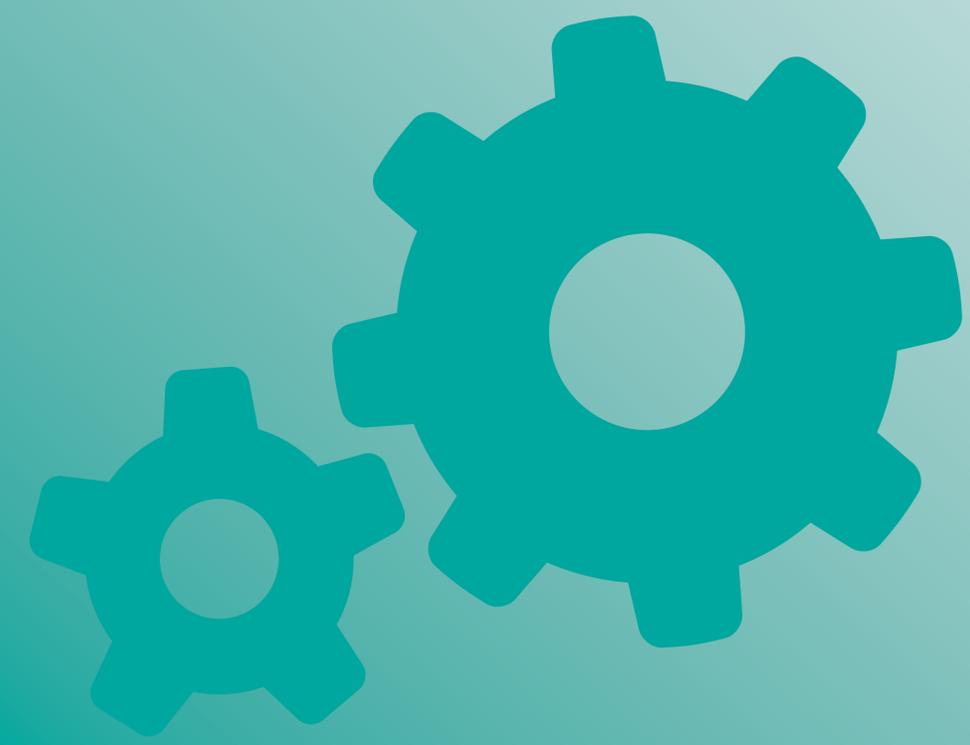




# Maths





## Parts of a 3D Shape

Face	The flat surface of a solid shape
Edge	The side of a shape where two faces meet
Vertex	The corner of a shape where two or more edges meet

## 3D Shapes

Name	Faces	Edges	Vertices	Diagram
Cone	2	1	1	
Sphere	1	1	0	
Tetrahedron	4	6	4	
Cuboid	6	12	8	
Cylinder	3	2	0	
Cube	6	12	8	
Triangular Prism	5	9	6	
Square Based Pyramid	5	8	5	

## Quadrilaterals

Square		all sides equal two pairs of parallel sides all angles equal (90°)
Rectangle		opposite sides equal two pairs of parallel sides all angles equal (90°)
Rhombus		all sides equal two pairs of parallel sides opposite angles equal
Parallelogram		opposite sides equal two pairs of parallel lines opposite angles equal
Trapezium		one pair of parallel sides
Kite		two pairs of adjacent sides equal no pairs of parallel sides one pair of opposite angles equal

## Triangles

Equilateral		all sides equal all angles equal (60°)
Isosceles		two sides equal two base angles equal
Scalene		no sides equal no angles equal
Right-angled		one right angle can be isosceles or scalene

## Polygon sides

3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon
8	Octagon
9	Nonagon
10	Decagon



Lines	
A line is a straight path of points that has no beginning or end	
A line segment is a portion of a line that has two endpoints	
Parallel lines are lines in the same plane that never intersect. They are always the same distance apart	
Perpendicular lines are lines that meet at a right angle, that is, at an angle that meets at 90°	

### Orders of symmetry



Order 3

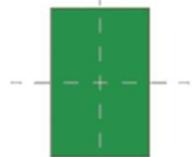
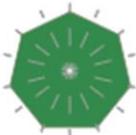


Order 4



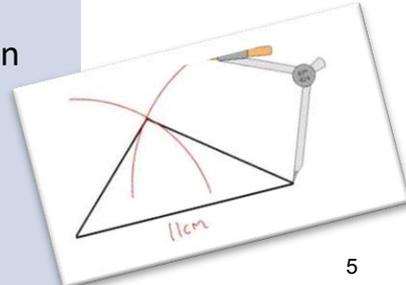
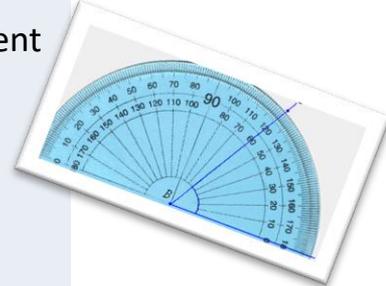
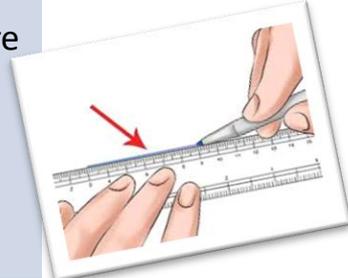
Order 5

Angles	
<b>Acute</b>	<b>Less than 90°</b>
<b>Right Angle</b>	<b>Exactly 90°</b>
<b>Obtuse</b>	<b>Greater than 90° and less than 180°</b>
<b>Reflex</b>	<b>Greater than 180°</b>
<b>Sum of interior angles</b>	<b><math>(n-2) \times 180^\circ</math></b>
<b>Each interior angle in regular polygon</b>	<b><math>(n-2) \times 180^\circ \div n</math></b>
<b>Sum of exterior angles</b>	<b>360°</b>
<b>Each exterior angle in regular polygon</b>	<b><math>360^\circ \div n</math></b>
<b>Number of sides in a regular polygon</b>	<b><math>360^\circ \div \text{exterior angle}</math></b>
<b>Interior + exterior angle</b>	<b>180°</b>

<p>Rectangle</p>  <p>2 lines of symmetry</p>	<p>Isosceles Triangle</p>  <p>1 line of symmetry</p>
<p>Square</p>  <p>4 lines of symmetry</p>	<p>Regular Pentagon</p>  <p>5 lines of symmetry</p>
<p>Regular Hexagon</p>  <p>6 lines of symmetry</p>	<p>Regular Heptagon</p>  <p>7 lines of symmetry</p>
<p>Regular Octagon</p>  <p>8 lines of symmetry</p>	<p>Equilateral Triangle</p>  <p>3 lines of symmetry</p>



Properties needed		Steps
SAS	Side Angle Side	<ol style="list-style-type: none"> <li>1. Draw a base line segment of one of the lengths given</li> <li>2. Measure the angle given from one end of the line segment – take care to use the correct scale (inner or outer)</li> <li>3. Measure the second length given along the new line from Step 2</li> <li>4. Join the free end of the first line segment to the measured mark in Step 3 to make the triangle</li> </ol>
ASA	Angle Side Angle	<ol style="list-style-type: none"> <li>1. Draw the base line segment using the length given</li> <li>2. Taking care to use the correct scale (inner or outer), measure one angle given from the left end and draw a long line</li> <li>3. Measure the second angle from the right end of the first line segment</li> <li>4. Draw a line from Step 3 to join with the line in Step 2 to make the triangle</li> </ol>
SSS	Side Side Side	<ol style="list-style-type: none"> <li>1. Draw one of the lengths as a base line segment</li> <li>2. Set your pair of compasses to one of the other lengths and strike an arc from one end of the first line segment</li> <li>3. Set your pair of compasses to the third length given and strike another arc from the other end of the first line segment</li> <li>4. Draw your triangle to where the two arcs meet</li> </ol>





Adding letters – example 1

$$a + b + a + b$$

=

*Describe what you can see.*

*You should be able to see  
2a's and 2b's*

$$a + b + a + b$$

$$= \underline{2a + 2b}$$

*Remember we order  
the letters in  
alphabetical order.*

Adding letters – example 2

$$c + c + d + d + c + b =$$

*Describe what you can see.*

*You should be able to see*

*1b, 3c's and 2d's*

$$c + c + d + d + c + b = \underline{b + 3c + 2d}$$

*Remember we write b not 1b and order  
alphabetically.*

**What is the perimeter ?**

**3a**

**b**



$$3a + 3a + b + b = \underline{6a + 2b}$$



Find the inverse operation of the following below:

$$(a) +5 = -5 \quad (c) \div 2 = \times 2$$

$$(b) -7 = +7 \quad (d) \times 9 = \div 9$$

Solve each of the following equations:

$$1) \begin{array}{l} x + 7 = 10 \\ \boxed{-7} \quad | \quad \boxed{-7} \\ \hline x = 3 \end{array} \quad 2) \begin{array}{l} x - 9 = 2 \\ \boxed{+9} \quad | \quad \boxed{+9} \\ \hline x = 11 \end{array} \quad 3) \begin{array}{l} \frac{x}{4} = 11 \\ \boxed{\times 4} \quad | \quad \boxed{\times 4} \\ \hline x = 44 \end{array} \quad 4) \begin{array}{l} 5x = 40 \\ \boxed{\div 5} \quad | \quad \boxed{\div 5} \\ \hline x = 8 \end{array}$$

$$1) \begin{array}{l} 2x + 8 = 20 \\ \boxed{-8} \quad | \quad \boxed{-8} \\ \hline 2x = 12 \\ \boxed{\div 2} \quad | \quad \boxed{\div 2} \\ \hline x = 6 \end{array} \quad 2) \begin{array}{l} 8x - 7 = 49 \\ \boxed{+7} \quad | \quad \boxed{+7} \\ \hline 8x = 56 \\ \boxed{\div 8} \quad | \quad \boxed{\div 8} \\ \hline x = 7 \end{array} \quad 3) \begin{array}{l} 3x + 15 = 36 \\ \boxed{-15} \quad | \quad \boxed{-15} \\ \hline 3x = 21 \\ \boxed{\div 3} \quad | \quad \boxed{\div 3} \\ \hline x = 7 \end{array}$$

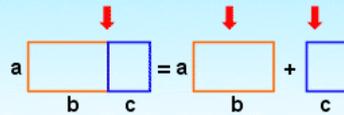


## Algebra Definitions

Variable	A quantity represented by a letter
Term	A single number, variable or numbers and variables multiplied together
Expression	A mathematical statement without an equals sign
Equation	A mathematical statement with an equals sign that is only true for certain values of the variable(s)
Identity	A mathematical statement that is always true for any values the variable(s) can be
Expand	Multiply out the bracket in the expression
Factorise	Rewrite an expression with brackets
Substitute	Replace a variable with a number

## Distributive law of multiplication over addition

$$a(b + c) = ab + ac$$



## Substitution into formulae

$$v = u + at$$

What is  $v$  when:

i)  $u = 2, a = 6 \text{ \& } t = 9$

## Rearranging formulae (Changing the subject)

Make  $x$  the subject of the formula

$y = x + 3$

$x = 3y$  ❌

$x = 3 - y$  ❌

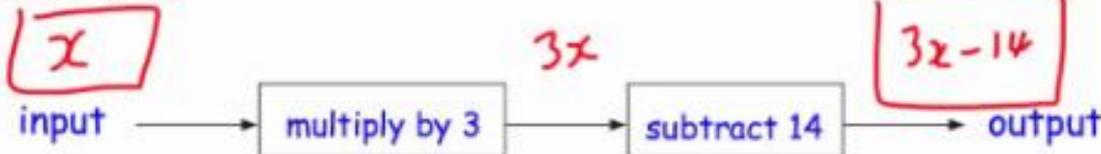
$x = y - 3$  ✅

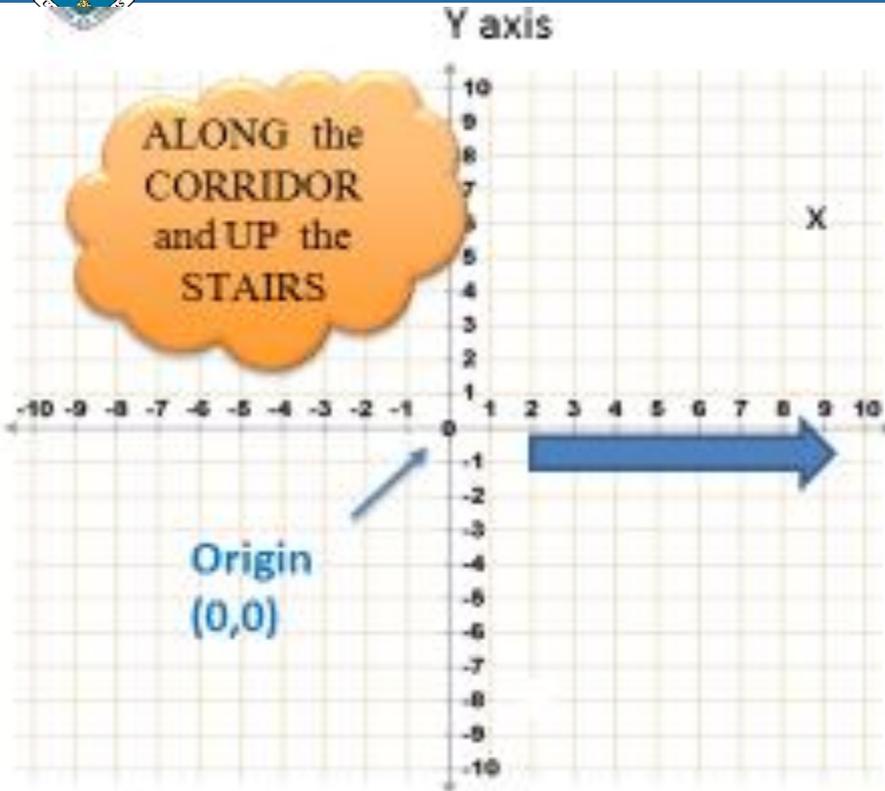
## Equivalent expressions (Identities and proofs)

$$6x + 4 - 3x \equiv 3x + 4$$

$$x^2 + 6x + 9 \equiv (x + 3)^2$$

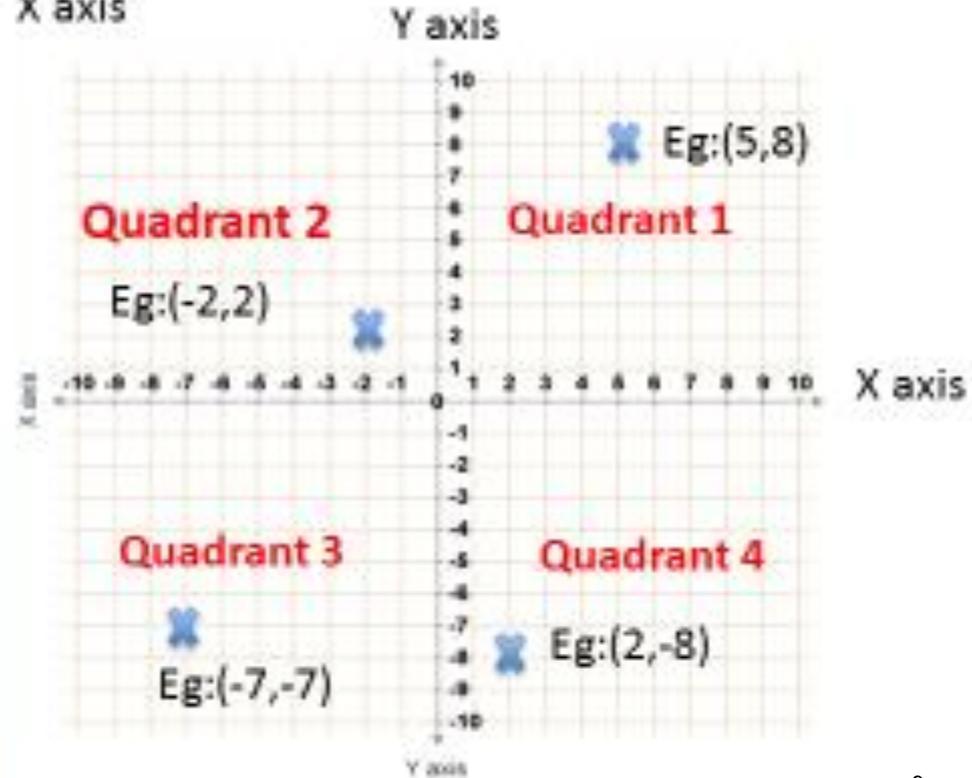
## Two-step function machines





Model Plot (9,6)

X axis



**KEYWORDS**

AXES

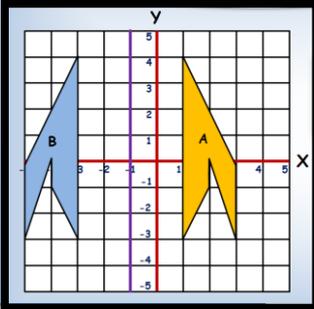
ORIGIN

QUADRANT

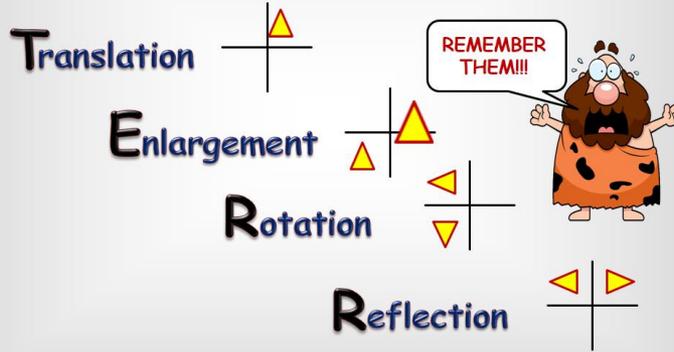


## REFLECTIONS

Draw the reflection line, e.g.  $x = -1$   
 Measure from a vertex and plot the reflection of it on the other side of the line.  
 Repeat for each vertex and join them up



The four "transformations" are:



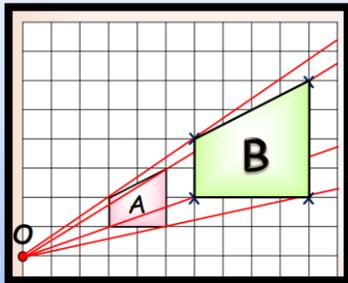
## TRANSLATIONS

(The shape's journey)  
 Move the shape exactly to another position by the column vector  
 The top number is moving left (-) or right (+)  
 The bottom number is moving down (-) or up(+)

## Enlargements

Mark centre of enlargement.  
 Count along and multiply as necessary.

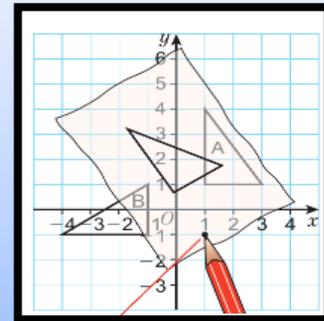
Shape A has been enlarged by a scale factor of 2 from the centre point



## Rotations

Trace the shape.

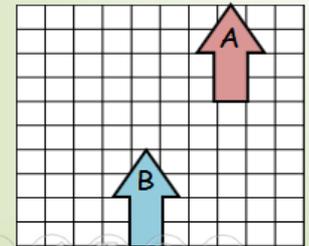
Describe by:  
 Direction—clockwise or anti clockwise  
 Angle of turn in degrees  
 Centre of Rotation



Translate shape A using the column vector shown

$$\begin{pmatrix} -3 \\ -6 \end{pmatrix}$$

Label your image B



## KEYWORDS

### Column Vector

Used to describe the movement of a shape (a translation).

### Mirror Line

The line which you are reflecting from

### Centre of Rotation

The point which you are rotating your shape from.

### Vertex

A corner of a shape

### Scale Factor

This is the number that the lengths have been multiplied by. Remember a shape can get smaller too!

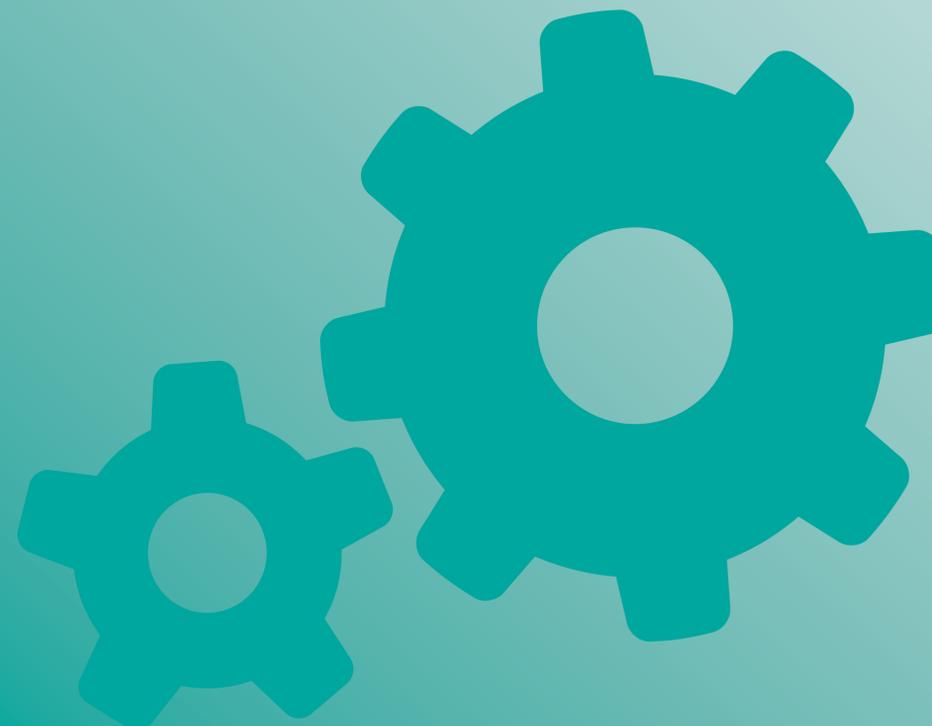
### Centre of enlargement

The point where all the lengths are enlarged from

### Clockwise

Important in rotations. This is the direction the clock goes in. North to East to South to West back to North. Anti-clockwise is the opposite.

# Art



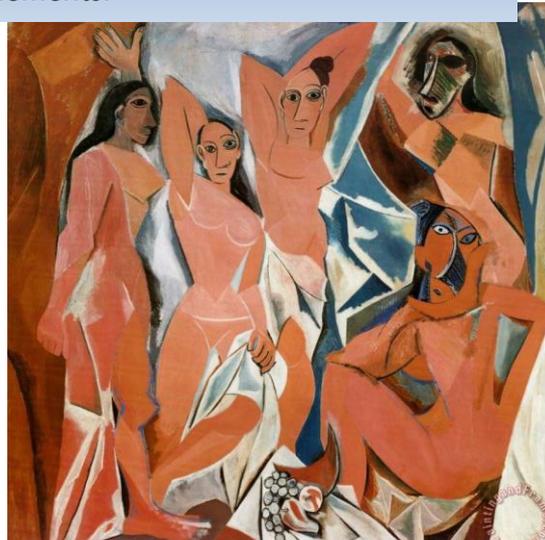


**African masks** are a part of ceremonial costume. They are used in religious and social events to represent the spirits of ancestors or to control the good and evil forces in the community. Some combine human and animal features to unite man with his natural environment.



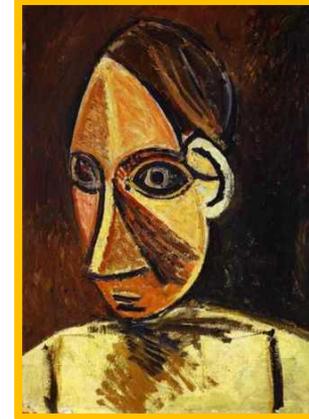
**Cubism** was invented in around 1907–08 by Pablo Picasso and Georges Braque. They brought different views of subjects together in the same picture, resulting in paintings that appear fragmented and abstracted

**Independent study** – Look at examples of African Masks and the portrait paintings of Picasso and compare. How are the faces similar? Look at the shape of the face, individual features, expression and marks. Have a go at creating a mask design which incorporates African and Cubist elements.



**Les Demoiselles D'Avignon** – How much did the painting sell for?

**Picasso** was a Spanish artist born in 1881. He had an enormous influence on 20<sup>th</sup> century art

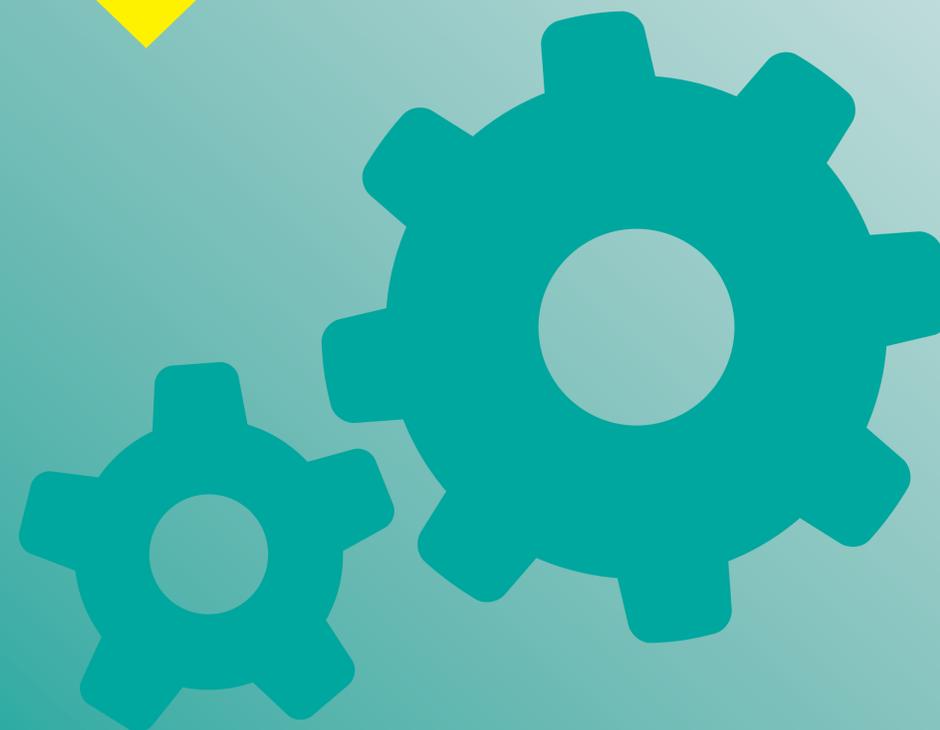


**Picasso's African Period**, which lasted from 1906 to 1909, was the period when Pablo Picasso painted in a style which was strongly influenced by African sculpture and particularly traditional African masks.

### Key words

Proportion Form Mark  
Cubism Shape Pattern  
Symmetry Ceremony

# French





## À la télé = On TV

je regarde ... *I watch ...*  
 les documentaires = *documentaries*  
 les émissions de sport = *sports programmes*  
 les émissions de télé-réalité = *reality TV shows*  
 les infos = *the news*  
 les jeux télévisés = *game shows*  
 les séries = *series*  
 les séries policières = *police series*  
 les séries américaines = *American series*



## Est-ce que tu aimes ...? = Do you like ...?

Oui, j'aime ça. = *Yes, I like that.*  
 Non, je n'aime pas ça. = *No, I don't like that.*  
 c'est ... = *it's ...*  
 amusant = *funny*  
 génial = *great*  
 intéressant = *interesting*  
 ennuyeux = *boring*  
 nul = *rubbish*  
 j'adore = *I love*  
 j'aime bien = *I like*  
 je n'aime pas = *I don't like*  
 je déteste = *I hate*  
 je ne regarde pas = *I don't watch*  
 J'ai une passion pour ... = *I have a passion for ...*  
 Je suis fan de ... = *I am a fan of ...*  
 Je ne suis pas fan de ... = *I am not a fan of ...*

## Les films = Films

J'aime ... = *I like ...*  
 les comédies = *comedies*  
 les films d'action = *action films*  
 les films d'arts martiaux = *martial-arts films*  
 les films fantastiques = *fantasy films*  
 les films d'horreur = *horror films*  
 les films de science-fiction = *science-fiction films*  
 les westerns = *westerns*  
 les dessins animés = *cartoons*  
 Qui est ton acteur préféré? = *Who is your favourite actor?*  
 Mon acteur préféré, c'est ... = *My favourite actor is ...*  
 Qui est ton actrice préférée? = *Who is your favourite actress?*  
 Mon actrice préférée, c'est ... = *My favourite actress is ...*  
 Quel est ton film préféré? = *What is your favourite film?*  
 Mon film préféré, c'est ... = *My favourite film is ...*

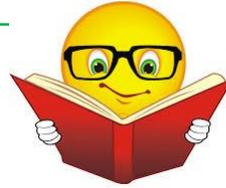


## Les adjectifs = Adjectives

grand / grande = *tall*  
 petit / petite = *small*  
 intelligent / intelligente = *intelligent*  
 beau / belle = *handsome/beautiful*  
 amusant / amusante = *funny*  
 pauvre / pauvre = *poor*  
 gentil / gentille = *nice*  
 riche / riche = *rich*



## La lecture = Reading



Je lis ... = *I am reading ...*  
 une BD = *a comic book*  
 un livre sur les animaux = *a book about animals*  
 un livre d'épouvante = *a horror story*  
 un magazine sur les célébrités = *a magazine about celebrities*  
 un roman fantastique = *a fantasy novel*  
 un roman policier = *a thriller*  
 C'est bien? = *Is it good?*  
 À mon avis, c'est ... = *In my opinion it's ...*  
 assez bien = *quite good*  
 passionnant = *exciting*  
 Qui est ton auteur préféré? = *Who is your favourite author?*  
 Mon auteur préféré, c'est... = *My favourite author is ...*

## Le temps = The weather

Quand ... = *When ...*  
 il fait beau = *it's nice*  
 il fait froid = *it's cold*  
 il fait chaud = *it's hot*  
 il pleut = *it's raining*  
 on fait du VTT = *we do mountain biking*  
 on fait du skate = *we do skateboarding*  
 on fait du bowling = *we go bowling*  
 on regarde des DVD = *we watch DVDs*  
 on va ... = *we go ...*  
 au café = *to the café*  
 au cinéma = *to the cinema*  
 au parc = *to the park*  
 on joue ... = *we play ...*  
 au foot = *football*  
 au basket = *basketball*  
 on surfe sur Internet = *we surf the internet*  
 avec mes copains = *with my friends*



## Les mots essentiels = High-frequency words

assez = *quite*  
 aussi = *also*  
 comme = *as*  
 et = *and*  
 mais = *but*  
 normalement = *normally*  
 parce que = *because*  
 par exemple = *for example*  
 quand = *when*  
 surtout = *above all*  
 très = *very*

## Expressions of time and frequency

d'habitude *usually*  
 en ce moment *at the moment*  
 quelquefois *sometimes*  
 souvent *often*  
 tous les soirs *every evening*  
 une fois par semaine *once a week*



## The present tense

We use the present tense to say:

- what is happening now e.g. I am playing the guitar.
- what usually happens e.g. I sing every day
- how things are e.g. I like spaghetti.



For more information and practice using the present tense:  
<https://www.bbc.co.uk/bitesize/topics/z7t8kmn/articles/z7yhjhw>

In French, there is just one form of the present tense.

e.g. We translate BOTH 'I play' and 'I am playing' as 'je joue'.

The **infinitive** is the form of the verb that you find in the dictionary and it means 'to ...' (e.g. to play).

In French, there are **three types of infinitive: -er verbs, -ir verbs and -re verbs.**

To form the present tense with regular verbs, you **remove the -er / -ir / re** and **add an ending.**

**The ending** depends on the **subject pronoun** (who or what is doing the activity).

-ER verbs (e.g. jouer = to play) Remove the -ER before adding the subject pronoun and ending		-IR verbs (e.g. finir = to finish) Remove the -IR before adding the subject pronoun and ending		-RE verbs (e.g. vendre = to sell) Remove the -RE before adding the subject pronoun and ending	
SUBJECT PRONOUN	VERB ENDING	SUBJECT PRONOUN	VERB ENDING	SUBJECT PRONOUN	VERB ENDING
je (I)	joue	je (I)	finis	je (I)	vend <sup>s</sup>
tu (you - 1 friend)	joues	tu (you - 1 friend)	finis	tu (you - 1 friend)	vend <sup>s</sup>
il/elle/on (he/she/we)	joue	il/elle/on (he/she/we)	finit	il/elle/on (he/she/we)	vend
nous (we)	jouons	nous (we)	finissons	nous (we)	vendons
vous (you-plural/polite)	jouez	vous (you-plural/polite)	finissez	vous (you-plural/polite)	vendez
ils/elles (they)	jouent	ils/elles (they)	finissent	ils/elles (they)	vendent
Only pronounce the nous and vous endings: -ons /-ez. The others (-e/-es/-ent) are silent.		The -s and -t at the end of the je, tu, il/elle/on verb endings is silent. The -ent of the ils/elle verb form is also silent.		There is no ending in the il/elle/on verb form. The -s of the je and tu verb forms is silent, as is the -ent of the ils/elles verb.	



## Important irregular verbs

Some of the most important verbs in French are irregular, including:

- être (to be)
- avoir (to have)
- faire (to do/make)
- aller (to go)

If there is one person's name instead of a subject pronoun, we use the 'he/she form' of the verb. If there is more than one person's name instead of a subject pronoun, we use the 'they form' of the verb.

être (to be)	
je suis	I am
tu es	you are (1 friend)
il/elle/on est	he/she is / we are
nous sommes	we are
vous êtes	you are (plural/polite)
ils/elles sont	they are

avoir (to have)	
j'ai	I have
tu as	you have (1 friend)
il/elle/on a	he/she has / we have
nous avons	we have
vous avez	you have (plural/polite)
ils/elles ont	they have

For more information and practice using the verbs 'to be' and 'to have':

- <https://www.bbc.co.uk/bitesize/topics/z7t8kmn/articles/zdpmkmn>
- <https://www.bbc.co.uk/bitesize/topics/z7t8kmn/articles/zjs6d6f>

faire (to do/make)	
je fais	I do/make (or am doing/making)
tu fais	you do/make (1 friend)
il/elle/on fait	he/she does/makes / we do/make
nous faisons	we do/make
vous faites	you do/make (plural/polite)
ils/elles font	they do/make

aller (to go)	
je vais	I go (or am going)
tu vas	you go (1 friend)
il/elle/on va	he/she goes / we go
nous allons	we go
vous allez	you go (plural/polite)
ils/elles vont	they go



## Negatives

In French, 'not' is **ne ... pas**.

The two parts form a sandwich around the verb: **ne** goes before the verb and **pas** goes after the verb.  
If the verb starts with a vowel or silent h, **ne** changes to **n'**.

- Je **ne** regarde **pas** la télé. (I don't watch TV).
- Il **n'**aime **pas** le sport. (He doesn't like sport).

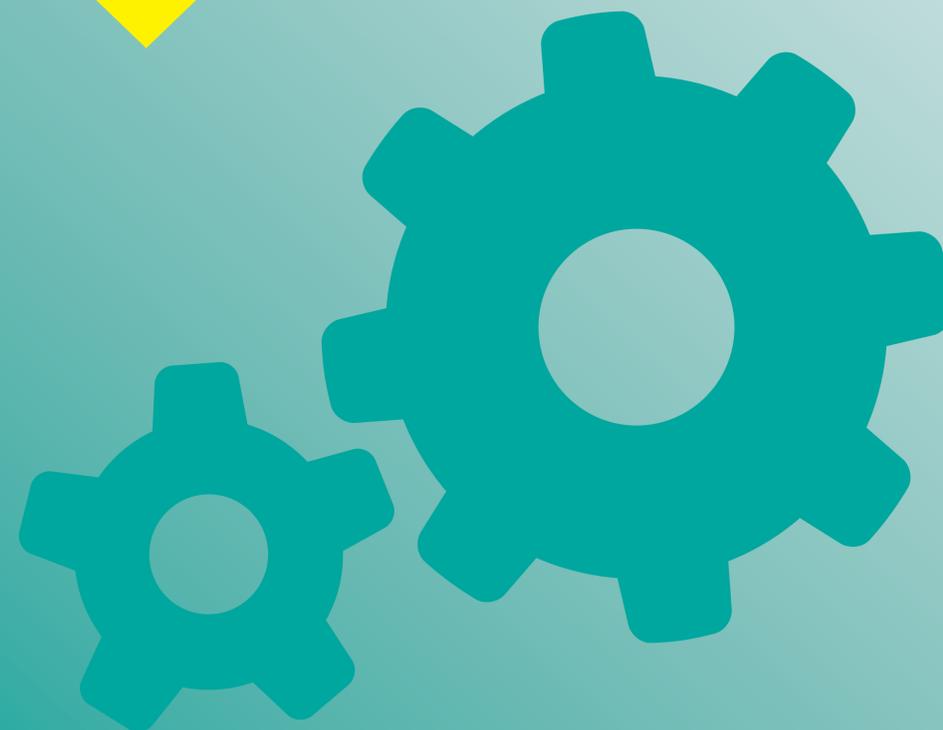
These other negative forms work in the same way:

- **ne ... rien** (nothing)  
Il **ne** fait **rien** le week-end. (He does nothing at the weekend).
- **ne ... jamais** (never)  
Je **ne** vais **jamais** en ville. (I never go into town).
- **ne ... personne** (nobody / not anyone)  
Elle **ne** connaît **personne** à Paris. (She knows nobody in Paris / She doesn't know anyone in Paris).
- **ne ... plus** (not anymore / no longer)  
Je **n'**habite **plus** en France. (I don't live in France anymore / I no longer live in France).
- **ne ... que** (only)  
On **ne** regarde **que** les films d'action. (We only watch action films).
- **ne ... ni ... ni** (neither ... nor)  
Mes parents **ne** vont **ni** au cinéma **ni** au théâtre. (My parents go to neither the cinema nor the theatre).



For more information and practice using negatives:  
<https://www.bbc.co.uk/bitesize/clips/zcbxp39>

# Spanish





## ¿Adónde fuiste de vacaciones? Where did you go on holiday?

El año pasado = last year  
 El verano pasado = last summer Fui  
 a = i went to  
 Escocia = Scotland  
 España = Spain Francia =  
 France Gales = Wales  
 Grecia = Greece  
 Inglaterra = England  
 Irlanda = Ireland Italia  
 = Italy  
 No fui de vacaciones = I didn't go on holiday



## ¿Con quién fuiste? = Who did you go with?

Fui con = I went with  
 Mis amigos / as = my friends Mi  
 clase = my class  
 Mi familia = my family Mis  
 padres = my parents

## ¿Cómo fuiste? = How did you travel?

Fui / fuimos en = I went / we went by  
 autocar = coach  
 avión = plane barco =  
 boat/ferry coche =  
 car  
 tren = train



## ¿Qué hiciste? = What did you do?

Bailé = I danced  
 Compré una camiseta = I bought a t-shirt  
 Descansé en la playa = I relaxed on the beach  
 Mandé SMS = I sent texts  
 Monté en bicicleta = I rode my bike  
 Nadé en el mar = I swam in the sea  
 Saqué fotos = I took photos  
 Tomé el sol = I sunbathed  
 Visité monumentos = I visited monuments  
 No nadé en el mar = I didn't swim in the sea  
 Bebí una limonada = I drank a lemonade  
 Comí paella = I ate Paella  
 Conocí a un chico/a guapo/a = I met a good-looking  
 boy/girl  
 Escribí SMS = I wrote texts  
 Salí con mi hermano/a = I went out with my  
 brother / sister  
 Vi un Castillo interesante = I saw an interesting  
 castle

## Useful words, phrases, sequencers

luego = then  
 más tarde = later  
 después = afterwards  
 el primer día = on the first day  
 el último día = on the last day  
 por la mañana = in the morning  
 por la tarde = in the afternoon



## Exclamations!

- iQué bien! = How great!
- iQué bonito! = How nice!
- iQué divertido! = How fun / funny!
- iQué guay! = How cool!
- iQué rico! = How tasty!
- iQué suerte! = How lucky! / What luck!
- iQué aburrido! = How boring!
- iQué horror! = How awful!
- iQué lástima! = What a shame!
- iQué mal! = How bad!
- iQué rollo! = How annoying!



## High Frequency Words

- a / al / a las = to (the)
- en = by
- con = with
- mi / mis = my
- ¿Cómo? = How?
- ¿Dónde? = Where?
- ¿Adónde? = To where?
- ¡qué...! = How...!
- además = also / in addition
- pero = but
- también = also / as well

## ¿Cómo te fue? = How was it?

- Fue divertido = It was fun / funny
- Fue estupendo = It was brilliant
- Fue fenomenal = It was fantastic
- Fue flipante = It was awesome
- Fue genial = It was great
- Fue guay - It was cool
- Fue regular = It was OK
- Fue un desastre = It was a disaster
- Fue horrible = It was terrible
- Fue raro = It was weird
- Me gusto = I liked it
- Me encantó = I loved it

## ¿Porque? = Why?

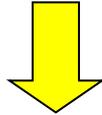
- Porque = because
- Hizo buen tiempo = the weather was good
- Comí algo malo y vomité = I ate something bad and was sick
- Llovió = It rained
- Perdí mi pasaporte = I lost my passport
- Perdí mi móvil = I lost my mobile





## THE PRETERITE TENSE - REGULAR VERBS

Identify the **REGULAR** verb you want  
(ending in **-ar**, **-er** or **-ir**)



Take off the **-ar**, **-er** or **-ir** ending.



Replace with the correct ending to match the person(s)  
doing the action

AR Verbs

ER Verbs

IR Verbs

## The Preterite Tense

Used to talk about an action that took place in  
the past and is **completed/finished**.

In English we would say it like this:

**I ate**

**You played**



**Look** at the following sites  
for more information and  
practise

<https://www.bbc.co.uk/bitesize/topics/zg9mhyc/articles/zhgfmfr>

<https://www.bbc.co.uk/bitesize/guides/znmwhbk/video>

[o](#)

• **é** = I  
• **aste** = You  
• **ó** = He/She/It  
• **amos** = We  
• **asteis** = You (pl)  
• **aron** = They

• **í** = I  
• **íste** = You  
• **ió** = He/She/It  
• **imos** = We  
• **ísteis** = You (pl)  
• **ieron** = They

• **í** = I  
• **íste** = You  
• **ió** = He/She/It  
• **imos** = We  
• **ísteis** = You (pl)  
• **ieron** = They



## **IR = TO GO**

**IR** is a common irregular verb in the preterite tense. This means that it does not follow the same verb endings as regular verbs. We just have to learn it!

## **IR = TO GO**

**Fui = I went**

**Fuimos = We went**

**Fuiste = You went**

**Fuisteis = You all went**

**Fue = He / She / It went**

**Fueron = They went**

**For example –**

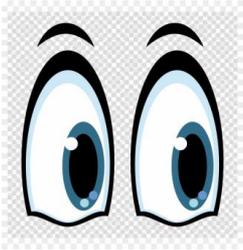
**El año pasado fui a España. Fuimos en avión.**

**Last year I went to Spain. We went by plane.**



## SER = TO BE

**SER** is a common irregular verb in the preterite tense. This means that it does not follow the same verbs endings as regular verbs. We just have to learn it!



## WATCH OUT!!

**SER AND IR ARE IDENTICAL IN THE PRETERITE TENSE**

## SER = TO BE

Fui = I was

Fuiste = You were

Fue = He / She / It was

Fuimos = We were

Fuisteis = You all were

Fueron = They were

For example –

Mi padre FUE a España. FUE genial.

My father went to Spain. It was great.



## SIMPLE NEGATIVES

To make a statement or a question negative in any tense in Spanish you put a **NO** before the verb.

No jugó al fútbol = He didn't play football

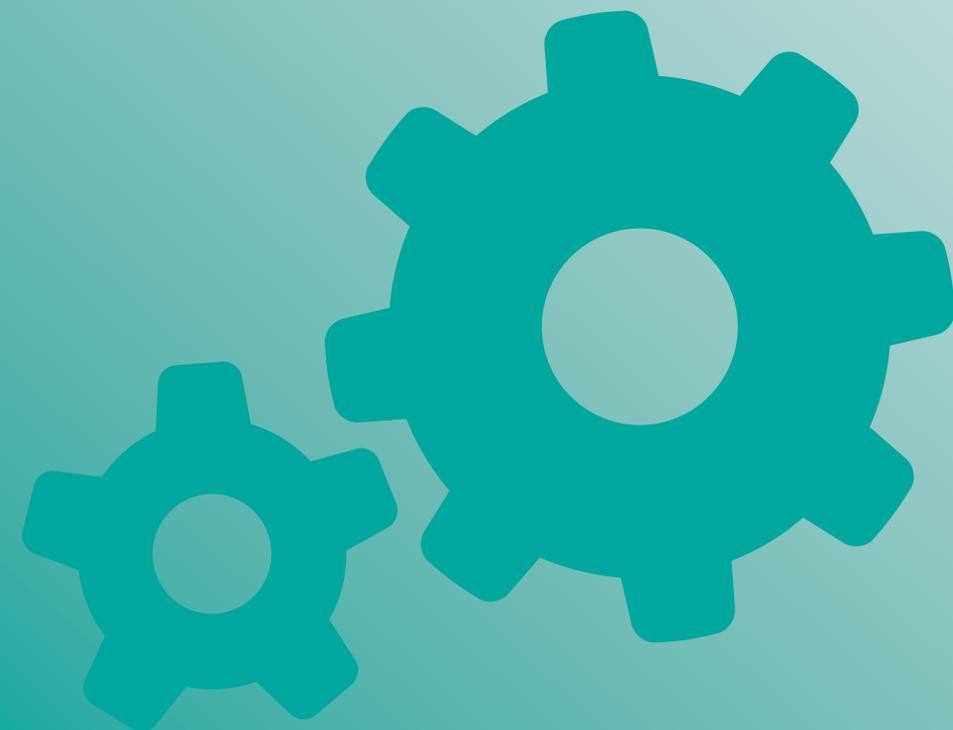
No hago natación = I do not do swim



**Watch** the following video for more information and on NEGATIVES

<https://www.bbc.co.uk/bitesize/guides/z66qnr/revision/1>

# Religious Studies





# ISLAM KNOWLEDGE ORGANISER



## Overview

**Islam** is one of the world's major religions. It is the **world's 2<sup>nd</sup> largest religion**, with about 1.8 billion followers.

**Muslims** are the people who follow Islam. They believe in one **God** who created everything – he is called **Allah** (the Arabic name for 'God').

Muslims believe in a messenger of Allah, named **Muhammad**. They view him as the final **prophet**, following Adam, Abraham, Moses, Jesus and others.

Muhammad is believed to be the person who **founded** the faith of Islam, about 1,400 years ago.

The holy book in Islam is called the **Qur'an**. A **mosque** is a building designed for Muslim worship.

Around 2.5 million Muslims each year take part in the annual 'hajj' pilgrimage to Mecca.



## Answers to Important Questions and Key Vocabulary

<p><b>Where do Muslims worship God?</b></p>	 	<p>-Muslims pray in a building called a mosque. -The word for mosque in Arabic is 'masjid'. Most mosques have at least one dome, and many also have one or two towers. -Muslims take off their shoes before entering the mosque to pray. This is a sign of respect. -On Fridays at noon, the most important religious service of the week is held in the mosques.</p>	<p><b>Key Vocabulary</b></p> <p>Allah</p> <p>Muhammad</p> <p>Qur'an</p> <p>Five Pillars</p> <p>Ramadan</p> <p>Eid</p> <p>Mosque</p> <p>Prophet</p> <p>Hadith</p> <p>Sunni</p> <p>Shia</p> <p>Caliph</p>
<p><b>What is the Qur'an?</b></p>		<p>The Qur'an is the holy book of Islam. Muslims believe that the Qur'an contains the holy words of God, which teaches them the right path. Other important books in Islam are the Sunnah (about Muhammad's life) and the Hadith (the words of Muhammad). -There are about 50 countries around the world in which Islam is the largest religion. -The Arab world (the Middle East and Northern Africa) accounts for about 20% of all Muslims. -There are also millions of Muslims from Indonesia, Pakistan, Bangladesh and India. -China, Iran and Turkey also have many Muslims. -After Christianity, Islam is the 2<sup>nd</sup> largest religion in most European countries.</p>	
<p><b>Where do most Muslims live in the world?</b></p>		<p>-There are two main types of Muslims – Sunni Muslims and Shia Muslims. Although all Muslims follow the Qur'an and the five pillars of Islam, they also have some differences. Sunni Muslims believe that leadership of the community (and the 'caliph' – leader) should be elected from the community. Shia believe that leadership should stay within the prophet's family, or be chosen by Allah.</p>	
<p><b>How many different types of Muslims are there?</b></p>			

## Muslim Beliefs

### Laws and Customs



-There are many laws and customs outlined in the Qur'an, that Muslims should follow.

-They must dress modestly, e.g. many Muslims wear long clothes that cover their bodies, and women wear a hijab which covers parts of their hair/face. Food must be halal, meaning animals must be killed in a certain way.

### Ramadan



-Ramadan is the ninth month of the Islamic calendar. It is a month in which Muslims worldwide take part in fasting.

-For the whole of the month, Muslims do not eat during daylight hours. Instead, they devote themselves to prayer and to Allah.

### The Five Pillars of Islam

-The Five Pillars of Islam are the behaviours and beliefs by which Muslims must live their lives. They were founded in the hadith of Gabriel.



1. **Shahadah**: the declaration of faith: 'There is no God but Allah, and Mohammad is his messenger.' 2. **Salah**: the five daily prayers. 3. **Zakah**: Giving money to help the poor. 4. **Sawm**: Committing to fasting during the month of Ramadan. 5. **Hajj**: A religious pilgrimage to Mecca that Muslims should undertake at least once in their lives.

### Muhammad



- Muslims believe that God sent his final message to Earth through Muhammad, 1400 years ago. He is considered so holy that Muslims say 'peace be upon him' whenever they say or write his name.

-When he was around 40 years old, Muhammad is believed to have been approached in a cave by the angel Gabriel, who sent 'revelations' from Allah. He continued to receive these messages, and to teach them to others.

-The messages that Muhammad received were later collected and made into the Qur'an. Muslims believe that they should follow the example set by Muhammad throughout their own lives.

## Top 10 Facts!

- Friday is the Muslim holy day. People go to the Mosque and pray.
- Islam is the fastest-growing religion in the world.
- Muhammad was born in Mecca – which is now in Saudi Arabia. It is considered a holy place.
- The very first mosque was in the courtyard of the home of the prophet Muhammad.
- The Ka'ba is an ancient shrine in Mecca that Muslims believe is the holiest place on earth.
- Muslims believe that Allah told Muhammad exactly what to write in the Qur'an.
- The Qur'an has a total of 114 chapters. Many Muslims try to memorise the entire Qur'an!
- Muslims are called to prayer by a muezzin, a man who sings through a loudspeaker.
- About 23% of the global population are Muslim.
- The 'Islamic World' refers to the Middle East, North Africa, and parts of South East Asia.

## Islam Timeline

- |  |  |   |  |  |  |   |   |   |
|--|--|---|--|--|--|---|---|---|
| Beginning of time: Allah creates the world and everything in it. | Around 570CE: Muhammad is born in Mecca. | c.610CE: Muhammad receives the first revelation from Gabriel. | c.622CE: Muhammad reaches Medina. Beginning of Islamic calendar. | c.630CE: Muhammad returns to Mecca. People accept Islam. | c.633CE: Muhammad dies. Abu-Bakr made caliph (leader). | c.655CE: Islam spreads from the Middle East through North Africa. | c.1120CE: Islam spreads to South-East Asia. | c.1979CE: Iranian Revolution forms state of Iran – first attempt at an Islamic state. |
|--|--|---|--|--|--|---|---|---|



# Design Technology





## 1: Mechanical Devices - Motion

There are four types of motion:

<b>Linear Motion</b> is movement in one direction along a straight line.		
<b>Oscillating Motion</b> This motion is similar to reciprocating motion, but the constant movement is from side to side along a curved path.		
<b>Rotary Motion</b> Examples of circular motion include a ball tied to a rope and being swung round in a circle		
<b>Reciprocating Motion</b> , this is repetitive up-and-down or back-and-forth linear motion		

## 2: Mechanical Devices – Levers

There are three classes of levers.

<b>Class One</b> A class one lever has its input on one side of the fulcrum and its output on the other.		
<b>Class Two</b> A class two lever has its input at one end of the lever, its output in the middle and fulcrum at the other end.		
<b>Class Three</b> A class three lever has its output at one end of the lever, its fulcrum at the other with its input in the middle.		

## 1. Paper

Type	Description and uses
Layout paper	<ul style="list-style-type: none"> <li>lightweight, thin white paper</li> <li>used for initial ideas</li> <li>takes colour media well</li> <li>low cost</li> </ul>
Tracing paper	<ul style="list-style-type: none"> <li>thin, translucent paper</li> <li>making copies of drawings</li> <li>high cost</li> </ul>
Cartridge paper	<ul style="list-style-type: none"> <li>good quality white paper</li> <li>available in different weights</li> <li>general purpose work</li> <li>can be used to make simple models</li> <li>medium cost</li> </ul>
Bleedproof paper	<ul style="list-style-type: none"> <li>smooth, hard paper</li> <li>used with water-based and spirit-based felt-tip pens</li> <li>medium cost</li> </ul>
Grid paper	<ul style="list-style-type: none"> <li>printed square and isometric grids in different sizes</li> <li>a guide for quick sketches and working drawings</li> <li>low cost</li> </ul>

## 3. Boards

Type	Description and uses
Corrugated card	<ul style="list-style-type: none"> <li>strong and lightweight</li> <li>used for packaging protection and point of sale stands</li> <li>available in different thicknesses</li> </ul>
Duplex board	<ul style="list-style-type: none"> <li>large foam-based board</li> <li>different finishes available including metallic and hologrammatic</li> <li>used for food packaging, e.g. take-away pizza boxes</li> </ul>
Foil lined board	<ul style="list-style-type: none"> <li>quality cardboard with a aluminium foil lining</li> <li>ideal for ready made meals or take away meal cartons</li> <li>The foil retains the heat and helps keep the food warm</li> </ul>
Foam core board	<ul style="list-style-type: none"> <li>very light, very stiff and very flat.</li> <li>It has a white, rigid polystyrene foam centre, with smooth white paper laminated onto both faces.</li> <li>It is easy to cut with a knife, a mount cutter or on a wall cutter</li> <li>great for modelling</li> </ul>
Ink jet card	<ul style="list-style-type: none"> <li>Has been treated so that it will give a high quality finish with inkjet ink</li> <li>available in matt and gloss</li> </ul>
Solid white board	<ul style="list-style-type: none"> <li>top quality cardboard made from quality bleached wood pulp.</li> <li>used for hard backed books and more expensive items</li> <li>excellent print finish</li> </ul>

## 3: Mechanical Devices – Linkages

<b>Reverse motion linkage</b>	The reverse motion linkage changes the direction of the input motion so that the output travels in the opposite direction. If the input is pulled the output pushes and vice versa. It uses a central bar held in position with a fixed pivot (fulcrum) that forces the change in direction and two moving pivots which are connected to the input and output bars.	
<b>Parallel motion or push/pull linkage</b>	The push/pull linkage maintains the direction of the input motion so that the output travels in the same direction. If the input is pulled the output is pulled and so on. It uses three linking bars, four moving pivots and two fixed pivots.	
<b>Bell crank linkage</b>	The bell crank linkage changes the direction of the input motion through 90 degrees. It can be used to change horizontal motion into vertical motion or vice versa. It uses a fixed pivot and two moving pivots.	
<b>Crank and slider</b>	The crank and slider linkage changes rotary motion into reciprocating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots to push and pull a slider along a set path.	
<b>Treadle linkage</b>	The treadle linkage changes rotary motion into oscillating motion or vice versa. It uses a crank which is held with a fixed pivot. A connecting rod uses two moving pivots and a further fixed pivot to create a windscreen wiper motion.	



## 1: Forces and Stresses

Force	Description	A fair test for each force/stress.	How a material/object can be adapted to resist	Examples
<b>Tension</b>	Forces pulling in opposite directions.	Apply the same weight to each material and suspended in the same manner.	Concrete can have steel bars inserted to reinforce.	
<b>Compression</b>	Forces that are trying to crush or shorten.	Insert materials into a vice/clamp and apply the same amount of twists to the handle.	Composite panels can have a honeycomb structure sandwiched in the middle to resist.	
<b>Bending</b>	Flexing force	Apply the same weight to the material.	Steel beams have an I profile to resist bending.	
<b>Torsion</b>	Twisting force.	Use clamps & stands to hold the materials and turn in opposite directions at the same angle.	The diagonals on a tower crane help the structure against torsion.	
<b>Shear</b>	A strain produced when an object is subjected to opposing forces.	Place the material between a tool that works in opposite directions. e.g. Shears	Bolts are hardened and have unthreaded shanks to help stop shearing.	

### Material WORKING properties

#### Strength

The ability to withstand force without breaking

#### Elasticity

The ability to stretch and return to their original shape

#### Ductility

The ability to be drawn or stretched out onto a thin strand without snapping

#### Malleability

The ability to be deformed and to remain in that shape

#### Hardness

The ability to withstand scratching or denting

#### Toughness

The ability to withstand breaking or snapping

## 3. Metals

### Aluminium

A grey light weight metal. Can be polished Rust resistant



### Mild Steel

Dark grey heavy metal. Rusts very quickly if exposed



### Stainless Steel

A very shiny heavy metal Very resistant to rust & wear



### Cast Iron

Strong in compression Very Brittle



### Copper

A reddish soft metal. Excellent conductor of heat and electricity



### Brass

Yellow colour Hard. An ALLOY of copper & zinc



## What is ANTHROPOMETRICS ?

The study of the human body and its movements.

The study of the human body and its movement, often involving research into measurements relating to people. It also involves collecting statistics or measurements relevant to the human body, called Anthropometric Data. The data is usually displayed as a table of results, diagram or graph. Anthropometric data is used by designers and architects.

## What is ERGONOMICS ?

The study of people and their relationship with the environment around them.

Measurements, also known as 'anthropometric data', are collected and applied to designs / products, to make them more comfortable to use. The application of measurements to products, in order to improve their human use, is called Ergonomics.

## Ferrous Metals:

**FERROUS METALS** are those which are iron based. They contain Iron and carbon in varying amounts. As iron is extracted from its ore in a furnace it contains a relatively high amount of carbon. This makes the iron hard but brittle this is known as cast iron. It resists compression but may break if dropped, hit or stretched. It is used to make car brake drums, railings and manhole covers. Cast iron has 4% carbon content.



## Non-Ferrous Metals:

**NON-FERROUS METALS** do not contain iron. There are many different metals that fall into this group.

### 4.4 Metals

**Metals are hard and usually shiny, containing one or more elements dug and refined from the ground**

**Ferrous metals are any metal that contains iron and will rust**

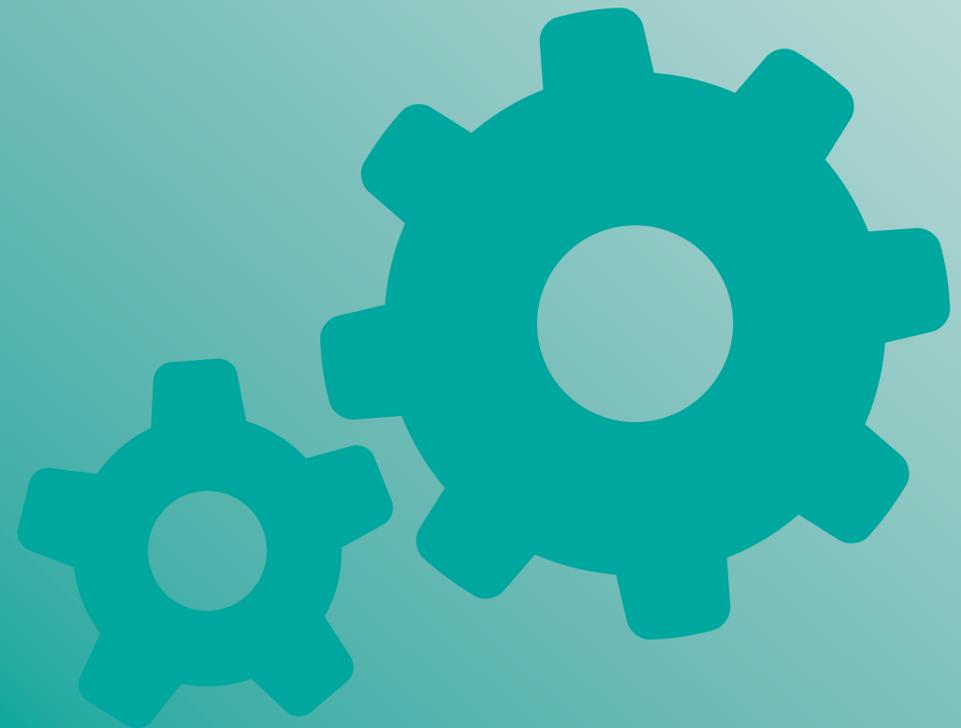
**Non-Ferrous metals do not contain iron and will not rust**

**Alloys are metals made from a mix of 2 metals – brass is made of copper and zinc.**

## Alloys:

An **ALLOY** is a material of a mixture of metals or a metal and a non metal intermixed. Metal alloys have advantages. The alloy may contain the properties of two or more metals or other elements.

# English





## Context:



- Written in 1945.
- George Orwell was a British author who was politically active.
- Influenced by the Russian Revolution and WW2.
- Joseph Stalin, Vladimir Lenin and Trotsky.
- Allegorical novel reflects the events leading up to the Stalin era before the Second World War. Orwell, a socialist, uses the novel to highlight how destructive the consequences of communism could be.

## Plot:



The book tells the story of a group of farm animals who rebel against their human farmer, hoping to create a society where the animals can be equal, free, and happy. Ultimately the rebellion is betrayed, and the farm ends up in a state as bad as it was before, under the dictatorship of a pig named Napoleon.

## Characters:



Old Major  
Mr Whymper  
Mollie  
Mr Jones  
Snowball  
Napoleon  
Clover  
Pilkington and Frederick  
Boxer  
Squealer

## Authors intentions:



To educate people about how power can be negative and how people in power can manipulate their citizens to believe that they are the right leader. Power can often lead to corruption and oppression.

## Key quotes:



- ‘All animals are equal, but some animals are more equal than others.’
- ‘Four legs good, two legs bad.’
- ‘Whatever goes upon two legs is an enemy.’
- ‘Man is the only real enemy we have.’
- ‘The creatures outside looked from pig to man, and from man to pig, and from pig to man again; but already it was impossible to say which was which.’

## Themes:



- Leadership
- Control
- Lies and Propaganda
- Violence
- Pride and Belonging
- Dreams and Hopes

## Key vocabulary:



Dictatorship	Proletariat
Allegory	Equality
Tyranny	Democracy
Satire	
Capitalism	
Socialism	
Dystopia	
Utopia	

## Structure:

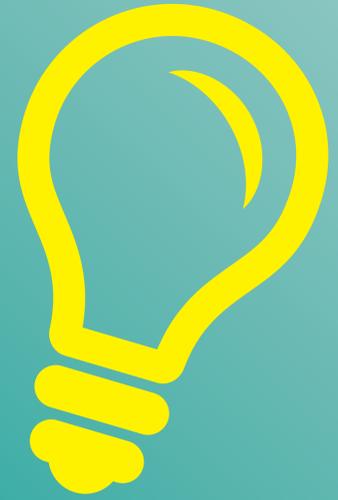


- The novel is written in 10 chapters that can be divided into three sections: the Dream, the Rebellion, Napoleon’s regime.
- A recurring motif is the seven commandments, which are amended throughout the novella.
- Circular narrative
- Fairy-tale?

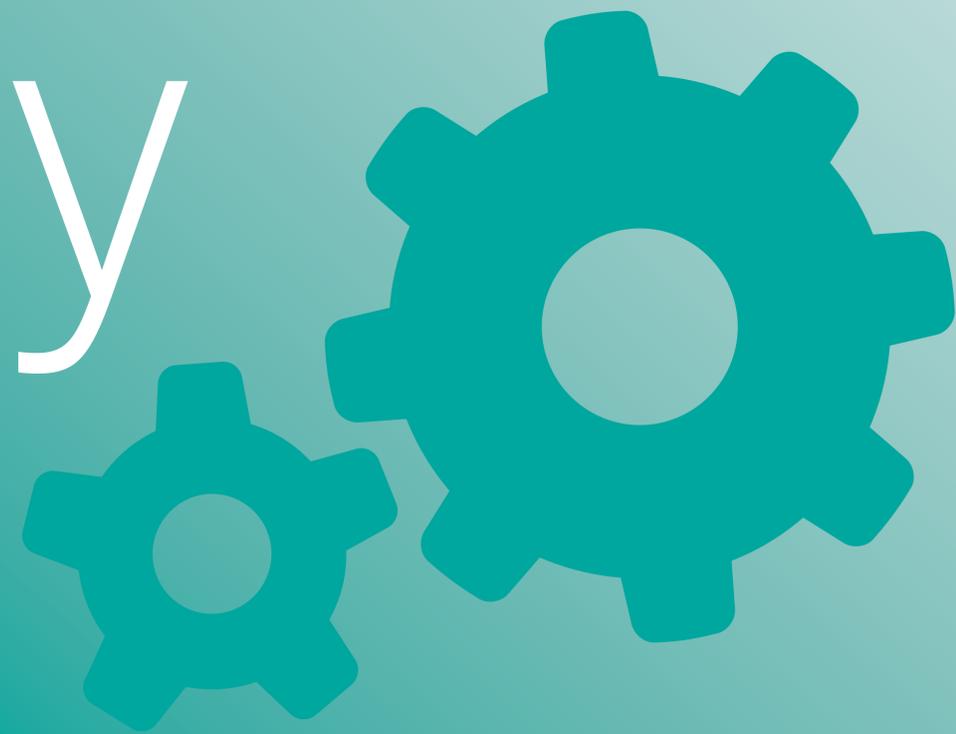
## Analytical verbs:



- Illustrates
- Reveals
- Implies
- Emphasises
- Highlights
- Presents
- Represents
- Symbolises
- Suggests



# Geography





## How do we damage our soil?

Our population is growing, but the amount of fertile soil is shrinking. Why is this?

- We bury soil under concrete.
- We contaminate it with dust and fumes from factories.
- We cut down the trees that protect it.
- We let too many animals graze on it.
- We grow overgraze and use too much fertiliser on it.

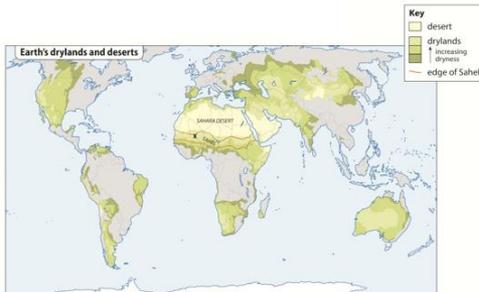
**Soil erosion** is a product of these actions. This is when the fertile top soil is carried away by wind or water. It can lead to **desertification**.

## What are the solution to desertification?

In the Sahel, farmers have developed methods for fighting desertification.

- **Planting trees and bushes**
- **Storing rainwater when it falls**
- **Digging Zai Pits**
- **Microdosing**

Scientists are also working to develop new crop breeds that will grow more effectively on poor soil, or in drought.



## What is happening with the world's oil?

Oil forms from tiny sea creatures which die, get buried in sediment and, after being exposed to heat and pressure, turn into oil. Humans then extract the oil from the sea bed, or from underground.

Oil is used for transport, heating, electricity and to create medicines and plastic.

Oil is harmful to the environment. When you burn it, it produces **greenhouse gases** which cause **global warming**. It also produces **Sulphur dioxide** which causes **acid rain**. Oil spills harm the environment.



## Is renewable energy the future?

There are a number of types of renewable energy.

- **Biomass**
- **Hydro-electric Power**
- **Wind farms**
- **Wave power**
- **Tidal power**
- **Solar farms**

Solar power uses **solar cells** to change sunlight into electrical energy. It is particularly valuable in poor countries, where access to other forms of power might be difficult.

## How do we affect other species?

There are 1.7 million other known species on our planet. Scientists think at least 10 species become extinct each week. Some scientists believe humans are causing a **mass extinction** through **deforestation, pollution, hunting, fishing and burning fossil fuels**.



## Year 8: Restless Earth

### Key Terms

- Mantle
- Core
- Pacific Ring of Fire
- Earthquake
- Volcano
- Tsunami
- Effects
- Seismic
- Tectonics
- Constructive margin
- Destructive margin
- Conservative margin
- Collision margin

### Structure of the Earth

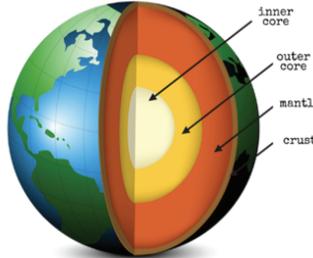
The **inner core** is extremely hot (5,500°C) it is a very dense solid made from iron and nickel

The **outer core** is 2,000 km thick and is a liquid

The **mantle** is semi-molten and about 3,000km thick, The closer the mantle is to the core, the more liquid it is.

The **crust** is the rocky outer layer which we live. It is thin compared to other sections and made up of oceanic and continental plates

### LAYERS OF THE EARTH

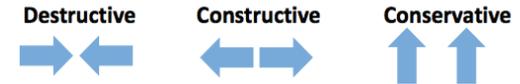
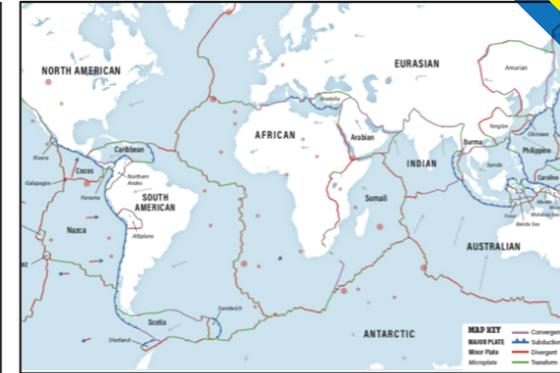


**Oceanic plates** carry the oceans. They are thinner but denser than continental plates.

**Continental plates** carry the land. They are thicker but less dense than oceanic plates.

### Plate Margins

The Earth's crust is broken into different plates, which sit on the Earth's mantle. These plates move because of **convection currents**. The plates move in different directions and meet at **plate margins**. As the plates move, parts of the crust are **destroyed** and in other areas new crust is **created**.

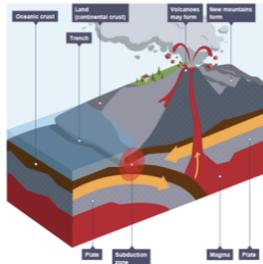


### Destructive

**Movement:** The plates collide and the oceanic plate is subducted (sinks) under the continental plate.

**Example:** The Nazca plate is being forced under the South America plate.

**Landforms and Hazards:** Volcanoes, fold mountains and oceanic trenches are formed. Earthquakes

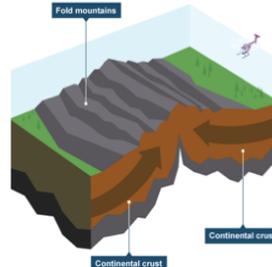


### Collision (Destructive)

**Movement:** The two continental plates collide

**Example:** The Indo-Australian plate and Eurasian plate creating the Himalayas

**Landforms and Hazards:** Earthquakes

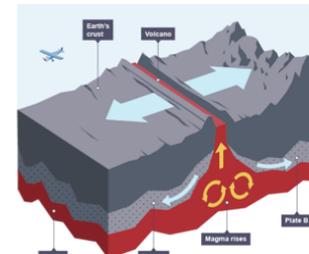


### Constructive

**Movement:** The plates move apart

**Example:** The North American and Eurasian plate are pulling apart creating the Mid Atlantic Ridge

**Landforms and Hazards:** Volcanoes and Earthquakes

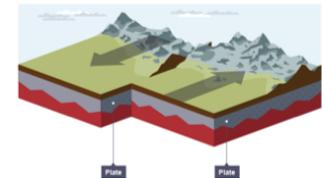


### Constructive

**Movement:** The plates move alongside each other

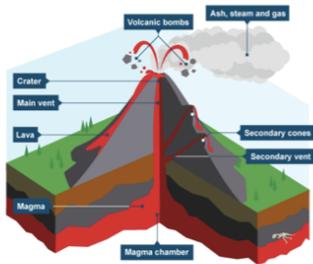
**Example:** The North American and Pacific plate

**Landforms and Hazards:** Earthquakes





## Structure of a Volcano



## Effects of Volcanic Eruptions

Effects of Volcanic Eruptions	
Positive Effects	Negative Effects
The dramatic scenery created by volcanic eruptions attracts <b>tourists</b> . This brings income to an area.	<b>Lives can be lost</b> – 21 people were killed by the White Island (New Zealand) eruption in December 2019.
The lava and ash deposited during an eruption breaks down to provide valuable nutrients for the soil. This creates very <b>fertile soil</b> which is good for agriculture	If the ash and mud from a volcanic eruption mix with rain water or melting snow, fast moving <b>mudflows</b> are created. These flows are called <b>lahars</b> .
The high level of heat and activity close to a volcano can provide opportunities for generating <b>geothermal energy</b>	Lava flows and lahars can <b>destroy</b> settlements and areas of woodland or agriculture

Large earthquakes are usually connected with plate margins. Earthquakes happen often but most are too small for us to notice. **Seismometers** record earth movements. An earthquake is a sudden **shockwave** caused by rocks being under stress from the movements of plates at plate margins. Eventually the stress in the rock builds up enough to deform and reach breaking point. At that point, the stored up energy is released in the form of shockwaves.

### Largest Earthquakes by Magnitude

1. 1960 **Chile** 9.4-9.6
2. 1964 **Alaska** 9.2
3. 2004 **Indonesia** 9.1-9.3
4. 2011 **Japan** 9.1
5. 1952 **Russia** 9.0

### Measuring Earthquakes

In the past, the **Richter scale** was used to measure the power of earthquakes. Earthquakes are now measured using the **Moment Magnitude Scale** (or simply **Magnitude scale**). This measures the size of the **seismic waves** during the earthquake. Each step in the scale is ten times greater than the previous number. This is a **logarithmic** scale from 0-10.

The amount of damage caused by an earthquake is measured by the **Mercalli Scale**. This is a measure of **intensity**, and changes according to which area you are measuring - damage nearer the **epicentre** would usually be greater than further away.

## Effects of an Earthquake

	Social Impacts	Economic Impacts	Environmental impacts
Short Term:	People may be killed or injured. Homes may be destroyed. Infrastructure may be disrupted. Water supplies may be contaminated.	Shops and business may be destroyed. Looting may take place.	The landscape may be destroyed because of fires or landslides Tsunamis may cause flooding in coastal areas
Long Term:	Disease may spread. People may have to be rehoused, sometimes in refugee camps	Rebuilding can be expensive. Income could be lost	Important natural and human landmarks may be lost.

### How to reduce risk from earthquakes:

#### Prediction

Prediction involves using seismometers to monitor earth tremors. Experts know where earthquakes are likely to happen. However, it is very difficult to predict when they will happen. Even looking at the timescale between earthquakes doesn't seem to work.

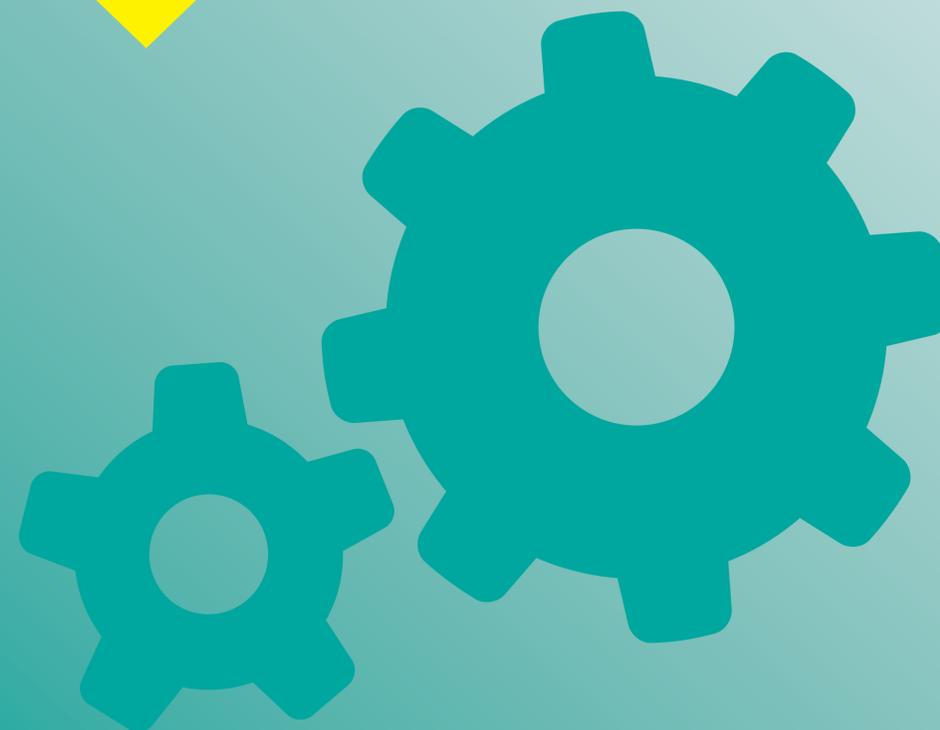
#### Protection

Protection involves constructing buildings so that they are safe to live in and will not collapse. Some examples of building improvements are:

#### Preparation

In earthquake-prone countries, hospitals, emergency services and residents practise for an earthquake. They have drills in all public buildings so that people know what to do in the event of an earthquake. This helps to reduce the impact and increases their chance of survival.

# History





## WORLD WAR I KNOWLEDGE ORGANISER



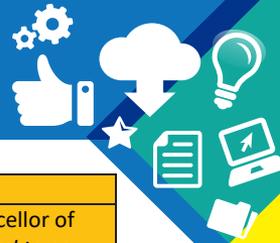
Main Participating Countries					
ALLIED POWERS			CENTRAL POWERS		
Country	Date Joined	Death Toll	Country	Date Joined	Death Toll
FRANCE 	3 <sup>rd</sup> Aug, 1914	approx. 1,700,000 4.3% of population in 1914	GERMAN EMPIRE 	1 <sup>st</sup> Aug, 1914	approx. 2,500,000 4% of population in 1914
BRITISH EMPIRE 	4 <sup>th</sup> Aug, 1914	approx. 900,000 2% of population in 1914	AUSTRIA-HUNGARY 	28 <sup>th</sup> Jul, 1914	approx. 1,900,000 3.7% of population in 1914
RUSSIA 	1 <sup>st</sup> Aug, 1914	approx. 3,100,000 13.7% of population in 1914	OTTOMAN EMPIRE 	31 <sup>st</sup> Oct, 1914	approx. 3,000,000 14% of population in 1914
USA 	6 <sup>th</sup> Apr, 1917	117,466 0.13% of population in 1914	BULGARIA 	12 <sup>th</sup> Oct, 1915	187,500 3.4% of population in 1914

Key People	
<p><b>Archduke Franz Ferdinand</b> – (1863-1914) was a high-ranking member of the Habsburg Dynasty, who was the presumed heir to the Austro-Hungarian throne. As was customary of Habsburg men, he had begun his military career young (aged just 12). He rose through the ranks quickly, becoming inspector general of the armed forces in 1913. This role brought him to Sarajevo in 1914, where he was assassinated alongside his wife, Sophie. The perpetrator was Gavrilo Princip, a member of the Serbian Black Hand secret society. Austria-Hungary's subsequent declaration of war on Serbia prompted a chain of events that led to World War I.</p>	<p><b>Kaiser Wilhelm II</b> – (1859-1941) was the last German Emperor (Kaiser), reigning from 15<sup>th</sup> June 1888 until 9<sup>th</sup> November 1918. Wilhelm was a grandchild of Queen Victoria, and was related to many of the monarchs of Europe, including George V of the UK and Nicholas II of Russia. His support for Austria-Hungary in the crisis of July 1914 was a leading factor in the outbreak of World War I. Many sources suggest that he was not respected as a leader, and as a result, his two leading generals Paul von Hindenburg and Erich Ludendorff dictated most of German policy and strategy during the war. He abdicated in 1918, and fled to the Netherlands.</p>
<p><b>Woodrow Wilson</b> – (1856-1924) was the 28<sup>th</sup> President of the United States, serving between 1913 and 1921. At the outbreak of World War I, in 1914, the US was neutral, but remained an important supplier to Great Britain and the Allies. However, after 2 1/2 years of war, America declared war on Germany on 6<sup>th</sup> April 1917, after Germany continued to attack neutral boats and ships. In early 1918, Wilson gave his outline of 14 points that he thought would bring lasting peace. This influenced the eventual Treaty of Versailles. He received the 1919 Nobel Peace Prize for his efforts.</p>	<p><b>David Lloyd George</b> – (1863-1945) was the Prime Minister of the United Kingdom throughout the latter part of the war effort, and in the years following the war. He was integral to reorganising the Allied military strategy to work more cohesively under one military commander. Lloyd George also played an important role after the war, being one of the 'Big Three' (alongside the leaders of France and the US) to negotiate the Treaty of Versailles with Germany. He represented the halfway point between the harsh demands of Clemenceau and the more lenient requests of Wilson.</p>
<p><b>Tsar Nicholas II</b> – (1868-1918) was the last Emperor of Russia, ruling from 1894 until his forced abdication on 2<sup>nd</sup> March 1917. Throughout his reign, Russia fell from being one of the foremost great powers of the world, to economic and military collapse. These factors, coupled with the perception of Nicholas' weak leadership, led to the events of the Russian Revolution, Nicholas' abdication, and his eventual execution. The Russians' catastrophic losses forced them to leave the war effort before the end of the war, with Russia eventually becoming a part of the communist Soviet Union.</p>	<p><b>Wilfred Owen</b> – (1893-1918) Wilfred Edward Salter Owen was a British poet and soldier. He was one of the most prominent World War I poets, detailing the horrors of trench warfare in a similar style to his mentor, Siegfried Sassoon. His poetry brought a sense of realism to public perceptions of war, in stark contrast to the earlier works of poets such as Rupert Brooke. He composed almost all of his poetry in just over a year, from August 1917 to September 1918. Among the most famous are <i>Dulce et Decorum est</i> and <i>Anthem for Doomed Youth</i>. He was killed one week before the end of the war.</p>

Major Events				
Event	Image	Description	Date/s	Fact
<b>Entangling Alliances</b>		In the early 20 <sup>th</sup> Century, there was no one dominating European country. Consequently, each of the most powerful countries moved to make alliances with one another. Military defensive pacts were held between the allied powers of France, Great Britain, Russia and others, whilst an opposing central alliance was formed including Germany and Austria-Hungary.	1879-1914	Defensive pacts stated that participating countries must aid an ally under attack.
<b>Assassination of Archduke Franz Ferdinand</b>		Archduke Franz Ferdinand, the heir to the Austro-Hungarian throne, and his wife Sophie, were assassinated by Gavrilo Princip, a member of the Serbian Black Hand Society. The aim of the assassination was to make the South Slav provinces a part of Yugoslavia.	28 <sup>th</sup> June 1914	Earlier, another assassination attempt against the Archduke had failed.
<b>July Crisis</b>		After Serbia's failure to make demands for the assassination, Austria-Hungary declared war on them. Russia (in pact with Serbia) declares war on Austria-Hungary, before Germany consequently declares war on Russia. By the 4 <sup>th</sup> August, all of the European powers from the Allied and Central Powers are at war.	July-August 1914	Britain were the last of the powers to declare war, on 4 <sup>th</sup> August 1914.
<b>Trench Warfare</b>		To prevent enemy advances, both sides built large trenches, which stretched from the North Sea, through Belgium and France. As a result, neither side made much ground from late 1914 until early 1918. Attacks involved going across No Man's Land (in the middle) where attackers were open to machine gun fire, mines, and shells. Casualties were huge. Life in the trenches was awful, with diseases like trench foot rife. Mustard gas was a war agent used, causing blisters on skin and lungs. It caused excruciating pain and often death.	From September 1914 until November 1918 (the end of the war).	The enemy trenches were generally 50 to 250 metres apart. In between, No Man's Land was littered with barbed wire, mines, and bodies.
<b>Gallipoli Campaign</b>		The Gallipoli campaign was an unsuccessful attempt by the Allies to control the sea route from Europe to Russia. It included a failed naval attack in February 1915, and a major land invasion on 25 <sup>th</sup> April, which resulted in major losses to the Ottoman Empire.	19 <sup>th</sup> February 1915 – 9 <sup>th</sup> January 1916	The Allies eventually evacuated in Dec 1915/ Jan 1916.
<b>Battle of the Somme</b>		The Battle of the Somme was the largest battle of World War I on the Western Front. More than 3 million fought in the battle, with more than 1 million killed or injured. At the end of the battle, the Allies had advanced 6km.	1 <sup>st</sup> July 1916 – 18 <sup>th</sup> November 1916	The battle is known for being the first use of the tank.
<b>America Declares War</b>		President Woodrow Wilson declared war on Germany, citing Germany's violation of its pledge to suspend unrestricted German warfare in the Northern Atlantic and Mediterranean. This had caused sinking of US ships.	6 <sup>th</sup> April 1917	The arrival of fresh US troops helped to turn the war.
<b>Second Battle of Marne</b>		The Second Battle of Marne was the last major German offensive in the war. They were defeated as the Allies counter-attacked. This triggered the start of the Allied advance which led to the Armistice 100 days later.	15 <sup>th</sup> July – 6 <sup>th</sup> August 1918	There were 168,000 German casualties.
<b>Armistice of 11<sup>th</sup> November</b>		The Armistice of the 11 <sup>th</sup> November 1918 signalled the end of the fighting between the Allies and Germany. Previous armistices had already been agreed with the other central powers. It came into force at 11am. It marked a victory for the Allies and defeat for Germany although it was not officially a German surrender.	11 <sup>th</sup> November 1918	The fighting ended on the 11 <sup>th</sup> hour of the 11 <sup>th</sup> day of the 11 <sup>th</sup> month in 1918.
<b>The Treaty of Versailles</b>		The Treaty of Versailles was the most important of the peace treaties bringing to an end World War I, ending conflict between Germany and the Allied Powers. It was signed in Versailles, but mostly negotiated in Paris. The most contentious of the requirements in the peace treaty was that Germany had to accept responsibility for all of the loss and damage in the war. They had to make massive repayments to other countries.	28 <sup>th</sup> June 1919	Many suggest that the treaty was too harsh on Germany, and created tensions which partially escalated World War II.

### Timeline of Major Events

28 Jun 1914 – Archduke Franz Ferdinand is killed by a Serbian	28 Jul 1914 – Austria-Hungary declares war on Serbia. Russia steps in to help Serbia	Aug 1-4 1914 – Keeping promises to their allies, Germany, France, and Britain all enter the war.	Sep 5-12 1914 – The advancing German army is stopped by British and French forces before Paris. 4 years of trench warfare begins.	11 Nov 1914 – The Ottoman Empire declares war on the Allies.	25 Apr 1915 – The Ottomans defeat the Allies at the Battle of Gallipoli.	1 Jul 1916 – The Battle of the Somme begins. Over 1 million soldiers will be killed or wounded	8 Mar 1917 – The Russian Revolution begins. Tsar Nicholas II is removed from power.	6 Apr 1917 – The U.S enters the war, declaring war on Germany.	15 Jul 1918 – The Allies decisively win at the Second Battle of Marne.	11 Nov 1918 – Armistice signed. The fighting ends.
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	Date	Key events
1	September 1, 1939	Germany invades Poland
2	September 3, 1939	Britain and France declare war on Germany ( <i>start of WW2</i> )
3	January, 1940	Rationing introduced across the UK
4	May to June, 1940	Dunkirk evacuated and France surrenders to Germany Germany uses blitzkrieg to take over much of Western Europe
5	July, 1940	Germany launches air attacks on Great Britain ( <i>The Battle of Britain and the Blitz begins</i> ) Germany, Italy and Japan signed the Tripartite Pact creating the axis alliance
6	December 7, 1941	The Japanese attack the US navy in Pearl Harbor. The next day, the USA enters the war fighting with the allies
7	June 6, 1944	D-day and the Normandy invasion. Allied forces invade France and push back the Germans
8	April 30, 1945	Adolf Hitler commits suicide
9	May 7, 1945	Germany surrenders & victory in Europe is declared the next day
10	August 1945	Atomic bombs dropped on Hiroshima & Nagasaki, Japan by the US killing approximately 226,000 people
11	September 2, 1945	Japan surrenders signaling the end of WW2
12	July, 1954	Rationing ends in the UK

Leaders		
1	Adolf Hitler	Leader of the Nazi Party and Chancellor of Germany, 1933 - 1945 ( <i>also referred to as the Führer meaning leader</i> )
2	Winston Churchill	UK Prime Minister, 1940 - 1945 (and again from 1951 - 1955)
3	Neville Chamberlain	UK Prime Minister, 1937 - 1940 ( <i>infamous for failed attempts to satisfy Hitler's demands prior to the war</i> )
4	Franklin D. Roosevelt	US President, 1933 – 1945 ( <i>took the US into the war following the Pearl Harbor attacks</i> )
5	Harry S. Truman	US President, 1945 – 1953 ( <i>responsible for the decision to drop Atomic bombs on Japan</i> )
6	Joseph Stalin	General Secretary of the Communist Party and Leader of the USSR, 1929 - 1953



*'History will be kind to me for I intend to write it.'*  
Churchill



*'It is not truth that matters, but victory' – Hitler (performing Nazi salute above)*

	Term	Definition
1	Allies	Countries which fought on the British side (including: USA, Great Britain, France, Russia (1941-1945))
2	Evacuee	Someone who was evacuated, moved from a danger area to a safer place ( <i>normally from the cities to rural areas</i> )
3	Black out	System of ensuring no lights were visible after dark so that buildings could not be spotted by enemy planes
4	Rationing	The controlled distribution of scarce resources ( <i>mainly food &amp; clothing</i> )
5	Air raid shelter	A building to protect people from bombs dropped by planes Anderson Shelter: Made of corrugated iron. Usually at the end of the garden Morrison Shelter: Metal cage used inside the house. Could double as a kitchen table
6	Trenches	A long, narrow ditch used for troops to shelter from enemy fire or attack
7	Axis	Countries which fought on the German side (including: Italy, Germany, Japan, Russia (1939-1941))
8	Nazi	Member of the fascist German political party which came to power in 1933. Symbol = swastika
9	Blitz	Series of aerial bombing raids on the UK, mainly cities including London, Bristol & Nottingham
10	Holocaust	Mass murder of Jews and other groups of people by the Nazis
11	Fascism	Right wing political view associated with not allowing opposition and total control by a dictator.
12	Blitzkrieg	Translated as 'lightning war'. German quick strike invasion of Western Europe
13	Luftwaffe	The German Air Force (responsible for the Blitz)
14	Enigma	A machine used by the Nazis to send coded messages



*Above left: Enigma machine*



*Above right: Swastika (symbol of Nazis)*

*Below: Remains of a house after a bombing raid during the Blitz*



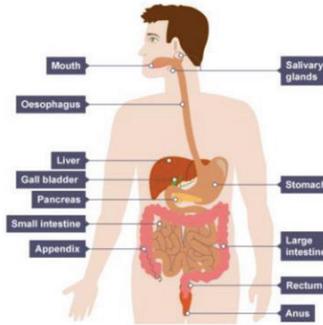


# Science



Keyword	Definition
<b>Digestion</b>	The breakdown of large insoluble food molecules into smaller soluble ones.
<b>Digestive System</b>	Organ system involved in breaking food down so that it can be absorbed into the bloodstream.
<b>Absorbed</b>	When a substance is taken in by something or moved across a barrier such as a cell membrane.
<b>Amylase</b>	An enzyme that can break down starch into simple sugars.
<b>Lipase</b>	Enzyme that breaks down lipids (fats & oils).
<b>Carbohydrase</b>	Enzyme that breaks down carbohydrates.
<b>Protease</b>	Enzyme that breaks down proteins.
<b>Enzyme</b>	A protein which catalyses or speeds up a chemical reaction.
<b>Surface Area</b>	The area of the surface of an organism or membrane.
<b>Villi</b>	Finger-like projections in the small intestine that provide a large surface area for the absorption of food.
<b>Capillary</b>	Tiny blood vessels with walls one-cell thick where exchange of materials occurs.
<b>Bile</b>	Substance produced in the liver. It emulsifies fats to prepare them for digestion.
<b>Pancreas</b>	Produces biological catalysts called enzymes which speeds up the digestive reactions.
<b>Excretion</b>	Process by which waste products from chemical reactions in an organism are removed.

The food we eat has to be broken down into other substances that our bodies can use. This is called digestion. Without this process, we could not absorb the food into our bodies and use it.



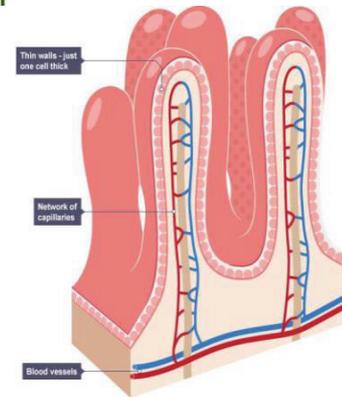
Organ	Function
Oesophagus	Also known as the gullet. Connects the mouth to the stomach. Food is pushed down using contractions of muscles.
Liver	Production of bile.
Stomach	Churns and mixes the food with hydrochloric acid and enzymes.
Pancreas	Produces biological catalysts called enzymes which speeds up the digestive reactions.
Small Intestine	Absorption of digested food into the bloodstream, production of enzymes to aid digestion.
Large Intestine	Absorption of excess water.
Rectum	Storage of faeces (undigested material) before excretion.
Anus	Where faeces are excreted (removed from the body).

Enzymes are not living things. They are special proteins that can break large molecules into smaller molecules.

### Adaptations of the Small Intestine

Minerals, vitamins and water are already small enough to be absorbed by the body without being broken down, so they're not digested.

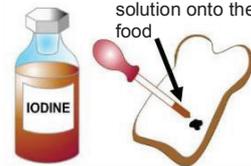
Digestive enzymes cannot break down dietary fibre, which is why the body cannot absorb it.



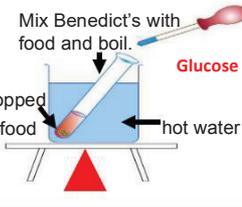
The small intestine is adapted for efficient absorption of digested food into the blood stream by:

- Having a very large surface area.
- Surrounded by lots of blood capillaries.
- Thin walls (1 cell thick) for faster absorption.

### Starch Test

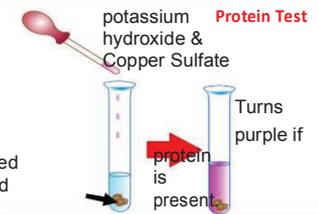


Drop iodine solution onto the food



Mix Benedict's with food and boil.

### Glucose Test

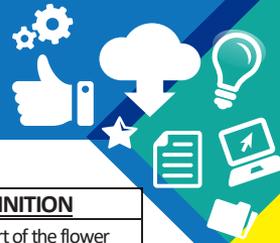


potassium hydroxide & Copper Sulfate

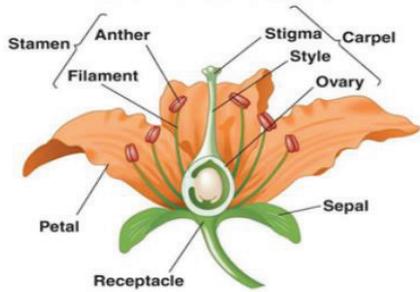
Turns purple if protein is present.

Further Reading:

- <https://www.bbc.com/bitesize/guides/z9pv34j/revision/1>
- <https://www.bbc.com/bitesize/guides/zwqycdm/revision/1>



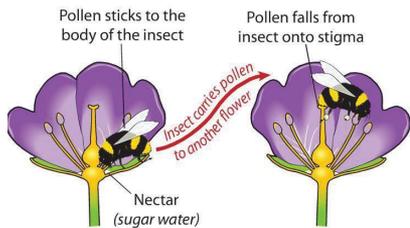
## PARTS OF A FLOWER



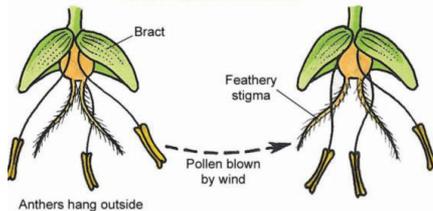
## POLLINATION

- Can occur between two different plants (cross-pollination) or between male and female parts of the same plant (self-pollination).
- Pollen can be transferred by wind, insects, or other animals.

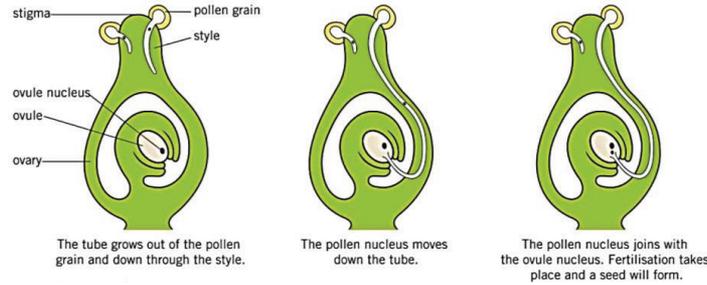
### Insect pollination



### WIND POLLINATED FLOWER



**How are new plants made?** Plants reproduce sexually to produce seeds. These seeds form after pollen grains and ovules join. After fertilisation, the fruit and seed are formed.



	Insect pollinated	Wind pollinated
<b>Petals</b>	Large brightly coloured	Small dull in colour
<b>Smell</b>	Sweet	No scent
<b>Nectar</b>	Yes (attract insects)	No
<b>Pollen quantity</b>	Very little	Large quantity
<b>Pollen type</b>	Sticky or spiky	Light, dry, smooth (
<b>Anther position</b>	Firm and inside	Loose and outside
<b>Stigma position</b>	Inside flower	Outside flower
<b>Stigma type</b>	sticky	Sticky but also feathery

**SEEDS** have three important structures:

1. Seed coat → tough outer layer
2. Embryo → young root and shoot
3. Food store → store of food (starch) the young plant uses until it can photosynthesise.

To germinate a seeds needs:

1. Water → seed swells and embryo can grow.
2. Oxygen → respiration (energy)
3. Warmth → speeds up reactions

Method	Detail of seed dispersal	Examples
<b>Wind</b>	Seeds have lightweight parts, wings or parachutes.	Dandelion, sycamore
<b>Animals (inside)</b>	Brightly coloured and tasty fruits contain seeds with indigestible coats, so that the seeds pass through the animal's digestive system undamaged. They reach the ground in animal droppings and may be able to germinate.	Tomato, plum, raspberry, grape
<b>Animals (outside)</b>	Fruits have hooks that attach them to the fur of passing animals. The seeds drop and reach the ground where they may be able to germinate.	Goose grass, burdock
<b>Water</b>	Seeds with a small mass can float on water and may germinate if they reach land. Wood fruits are waterproof and are carried away by the sea.	Willow trees, coconut tree
<b>Explosive</b>	Have a pod that bursts open when ripe, throwing the seeds away from the plant in all directions.	Pea pod

KEYWORD	DEFINITION
<b>Anther</b>	The male part of the flower that produces pollen.
<b>Carpel</b>	The female part of the flower, made up on the stigma style and ovary.
<b>Fertilisation</b>	Joining of a nucleus from a male and female sex cell.
<b>Filament</b>	The part of a flower that holds up the anther.
<b>Fruit</b>	Structure that the ovary becomes after fertilisation, which contains seeds.
<b>Germination</b>	The period of time when a seed starts to grow.
<b>Ovary</b>	The part of a flower that contains ovules.
<b>Ovules</b>	Female sex cells in plants found in the ovary.
<b>Petals</b>	A brightly coloured part of a flower that attracts insects.
<b>Pollen</b>	Contains the plant male sex cells found on the stamens.
<b>Pollination</b>	Transfer of pollen from the male part of the flower to the female part of the flower on the same or another plant.
<b>Seed</b>	Structure that contains the embryo of a new plant.
<b>Seed dispersal</b>	The movement of seeds away from the parent plant.
<b>Sepal</b>	The special leaves found under the flower, which protect unopen buds.
<b>Stamen</b>	The male reproductive parts of the flower.
<b>Stigma</b>	The female part of a flower that is sticky to catch grains of pollen.
<b>Style</b>	The female part of a flower that holds up the stigma.



Keyword	Definition
<b>Periodic Table</b>	<b>A tabular representation of all known elements in order based on atomic number.</b>
<b>Atomic Number</b>	<b>The number of protons in the nucleus of an atom. Also called the proton number.</b>
<b>Periods</b>	<b>A horizontal row in the periodic table.</b>
<b>Groups</b>	<b>A vertical column in the periodic table containing elements with similar chemical properties.</b>
<b>Element</b>	<b>A substance made of only one type of atom.</b>
<b>Compound</b>	<b>A Substance where two or more elements have chemically joined together.</b>
<b>Mixture</b>	<b>Two or more substances that are not joined together. The substances can be elements, compounds or both.</b>
<b>Reactive</b>	<b>The tendency of a substance to undergo a chemical reaction.</b>

**Further Reading:**

<https://www.bbc.com/bitesize/guides/z3vwxnb/revision/5>  
<https://www.bbc.com/bitesize/guides/z84wixs/revision/1>

The periodic table is arranged in rows called periods and columns called groups. Groups contain elements with similar chemical properties.

**Group 1 – Alkali Metals**

Group 1 metals are very soft metals which can be cut with a knife. They have very low melting and boiling points and are very reactive compared to other metals. The elements become more reactive as you go down group 1.

When the group 1 metals react in water they produce a metal hydroxide and hydrogen gas.

E.g.  
Lithium + Water → Lithium Hydroxide + Hydrogen

**Group 2 – Alkali Earth Metals**

Group 2 metals are reactive, but less reactive than group 1 elements.

Group 2 metals react with acids to produce a salt and hydrogen. The name of the salt depends on the acid used.

Hydrochloric Acid – Chloride

Sulfuric Acid – Sulfate

Nitric Acid - Nitrate

E.g.

Magnesium + Hydrochloric Acid → Magnesium Chloride + Hydrogen

Magnesium + Sulfuric Acid → Magnesium Sulfate + Hydrogen

Magnesium + Nitric Acid → Magnesium Nitrate + Hydrogen

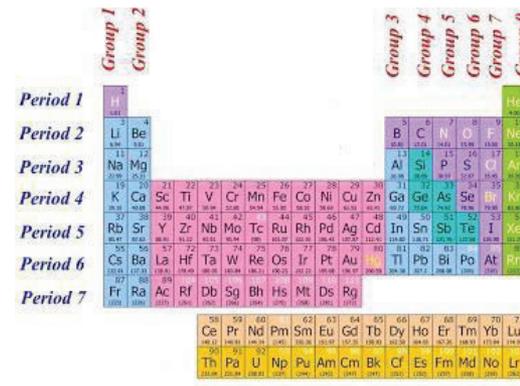
Group 2 metals become more reactive when you go down group 2.

**Group 7 – The Halogens**

Group 7 elements become less reactive when you move down the group. This can be shown as a displacement reaction.

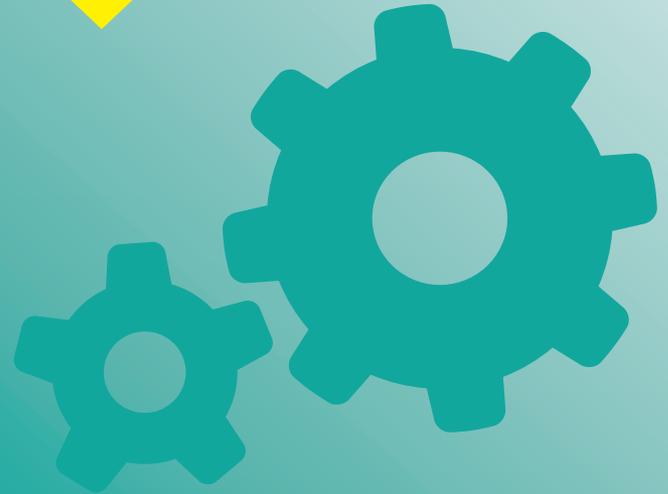
**Group 0 – The Noble Gases**

Group 0 elements are not reactive. This is because the atoms have full outer shells.



Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Lithium - Li Sodium - Na Potassium - K	Beryllium - Be Magnesium - Mg Calcium - Ca	Boron - B Aluminium - Al Gallium - Ga	Carbon - C Silicon - Si Germanium - Ge	Nitrogen - N Phosphorus - P Arsenic - As	Oxygen - O Sulfur - S Selenium - S	Fluorine - F Chlorine - Cl Bromine - Br	Helium - He Neon - Ne Argon - Ar

# Music





# Year 8 Pachelbel Through the Ages



## KEYWORDS

- Ground Bass – A bass line repeated through a piece of music
- String quartet – Two violins, viola and cello
- Contrapuntal – Interweaving melodic lines
- Homophonic - Chordal

## Pachelbel Canon in D Chord Structure

D	A	Bm	F#	G	D	G	A
---	---	----	----	---	---	---	---

Bass line keyboard help

## Keyboard chords help

F#m to G  
A to Bm

## Bass line help

D

D A Bm F#m G

## Johann Pachelbel

This topic is all about a piece of music called *Cannon in D*. Johann **Pachelbel** composed around 1680 for a **string quartet**. It consists of a **ground bass** of 8 notes which are repeated throughout the piece. The ground bass goes through a musical journey of homophonic and contrapuntal writing. Moving the bass line into a chord structure it has been used through the decades

**BRIEF:** We want more people to know about Pachelbel's canon. Using the chord structure to Pachelbel's canon complete one of the following tasks:

- Perform a well known song from 60s - 70, 80s - 90s or 00s
- Create your own version using musical characteristics from 60s- 70s, 80s- 90s or 00s

- Music using Pachelbel's chord structure
- 1960s-1970s One Tin Soldier by Lambert & Potter
  - 1980s – 1990s Scatman's World
  - 2000s My Chemical Romance – Black Parade

## Guitar Chords Help



# Computing



## Functions

<b>What is a Function?</b>	A <b>function</b> is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A <b>function</b> performs a specific set of operations on its input values to produce a single output value.
<b>What is a Formula?</b>	Using <b>formulas</b> in <b>spreadsheets</b> can allow you to quickly make <b>calculations</b> and get totals of multiple cells, rows, or columns in a <b>spreadsheet</b> .
<b>Conditional Formatting</b>	is a tool that allows you to apply <b>formats</b> to a cell or range of cells, and have that <b>formatting</b> change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

## Key terms

Term	Definition
<b>Cell reference</b>	How you refer to a single "box" on a spreadsheet.
<b>Row</b>	All cells in a horizontal line.
<b>Column</b>	All cells in a vertical line.
<b>= SUM</b>	Adds a range of cells together
<b>= AVERAGE</b>	Finds an average for a range of cells.
<b>= MIN</b>	Returns the smallest value in a range.
<b>= MAX</b>	Returns the highest value in a range.
<b>= COUNT</b>	Counts cells if they meet a condition.

## Common Functions

<b>IF</b>	one of the logical <b>functions</b> , to return one value <b>if</b> a condition is true and another value <b>if</b> it's false. For example: <b>=IF(A2&gt;B2,"Over Budget","OK") =IF(A2=B2,B4-A4,"")</b>
<b>Count IF</b>	<b>=COUNTIF</b> (Where do you want to look?, What do you want to look for?)
<b>Auto SUM</b>	<b>Excel automatically</b> enters a formula (that uses the <b>SUM</b> function) to <b>sum</b> the numbers
<b>= COUNT</b>	Counts cells if they meet a condition

## Spreadsheet Layout

The screenshot shows an Excel spreadsheet with the following data:

	January	February	March	April	May	June
<b>Chocolate</b>						
Stock control						
Opening balance of chocolate	150	150	150	150	150	150
Number of bars bought	100	100	100	100	100	100
Total stock level						
Number of bars sold	250	225	225	210	200	245
Number of bars left						
<b>Profit/loss</b>						
Cost price per bar	£3.30	£3.30	£3.30	£3.30	£3.30	£3.30
Selling price per bar	£3.45	£3.45	£3.45	£3.45	£3.45	£3.45
Income per bar						
Total income from chocolate			£3.75			

Labels in the image point to: Column, Text Label, Row, Worksheet, Cell Reference, Numeric Data, Formula, and Active Cell.

# Physical Education





### **Sprint**

This track event is a short running race. There are generally three different sprint distances: 100m, 200m, and 400m.



### ***Drive phase***

The drive is where you are looking to cover as much ground as possible through each stride, pushing with the leg that is in contact with the ground and driving the free leg through. In this phase the head must follow the body.

### ***Transition phase***

This transition phase is when you smoothly and gradually come upright into your stride. This is when you start move at a slightly faster tempo and begin to reach top speed.

### ***Fly phase***

The fly phase is when you are fully upright and at top speed. The key to maintaining as much top end speed as possible is a relaxed upper body and a quick foot contact and tempo.

### **High jump**

This jumping event requires athletes to jump over the bar using the Fosbury Flop technique.



### ***Stage one***

Start 8-10 strides away from the barrier. Run in a curve with controlled speed. Lean your torso into the curve, the opposite side to the barrier. Keep your shoulder as high as possible.

### ***Stage two***

You are ready to jump at approximately one metre past the first post and an arm's length away from the mat. At this point, plant the take-off foot down. At the same time, drive your lead leg and arms upwards and shoulders high.

### ***Stage three***

In the air, keep driving upwards and bring your lead knee across the body to get shoulders parallel with the bar. Bring the arms forwards and back into the body. As your hips cross the barrier, flick your feet upwards and high over the barrier. Maintain balance and land safely.

### **Shot put**

This throwing event requires athletes to throw a heavy metal ball called a shot as far as possible.



### ***Stage one***

Hold the shot at the bottom and place the thumb and little finger each side of the shot. Place the shot under the chin and touching the neck. Keep the throwing arm elbow high and the arm parallel to the floor. Stand on the balls of your feet with your knees bent and non-throwing shoulder pointing towards the throwing area.

### ***Stage two***

Lean backwards and place your weight on the back foot. Transfer the weight from the back leg to the front leg. Explode upwards, bring the hips around and forwards to face throwing area. Extend the throwing arm up quickly and powerfully. Finish with chest and head up. 49



# Subject Knowledge Organiser

## Netball – Bounce Pass, Chest Pass, Shoulder Pass & Pivoting



### Bounce Pass

A bounce pass is a short pass that enables the player to find a teammate in a crowded area. The height of the ball makes it difficult for the opposition to reach and intercept.

#### **Stage one**

Feet shoulder-width apart in opposition, with knees bent. Place hands each side and slightly behind the ball, with the fingers comfortably spread. Hold the ball at waist level, with elbows tucked in.

#### **Stage two**

Step in the direction of the pass, through extending your legs, back and arms. The wrist and fingers should be forced through the ball releasing it off the first and second fingers of both hands. Follow through with the arms fully extended, fingers pointing at the target and thumbs pointing to the floor.

### Chest Pass

A chest pass is a very fast and flat pass which enables a team to move quickly up a court in a precise and accurate fashion.

#### **Stage one**

Stand with feet shoulder width apart and on the balls of your feet, with back straight and knees slightly bent. Place hands on the sides of the ball with the thumbs directly behind the ball and fingers comfortably spread.

#### **Stage two**

The ball should be held in front of the chest with the elbows tucked in. Step in the direction of the pass, by extending their legs, back, and arms. Push the ball from the chest with both arms (not from one shoulder). Fingers are rotated behind the ball and the thumbs are turned down.

#### **Stage three**

The back of the hands face one another with the thumbs straight down. Make sure the ball is released off the first and second fingers of both hands. Follow through to finish up with the arms fully extended, fingers pointing at the target and thumbs pointing to the floor.

### Shoulder Pass

A shoulder pass is a very dynamic, fast and long pass which enables a team to switch positions on court very quickly to either find a player in space or break defensive screens.

#### **Stage one**

Player's feet should be shoulder width apart in opposition. Opposite foot forward to throwing arm. Stand on balls of feet with toes pointing toward target, and knees slightly bent. Hold the ball at head height, slightly behind your head. Elbow should be at a 90° angle. Fingers spread behind the ball.

#### **Stage two**

Step in the direction of the pass by transferring your body weight from back foot to front foot. Pull the arm through with the elbow leading. To follow through, fully extend your arm and wrist. Point your fingers in the same direction as the pass, with palms facing down.

### Pivoting

The pivoting action is a swivel movement that allows the player to move on a fixed axis to either pass or shoot.

#### **Stage one**

Run towards the ball and jump by extending the legs and ankles. Keep your eyes firmly fixed on the ball. Bring your hands out in front of your body at chest height with fingers spread open and pointing up.

#### **Stage two**

In the air catch the ball with thumbs an inch or two apart making a 'W' shape. Land on the ball of one foot on the ground. Flex your knee and ankle as your foot hits the floor.

#### **Stage three**

Stand with knees slightly bent and your feet shoulder width apart. Bring the ball into your body to protect it. Pivot by rotating yourself on the ball of your landing foot. Keep your upper body straight and head up. Make sure the hip of your pivoting leg is pointing in the direction you are aiming to pass the ball in. You can move or step with the other foot any number of times. You are not allowed to lift the foot you are pivoting on before you release the ball.



# Subject Knowledge Organiser

## Football – Short/Long Pass, Control, Block Tackle, Throw In & Heading



### Short pass

A short side foot pass enables a team to quickly pass a ball and help maintain possession. It is used for accuracy.

- Move parallel to the ball and place your non-kicking foot to the side of the ball.
- Keep your eye on the ball until you have it under your control.
- Look up to see where is the best place to pass it.
- On selection of your pass, maintain a strong body position.
- Swing your kicking foot through and strike the ball with the inside of your foot.
- Aim to hit the middle of the ball to ensure it stays close to the ground.
- Keep looking at your target.
- Follow your kicking leg through towards the intended target.
- The speed of the kicking leg will direct how hard you kick the ball.

### Long pass

A long pass is an attacking skill that allows players to switch the direction of the attack very quickly to create space, find a teammate or to catch out the opposition.

- Move parallel to the ball and place your non-kicking foot to the side of the ball.
- Keep your eye on the ball until you have it under your control.
- Look up to see where is the best place to pass the ball.
- On selection of your pass, maintain a strong body position.
- Explosively bring your kicking foot through and strike the ball with laces of your football boot.
- Aim to hit the middle of the ball to ensure it stays close to the ground or the lower half of the ball if you want to lift it over opposition players.
- Keep looking at your target.
- Follow your kicking leg through towards the intended target and your body over the ball.
- The speed of the kicking leg will direct how hard you kick the ball.

### Control

Good control of the football is an essential skill to maintain possession of the ball from the opposition and, if done accurately, gives the player more time to make the correct next decision.

- Keep your eye on the ball at all times.
- On contact with the ball, withdraw the foot slightly to take the momentum out of the ball (this is known as "cushioning").
- Aim to contact the middle of the ball to ensure that it stays close to the ground and does not bounce up.
- Once under control, move the ball out of your feet to allow the next decision to be made.

### Block tackle

The block tackle is an essential skill for winning the ball back in football. It is mainly used when confronting an opponent head on and it is important to complete it with good timing and technique to prevent injury or fouls.

- Close down your opponent quickly but do not rush uncontrolled at them.
- Try to reduce any space around you and monitor for passing options.
- Stay on the balls of your feet, arms slightly out to jockey your opponent.
- Keep your eye on the ball and wait for a clear view of the ball.
- When you can see most of the ball, transfer your weight from your back to front foot and move the inside of your foot towards the ball.
- Maintain a strong body position.

### Throw-in

The throw-in is the legal way to restart the game if the ball has gone out of play from either of the side-lines.

- Hold the ball with both hands and ensure that the thumbs are behind the ball and fingers are spread.
- Hold the ball behind the head with relaxed arms and elbows bent.
- Keep your feet shoulder-width apart.
- Face your target.
- Lean back with both feet in contact with the ground.
- Slightly bend your knees and arch your head, neck, shoulders and trunk.
- When ready, propel yourself forward and release the ball just as it passes your head.
- Once the ball is released, bring your strongest leg forward and out in front of you for balance.

### Heading

The header can be an attacking or defensive skill and is used to try and win the ball when it is in the air.

- Keep your eyes on the ball.
- Use your forehead to make contact with the bottom of the ball for a defensive header or the top of the ball for an attacking header.
- For a defensive header it is important to get good height and distance but for an attacking header you need power and accuracy.
- You can also use flick headers to pass to a team mate.



# Subject Knowledge Organiser

## HRF – Training Methods, Advantages/Disadvantages of TM & Training Zones



### Training Methods

Training can be aerobic or anaerobic. In aerobic exercise, which is steady and not too fast, the heart is able to supply enough oxygen to the muscles. Aerobic training improves cardiovascular fitness. Anaerobic exercise is performed in short, fast bursts where the heart cannot supply enough oxygen to the muscles. Anaerobic training improves the ability of the muscles to work without enough oxygen when lactic acid is produced.

Specific training methods can be used to improve each fitness factor. Circuit training involves performing a series of exercises in a special order called a circuit. Each activity takes place at a 'station'. It can be designed to improve speed, agility, coordination, balance and muscular endurance. Continuous training involves working for a sustained period of time without rest. It improves cardiovascular fitness. Cross training involves using another sport or activity to improve your fitness. It happens when an athlete trains in a different environment. For example a volleyball player uses the power training for that sport to help with fitness for long jump. Fartlek training or 'speed play' training involves varying your speed and the type of terrain over which you run, walk, cycle or ski. It improves aerobic and anaerobic fitness. Interval training involves alternating between periods of hard exercise and rest. It improves speed and muscular endurance. Weight training uses weights to provide resistance to the muscles. It improves muscular strength (high weight, low reps), muscular endurance (low weight, high reps, many sets) and power (medium weight and reps performed quickly).

### Advantages and Disadvantages of Training Methods

#### Continuous Training

Good for aerobic fitness, lose weight accessible, health benefits, good for beginners of all ages, little equipment Boring, not always sport specific, risk of injury does not improve anaerobic fitness

#### Fartlek Training

Good for team sports, less boredom, easy to use, can mimic the sport, god for team sports Too easy to cheat, can be difficult

#### Circuit Training

Less boring, easily adapted for fitness/skill, easily adapted to sports, stations can target specific muscle groups Take time to set up, requires equipment

#### Interval Training

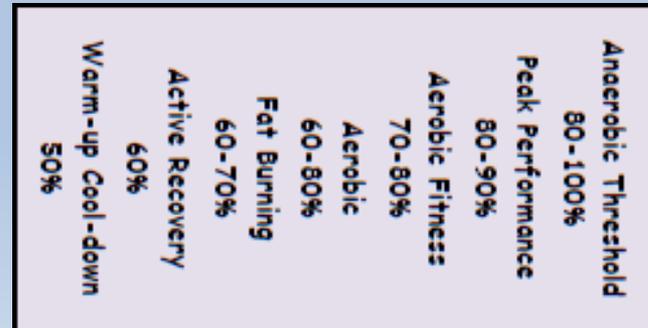
Can be both aerobic and anaerobic, less technical, can mimic a sport, good for sports that require a change of pace Can be boring, easy to cheat hard aspects,

#### Free weights

Full range of sporting movement, large muscle groups can be worked Risk of injury, need a spotter, more suitable for advance performers, requires good knowledge

#### Resistance machines

Safer, good for beginners, good for injury rehabilitation Expensive, no functional everyday movements, only focuses on one muscle group



Training Zones



# Subject Knowledge Organiser

## Basketball – Bounce Pass, Chest Pass, Jump Shot & Lay-up



### Bounce Pass

A bounce pass is a short pass that enables the player to find a teammate in a crowded area. The height of the ball makes it difficult for the opposition to intercept.

#### **Stage one**

Feet shoulder width apart in opposition, with knees bent.

Place hands each side and slightly behind the ball, with the fingers comfortably spread. Hold the ball at waist level, with elbows tucked in.

#### **Stage two**

Step in the direction of the pass, through extending your legs, back and arms. The wrist and fingers should be forced through the ball releasing it off the first and second fingers of both hands. Follow through with the arms fully extended, fingers pointing at the target and thumbs pointing to the floor.

### Chest Pass

A chest pass is a very fast and flat pass. This enables a team to move quickly up a court in a precise and accurate fashion.

#### **Stage one**

Stand with feet shoulder width apart, on the balls of your feet with back straight and knees slightly bent. Place hands on the sides of the ball with the thumbs directly behind the ball and fingers comfortably spread. The ball should be held in front of the chest with the elbows tucked in.

#### **Stage two**

Step in the direction of the pass by extending your legs, back and arms. Push the ball from the chest with both arms (not from one shoulder). Fingers are rotated behind the ball and the thumbs are turned down. The back of the hands face one another with the thumbs straight down.

#### **Stage three**

Make sure the ball is released off the first and second fingers of both hands. Follow through to finish up with the arms fully extended, fingers pointing at the target and thumbs pointing to the floor.

### Jump shot

The purpose of the jump shot is to allow the shooter to take aim from a higher position and therefore prevent a defender from blocking it.

#### **Stage one**

Place feet shoulder width apart, toes pointing straight ahead, and knees bent. Place non-shooting hand on the side of the ball and the shooting hand at the back of the ball, with the elbow tucked in. Hold the ball at chest height.

#### **Stage two**

Extend the legs/ankles by jumping straight up. Whilst in flight, extend back, shoulders and elbow. Flex the wrist and fingers forwards and release the ball at the highest point. After release, fingers should be pointed at the target, with the palm facing down.

### Lay-up

A lay-up provides a player with the opportunity to drive at the opponent's basket, jump close to the target and release the ball safely at the backboard. When used effectively it has the highest percentage chance of scoring points.

#### **Stage one**

Dribble to the side of net. When a few metres away from the basket, hold the ball with both hands on the shooting hands side of the body. Place the non-shooting hand on the side of the ball, and shooting hand on top of the ball.

#### **Stage two**

The last step before the lay-up jump should ensure that take off foot is opposite to the shooting hand (left foot/right hand). Flex the knee at take-off.

#### **Stage three**

Whilst jumping, extend the shooting knee and raise the ball up. Bring the ball between the shoulder and ear. Direct the wrist and fingers straight at the basket and release the ball at the highest point. Complete the follow through with the arm up and palm facing down, and hold until the ball has reached the basket.

# Food Technology



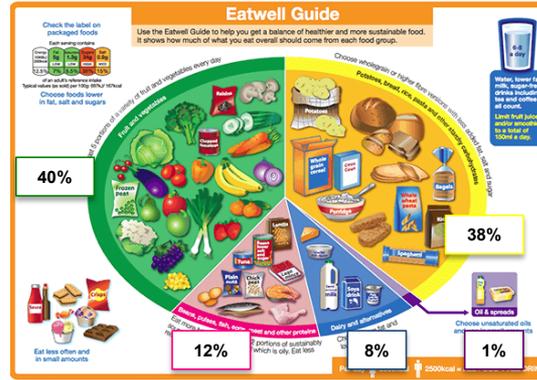


## Year 8 Food and Nutrition Knowledge organiser

### Dietary guidelines

Health experts and the Government have worked together and produced a set of Dietary Guidelines and an Eatwell Guide to help people make informed choices when they are deciding what to eat. These are shown below. You will see that there are also guidelines about your lifestyle choices as well as what you eat.

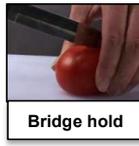
1. Base your meals on starchy foods.
2. Eat lots of fruit and vegetables.
3. Eat more fish – including a portion of oily fish each week.
4. Cut down on saturated fat and sugar.
5. Eat less salt – no more than 6g a day (1 level teaspoon) for adults.
6. Get active and be a healthy weight.
7. Don't get thirsty – drink plenty of water.
8. Don't skip breakfast.



Name of the Nutrient	Sources	Function
Carbohydrates (energy giving food)	Rice, potato, wheat, sugar	Provides energy
Fats (energy giving food)	Butter, ghee, milk, cheese	Gives more energy compared to carbohydrates
Vitamins and Minerals (protective food)	Fruits and vegetables	Required for normal growth and development
Proteins (body building food)	Milk, eggs, meat, fish, soybean	Helps in building and repair of body

### Hygiene rules

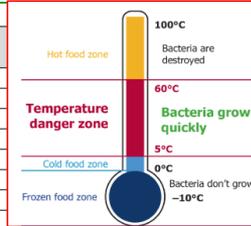
Wash hands!  
Tie hair up  
Wear apron  
No false nails or nail varnish  
Antibacterial spray on surfaces before & after cooking



Food skills	Techniques
<b>Knife skills - Chopping</b>	Bridge hold, claw grip, slice, dice, julienne, baton's, meat and vegetable preparation
<b>Organisation / tidying skills</b>	Being able to work hygienically and safely to produce recipes and ensure all equipment, utensils and work area is fully clear and tidy. Teamwork and communication. Following personal hygiene rules.
<b>Food safety</b>	Using food probes for meat to check for safe temperatures (75C)
<b>Weighing and measuring</b>	Demonstrating accurate measurement of liquids and solids. Being able to use both manual and digital scales.
<b>Use of equipment</b>	Oven, hob, chopping boards, knives, sieve, mixing bowl, measuring jug/spoons
<b>Making sauces</b>	Reduced sauce, roux sauce
<b>Working with ingredients</b>	Using a range of ingredients from the Eatwell Guide to create recipes.
<b>Test for readiness</b>	Using a knife/skewer, finger or poke test, bite or visual colour check to establish whether a recipe or ingredient is ready.
<b>Adapting recipes</b>	Using a nutritional analysis program to analyse recipes. Making adaptations to make the recipe better suit the Eatwell Guide / healthy eating requirements.
<b>Judge and manipulate sensory properties</b>	Demonstrate how to taste and season during cooking. Self-evaluation of practical dishes made.
<b>Food science</b>	Learning how foods react with heat and acid and adapt accordingly.
<b>Cooking methods</b>	Using a variety of cooking methods including conduction, convection and radiation.
<b>Food styling</b>	Quality and creative presentation techniques. Using garnishes and decorative techniques where possible.

**Key abbreviations:**  
**Weights and Measurements**

L	Litres	
g	Grams	
ml	millilitres	1000ml=1 litre
Kg	kilograms	1000g
Tbsp	tablespoons	15ml
Tsp	teaspoon	5ml
1pt	1 pint	568ml



### Why food is cooked:

1. To make it safe to eat
2. To improve the shelf life
3. To develop flavour
4. To improve texture
5. To give variety

#### Methods of heat transfer

**Convection** - when the environment (air, water or oil) is heated up.  
e.g. - baking a cake  
- boiling an egg

**Conduction** - when heat is transferred directly.  
e.g. - frying an egg

**Radiation** - when heat radiates  
e.g. - toast

### What happens when food is cooked:

