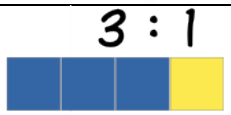
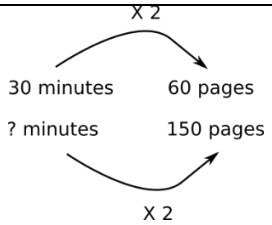
		$A = \frac{1}{2}ab\sin C$ $A = \frac{1}{2} \times 7 \times 10 \times \sin 25$ $A = 14.8$
16. Prism	A prism is a 3D shape whose **cross section is the same** throughout.	
17. Cross Section	The **cross section** is the **shape** that **continues** all the way **through the prism**.	
18. Volume of a Prism	$\boldsymbol{V = Area\ of\ Cross\ Section \times Length}$ $\boldsymbol{V = A \times L}$	
19. Area of a Circle	$\boldsymbol{A = \pi r^2}$ which means 'pi x radius squared'.	If the radius was 5cm, then: $A = \pi \times 5^2 = 78.5cm^2$
20. Circumference of a Circle	$\boldsymbol{C = \pi d}$ which means 'pi x diameter'	If the radius was 5cm, then: $C = \pi \times 10 = 31.4cm$
21. π ('pi')	Pi is the circumference of a circle divided by the diameter. $\boldsymbol{\pi \approx 3.14}$	
22. Arc Length of a Sector	The arc length is part of the circumference. Take the **angle** given **as a fraction over 360°** and **multiply** by the **circumference**.	Arc Length $= \frac{115}{360} \times \pi \times 8 = 8.03cm$ 
23. Area of a Sector	The area of a sector is part of the total area. Take the **angle** given **as a fraction over 360°** and **multiply** by the **area**.	Area $= \frac{115}{360} \times \pi \times 4^2 = 16.1cm^2$ 

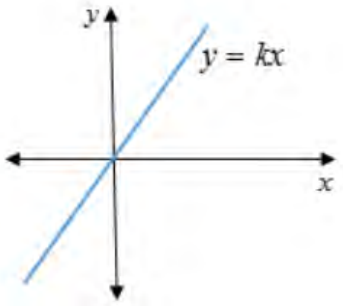
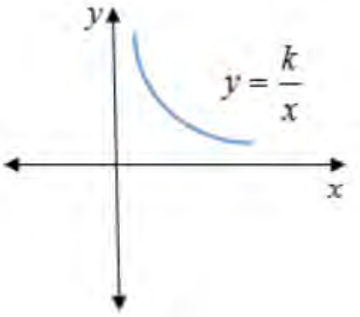
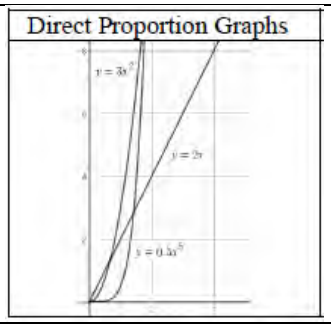
Block F

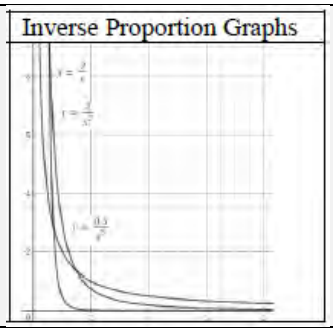
Topic/Skill	Definition/Tips	Example
1. Writing Formulae	**Substitute letters for words** in the question.	Bob charges £3 per window and a £5 call out charge. $C = 3N + 5$ Where N=number of windows and C=cost
2. Substitution	**Replace letters with numbers**. Be careful of $5x^2$. You need to square first, then multiply by 5.	$a = 3, b = 2$ *and* $c = 5$. Find: 1. $2a = 2 \times 3 = 6$ 2. $3a - 2b = 3 \times 3 - 2 \times 2 = 5$ 3. $7b^2 - 5 = 7 \times 2^2 - 5 = 23$
3. Real Life Graphs	Graphs that are supposed to model some real-life situation. The actual meaning of the values depends on the labels and units on each axis. 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.	 A graph showing the cost of hiring a ladder for various numbers of days. The gradient shows the cost per day. It costs £3/day to hire the ladder. The y-intercept shows the additional cost/deposit/fixed charge (something not linked to how long the ladder is hired for). The additional cost is £7.
4. Conversion Graph	A line graph to **convert one unit to another**. Can be used to convert units (eg. miles and kilometres) or currencies ($ and £) Find the value you know on one axis, read up/across to the conversion line and read the equivalent value from the other axis.	

		$8\ km = 5\ miles$
5. Depth of Water in Containers	Graphs can be used to show how the depth of water changes as different shaped containers are filled with water at a constant rate.	
6. Linear Sequence	A number pattern with a **common difference**.	2, 5, 8, 11… is a linear sequence
7. Term	**Each value** in a sequence is called a term.	In the sequence 2, 5, 8, 11…, 8 is the third term of the sequence.
8. Term-to-term rule	A rule which allows you to **find the next term** in a sequence if you **know the previous term**.	First term is 2. Term-to-term rule is 'add 3' Sequence is: 2, 5, 8, 11…
9. nth term	A rule which allows you to **calculate the term** that is in the **nth position** of the sequence. Also known as the 'position-to-term' rule. **n** refers to the **position** of a term in a sequence.	nth term is $3n - 1$ The 100^{th} term is $3 \times 100 - 1 = 299$
10. Finding the nth term of a linear sequence	1. Find the **difference**. 2. **Multiply that by n**. 3. Substitute $n = 1$ to **find out what number you need to add or subtract to get the first number in the sequence**.	Find the nth term of: 3, 7, 11, 15… 1. Difference is +4 2. Start with $4n$ 3. $4 \times 1 = 4$, so we need to subtract 1 to get 3. nth term = $4n - 1$
11. Fibonacci type sequences	A sequence where the next number is found by **adding up the previous two terms**	The Fibonacci sequence is: $1,1,2,3,5,8,13,21,34$ ... An example of a Fibonacci-type sequence is: $4, 7, 11, 18, 29$ ...
12. Geometric Sequence	A sequence of numbers where each term is found by **multiplying the previous one** by a number called the **common ratio, r**.	An example of a geometric sequence is: $2, 10, 50, 250$ ... The common ratio is 5 Another example of a geometric sequence is: $81, -27, 9, -3, 1$ ... The common ratio is $-\frac{1}{3}$

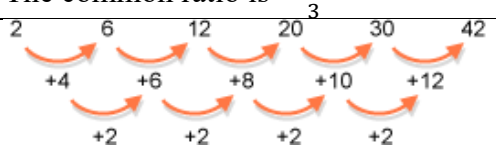
Block F

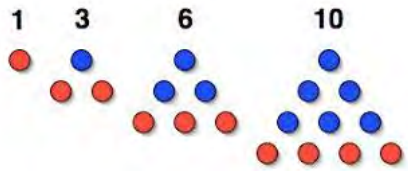
13. Triangular numbers	The sequence which comes from a pattern of dots that form a triangle. $1, 3, 6, 10, 15, 21 \ldots$	
14. Ratio	Ratio compares the size of **one part** to **another part**. Written using the ':' symbol.	
15. Proportion	Proportion compares the size of **one part** to the size of the **whole**. Usually written as a fraction.	In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
16. Simplifying Ratios	**Divide** all parts of the ratio by a **common factor**.	5 : 10 = 1 : 2 (divide both by 5) 14 : 21 = 2 : 3 (divide both by 7)
17. Ratios in the form $1 : n$ or $n : 1$	**Divide** both parts of the ratio by one of the numbers to make **one part equal 1**.	5 : 7 = 1 : $\frac{7}{5}$ in the form 1 : n 5 : 7 = $\frac{5}{7}$: 1 in the form n : 1
18. Sharing in a Ratio	**1. Add** the total parts of the ratio. **2. Divide** the amount to be shared by this value to find the value of one part. **3. Multiply** this value by each part of the ratio. Use only if you **know the total**.	Share £60 in the ratio 3 : 2 : 1. 3 + 2 + 1 = 6 60 ÷ 6 = 10 3 x 10 = 30, 2 x 10 = 20, 1 x 10 = 10 £30 : £20 : £10
19. Proportional Reasoning	Comparing two things using **multiplicative reasoning** and applying this to a new situation. Identify one multiplicative link and use this to find missing quantities.	
20. Unitary Method	Finding the **value of a single unit** and then finding the necessary value by **multiplying** the single unit value.	3 cakes require 450g of sugar to make. Find how much sugar is needed to make 5 cakes. 3 cakes = 450g So 1 cake = 150g (÷ by 3) So 5 cakes = 750 g (x by 5)
21. Ratio already shared	Find what **one part** of the ratio is worth using the **unitary method**.	Money was shared in the ratio 3:2:5 between Ann, Bob and Cat. Given that Bob had £16, found out the total amount of money shared. £16 = 2 parts So £8 = 1 part 3 + 2 + 5 = 10 parts, so 8 x 10 = £80

22. Best Buys	Find the **unit cost** by **dividing** the **price by the quantity**. The **lowest** number is the best value.	8 cakes for £1.28 → 16p each (÷by 8) 13 cakes for £2.05 → 15.8p each (÷by 13) Pack of 13 cakes is best value.
23. Direct Proportion	If two quantities are in direct proportion, **as one increases**, the **other increases** by the **same percentage**. If y is directly proportional to x, this can be written as $\boldsymbol{y \propto x}$ An equation of the form $\boldsymbol{y = kx}$ represents direct proportion, where k **is the constant of proportionality**.	
24. Inverse Proportion	If two quantities are inversely proportional, **as one increases**, the **other decreases** by the **same percentage**. If y is inversely proportional to x, this can be written as $\boldsymbol{y \propto \frac{1}{x}}$ An equation of the form $\boldsymbol{y = \frac{k}{x}}$ represents inverse proportion.	
25. Using proportionality formulae	**Direct**: **y = kx** or **y ∝ x** **Inverse**: **y =** $\boldsymbol{\frac{k}{x}}$ or **y ∝** $\boldsymbol{\frac{1}{x}}$ 1. **Solve to find k** using the pair of values in the question. 2. **Rewrite the equation** using the k you have just found. 3. **Substitute the other given value** from the question in to the equation to **find the missing value**.	p is directly proportional to q. When p = 12, q = 4. Find p when q = 20. 1. p = kq 12 = k x 4 so k = 3 2. p = 3q 3. p = 3 x 20 = 60, so p = 60
26. Direct Proportion with powers	Graphs showing **direct proportion** can be written in the form $\boldsymbol{y = kx^n}$ Direct proportion graphs will always start at the origin.	

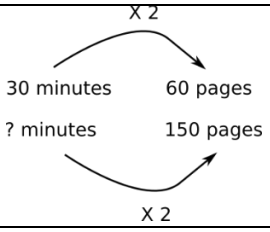
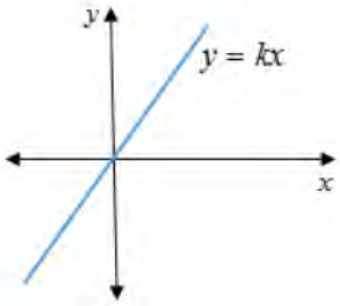
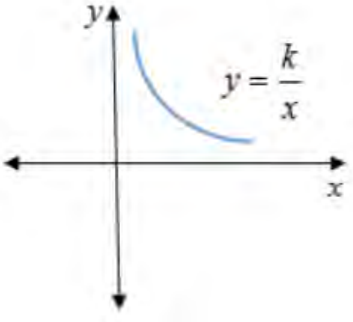
27. Inverse Proportion with powers	Graphs showing **inverse proportion** can be written in the form $\boldsymbol{y = \frac{k}{x^n}}$ Inverse proportion graphs will never start at the origin.	

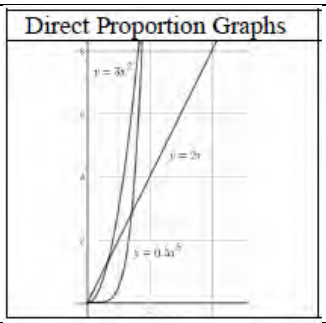
Block F

Topic/Skill	Definition/Tips	Example
1. Linear Sequence	A number pattern with a **common difference**.	2, 5, 8, 11… is a linear sequence
2. Term	**Each value** in a sequence is called a term.	In the sequence 2, 5, 8, 11…, 8 is the third term of the sequence.
3. Term-to-term rule	A rule which allows you to **find the next term** in a sequence if you **know the previous term**.	First term is 2. Term-to-term rule is 'add 3' Sequence is: 2, 5, 8, 11…
4. nth term	A rule which allows you to **calculate the term** that is in the **nth position** of the sequence. Also known as the 'position-to-term' rule. **n** refers to the **position** of a term in a sequence.	nth term is $3n - 1$ The 100^{th} term is $3 \times 100 - 1 = 299$
5. Finding the nth term of a linear sequence	1. Find the **difference**. 2. **Multiply that by n.** 3. Substitute $n = 1$ to **find out what number you need to add or subtract to get the first number in the sequence**.	Find the nth term of: 3, 7, 11, 15… 1. Difference is +4 2. Start with $4n$ 3. $4 \times 1 = 4$, so we need to subtract 1 to get 3. nth term = $4n - 1$
6. Fibonacci type sequences	A sequence where the next number is found by **adding up the previous two terms**	The Fibonacci sequence is: 1,1,2,3,5,8,13,21,34 ... An example of a Fibonacci-type sequence is: $4, 7, 11, 18, 29$ ...
7. Geometric Sequence	A sequence of numbers where each term is found by **multiplying the previous one** by a number called the **common ratio, r**.	An example of a geometric sequence is: $2, 10, 50, 250$ ... The common ratio is 5 Another example of a geometric sequence is: $81, -27, 9, -3, 1$ ... The common ratio is $-\frac{1}{3}$
8. Quadratic Sequence	A sequence of numbers where the **second difference is constant**. A quadratic sequence will have a n^2 term.	
9. nth term of a geometric sequence	ar^{n-1} where a is the first term and r is the common ratio	The nth term of $2, 10, 50, 250$ .... Is $2 \times 5^{n-1}$
10. nth term of a quadratic sequence	1. Find the first and second differences. 2. Halve the second difference and multiply this by n^2.	Find the nth term of: 4, 7, 14, 25, 40.. Answer:

	3. Substitute $n = 1,2,3,4$ ... into your expression so far. 4. Subtract this set of numbers from the corresponding terms in the sequence from the question. 5. Find the nth term of this set of numbers. 6. Combine the nth terms to find the overall nth term of the quadratic sequence. Substitute values in to check your nth term works for the sequence.	Second difference = +4 → nth term = $2n^2$ Sequence: 4, 7, 14, 25, 40 $2n^2$ 2, 8, 18, 32, 50 Difference: 2, -1, -4, -7, -10 Nth term of this set of numbers is $-3n + 5$ Overall nth term: $2n^2 - 3n + 5$
11. Triangular numbers	The sequence which comes from a pattern of dots that form a triangle. $1, 3, 6, 10, 15, 21$ ...	
12. Iteration	The act of **repeating a process** over and over again, often with the aim of **approximating** a desired result more closely. **Recursive** Notation: $x_{n+1} = \sqrt{3x_n + 6}$	$x_1 = 4$ $x_2 = \sqrt{3 \times 4 + 6} = 4.242640$ ... $x_3 = \sqrt{3 \times 4.242640 ... + 6}$ $= 4.357576$ ...
13. Iterative Method	To create an iterative formula, **rearrange** an equation with more than one x term to **make one of the x terms the subject**. You will be given the first value to substitute in, often called $\boldsymbol{x_1}$. **Keep substituting in your previous answer** until your answers are the same to a certain degree of accuracy. This is called converging to a limit. Use the 'ANS' button on your calculator to keep substituting in the previous answer.	Use an iterative formula to find the positive root of $x^2 - 3x - 6 = 0$ to 3 decimal places. $x_1 = 4$ Answer: $x^2 = 3x + 6$ $x = \sqrt{3x + 6}$ So $x_{n+1} = \sqrt{3x_n + 6}$ $x_1 = 4$ $x_2 = \sqrt{3 \times 4 + 6} = 4.242640$ ... $x_3 = \sqrt{3 \times 4.242640 ... + 6}$ $= 4.357576$ ... Keep repeating… $x_7 = 4.372068.. = 4.372\ (3dp)$ $x_8 = 4.372208 ... = 4.372\ (3dp)$ So answer is $x = 4.372\ (3dp)$
14. Standard Form	$\boldsymbol{A \times 10^b}$ $\boldsymbol{where\ 1 \leq A < 10, \quad b = integer}$	$8400 = 8.4 \times 10^3$ $0.00036 = 3.6 \times 10^{-4}$

15. Multiplying or Dividing with Standard Form	Multiply: **Multiply the numbers** and **add the powers**. Divide: **Divide the numbers** and **subtract the powers**.	$(1.2 \times 10^3) \times (4 \times 10^6) = 8.8 \times 10^9$ $(4.5 \times 10^5) \div (3 \times 10^2) = 1.5 \times 10^3$
16. Adding or Subtracting with Standard Form	**Convert** in to **ordinary** numbers, **calculate** and then **convert back** in to standard form	$2.7 \times 10^4 + 4.6 \times 10^3$ $= 27000 + 4600 = 31600$ $= 3.16 \times 10^4$
17. Algebraic Fraction	A fraction whose **numerator** and **denominator** are **algebraic expressions**.	$\frac{6x}{3x-1}$
18. Adding/ Subtracting Algebraic Fractions	For $\frac{a}{b} \pm \frac{c}{d}$, the **common denominator** is bd $\frac{a}{b} \pm \frac{c}{d} = \frac{ad}{bd} \pm \frac{bc}{bd} = \frac{ad \pm bc}{bd}$	$\frac{1}{x} + \frac{x}{2y}$ $= \frac{1(2y)}{2xy} + \frac{x(x)}{2xy}$ $= \frac{2y + x^2}{2xy}$
19. Multiplying Algebraic Fractions	**Multiply** the **numerators together** and the **denominators together**. $\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}$	$\frac{x}{3} \times \frac{x+2}{x-2}$ $= \frac{x(x+2)}{3(x-2)}$ $= \frac{x^2 + 2x}{3x-6}$
20. Dividing Algebraic Fractions	**Multiply** the first fraction by the **reciprocal of the second fraction**. $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$	$\frac{x}{3} \div \frac{2x}{7}$ $= \frac{x}{3} \times \frac{7}{2x}$ $= \frac{7x}{6x} = \frac{7}{6}$
21. Simplifying Algebraic Fractions	**Factorise** the numerator and denominator and **cancel common factors**.	$\frac{x^2 + x - 6}{2x - 4} = \frac{(x+3)(x-2)}{2(x-2)} = \frac{x+3}{2}$
22. Ratio	Ratio compares the size of **one part** to **another part**. Written using the ':' symbol.	3 : 1 
23. Proportion	Proportion compares the size of **one part** to the size of the **whole**. Usually written as a fraction.	In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
24. Simplifying Ratios	**Divide** all parts of the ratio by a **common factor**.	5 : 10 = 1 : 2 (divide both by 5) 14 : 21 = 2 : 3 (divide both by 7)
25. Ratios in the form $1 : n$ or $n : 1$	**Divide** both parts of the ratio by one of the numbers to make **one part equal 1**.	5 : 7 = 1 : $\frac{7}{5}$ in the form 1 : n 5 : 7 = $\frac{5}{7}$: 1 in the form n : 1
26. Sharing in a Ratio	**1. Add** the total parts of the ratio.	Share £60 in the ratio 3 : 2 : 1.

	2. Divide the amount to be shared by this value to find the value of one part. **3. Multiply** this value by each part of the ratio. Use only if you **know the total**.	3 + 2 + 1 = 6 60 ÷ 6 = 10 3 x 10 = 30, 2 x 10 = 20, 1 x 10 = 10 £30 : £20 : £10
27. Proportional Reasoning	Comparing two things using **multiplicative reasoning** and applying this to a new situation. Identify one multiplicative link and use this to find missing quantities.	
28. Unitary Method	Finding the **value of a single unit** and then finding the necessary value by **multiplying** the single unit value.	3 cakes require 450g of sugar to make. Find how much sugar is needed to make 5 cakes. 3 cakes = 450g So 1 cake = 150g (÷ by 3) So 5 cakes = 750 g (x by 5)
29. Ratio already shared	Find what **one part** of the ratio is worth using the **unitary method**.	Money was shared in the ratio 3:2:5 between Ann, Bob and Cat. Given that Bob had £16, found out the total amount of money shared. £16 = 2 parts So £8 = 1 part 3 + 2 + 5 = 10 parts, so 8 x 10 = £80
30. Best Buys	Find the **unit cost** by **dividing** the **price by the quantity**. The **lowest** number is the best value.	8 cakes for £1.28 → 16p each (÷by 8) 13 cakes for £2.05 → 15.8p each (÷by 13) Pack of 13 cakes is best value.
31. Direct Proportion	If two quantities are in direct proportion, **as one increases**, the **other increases** by the **same percentage**. If y is directly proportional to x, this can be written as $\boldsymbol{y \propto x}$ An equation of the form $\boldsymbol{y = kx}$ represents direct proportion, where k **is the constant of proportionality**.	
32. Inverse Proportion	If two quantities are inversely proportional, **as one increases**, the **other decreases** by the **same percentage**. If y is inversely proportional to x, this can be written as $\boldsymbol{y \propto \frac{1}{x}}$	

	An equation of the form $\boldsymbol{y = \frac{k}{x}}$ represents inverse proportion.	
33. Using proportionality formulae	**Direct**: **y = kx** or **y ∝ x** **Inverse**: **y = $\frac{k}{x}$** or **y ∝ $\frac{1}{x}$** 1. **Solve to find k** using the pair of values in the question. 2. **Rewrite the equation** using the k you have just found. 3. **Substitute the other given value** from the question in to the equation to **find the missing value**.	p is directly proportional to q. When p = 12, q = 4. Find p when q = 20. 1. p = kq 12 = k x 4 so k = 3 2. p = 3q 3. p = 3 x 20 = 60, so p = 60
34. Direct Proportion with powers	Graphs showing **direct proportion** can be written in the form $\boldsymbol{y = kx^n}$ Direct proportion graphs will always start at the origin.	
35. Inverse Proportion with powers	Graphs showing **inverse proportion** can be written in the form $\boldsymbol{y = \frac{k}{x^n}}$ Inverse proportion graphs will never start at the origin.