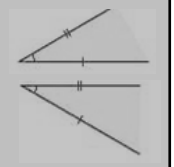
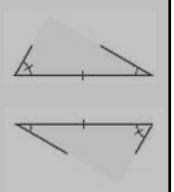
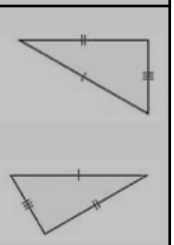
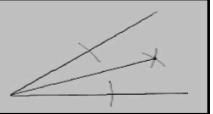
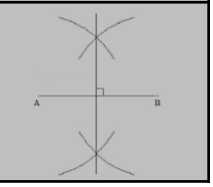
Year 8 Unit 4: 2D Geometry

CONSTRUCTING TRIANGLES

there are three ways to be able to construct a triangle

side, angle, side	use a **ruler** and **protractor, draw one side**, then **measure** the **angle** and **mark it**, **measure second side** and **join them**	
angle, side, angle	use a **ruler** and **protractor, draw one side,** the **measure both angles** from each **end** and **mark them,** draw **lines through** the marks until they **meet**	
side, side, side	use a **ruler** and **compass, draw one side, open compass** to **length** of the **second side** and draw an **arc**, **open compass** to **length** of **third side** and draw an **arc**, **join** where they **meet**	

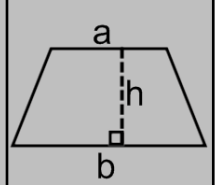
CONSTRUCTIONS

construct	to **build** or make an **accurate drawing** using a **ruler** and **protractor** or **compass**	
angle bisector	cut an **angle exactly** in **half**	
perpendicular bisector of a line segment	cut a **line exactly** in **half**, making a **right angle**	

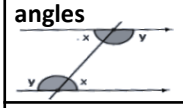
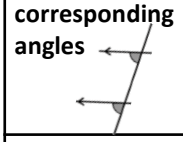
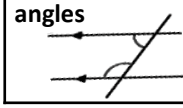
CONSTRUCTIONS VOCABULARY

point	a **defined location** in space
line segment	a **part of a line** (mathematical language for 'line')
parallel lines	lines with the **same gradient** they **never meet** they are always the **same distance apart**
perpendicular lines	lines are perpendicular when they **meet** or **intersect at a right angle** (**90°**)
bisect	**cut exactly** in **half**

AREA

area of a trapezium	$A = \frac{1}{2}(a+b)h$ area **= half the sum of the parallel sides, multiplied by the distance between them**	

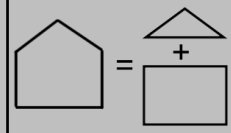
ANGLES IN PARALLEL LINES

alternate angles 	are **equal** a pair of angles on **opposite sides** of the **transversal, inside** the **parallel lines**
corresponding angles 	are **equal** a pair of angles on the **same side** of the **transversal** in the **same position of the intersection**
co-interior angles 	add to **180°** a pair of angles on the **same side** of the **transversal**, **inside** the **parallel lines**

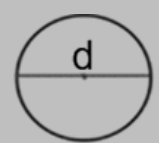
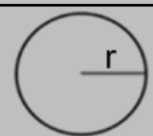
UNITS

unit	a **standard** amount used to **measure** something	
metric units	an **international** system of units based on **10s**, **100s** and **1000s**	
metric length/area conversions	1cm = **10mm** 1m = **100cm** 1km = **1000m**	1cm^2 = **100mm^2** 1m^2 = **100,00cm^2** 1km^2 = **1,000,000m^2**
metric capacity conversions	1 litre = **1000ml**	
metric mass conversions	1kg = **1000g** 1 tonne = **1000kg**	

COMPOUND SHAPES

compound shape	a shape **made up** of a **combination** of **other known shapes put together**	
area of a compound shape	**split it up into known shapes** **calculate** the **area** of **each shape** **add** together	
perimeter of a compound shape	find all the **lengths around** the **outside** of the shape and **add** them up	

CIRCLE CALCULATIONS

circumference of a circle	circumference **= pi x diameter** $C = \pi d$ OR $C = 2\pi r$	
circle area	area **= pi x radius^2** $A = \pi r^2$	
Semi-circle area and perimeter	area **= $\frac{\text{pi x radius}^2}{2}$** perimeter **= $\frac{\text{pi x diameter}}{2}$ + diameter**	