Year 6 Maths Knowledge Organiser

Multiples, Factors and Prime Numbers

Multiples	A number that can be divided by another number exactly without leaving a remainder.	Multiples of 50: 50, 100, 150, 200, 250, 300, 350, 400, 450, 500
Factors	A number that divides into another number exactly without leaving a remainder.	Factors of 24: 1, 24, 2, 12, 3, 8, 4, 6
Prime Numbers	A number that can only be divided by itself and 1.	2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

Fractions, Decimals and Percentages

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{2}{5}$	0.4	40%
$\frac{3}{5}$	0.6	60%

Calculating Percentages

1%	$\frac{1}{100}$	divide by 100	1% of 400 = 400 ÷ 100 = 4
10%	$\frac{1}{10}$	divide by 10	10% of 400 = 400 ÷ 10 = 40
25%	$\frac{1}{4}$	divide by 4	25% of 400 = 400 ÷ 4 = 100
50%	$\frac{1}{2}$	divide by 2	50% of 400 = 400 ÷ 2 = 200

Mean

The total of the numbers (add the numbers together), divided by how many numbers there are.	The mean of 4,5,6,5 is 4+5+6+5 = 20 20 ÷ 4 = 5 The mean is 5.

Parallel and Perpendicular

Parallel	Two lines that are always the same distance apart and never meet.
Perpendicular	Two lines that cross at right angles.

Horizontal	Vertical
_____		

Indices

n^2	squared	n x n	$5^2 = 5 \times 5 = 25$
n^3	cubed	n x n x n	$5^3 = 5 \times 5 \times 5 = 125$

Roman Numerals

I	1	VI	6	X	10
II	2	VII	7	L	50
III	3	VIII	8	C	100
IV	4	IX	9	D	500
V	5	X	10	M	1000

Order of Operations

B	I	D	M	A	S
brackets ( )	indices x^y	division ÷	multiplication x	addition +	subtraction -

Perimeter, Area and Volume

Perimeter	The distance around a shape - add up all of the sides.	
Area	Rectangle	length x width
	Parallelogram	base x height
	Triangle	$\frac{base \times height}{2}$
Volume	length x width x height	

2d Shapes

Scalene Triangle	Different side length, Different angles	Equilateral Triangle	All sides equal, All angles equal
Isosceles Triangle	2 equal sides, 2 equal angles	Right angled Triangle	One angle of 90°
Parallelogram	4 sides, 0 lines of symmetry	Trapezium	4 sides, 1 line of symmetry
Rhombus	4 sides, 2 lines of symmetry	Kite	4 sides, 1 line of symmetry
Pentagon	5 sides, 5 lines of symmetry	Hexagon	6 sides, 6 lines of symmetry

3d Shapes

Shape	faces (flat surface)	edges (where 2 faces meet)	vertices (where 2 edges meet)
square-based pyramid	5	8	5
triangular prism	5	9	6
cone	2	1	1
cylinder	3	2	0

Parts of a Circle

Circumference	the distance all the way around a circle
Diameter	the distance across the middle of a circle
Radius	half the diameter

Calculating Angles

Acute	less than 90°
Right Angle	exactly 90°
Obtuse	more than 90°, less than 180°
Reflex	more than 180°
Angles on a straight line	add up to 180°
Opposite angles	opposite angles are equal
Angles in a triangle	add up to 180°
Angles in a quadrilateral	add up to 360°
Full turn	360°
Half turn	180°
Quarter turn	90° (right angle)

Time

Thirty days hath September, April, June, and November, all the rest have thirty-one, except February, twenty-eight days clear, and twenty-nine in each leap year.

1 year	52 weeks	365 days (366 in leap year)
1 week	7 days	1 day	24 hours
1 hour	60 minutes	1 minute	60 seconds

Measurement

Length	1cm = 10mm 1m = 100cm 1km = 1000m 8 km = 5 miles	km ×1000 m ×100 cm ×10 mm ÷1000, ÷100, ÷10
Mass	1kg = 1000g	kg ×1000 g, ÷1000
Capacity	1l = 1000ml	l ×1000 ml, ÷1000

Position and Direction

Coordinates: (x, y) read along x axis (horizontal) and then y axis (vertical)

Translation	Rotation
Reflection	Enlargement

Year 6 Grammar Knowledge Organiser

Word Classes

1	noun	person, place or thing	dog, ball, road
2	proper noun	names of places or people - need capital letters.	London, Sam
3	collective noun	the name for a group of things	A *flock* of birds, A *herd* of cows.
4	abstract noun	things that don't have a physical form	love, ideas, friendship
5	pronoun	used instead of noun (usually a name)	he, her, him, she, it, they
6	adjective	describes a noun	red, long, hungry
7	verb	doing or being word	run, laugh, eat
8	adverb	describes an action/verb	quickly, carefully
9	modal verbs	a verb to show if something is a possibility or a certainty	Will Would Can Could Shall Should Must May Might Ought to
10	prepositions	shows where or when something happens	above, across, against, behind, under
11	determiners	comes before a noun or noun phrase	the, my, this, some, twenty, each, any
12	subject	the thing in the sentence that is doing the action	*Tom* kicked the ball.
13	object	the thing in the sentence that is having the action done to it	Tom kicked *the ball.*
14	conjunction	connects two clauses	and, but, because

Types of Pronouns

1	personal	used instead of a proper name	I, you, he, she, it, we, they, me, us, him, her
2	possessive	used to show who something belongs to	mine, yours, his, hers, theirs
3	relative	the subject/object of the relative clause	who, which, what, where, when, why, that

Conjunctions

Coordinating Conjunctions — Connect two main clauses.

1							
	F	A	N	B	O	Y	S
	for	and	nor	but	or	yet	so

Subordinating Conjunctions — Connect a main and subordinate clause.

2									
I	S	A	W	A	W	A	B	U	B
if	since	as	when	although	while	after	before	until	because

Sentence Types

1	statement	say it	tells you a fact or expresses an opinion
2	command	do it	Imperative verbs *Cut the bread. Walk the dog.*
3	question	ask it	something that requires information or an answer
4	exclamation	how or what	*What a wonderful day! How fantastic!* They are not questions.

Clauses

	Main clause	a clause that makes sense on its own
	Subordinate clause	a clause that adds extra information and is dependent on a main clause
1	Embedded clause	a subordinate clause in the middle of a sentence, between two commas. — *My bike, which is very old, is broken.*
2	Relative clause	a subordinate clause which begins with a relative pronoun. — *The tree that was chopped down was made into logs.*

Synonyms and Antonyms

1	synonym	words that mean the same	small and tiny
2	antonym	words that mean the opposite	small and large

Prefixes and Suffixes

1	prefix	letters added to the start of the root word that change its meaning	*unpopular disrespect*
2	suffix	letters added to the end of the root word that change its meaning	*painful illness*

Tenses

	Simple	Perfect	Progressive
Present	something that is happening - *Fred walks to his car.*	has/have followed by a verb. *We have been stranded for 4 days.*	is/am/are followed with an -ing verb *We are swimming.*
Past	something that has happened - *Fred walked to his car.*	had followed by a verb. *We had been stranded for 4 days.*	was/were followed by an -ing verb *We were swimming.*

Passive and Active Voice

Active Voice	*Harvey won the trophy.* subject verb object
Passive Voice	*The trophy was won by Harvey.* object verb subject

Subjunctive Form/Mood

1	If I were you, I would…	*If I were able to fly, I would… Laura wished she were able to…*
2	use the root verb	*I suggest you read…*

Before/After/Until

Used as a subordinating conjunction	when followed by a clause
Used as a preposition	when followed by an object

Standard English

Formal way of speaking or writing which follows all grammar rules and is written or said in full sentences.

Apostrophes

1	contracted form	apostrophe is placed where the letter has been removed	*can't, we're, he'd, don't, shouldn't*
2	possession	shows something belongs to someone	*Sarah's bag The boys' football*