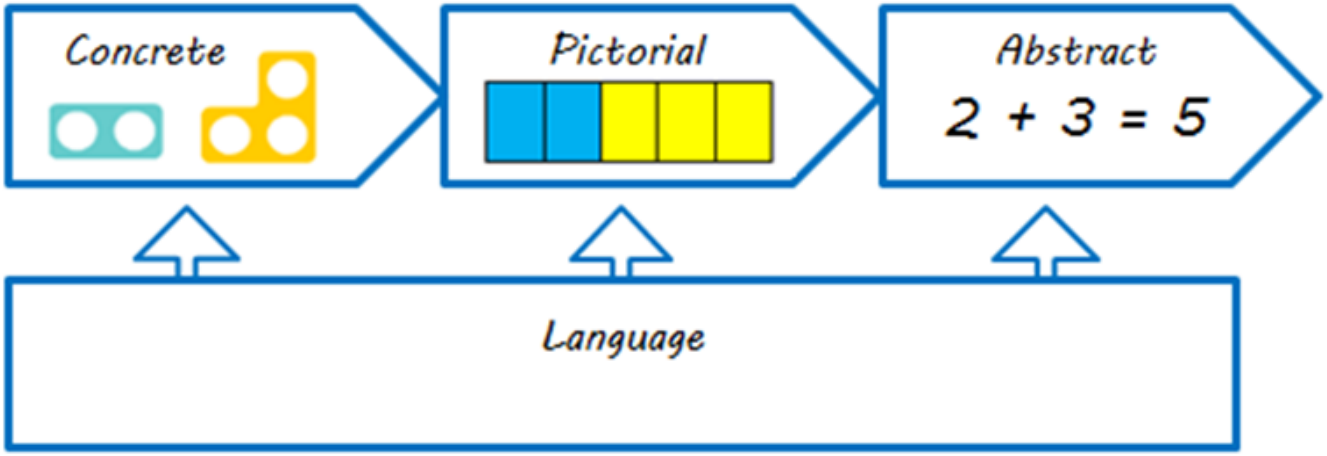


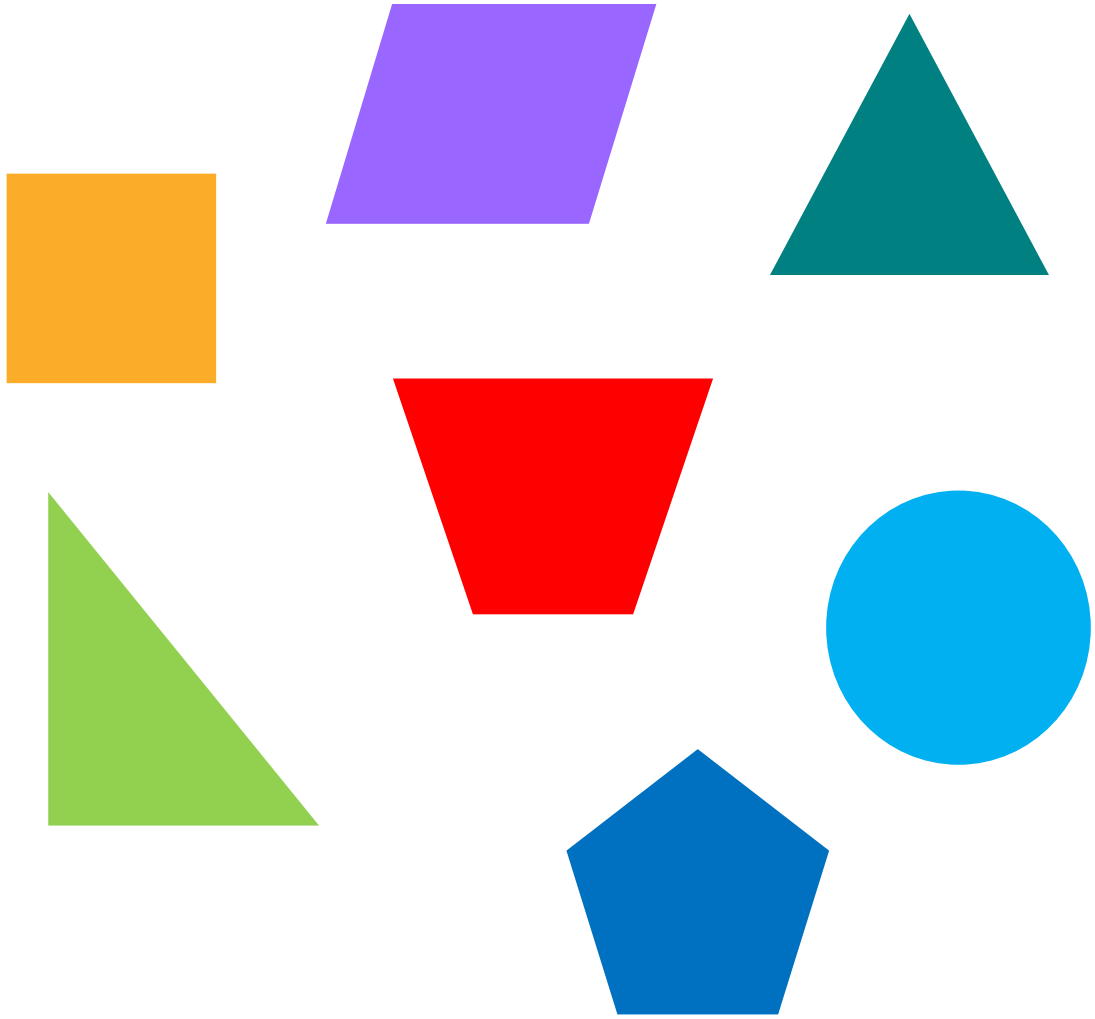
MALIN BRIDGE PRIMARY SCHOOL

CALCULATION GUIDE

GEOMETRY

REVIEWED MAY 2018

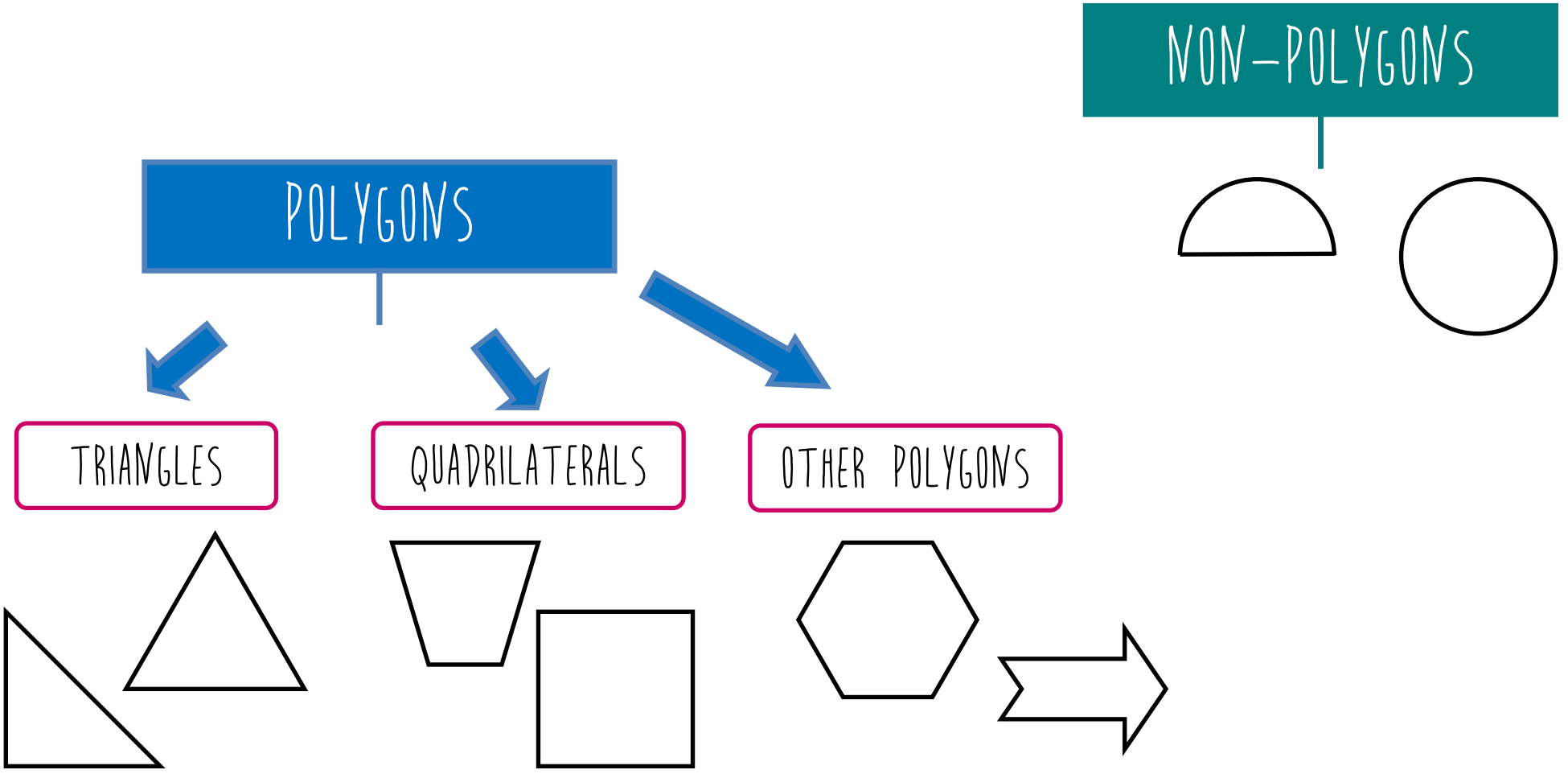
GEOMETRY – 2D SHAPES



- CLASSIFICATION
- GLOSSARY
- NAMES
- PROPERTIES
- MISCONCEPTIONS
- INVESTIGATIONS
- AREA & PERIMETER

2D SHAPES – CLASSIFICATION

2D SHAPES CAN BE CLASSIFIED INTO TWO MAIN GROUPS. THESE CAN BE SUBDIVIDED INTO FURTHER GROUPS AS SHOWN BELOW.



2D SHAPES – GLOSSARY

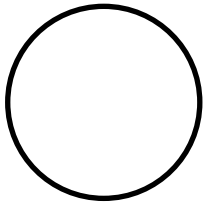
CONGRUENT	CONGRUENT SHAPES ARE IDENTICAL IN SHAPE AND SIZE.
SIDE	THE SIDES OF A 2D SHAPE ARE THE LINE SEGMENTS THAT CONNECT ITS VERTICES.
VERTEX/VERTICES	A CORNER OR A POINT. THIS WORD IS USED FOR 2D AND 3D SHAPES.
SYMMETRICAL	BOTH SIDES OF AN IMAGE ARE EXACTLY THE SAME.
ROTATION	WHEN A SHAPE TURNS.
TRANSLATION	WHEN A SHAPE SLIDES INTO A NEW POSITION.
REGULAR	A REGULAR POLYGON HAS ALL SIDES OF EQUAL LENGTH AND ALL ANGLES EQUAL.
IRREGULAR	A POLYGON WHICH HAS SIDES AND ANGLES OF DIFFERENT SIZES. (SEE ABOVE)
PARALLEL	PARALLEL LINES ARE TWO LINES THAT ARE ALWAYS THE SAME DISTANCE APART AND NEVER TOUCH.
PERPENDICULAR	PERPENDICULAR LINES ARE AT RIGHT ANGLES TO EACH OTHER.

2D SHAPES – GLOSSARY

DIAMETER	THE DISTANCE FROM ONE SIDE OF A CIRCLE TO THE OTHER PASSING THROUGH THE CENTRE. IT IS THE LONGEST CHORD OF A CIRCLE.
RADIUS	THE DISTANCE FROM THE CENTRE OF A CIRCLE TO ITS EDGE.
CHORD	A LINE THAT GOES FROM ONE POINT TO ANOTHER ON THE CIRCLE'S CIRCUMFERENCE.
CIRCUMFERENCE	THE DISTANCE AROUND THE OUTSIDE EDGE OF A CIRCLE.
ACUTE ANGLES	IS LESS THAN 90^0
RIGHT ANGLES	IS EQUAL TO EXACTLY 90^0
OBTUSE ANGLES	IS GREATER THAN 90^0
STRAIGHT LINE	IS EQUAL TO EXACTLY 180^0
REFLEX ANGLES	IS GREATER THAN 180^0

NON- POLYGONS: SHAPES WITH LESS THAN 3 SIDES, WITH SOME OR ALL OF THE SIDES MADE UP OF A CURVED LINE.

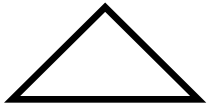
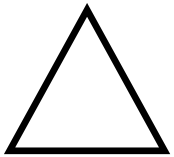
NON- POLYGONS

NAME	PROPERTIES	MISCONCEPTIONS	KEY LEARNING	AREAS FOR INVESTIGATION
CIRCLE 	⇒ ALL POINTS ARE EQUAL DISTANCE FROM THE ORIGIN (CENTRE) TO THE CIRCUMFERENCE. THIS DISTANCE IS THE RADIUS. ⇒ 1 CURVED EDGE **(NOT SIDE)** ⇒ INFINITE LINES OF SYMMETRY	CIRCLES HAVE 1 SIDE.	CIRCLES HAVE ZERO (OR ARGUABLY INFINITE) **SIDES** BECAUSE A SIDE IS A STRAIGHT LINE JOINING VERTICES.	**PROVE IT!** A CIRCLE/SEMI-CIRCLE IS NOT A POLYGON. A CIRCLE DOES NOT NECESSARILY HAVE ONE SIDE. YOU COULD ARGUE IT WAS 0,1,2 OR AN INFINITE NUMBER. SO DON'T ASK!
SEMI-CIRCLE 	⇒ 2 EDGES: 1 STRAIGHT AND ONE CURVED ⇒ 1 LINE OF SYMMETRY ⇒ = 180^0			

POLYGONS: SHAPES WITH 3 OR MORE SIDES, MAKING A CLOSED SHAPE. ALL SIDES ON A POLYGON ARE STRAIGHT.

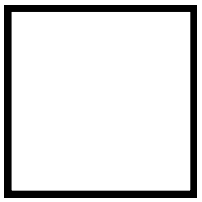
ALL TRIANGLES HAVE 3 STRAIGHT SIDES. THE ANGLES ON A TRIANGLE ALWAYS EQUAL 180^0.

POLYGONS: TRIANGLES

NAME	PROPERTIES	MISCONCEPTIONS	KEY LEARNING	AREAS FOR INVESTIGATION
ISOSCELES TRIANGLE 	⇒ **AT LEAST** 2 EQUAL LENGTH SIDES ⇒ **AT LEAST** 2 EQUAL SIZED ANGLES ⇒ 1 LINES OF SYMMETRY	ISOSCELES TRIANGLES **HAVE TO HAVE 2 EQUAL SIDES** OR ANGLES.	ISOSCELES TRIANGLES CAN HAVE MORE THAN 2 EQUAL SIDES.	HTTPS://NRICH.MATHS.ORG/2925 INVESTIGATING WAYS OF DRAWING TRIANGLES WITH DIFFERENT ANGLES. AREA OF A TRIANGLE INVESTIGATION
SCALENE TRIANGLE 	⇒ NO EQUAL LENGTH SIDES ⇒ NO EQUAL SIZED ANGLES ⇒ NO LINES OF SYMMETRY			
EQUILATERAL TRIANGLE 	⇒ ALL 3 EQUAL LENGTH SIDES, **THEREFORE** ALL ANGLES ARE THE SAME. ⇒ ALL 3 EQUAL SIZED ANGLES, **THEREFORE** ALL ANGLES MEASURE 60^0 ⇒ 3 LINES OF SYMMETRY	AN EQUILATERAL TRIANGLE CANNOT BE ANY OTHER TYPE OF TRIANGLE.	AN **EQUILATERAL** TRIANGLE IS ALSO AN **ISOSCELES** TRIANGLE.	

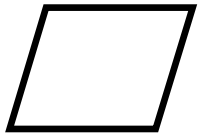
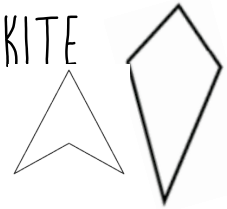
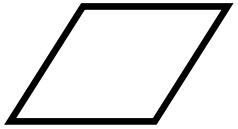
QUADRILATERALS: SHAPES WITH 4 SIDES. THEY HAVE 4 VERTICES. ALL ANGLES IN A QUADRILATERAL ADD UP TO 360^0.

POLYGONS: QUADRILATERALS

NAME	PROPERTIES	MISCONCEPTIONS	KEY LEARNING	AREAS FOR INVESTIGATION
SQUARE 	⇒ TYPE OF RECTANGLE ⇒ 4 RIGHT ANGLES (90^0) THEREFORE THE ADJACENT SIDES ARE PERPENDICULAR ⇒ 2 PAIRS OF PARALLEL LINES ⇒ 4 EQUAL LENGTH SIDES (CONGRUENT) THEREFORE IT ALSO HAS EQUAL LENGTH DIAGONALS	A SQUARE CAN ONLY BE CLASSIFIED AS A SQUARE.	IS A REGULAR QUADRILATERAL (THE ONLY REGULAR QUADRILATERAL IS A SQUARE) THIS IS ALSO A PARALLELOGRAM, RECTANGLE, RHOMBUS AND KITE. IT IS NOT A DIAMOND!	HOW COULD YOU CLASSIFY A SQUARE? **PROVE IT!** A SQUARE IS ALSO A RECTANGLE...WHY? HTTPS://NRICH.MATHS.ORG/2398
RECTANGLE (OBLONG) 	⇒ 4 RIGHT ANGLES (90^0) THEREFORE THE ADJACENT SIDES ARE PERPENDICULAR ⇒ 2 PAIRS OF PARALLEL LINES ⇒ 2 PAIRS OF LINES OF EQUAL LENGTH (CONGRUENT)	RECTANGLES ARE REGULAR BECAUSE THEY ARE COMMONLY SEEN. OBLONG IS NOT A MATHEMATICAL NAME FOR A RECTANGLE.	IS AN IRREGULAR QUADRILATERAL CAN ALSO BE DEFINED AS A PARALLELOGRAM WITH A RIGHT-ANGLE. IT IS NOT A RHOMBUS OR A KITE. ALSO KNOW AS AN OBLONG.	

QUADRILATERALS: SHAPES WITH 4 SIDES. THEY HAVE 4 VERTICES.
ALL ANGLES IN A QUADRILATERAL ADD UP TO 360^0.

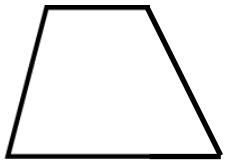
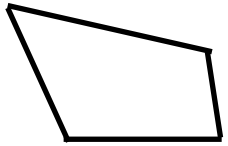
POLYGONS: QUADRILATERALS

NAME	PROPERTIES	MISCONCEPTIONS	KEY LEARNING	AREAS FOR INVESTIGATION
RHOMBUS 	⇒ 4 SIDES HAVE EQUAL LENGTH (CONGRUENT) ⇒ OPPOSITE SIDES ARE PARALLEL ⇒ OPPOSITE ANGLES ARE EQUAL (CONGRUENT)	THIS CAN BE CALLED A DIAMOND	EVERY RHOMBUS IS A PARALLELOGRAM AND A KITE A RHOMBUS WITH RIGHT ANGLES IS A SQUARE A DIAMOND **IS NOT** A SHAPE!	HTTPS://NRICH.MATHS.ORG/504
KITE  (CHEVRON, ARROWHEAD)	⇒ 2 PAIRS OF EQUAL ADJACENT SIDES ⇒ DIAGONALS ARE PERPENDICULAR	THERE IS ONLY ONE TYPE OF KITE.	SQUARES AND RHOMBUSES ARE ALSO KITES	HTTPS://NRICH.MATHS.ORG/1058
PARALLELOGRAM 	⇒ 2 PAIRS OF PARALLEL LINES ⇒ OPPOSITE SIDES ARE OF EQUAL LENGTH (CONGRUENT) ⇒ OPPOSITE ANGLES ARE EQUAL (CONGRUENT)	THERE IS ONLY ONE TYPE OF SHAPE CALLED A PARALLELOGRAM.	A PARALLELOGRAM WITH ALL EQUAL SIDES, AND ALL EQUAL RIGHT ANGLES IS A SQUARE	HTTPS://NRICH.MATHS.ORG/504

QUADRILATERALS: SHAPES WITH 4 SIDES. THEY HAVE 4 VERTICES.

ALL ANGLES IN A QUADRILATERAL ADD UP TO 360^0.

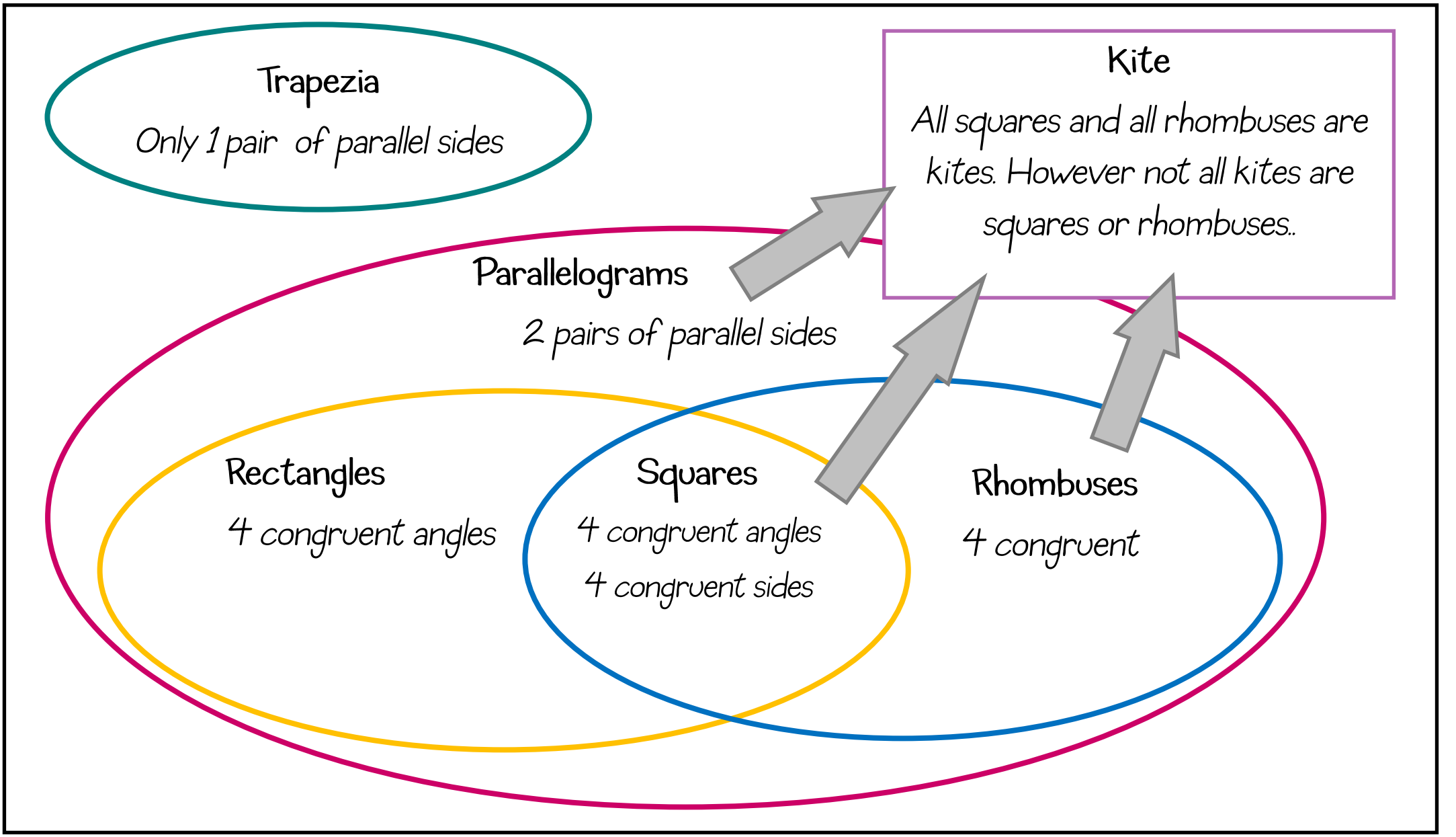
POLYGONS: QUADRILATERALS

NAME	PROPERTIES	MISCONCEPTIONS	KEY LEARNING	AREAS FOR INVESTIGATION
TRAPEZIUM 	⇒ **ONLY** 1 PAIR OF PARALLEL LINES			HTTPS://NRICH.MATHS.ORG/1058
TRAPEZOID 	⇒ NO PARALLEL SIDES			

ADDITIONAL INVESTIGATIONS - QUADRILATERALS

POLYGONS: QUADRILATERALS	AREAS FOR INVESTIGATION
	https://nrich.maths.org/2927 - Classifying quadrilaterals challenge
	https://nrich.maths.org/962 - Drawing quadrilaterals challenge
	https://nrich.maths.org/6624 - Cyclic quadrilaterals: drawing challenge
	https://nrich.maths.org/6536 - Circles inside or around quadrilaterals
	https://nrich.maths.org/1110 - Quadrilateral challenge using coordinates
	https://nrich.maths.org/2872 - Geoboard game making quadrilaterals
	https://nrich.maths.org/2793 - Investigating shapes for a rabbit run

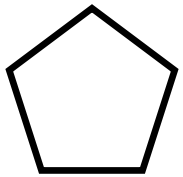
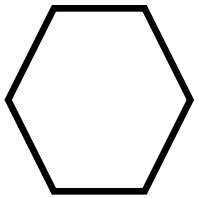
QUADRILATERALS: SHAPES WITH 4 SIDES. THEY HAVE 4 VERTICES.
ALL ANGLES IN A QUADRILATERAL ADD UP TO 360^0.



POLYGONS: SHAPES WITH 3 OR MORE SIDES, MAKING A CLOSED SHAPE. ALL SIDES ON A POLYGON ARE STRAIGHT.

CHILDREN SHOULD BE FAMILIAR WITH REGULAR AND IRREGULAR REPRESENTATIONS OF POLYGONS FROM Y1–Y6

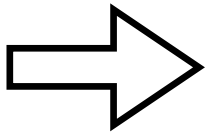
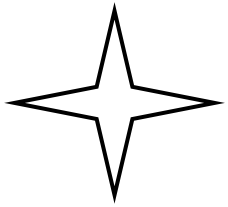
POLYGONS

NAME	PROPERTIES	KEY LEARNING	AREAS FOR INVESTIGATION
PENTAGON 	⇒ 5 SIDES ⇒ SUM OF THE INTERIOR ANGLES = 540^0 THIS IS BECAUSE A PENTAGON CAN BE SPLIT INTO 3 TRIANGLES EACH WITH A SUM OF 180^0 ⇒ THE INTERIOR ANGLES OF A REGULAR PENTAGON = $540^0 \div 5$	PENTAGONS CAN BE **REGULAR**, **IRREGULAR**, **CONCAVE** OR **CONVEX**.	HOW CAN YOU FIND THE SUM OF THE INTERIOR ANGLES USING A TRIANGLE?
HEXAGON 	⇒ 6 SIDES ⇒ SUM OF THE INTERIOR ANGLES = 720^0 THIS IS BECAUSE A HEXAGON CAN BE SPLIT INTO 4 TRIANGLES EACH WITH A SUM OF 180^0 ⇒ THE INTERIOR ANGLES OF A REGULAR HEXAGON = $720^0 \div 6$	HEXAGONS CAN BE **REGULAR**, **IRREGULAR**, **CONCAVE** OR **CONVEX**.	

POLYGONS: SHAPES WITH 3 OR MORE SIDES, MAKING A CLOSED SHAPE. ALL SIDES ON A POLYGON ARE STRAIGHT.

CHILDREN SHOULD BE FAMILIAR WITH REGULAR AND IRREGULAR REPRESENTATIONS OF POLYGONS FROM Y1–Y6

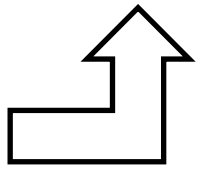
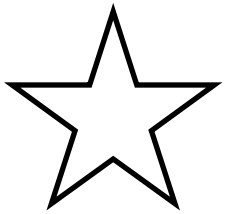
POLYGONS

NAME	PROPERTIES	KEY LEARNING	AREAS FOR INVESTIGATION
HEPTAGON 	⇒ 7 SIDES ⇒ SUM OF THE INTERIOR ANGLES = 900^0 THIS IS BECAUSE A HEPTAGON CAN BE SPLIT INTO 5 TRIANGLES EACH WITH A SUM OF 180^0 ⇒ THE INTERIOR ANGLES OF A REGULAR HEXAGON = $900^0 \div 7$	HEPTAGONS CAN BE **REGULAR, IRREGULAR, CONCAVE** OR **CONVEX.**	HOW CAN YOU FIND THE SUM OF THE INTERIOR ANGLES USING A TRIANGLE?
OCTAGON 	⇒ 8 SIDES ⇒ SUM OF THE INTERIOR ANGLES = 1080^0 THIS IS BECAUSE AN OCTAGON CAN BE SPLIT INTO 6 TRIANGLES EACH WITH A SUM OF 180^0 ⇒ THE INTERIOR ANGLES OF A REGULAR OCTAGON = $1080^0 \div 8$	OCTAGONS CAN BE **REGULAR, IRREGULAR, CONCAVE** OR **CONVEX.**	

POLYGONS: SHAPES WITH 3 OR MORE SIDES, MAKING A CLOSED SHAPE. ALL SIDES ON A POLYGON ARE STRAIGHT.

CHILDREN SHOULD BE FAMILIAR WITH REGULAR AND IRREGULAR REPRESENTATIONS OF POLYGONS FROM Y1–Y6

POLYGONS

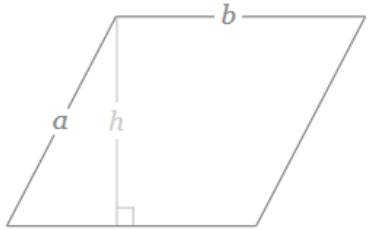
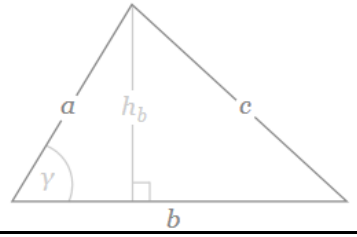
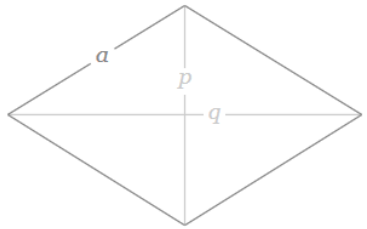
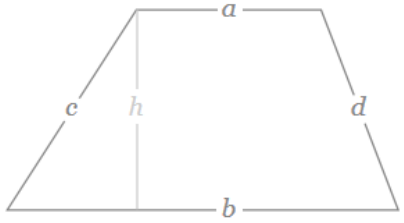
NAME	PROPERTIES	KEY LEARNING	AREAS FOR INVESTIGATION
NONAGON 	⇒ 9 SIDES ⇒ SUM OF THE INTERIOR ANGLES = 1260^0 THIS IS BECAUSE A NONAGON CAN BE SPLIT INTO 7 TRIANGLES EACH WITH A SUM OF 180^0 ⇒ THE INTERIOR ANGLES OF A REGULAR NONAGON = $1260^0 \div 9$	NONAGONS CAN BE **REGULAR**, **IRREGULAR**, **CONCAVE** OR **CONVEX**.	DRAW A REGULAR NONAGON. SPLIT IT INTO 9 TRIANGLES. CAN YOU WORK OUT THE ANGLES ON EACH TRIANGLE?
DECAGON 	⇒ 10 SIDES ⇒ SUM OF THE INTERIOR ANGLES = 1440^0 THIS IS BECAUSE A DECAGON CAN BE SPLIT INTO 8 TRIANGLES EACH WITH A SUM OF 180^0 ⇒ THE INTERIOR ANGLES OF A REGULAR NONAGON = $1440^0 \div 10$	DECAGONS CAN BE **REGULAR**, **IRREGULAR**, **CONCAVE** OR **CONVEX**.	DRAW A REGULAR DECAGON. SPLIT IT INTO TRIANGLES. CAN YOU WORK OUT THE ANGLES ON EACH TRIANGLE?

ADDITIONAL INVESTIGATIONS - POLYGONS

	AREAS FOR INVESTIGATION
POLYGONS	HTTPS://NRICH.MATHS.ORG/10368 - DRAW THE SHAPE TO MATCH THE CLUES
	HTTPS://NRICH.MATHS.ORG/5568 - REASONING ABOUT SHAPE/EXPLORE SIMILARITIES AND DIFFERENCES
	HTTPS://NRICH.MATHS.ORG/86 - MAKING POLYGONS SYSTEMATICALLY USING A CLOCK FACE
	HTTPS://NRICH.MATHS.ORG/1058 - FINDING POLYGONS ON ISOMETRIC PAPER
	HTTPS://NRICH.MATHS.ORG/11236 - MAXAGON: DRAWING INVESTIGATION (KS3)
	HTTPS://NRICH.MATHS.ORG/6886 - FS/KS1 - IDENTIFYING SHAPES INVESTIGATION
	HTTPS://NRICH.MATHS.ORG/7192 - FS/KS1 - RULES FOR SORTING SHAPES CHALLENGE
	HTTPS://NRICH.MATHS.ORG/9925 - FS/KS1 - GUESS MY SHAPE GAME

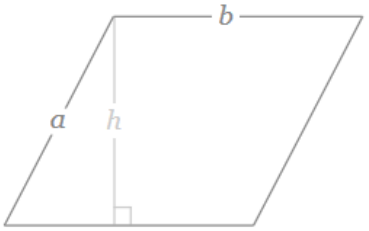
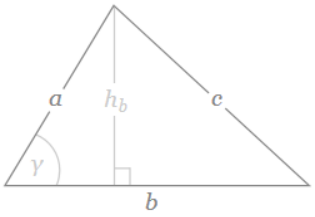
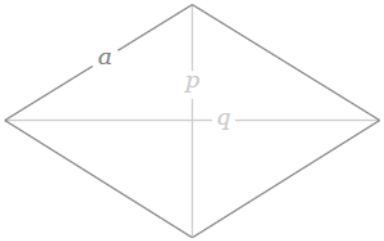
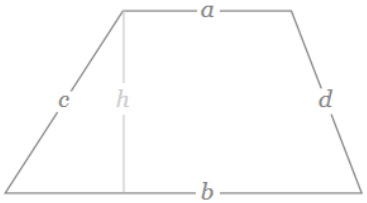
AREA: CHILDREN SHOULD BE TAUGHT TO FIND THE AREA OF A PARALLELOGRAM RATHER THAN JUST A SQUARE OR RECTANGLE, BEFORE EXPLORING MORE COMPLEX SHAPES.

AREA

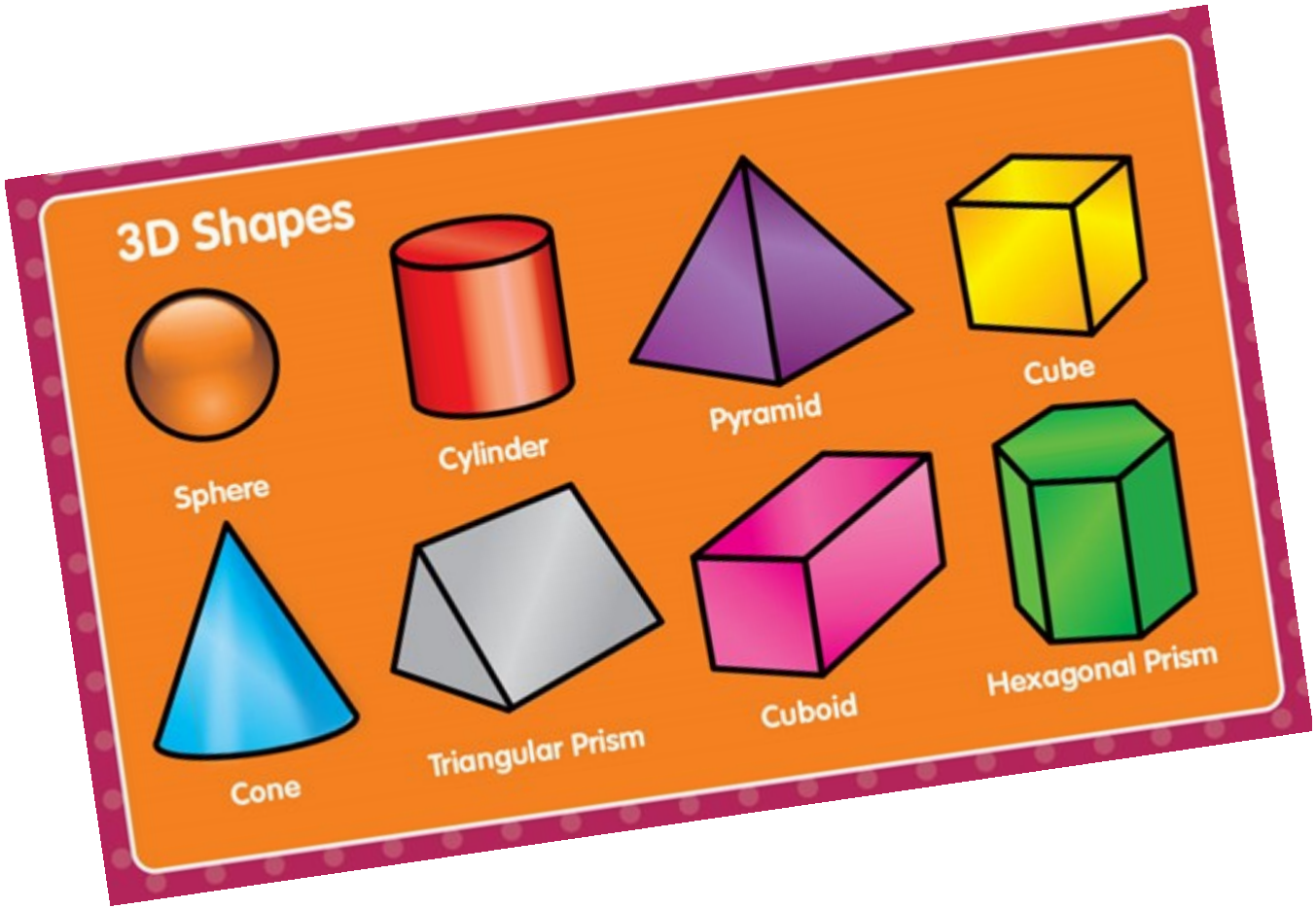
NAME	FORMULA	KEY LEARNING	AREAS FOR INVESTIGATION
PARALLELOGRAMS (THEREFORE SQUARES, RHOMBUS & RECTANGLES)	AREA = B X H 	IF YOU TURN A PARALLELOGRAM INTO A RECTANGLE, THEN THE LEFT OVER TRIANGLES ARE **CONGRUENT**.	HTTPS://NRICH.MATHS.ORG/48 HTTPS://NRICH.MATHS.ORG/1045 HTTPS://NRICH.MATHS.ORG/10344 HTTPS://NRICH.MATHS.ORG/7280 HTTPS://NRICH.MATHS.ORG/52 HTTPS://NRICH.MATHS.ORG/2132
TRIANGLE	AREA = $\frac{B \times H}{2}$ 		
KITE	AREA = $\frac{D \times D}{2}$ 	IF THE DIAGONALS ARE NOT GIVEN, PYTHAGORAS IS USED. (**E. GRASPER CHALLENGE**)	
TRAPEZIUM	AREA = $\frac{A + B}{2}$ H 		

PERIMETER: CHILDREN SHOULD BE TAUGHT TO FIND THE PERIMETER OF A PARALLELOGRAM RATHER THAN JUST A SQUARE OR RECTANGLE, BEFORE EXPLORING MORE COMPLEX SHAPES, INCLUDING COMPOSITE RECTILINEAR SHAPES..

PERIMETER

NAME	FORMULA	MISCONCEPTIONS	AREAS FOR INVESTIGATION
PARALLELOGRAMS (THEREFORE SQUARES, KITES & RECTANGLES)	PERIMETER = 2(A+B) 		HTTPS://NRICH.MATHS.ORG/1045 HTTPS://NRICH.MATHS.ORG/1880 HTTPS://NRICH.MATHS.ORG/10333
TRIANGLES	PERIMETER = A+B+C 		
RHOMBUS	PERIMETER = 4A 		
TRAPEZIUM	PERIMETER = A+B+C+D 		

GEOMETRY – 3D SHAPES



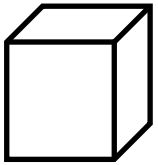
* CLASSIFICATION
* GLOSSARY
* NAMES
* PROPERTIES
* MISCONCEPTIONS
* INVESTIGATIONS
* VOLUME

3D SHAPES – CLASSIFICATION

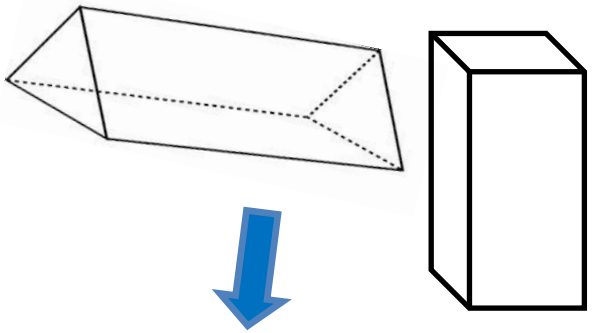
3D SHAPES CAN BE SPLIT INTO POLYHEDRONS AND NON-POLYHEDRONS.

POLYHEDRONS: 3D SHAPES WHERE ALL THE FACES ARE MADE OF POLYGONS.

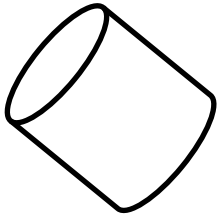
NON-POLYHEDRONS: 3D SHAPES WHERE NOT ALL THE FACES ARE MADE OF POLYGONS.



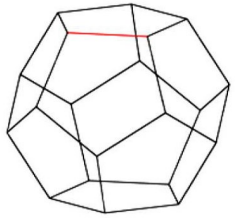
PRISMS



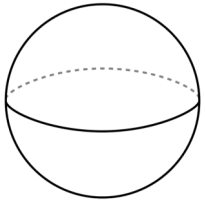
CYLINDERS



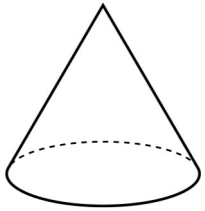
OTHER POLYHEDRONS



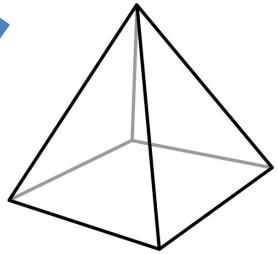
SPHERES



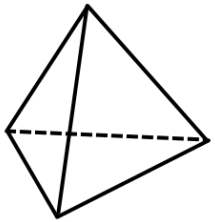
CONES



PYRAMIDS



TETRAHEDRON



3D SHAPES – GLOSSARY

BASE	THE SOLID SURFACE AN OBJECT OR SHAPE STANDS ON. THE TOP IS ALSO CALLED A BASE IF IT IS PARALLEL TO THE BOTTOM!
EDGE	AN EDGE IS WHERE TWO FACES ON A 3D SHAPE MEET.
FACE	THE SURFACE OF A SOLID SHAPE.
NET	A PATTERN THAT CAN BE CUT AND FOLDED TO MAKE A 3D SHAPE.
CROSS SECTION	THE EXPOSED SHAPE/SURFACE WHEN YOU MAKE A CUT THROUGH A 3D SHAPE.
VERTEX (VERTICES)	A CORNER OR A POINT. THIS WORD IS USED FOR 2D AND 3D SHAPES.
CONVEX	HAVING A SHAPE OR LINE CURVED LIKE THE EXTERIOR OF A SPHERE.
CONCAVE	HAVING A SHAPE OR LINE CURVED LIKE THE INTERIOR OF A SPHERE.

3D SHAPES – GLOSSARY

POLYHEDRON	A 3D SHAPE WHOSE FACES ARE ALL POLYGONS.
PRISM	A POLYHEDRON THAT HAS TWO PARALLEL, CONGRUENT BASES MADE UP OF POLYGONS.
PYRAMID	A POLYHEDRON THAT HAS ONE BASE MADE UP OF A POLYGON. ALL OTHER FACES ARE TRIANGLES. (THERE IS A VAST ARRAY INC. SQUARED BASED PYRAMIDS, HEXAGONAL BASED PYRAMIDS ETC.)
TETRAHEDRON	ALSO KNOWN AS A TRIANGULAR PYRAMID. IT HAS A TRIANGULAR BASE AND THREE TRIANGLES ON THE SIDE CLOSING TO A POINT (VERTEX).

3D SHAPES: THREE-DIMENSIONAL SHAPES HAVING LENGTH, WIDTH (OR BREADTH) AND HEIGHT.

3D SHAPES: POLYHEDRONS

NAME	PROPERTIES	KEY LEARNING	AREAS FOR INVESTIGATION
SPHERE	⇒ HAS ONE CURVED FACE ⇒ NOT A POLYHEDRON		
CYLINDER	⇒ TWO PARALLEL, CONGRUENT BASES THAT ARE CIRCLES ⇒ NOT A POLYHEDRON		HTTPS://NRICH.MATHS.ORG/7530 (EG IN KS2)
CUBOID	⇒ IS A POLYHEDRON ⇒ 12 EDGES ⇒ 8 CORNERS ⇒ 6 FACES		HTTPS://NRICH.MATHS.ORG/4920 HTTPS://NRICH.MATHS.ORG/4919 HTTPS://NRICH.MATHS.ORG/41 HTTPS://NRICH.MATHS.ORG/57
CUBE	⇒ IS A POLYHEDRON ⇒ 12 EDGES ⇒ 8 CORNERS ⇒ 6 FACES ALL MADE UP OF SQUARES	A CUBE **IS** A TYPE OF CUBOID.	HTTPS://NRICH.MATHS.ORG/233 (KS1) HTTPS://NRICH.MATHS.ORG/42 (KS1) HTTPS://NRICH.MATHS.ORG/1140 (KS2)

3D SHAPES: THREE-DIMENSIONAL SHAPES HAVING LENGTH, WIDTH (OR BREADTH) AND HEIGHT.

	NAME	PROPERTIES	KEY LEARNING	AREAS FOR INVESTIGATION
3D SHAPES	PYRAMID	⇒ A POLYHEDRON THAT HAS ONE BASE MADE UP OF ANY POLYGON. ⇒ ALL OTHER FACES ARE TRIANGLES.		HTTPS://NRICH.MATHS.ORG/5809 HTTPS://NRICH.MATHS.ORG/672
	PRISM	⇒ IS A POLYHEDRON ⇒ ANY CROSS SECTION CREATES A CONGRUENT VERSION OF ITSELF		
	CONE	⇒ ANY CROSS SECTION CREATES A SIMILAR VERSION OF ITSELF; IT WILL VARY IN SIZE. ⇒ NOT A POLYHEDRON ⇒ BASE IS A CIRCLE WITH A SURFACE THAT COMES TO A POINT CALLED A VERTEX.		HTTPS://NRICH.MATHS.ORG/2156

ADDITIONAL INVESTIGATIONS - 3D SHAPES

	AREAS FOR INVESTIGATION
3D SHAPES	HTTPS://NRICH.MATHS.ORG/2156 - EXPLORING VISUALISATION AND WHAT HAPPENS WHEN YOU TAKE A CROSS SECTION OF A 3D SHAPE HTTPS://NRICH.MATHS.ORG/2350 - KS1 - SHADOW GUESSING GAME HTTPS://NRICH.MATHS.ORG/1148 - KS1 AND KS2 - INVESTIGATION CUBES HTTPS://NRICH.MATHS.ORG/7473 - ACTIVITY AIMED AT EARLY GRASPERS HTTPS://NRICH.MATHS.ORG/2343 - CUBE BUILDING INVESTIGATION HTTPS://NRICH.MATHS.ORG/6307 - INVESTIGATING NETS HTTPS://NRICH.MATHS.ORG/5943 - TRIANGULAR FACES INVESTIGATION

RATIONALE

ANALYSIS OF PREVIOUS LEARNING HAS INDICATED THAT A UNIFIED APPROACH TO THE TEACHING OF GEOMETRY SHOULD AID CHILDREN'S UNDERSTANDING.

ONE OF THE BIGGEST BARRIERS TO SUCCESS IN GEOMETRY IS HAVING A CLEAR AND DEEP UNDERSTANDING OF TERMINOLOGY. THE INTENTION OF THIS DOCUMENT IS TO STREAMLINE THE TEACHING OF GEOMETRY – CLARIFYING MISCONCEPTIONS – SO THAT THE LANGUAGE AND METHODS USED IS CONSISTENT THROUGHOUT ALL YEAR GROUPS.

IT ALSO PROVIDES A VARIETY OF INVESTIGATIONS TO HELP SUPPORT THE TEACHING OF GEOMETRY, SO THAT CHILDREN BECOME CONFIDENT IN APPLYING THEIR KNOWLEDGE TO A RANGE OF CONTEXTS.