



THS

TIVERTON HIGH SCHOOL

Year 7

Knowledge Organiser

Spring Half Term 2

‘Practice of what is taught’

Name:

Tutor:

Work hard. Be kind. Belong.



How to use your Knowledge Organiser

This booklet contains a selection of subject **knowledge organisers** in alphabetical order. Each knowledge organiser has the key information to be learned and **memorised** over the term to help you master your subjects and be successful in lessons. Use this with your homework booklet.

Year 7 subjects Page/s number

Design Technology	3
Drama	5
History	7
Maths	9
Music	16
Religion	18

Work hard. Be kind. Belong.

DESIGN & TECHNOLOGY

6. Metals

There are two main types of metals, ferrous and non-ferrous. Put simply, **ferrous metals** contain **iron** and **non-ferrous metals do not**.

Non-ferrous metals are rarer, more valuable and resistant to corrosion than ferrous metals. Ferrous and non-ferrous metals can both be **recycled**. Magnetising the iron in ferrous metals can separate ferrous and non-ferrous materials.

Alloys = A metal alloy is a substance that combines more than one metal or mixes a metal with other non-metallic elements.

For example, brass is an alloy of two metals: copper and zinc. Visit: www.technologystudent.com and click on **Resistant Materials** for more information on metals.

	Ferrous Metals	Non- Ferrous Metals
 Magnetic		
 Value		
 Resistance to Rust/Corrosion		
 Weight		
 Recyclable		

7. Types of glues are:

- 1) PVA for wood
- 2) Epoxy Resin for all materials
- 3)Contact adhesive for textiles/carpet and fixing different types of materials together, such as plastic to wood.
- 4) Super glue for all materials
- 5) HOT glue gun for temporary fixing and modelling



8. Plastics:

- **Thermoforming plastics are recyclable and bendy** – They don't resist heat, easily formed into different shapes. They are easy to recycle. (water bottles)
- **Thermosetting plastics are heat resistant**, so they do not change when heat is applied. They are not recyclable.

Visit: www.technologystudent.com and click on **Resistant Materials** for more information on Plastics.

9. Textiles construction

Temporary is by pinning and tacking two or more fabrics together.

Permanent is when they are hand/machine stitched. This can be unpicked but this is time consuming.

10. Properties of Fibres

There are 2 main classifications of Fibres

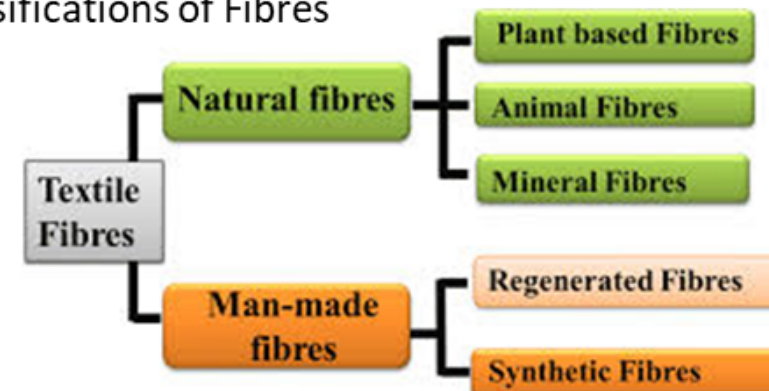
Examples

Natural fibres =

- Plant – flax [linen], cotton [Straw and Bamboo]
- Animal – wool and silk

Man-Made fibres =

- Re-generated – Viscose, Rayon
- Synthetic – Nylon, Polyester and Acrylic



- **Cotton** – absorbent, creases, washable, lightweight – chemical used to bleach it. Needs a lot of water to grow it which damages the environment.
- **Elastane/LYCRA** - flexible and warm. Cannot be recycled.
- **Polyester**: crease resistant, wind proof, can be waterproof, lightweight. Manmade fabric.
- **Wool**: comes from sheep. It has to be shorn from a sheep, spun and then woven. It is an insulator and absorbent to sound and water. It may shrink when washed.

11. The health and safety rules for textiles when using an iron/sewing machine/shears.

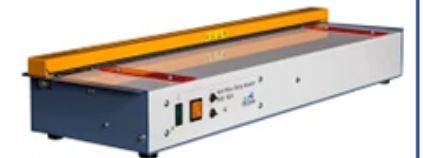
1. Do not run around with sharp tools in your hand.
2. Pass the shears holding the blade end.
3. Remove all pins after tacking when you are about to machine sew.

12. Printing onto Fabric

Mono-printing is a single one-off print with ink onto a surface or fabric.

Screen printing is created when a stencil has been used to lock out certain areas within a design. It can be used a multiple of times in batch production processes.

13. A line bender is used to bend acrylic and high impact polystyrene to a specific angle using a bending jig.



Fixing a design in fabric is when heat is applied to the surface either using an iron or a heat press.



14. Design Process

To design a product there is usually a problem or need. This then generates a design Brief and specification. The specification will include requirements or needs. The designer must follow this when designing a new product. An example of one requirement for a toy car made from mixed materials would be; There must be no friction between the body of the car and any moving part as this would spoil any entertainment for the user.

DRAMA



1. Theatrical Elements

1. Physical Skills

Body Language: using your body to show the characters emotion
Physicality: using your body to show the character
Gesture: a movement of part of the body to show meaning.
Gait: the way a character walks
Exaggeration: Making performance bigger than real life.
Posture: the physical alignment of the performers body (how straight they stand)
Mannerisms: habitual movements of a character (specific movement links to a specific character e.g. playing with their hair)
Pace: the speed at which a character does something

2. Theatrical Skills



2. Key Terms



Freeze frame: A frozen moment in time expressing a character / scenario.
Exaggeration: to magnify (make bigger, more over the top) a performance skill/s
Clocking the audience: a moment when a character breaks the fourth wall and looks at the audience (or interacts with the audience)
Spokesman: Works like a narrator to tell the audience the story, can also directly interact with the characters for example by asking them questions
Mime: suggesting action, character, or emotion without words
Improvisation: creating a scene without a script
Proxemics: the use of space on stage to create meaning
Levels: the use of height to show status
Status: the power one character has over another
Point of focus: creating a moment where the audiences focus is on a character or point on the stage same time

3. Stage Positions



3. Stage Positions



Upstage right	Upstage centre	Upstage left
Stage right	Centre stage	Stage left
Downstage right	Downstage centre	Downstage left

AUDIENCE

Stage positions are always from the ACTORS' perspective. This means when looking at the stage from the audience's point of view stage left is on the right and stage right is on the left.

Upstage = far away from the audience
 Downstage = close to the audience

4. Stock Characters

Protagonist: The Hero of the story (the good guy)

Antagonist: The Villain of the story (the bad guy)

Damsel in Distress: Someone who needs to be saved by the hero (usually a woman)

Comedy Duo: Characters (normally 2 of them) that are only there to provide comedy relieve



5. Rules of Mask



1. Never put the mask on / take it off in front of the audience
2. Never touch, reposition your mask
3. Don't talk whilst wearing the mask
4. Ensure that you face the front, as much as possible, whilst performing.

HISTORY

A When King Richard III is killed in 1485, the TUDOR royal family comes to the throne. There are five Tudor monarchs:



1. Henry VII (7th) 1485-1509

2. Henry VIII (8th) 1509-1547

3. Edward VI (6th) 1547-1553

4. (Lady Jane Grey...for only 9 days!)

5. Mary I 1553-1558

6. Elizabeth I 1558-1603

When Elizabeth - the last Tudor monarch - dies her cousin, King James VI of Scotland becomes king of England as well...but he is the first King James we have had, so WE call him King James I 😊

B Henry VIII and the “Break with Rome”, 1533

This means when Henry VIII split up from the Roman Catholic Church and set up his own Protestant church called the **Church of England** instead. This has had a huge impact for centuries...so we say it is a very **SIGNIFICANT** event in history.

He did this for 3 MAIN REASONS:

1. Henry's first wife, who he was married to for over 20 years, was called **Catherine of Aragon**. She ruled England whilst Henry was away at war, leading the army to victory at the Battle of Flodden, 1513. They only had one surviving child, Mary. Henry was **desperate for a son to succeed** him. The Catholic Church doesn't allow divorce, so however many times Henry asked, **the Pope would not give him a divorce**. Henry had also fallen in love with a woman called **Anne Boleyn** and he wanted to marry her. Anne Boleyn gave Henry an **important Protestant book written by William Tyndale**, and **Henry was inspired to set up his own Church of England**, gave himself a divorce and married Anne in 1533! She was already pregnant...and Henry was furious when she gave birth to another girl, Elizabeth!
2. **Henry was broke!** He had wasted all the money his father Henry VII had left him, mainly fighting wars with France. If he split up from the Catholic Church, he could sell off all the **monasteries** and their land and make a lot of money.
3. **The Pope**, as head of the Catholic Church, had **influence over people in England** because they listened to him. **Henry believed he would have more control** over his kingdom if he was the only one who people had to obey.

MATHS

YEAR 7 — PLACE VALUE AND PROPORTION...

FDP equivalence

@whisto_maths

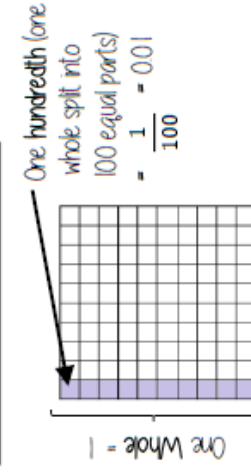
What do I need to be able to do?

- By the end of this unit you should be able to:
- Convert fluently between fractions, decimals & percentages

Keywords

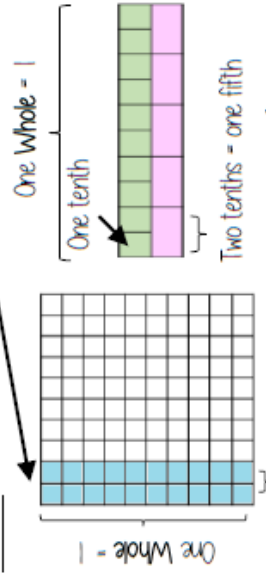
Fraction: how many parts of a whole we have
 Decimal: a number with a decimal point used to separate ones, tenths, hundredths etc.
 Percentage: a proportion of a whole represented as a number between 0 and 100
 Place value: the numerical value that a digit has decided by its position in the number
 Placeholder: a number that occupies a position to give value
 Interval: a range between two numbers
 Tenth: one whole split into 10 equal parts
 Hundredth: one whole split into 100 equal parts
 Sector: a part of a circle between two radius (often referred to as looking like a piece of pie)
 Recurring: a decimal that repeats in a given pattern

Tenths and hundredths

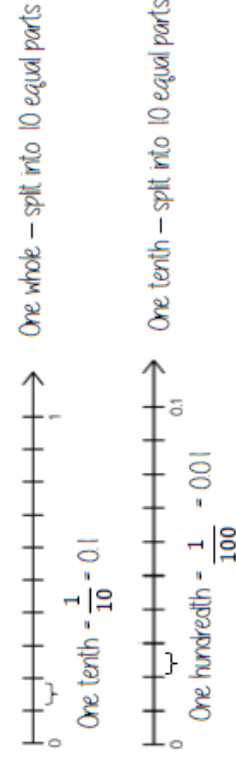


One tenth (one whole split into 10 equal parts) = $\frac{1}{10} = 0.1$

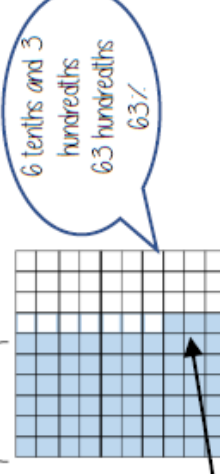
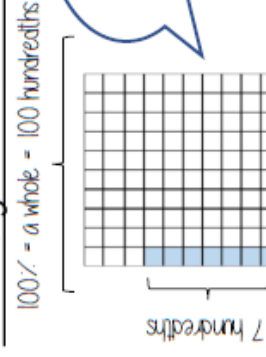
Fifths



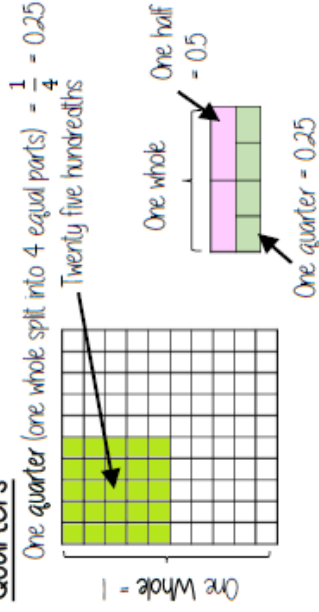
On a number line



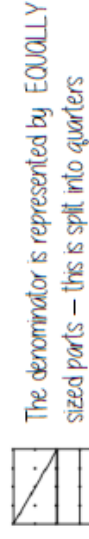
Percentages on a hundred grid



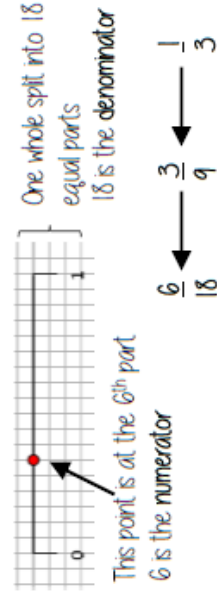
Quarters



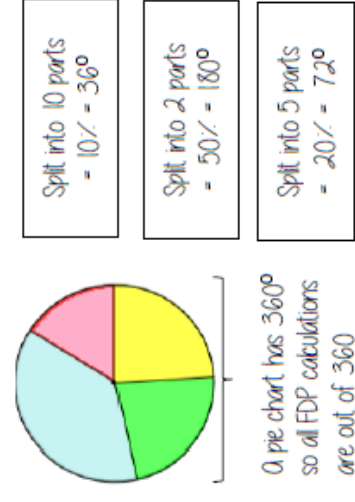
Fractions — on a diagram



Fractions — on a number line

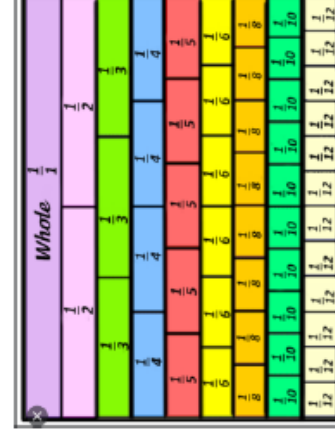


Simple pie charts



Equivalent fractions

Represent equivalence with fraction walls



YEAR 7 — APPLICATION OF NUMBER

Fractions and percentages of amounts

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What do I need to be able to do?

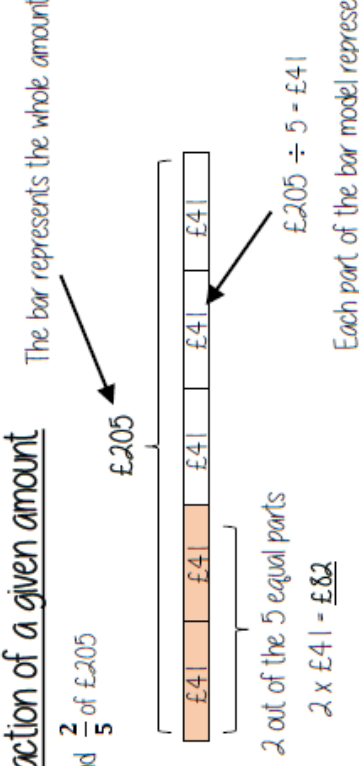
- By the end of this unit you should be able to:
- Find a fraction of a given amount
 - Use a given fraction to find the whole or other fractions
 - Find the percentage of an amount using mental methods
 - Find the percentage of a given amount using a calculator

Keywords

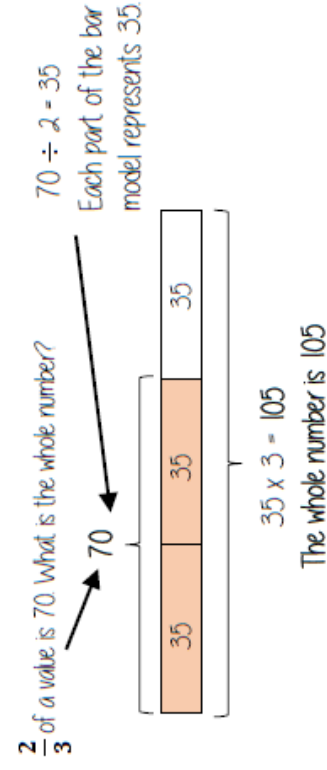
Fraction: how many parts of a whole we have
 Equivalent: of equal value
 Whole: a number with no fractional or decimal part
 Percentage: parts per 100 (uses the % symbol)
 Place Value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right
 Convert: change into an equivalent representation, often fraction to decimal to a percentage cycle.

Fraction of a given amount

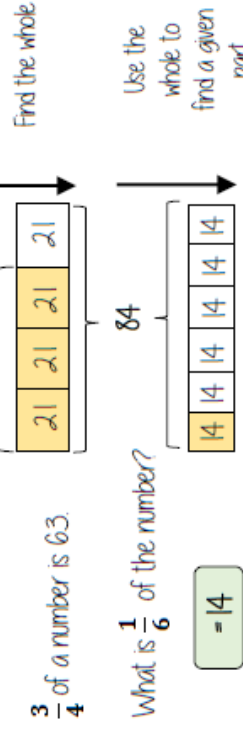
Find $\frac{2}{5}$ of £205



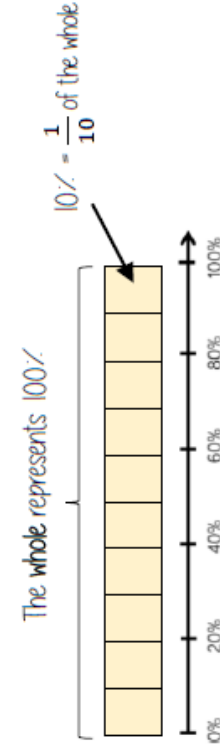
Use a fraction of amount



The wording of the question is important to setting up the bar model



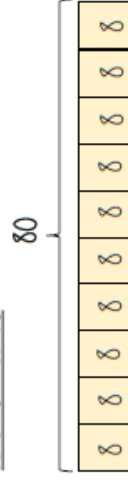
Find the percentage of an amount (Mental methods)



$10\% = \frac{1}{10}$ of the whole $50\% = \frac{5}{10} = \frac{1}{2}$ of the whole $5\% = \frac{1}{20}$ of the whole

$20\% = \frac{2}{10} = \frac{1}{5}$ of the whole

Find 65% of 80



For bigger percentages it is sometimes easier to take away from 100%

Method 1:
 $65\% = 10\% \times 6 + 5\%$
 $= (8 \times 6) + 4$
 $= 52$

Method 2:
 $65\% = 50\% + 10\% + 5\%$
 $= 40 + 8 + 4$
 $= 52$

Find the percentage of an amount (Calculator methods)



Using a multiplier
 Find 65% of 80
 Fraction, decimal, percentage conversion
 $65\% = \frac{65}{100} = 0.65$ ← The multiplier

$0.65 \times 80 = 52$

Using the percent button

Find 65% of 80

Type 65
 Press **SHIFT** **(%)**
 Press **80** and then press **=**

This brings up the % button on screen
 You will see 65%

You can also use the calculator to support non calculator methods and find $\frac{1}{10}$ or $\frac{1}{20}$ then add percentages together

*"of" can represent 'x' in calculator methods

YEAR 7 — DIRECTED NUMBER

Operations with equations and directed numbers

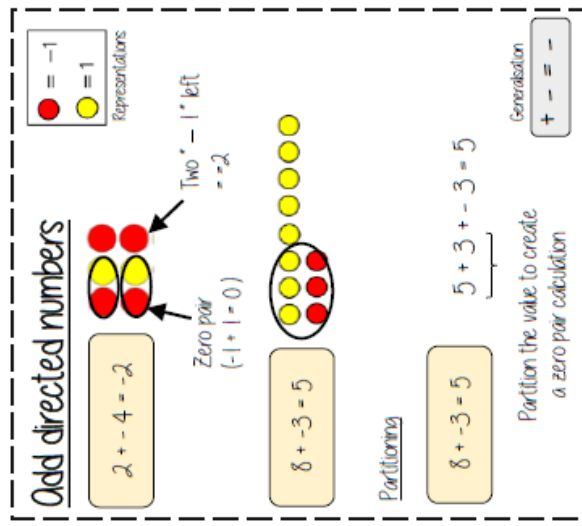
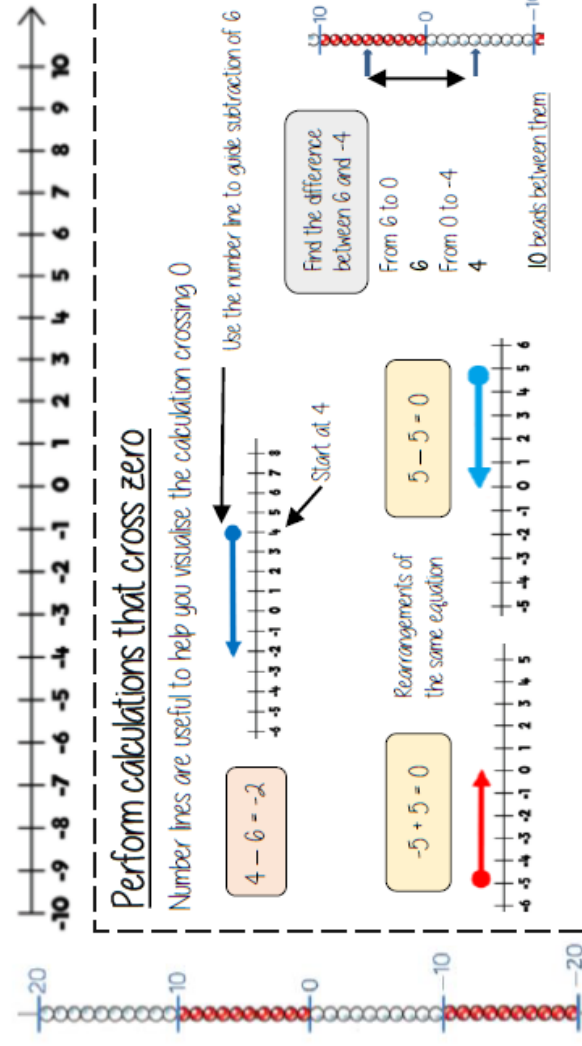
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What do I need to be able to do?

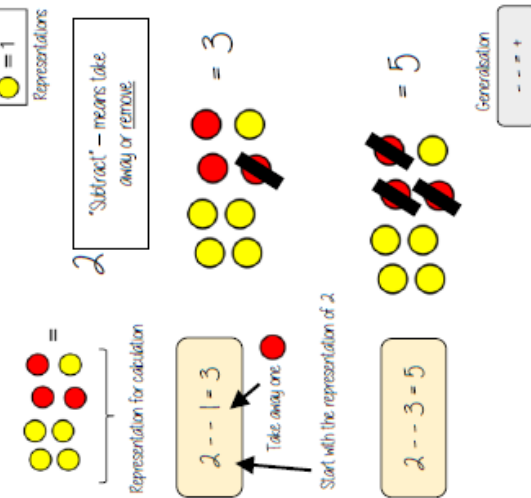
- By the end of this unit you should be able to:
 - Perform calculations that cross zero
 - Odd/ Subtract directed numbers
 - Multiply/ Divide directed numbers
 - Evaluate algebraic expressions
 - Solve two-step equations
 - Use order of operations with directed number

Keywords

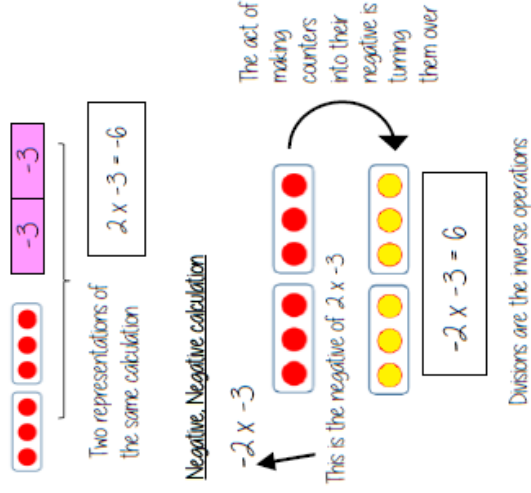
- Subtract: taking away one number from another.
- Negative: a value less than zero.
- Commutative: changing the order of the operations does not change the result
- Product: multiply terms
- Inverse: the opposite function
- Square root: a square root of a number is a number when multiplied by itself gives the value (symbol $\sqrt{\quad}$)
- Square: a term multiplied by itself
- Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)



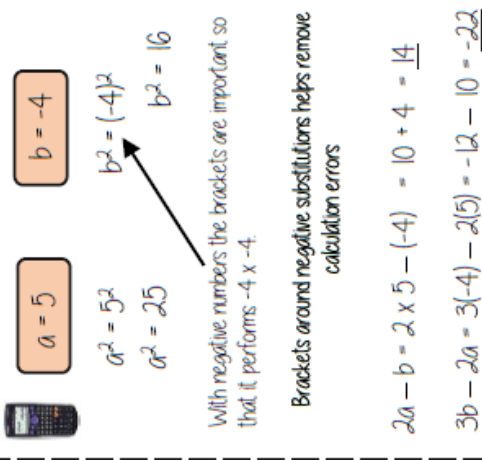
Subtract directed numbers



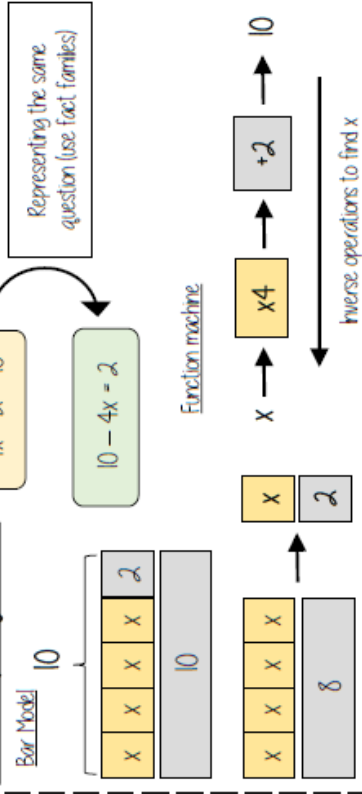
Multiply/ Divide directed numbers



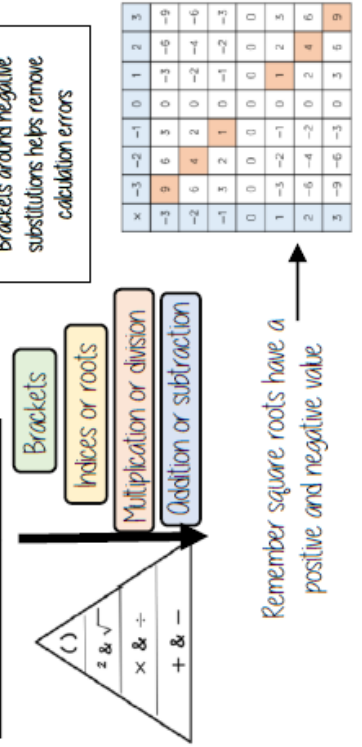
Evaluate algebraic expressions



Two-step equations



Use order of operations



YEAR 7 — LINES AND ANGLES

Constructing, measuring and using geometric notation

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What do I need to be able to do?

By the end of this unit you should be able to:

- Use letter and labelling conventions
- Draw and measure line segments and angles
- Identify parallel and perpendicular lines
- Recognise types of triangle
- Recognise types of quadrilateral
- Identify polygons
- Construct triangles (SAS, SSS, ASA)
- Draw Pie charts

Keywords

Polygon: A 2D shape made with straight lines
Scalene triangle: a triangle with all different sides and angles
Isosceles triangle: a triangle with two angles the same size and two angles the same size
Right-angled triangle: a triangle with a right angle
Frequency: the number of times a data value occurs
Sector: part of a circle made by two radii touching the centre
Rotation: turn in a given direction
Protractor: equipment used to measure angles
Compass: equipment used to draw arcs and circles

Letter and labelling convention

The letter in the middle is the angle
The arc represents the angle

Angle Notation: three letters ABC
This is the angle at B = 113°
Line Notation: two letters EC
The line that joins E to C.

Draw and measure line segments

Conversions: $1\text{cm} = 10\text{mm}$, $1\text{m} = 100\text{cm}$

The line segment is 3.9cm which is 39mm
AB is a line segment (part of the line)
Make sure the start of the line is at 0.

Angles as measures of turn

East to South is a quarter turn clockwise
Clockwise
Quarter Turn 90° Clockwise
Half Turn 180° Anti-Clockwise
Three-quarter Turn 270° Anti-Clockwise
Full Turn 360°

Classify angles

Acute Angles
 $0^\circ < \text{angle} < 90^\circ$
Right Angles
 90°
Obtuse
 $90^\circ < \text{angle} < 180^\circ$
Reflex
 $180^\circ < \text{angle} < 360^\circ$
Straight Line
 180°

Measure angles to 180°

Read from 0° on the base line.
Remember to use estimation. This is an obtuse angle so between 90° and 180°
Make sure the cross is at the point the two lines meet
This is the angle (blue line)

Draw angles up to 180°

Draw a 35° angle
Make a mark at 35° with a pencil. And join to the angle point (use a ruler)
The angle
Make sure the cross is at the end of the line (where you want the angle)

Parallel and Perpendicular lines

Parallel lines
Straight lines that never meet. (Have the same gradient)
Perpendicular lines
Straight lines that meet at 90°

Properties of Quadrilaterals

Square
Opposite sides are parallel
All sides equal size
All angles 90°
Opposite sides are parallel
Rectangle
Opposite sides are parallel
All angles 90°
Opposite sides are parallel
Trapezium
One pair of parallel lines
Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles
Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles
Rhombus
All sides equal size
Opposite angles are equal

Draw Pie Charts

Time of day	Dog	Cat	Hamster
Frequency	32	25	3

$\frac{32}{60} \times 360 = 192^\circ$
This fraction of the 360 degrees represents dogs
Use a protractor to draw. This is 192°

SAS, SSS, ASA constructions

Side, Angle, Angle
Side, Angle, Side
Side, Side, Side

Polygons

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

If all the sides and angles are the same, it is a regular polygon

YEAR 7 — LINES AND ANGLES

@whisto_maths

Geometric reasoning

What do I need to be able to do?

By the end of this unit you should be able to:

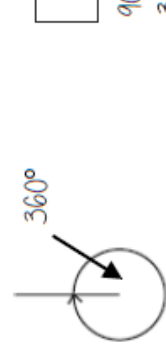
- Understand/use the sum of angles at a point
- Understand/use the sum of angles on a straight line
- Understand/use equality of vertically opposite angles
- Know and apply the sum of angles in a triangle
- Know and apply the sum of angles in a quadrilateral

Keywords

Vertically Opposite: angles formed when two or more straight lines cross at a point.
Interior Angles: angles inside the shape
Sum: total, add all the interior angles together
Convex Quadrilateral: a four-sided polygon where every interior angle is less than 180°
Concave Quadrilateral: a four-sided polygon where one interior angle exceeds 180°
Polygon: a 2D shape made with straight lines
Scalene triangle: a triangle with all different sides and angles
Isosceles triangle: a triangle with two angles the same size and two angles the same size
Right-angled triangle: a triangle with a right angle

Sum of angles at a point

The sum of angles around a point is 360°

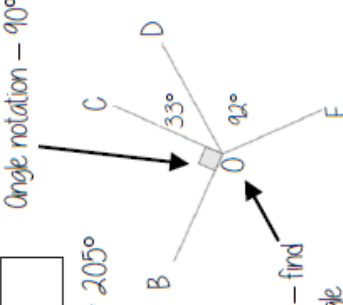


Find angle BOE

$$\begin{aligned} 90^\circ + 33^\circ + 92^\circ &= 205^\circ \\ 360^\circ - 205^\circ &= 155^\circ \\ \text{BOE} &= 155^\circ \end{aligned}$$

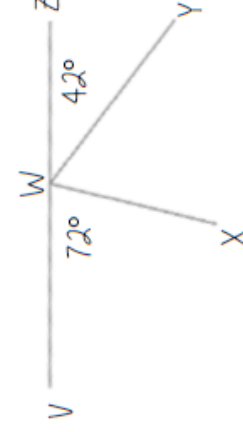


Angle notation — find this missing angle



Sum of angles on a straight line

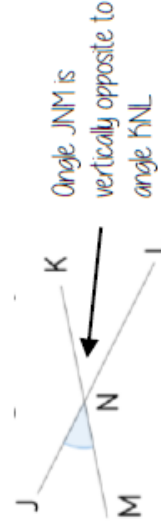
Adjacent angles that share a common point on a line add up to 180°



Find angle XWY

$$\begin{aligned} 72^\circ + 42^\circ &= 114^\circ \\ 180^\circ - 114^\circ &= 66^\circ \end{aligned}$$

Vertically opposite angles

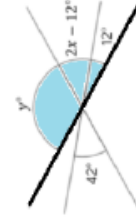


$$JNM = KNL$$

Vertically opposite angles are the same

Other angle rules still apply

Look for straight line sums and angles around a point



Form equations with information from diagrams:

$$\begin{aligned} 2x - 12 &= 42 \\ 2x &= 54 \\ x &= 27^\circ \end{aligned}$$

Sum of angles in triangles



Look at triangle notation
This indicates an isosceles triangle

$$\begin{aligned} \therefore 180 - 43 &= 137 \\ 137 \div 2 &= 68.5^\circ \end{aligned}$$

The two base angles will be the same size

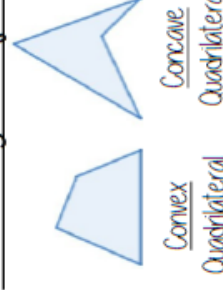
A triangle can only have ONE right angle



Have a go!
Tearing the corners from triangles forms a straight line which is therefore 180°

Sum of interior angles in a triangle = 180°

Sum of angles in quadrilaterals



Interior angles are those that make up the perimeter (outline) of the shape

Interior Angles
A quadrilateral is made up of two triangles — the sum of interior angles is the same as two triangles:
 $180^\circ + 180^\circ = 360^\circ$

Sum of interior angles in a quadrilateral = 360°

Angle Problems

Split up the problem into chunks and explain your reasoning at each point using angle notation



1. Angle DEF = 51° because it is a vertically opposite angle DEF = GEH

2. Triangle DEF is isosceles (triangle notation) $\therefore$ EDF = EFD and the sum of interior angles is 180°
 $180^\circ - 51^\circ = 129^\circ$
 $129^\circ \div 2 = 64.5^\circ$

3. Angle EDF = 64.5°

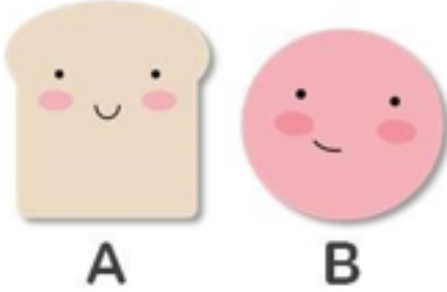
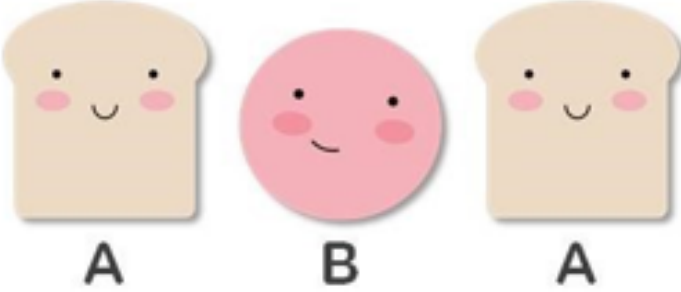
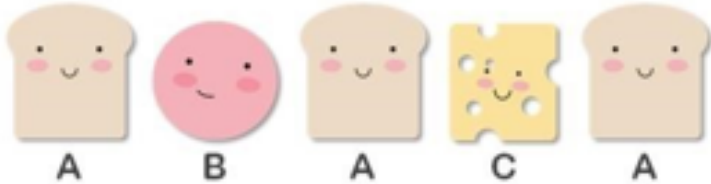
Keep working out clear and notes together

MUSIC

MUSIC: Form and Structure

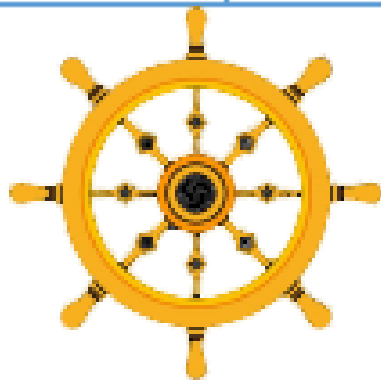
Exploring Musical Structures



A. Question and Answer Phrases	B. Binary Form	C. Ternary Form	D. Rondo Form
Two short sections in a piece of music. The first QUESTION PHRASE is followed by the ANSWER PHRASE – like a ‘musical conversation’. The MELODY below shows the opening of “Twinkle Twinkle Little Star” - notice how the QUESTION PHRASE rises in PITCH and the ANSWER PHRASE descends in PITCH. 	BINARY FORM (AB) describes music in two sections. The first section can be labelled “A” and the second section “B” (either or both sections may be repeated). The “B” section contrasts musically in some way to the first “A” section. 	TERNARY FORM (ABA) describes music in three sections. The first section can be labelled “A” and the second section “B” The “B” section contrasts in some way to the first “A” section which is then repeated after the “B” section again. 	RONDO FORM (ABACADA...) describes music where a main theme or melody “A” keeps returning between different contrasting sections “B, C, D...” (called episodes) 
E. Key Words		F. Music Theory	
FORM/STRUCTURE – How a piece of music is organised into different sections or parts. PHRASE – A short section of music, like a “musical sentence”. PITCH – The highness or lowness of a sound or musical note. MELODY/THEME – The main tune of a piece of music. The melody or theme often varies in pitch and “good melodies” have an organised and recognisable shape. HARMONY – Playing two or more notes at the same time. The “harmony part” in music is different to the melody part. DRONE – A repeated note or notes of long duration played through the music. When two notes are used, they are often five notes apart (a fifth). OSTINATO – A repeated musical pattern. An ostinato can be a repeated rhythm or a repeated melody and are usually short.		<u>Treble Clef Pitch Notation</u>  Treble Clef “Lines” Note Names Treble Clef “Spaces” Note Names Repeat Mark   	

RELIGION & WORLD VIEWS

Buddhist Worldviews – Spring Term 2 – Knowledge Organiser

Spring Term 2 Homework 1 - The Noble Eightfold Path	Below is a table showing the Eightfold Path (the way Buddhists should live): <table><tr><td>Right Views (know the truth)</td><td>Right Intention (free your mind of evil)</td><td>Right Speech (say nothing that hurts others)</td><td>Right Action (work for the good of others)</td></tr><tr><td>Right Livelihood (earn a living in a righteous way)</td><td>Right Effort (resist evil and cravings)</td><td>Right Concentration (practise meditation)</td><td>Right Mindfulness (control your thoughts)</td></tr></table>  The Eightfold Path is often represented as a wheel. This is to symbolise how life keeps turning regardless of how good or bad things are. It reminds Buddhists that nothing in life is permanent.	Right Views (know the truth)	Right Intention (free your mind of evil)	Right Speech (say nothing that hurts others)	Right Action (work for the good of others)	Right Livelihood (earn a living in a righteous way)	Right Effort (resist evil and cravings)	Right Concentration (practise meditation)	Right Mindfulness (control your thoughts)	• Livelihood — how a person makes a living • Mindfulness— the concept of controlling the mind and being mentally present • Morals —what a person believes to be right or wrong • Righteous —that which is considered morally good • Precept — a teaching or moral principle
	Right Views (know the truth)	Right Intention (free your mind of evil)	Right Speech (say nothing that hurts others)	Right Action (work for the good of others)						
	Right Livelihood (earn a living in a righteous way)	Right Effort (resist evil and cravings)	Right Concentration (practise meditation)	Right Mindfulness (control your thoughts)						

Buddhist Worldviews – Spring Term 2 – Knowledge Organiser

Spring Term 2 Homework 2 - The Five Precepts	Buddhists are also taught the Five Precepts; which are moral guidelines for how to live a life which reflects Buddhist teaching and helps them stay on the Eightfold Path. The Five Precepts are: 1. Do not take a life 2. Do not take what is not given 3. Do not use intoxicants 4. Do not use improper speech 5. Do not misuse the senses or commit sexual misconduct	• Livelihood — how a person makes a living • Mindfulness— the concept of controlling the mind and being mentally present • Morals —what a person believes to be right or wrong • Righteous —that which is considered morally good • Precept — a teaching or moral principle
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