

Year 3 (2023-24)

Maths The Year Ahead...

The following information booklet details the general plan for teaching and learning in the coming academic year at HHJS. We follow the White Rose Scheme of learning which is attached for your information. I have also included some extra resources you may find useful at home for pre-teaching or consolidation.

*** These booklets are available on the website for all KS1 and 2 year groups across our federation.*

For more information speak to Miss Duffy (year 4 @HHJS)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value VIEW		Number Addition and subtraction VIEW				Number Multiplication and division A VIEW					
Spring term	Number Multiplication and division B VIEW		Measurement Length and perimeter VIEW		Number Fractions A VIEW		Measurement Mass and capacity VIEW					
Summer term	Number Fractions B VIEW	Measurement Money VIEW	Measurement Time VIEW		Geometry Shape VIEW		Statistics Statistics VIEW		Consolidation			

Useful resources

White Rose's **free workbooks** align with the topics we will cover.

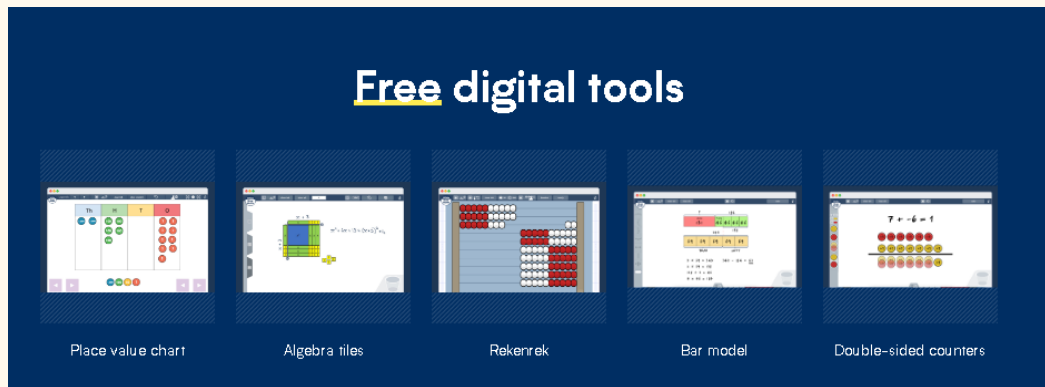
- Available for **all topics** across the year.



<https://whiterosemaths.com/parent-resources>

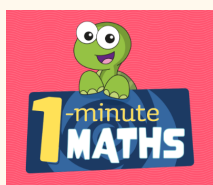
Free digital tools - these match the representations used in class and align with our mastery approach, by *bringing the maths to life*.

<https://whiterosemaths.com/resources/digital-tools>



Free APP - building number fluency and confidence

- aimed at KS1 but incredibly useful for year 3 practice .



<https://whiterosemaths.com/1-minute-maths>

Stage 3 PROMPT sheet

3/1 Count in multiples

Now you must learn these multiples

X3	Multiples of 4	Multiples of 8	Multiples of 50	Multiples of 100
0	0	0	0	0
3	4	8	50	100
6	8	16	100	200
9	12	24	150	300
12	16	32	200	400
15	20	40	250	500
18	24	48	300	600
21	28	56	350	700
24	32	64	400	800
27	36	72	450	900
30	40	80	500	1000

hundreds	tens	ones
3	5	2

- To find 10 more or 10 less, it is the 'tens digit' that changes
10 more than 352 becomes 362
10 less than 352 becomes 342

hundreds	tens	ones
3	5	2

- To find 100 more or 100 less, it is the 'hundreds' digit that changes
100 more than 352 becomes 452
100 less than 352 becomes 252

3/2 Recognise place value

hundreds	tens	ones
3	5	2

352 means 300 + 50 + 2

3/3 Numbers in words and figures

In order to put FIGURES into WORDS, we must try to imagine that the number is in a PLACE VALUE table like this one

Hundred	Ten	Ones
1	4	7
One hundred	forty	seven
One hundred and forty-seven		

Hundred	Ten	Ones
4	0	9
Four hundred		nine
Four hundred and nine		

3/3 Compare and order numbers

- Write numbers lining up the digits

Hundred	Ten	Ones
1	4	7
6	3	2
1	7	6
1	6	2

- Begin at the hundreds and compare
632 is the biggest

Hundred	Ten	Ones
1	4	7
6	3	2
1	7	6
1	6	2

- Move to the tens and compare
Order is: 632, 176, 162, 147

3/4 Estimating

- **Eyeball estimate**



Here are 10

Use this to estimate larger quantities



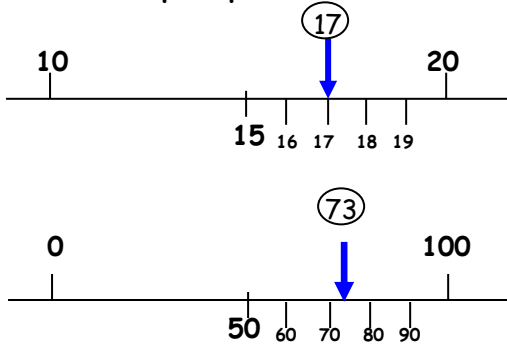
- **Estimate by sampling**

Count your pulse over 15 seconds
 Multiply the number of pulses by 4 to get the pulse rate over 1 minute (15 x 4 = 60 seconds)



- **Estimate on a number line**

Fill in the half way number first
 Then split up the half with the arrow



- **Estimate by rounding off a number**

To make a sum easier and give a rough answer

Example: 28 could be rounded to 30
 £1.95 could be rounded to £2

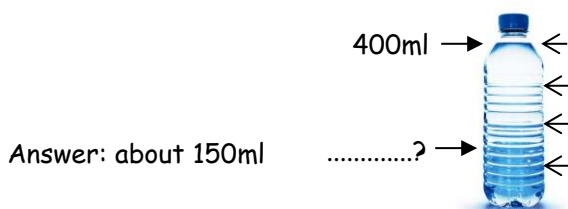
3/5 Solve problems by estimating

Example: Estimate the cost of 5 magazines at £1.95 each



Answer: It is about 5 x £2 = £10

Example: When full this bottle holds 400ml.
 Estimate how much water is left in this bottle.



3/6 Add 3 digit numbers mentally

Partitioning

$$236 + 319$$

$$\begin{aligned} & 200 + 30 + 6 + 300 + 10 + 9 \\ &= 500 + 40 + 15 \\ &= 555 \end{aligned}$$

Subtract 3 digit numbers mentally

$$363 - 126$$

Partitioning

$$\begin{aligned} & 363 - 100 - 20 - 6 \\ &= 263 - 20 - 6 \\ &= 243 - 6 \\ &= 237 \end{aligned}$$

Counting on from 126

$$\begin{aligned} & (126) + 4 \\ & 130 + 3 \\ & 133 + 230 \\ & = 363 \\ & \text{Answer} = 237 \end{aligned}$$

3/7 Written method for addition

- **Line up the digits in the correct columns**

$$\begin{array}{r} \text{e.g. } 132 + 239 \\ \begin{array}{r} \text{H T O} \\ 132 \\ 2319+ \\ \hline 371 \end{array} \end{array}$$

Written method for subtraction

- **Line up the digits in the correct columns**

$$\begin{array}{r} \text{e.g. } 327 - 119 \\ \begin{array}{r} \text{H T O} \\ 3 \overset{1}{\cancel{2}} 7 \\ 119 - \\ \hline 208 \end{array} \end{array}$$

3/8 Estimate answers to calculations

- Round off each number
- Then do the calculation
- Check using the inverse

Example: Estimate $83 - 28$

$$80 - 30 = 50$$

$$\text{Inverse: } 50 + 30 = 80 \checkmark$$

3/9 Missing number problems

Fact family for +/-

$$34 + 23 = 57$$

$$57 - 23 = 34$$

$$23 + 34 = 57$$

$$57 - 34 = 23$$

3/10 Know the 3, 4 and 8 times tables

1 x 3 = 3	1 x 4 = 4	1 x 8 = 8
2 x 3 = 6	2 x 4 = 8	2 x 8 = 16
3 x 3 = 9	3 x 4 = 12	3 x 8 = 24
4 x 3 = 12	4 x 4 = 16	4 x 8 = 32
5 x 3 = 15	5 x 4 = 20	5 x 8 = 40
6 x 3 = 18	6 x 4 = 24	6 x 8 = 48
7 x 3 = 21	7 x 4 = 28	7 x 8 = 56
8 x 3 = 24	8 x 4 = 32	8 x 8 = 64
9 x 3 = 27	9 x 4 = 36	9 x 8 = 72
10 x 3 = 30	10 x 4 = 40	10 x 8 = 80
11 x 3 = 33	11 x 4 = 44	11 x 8 = 88
12 x 3 = 36	12 x 4 = 48	12 x 8 = 96

Fact family for x/÷

$$9 \times 8 = 72$$

$$72 \div 9 = 8$$

$$8 \times 9 = 72$$

$$72 \div 8 = 9$$

3/11 Multiply & divide

- A 2-digit number by a single digit

Column method

$$\begin{array}{r} 38 \\ \times 3 \\ \hline 114 \\ \hline \end{array}$$

Grid method

	30	8
3	90	24

$$90 + 24 = 114$$

Partitioning method

$$\begin{aligned} 38 \times 3 & \\ &= 30 \times 3 + 8 \times 3 \\ &= 90 + 24 \\ &= 114 \end{aligned}$$

3/12 Multiply & divide

- Look for connections between two sums
- Remember the fact family for x/÷

Example: $6 \times 4 = 24$ So $60 \times 4 = 240$
 So $240 \div 4 = 60$

Example: $9 \times 8 = 72$ So $18 \times 8 = 144$
 So $144 \div 8 = 18$

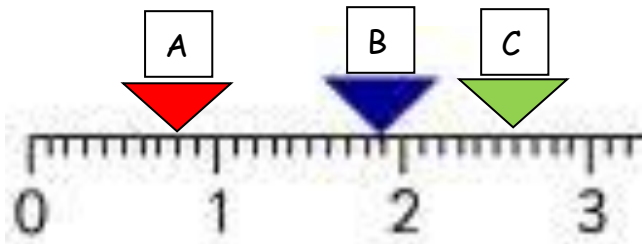
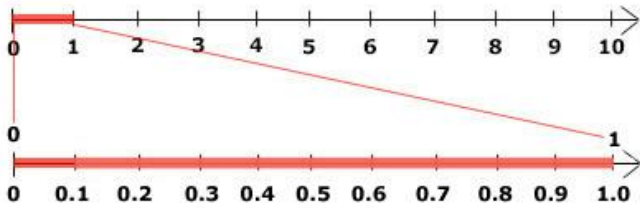
3/13 Tenths

tens	ones		tenths
8	2	•	6

- This represents 6 tenths = $\frac{6}{10}$

Counting in tenths (continued)

- A whole one divided into 10 equal parts
- $1 \div 10 = 1$ tenth or $\frac{1}{10}$ Or 0.1



A - 0.8
B - 1.9
C - 2.6

- To find a tenth of an object or quantity you divide by 10

Example: $\frac{1}{10}$ of 20 = $20 \div 10 = 2$

3/14 Fraction of line or objects

- To find $\frac{1}{5}$ of a line
- Divide the line into 5 equal parts



Each part is $\frac{1}{5}$

- To find $\frac{1}{5}$ of a set of objects
- Divide objects into 5 equal parts



Each part is $\frac{1}{5}$

3/16 Equivalent fractions

3/14 Write a fraction of a number of object



$\frac{2}{5}$ are blue and $\frac{3}{5}$ are red

3/15 Use fractions as numbers

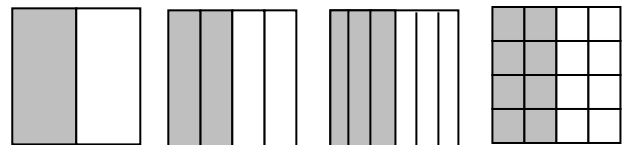
To find $\frac{1}{5}$ of 20 we do $20 \div 5 = 4$

To find $\frac{2}{5}$ of 20 we do $4 \times 2 = 8$

To find $\frac{3}{5}$ of 20 we do $4 \times 3 = 12$

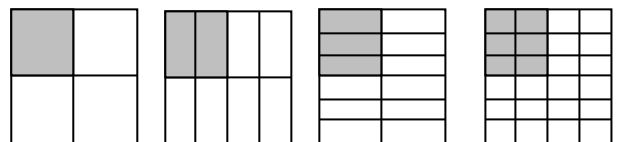
- The same fraction can be expressed in different ways

ALL THESE ARE $\frac{1}{2}$



$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{8}{16}$$

ALL THESE ARE $\frac{1}{4}$



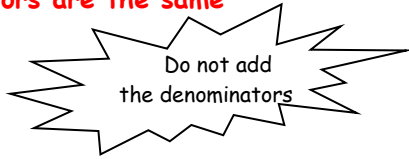
$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{6}{24}$$

3/17 Add & subtract fractions

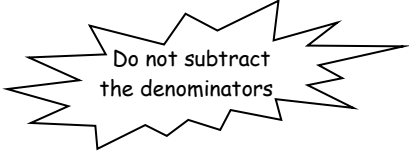
- To add and subtract fractions

When the denominators are the same

$$\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$$

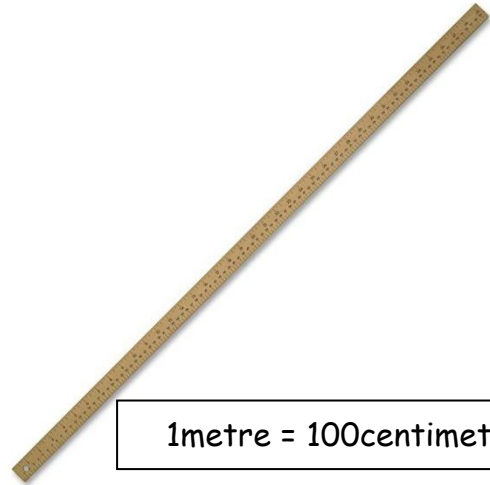


$$\frac{5}{7} - \frac{1}{7} = \frac{4}{7}$$



- The units must be the same

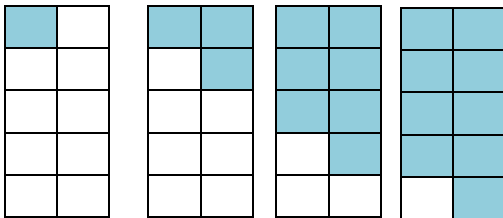
Length - Example



3/18 Compare fractions

- Fractions with the same denominator

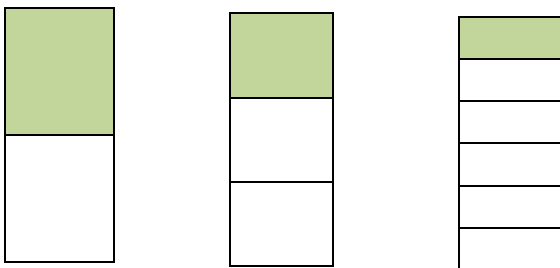
$$\frac{1}{10} \quad \frac{3}{10} \quad \frac{7}{10} \quad \frac{9}{10}$$



The bigger the numerator, the bigger the fraction

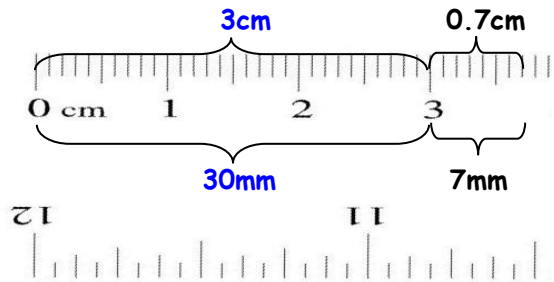
- Unit Fractions

$$\frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{6}$$

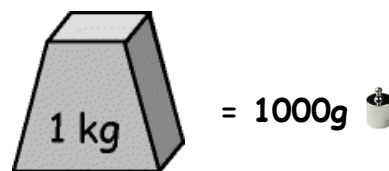


The bigger the denominator, the smaller the fraction

$$\begin{aligned} & 3\text{cm} + 7\text{mm} \\ &= 30\text{mm} + 7\text{mm} \\ &= 37\text{mm} \\ &\text{or } 3\text{cm } 7\text{mm or } 3.7\text{cm} \end{aligned}$$



Mass - Example



$$\begin{aligned} & 3\text{kg} - 450\text{g} \\ &= 3000\text{g} - 450\text{g} \\ &= 2550\text{g} \\ &\text{or } 2\text{kg } 550\text{g or } 2.55\text{kg} \end{aligned}$$

3/19 Add & subtract measures

3/19 Add & subtract measures (continued)

Volume - Example



1litre = 1000millilitres

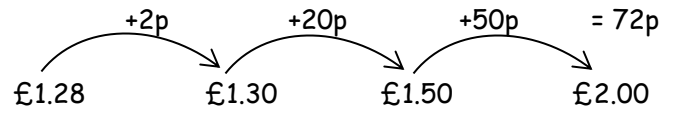


800ml + 720ml
 = 1520ml
 = 1 litre and 520ml
 = 1.52 litres

To work out a bill

1 chocolate bar - £1.10
 1 pen - 10p
 1 pencil - 8p
 Total = £1.28

To find change by the 'add-on' method

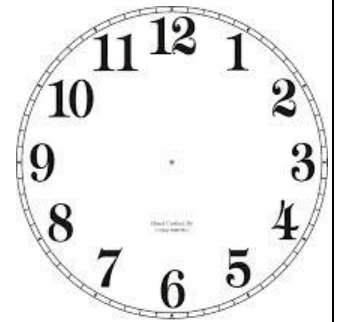
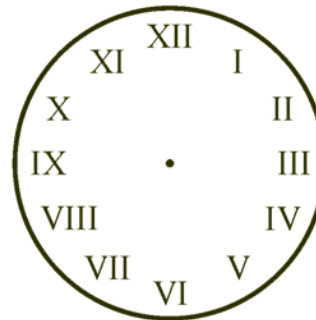


3/22 Time

Analogue clock

Roman

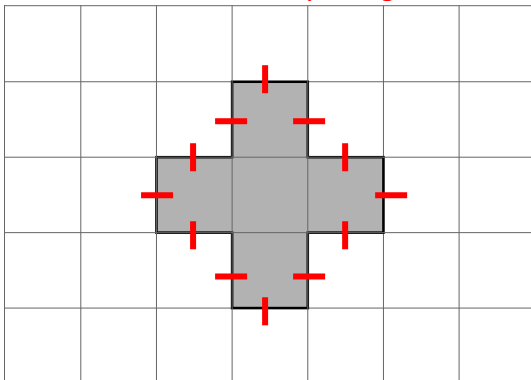
Hindu-Arabic



3/20 Perimeter

PERIMETER is the distance round the outside of a shape

- On a centimetre square grid - count round



Perimeter of this shape = 12cm

- Measurements given - add up all round

6cm



6cm

Perimeter of this shape = 6 + 4 + 6 + 4 = 20cm

12- and 24-hour clock

24-hour time

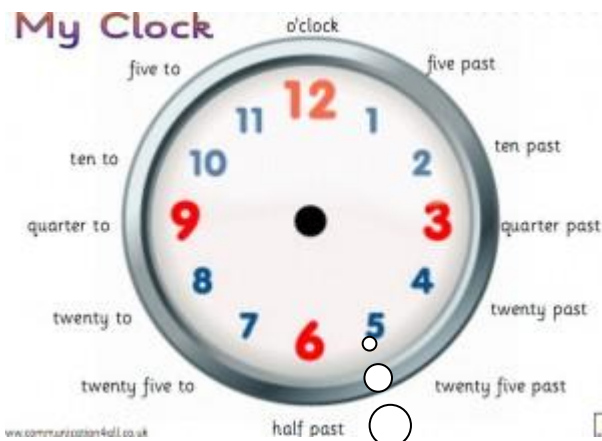
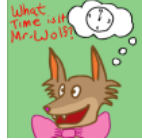
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
a.m.												p.m.											
12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11

12-hour time

3/21 Bills and change

3/23 Time

Reading the time

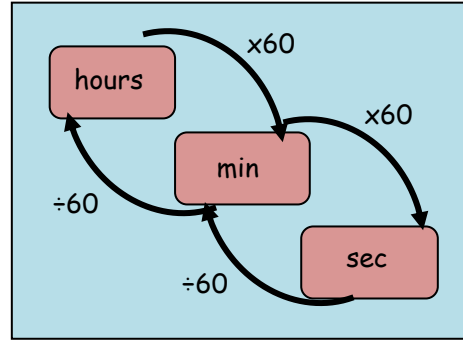


5 minutes between each number- so this time is 1:27 or we say 27 minutes

Times of the day in 12-hour clock

Morning	Afternoon
12.00 midnight	12.00 noon
1.00 am	1.00 pm
2.00 am	2.00 pm
3.00 am	3.00 pm
4.00 am	4.00 pm
5.00 am	5.00 pm
6.00 am	6.00 pm
7.00 am	7.00 pm
8.00 am	8.00 pm
9.00 am	9.00 pm
10.00 am	10.00 pm
11.00 am	11.00 pm
12.00 noon	12.00 midnight

3/24 Time - hours, minutes, seconds



Months of the year



- A rhyme to remember the days in each month

30 days has September,
April, June and November.
All the rest have 31
Except February alone,
Which has 28 days clear
And 29 in each leap year.

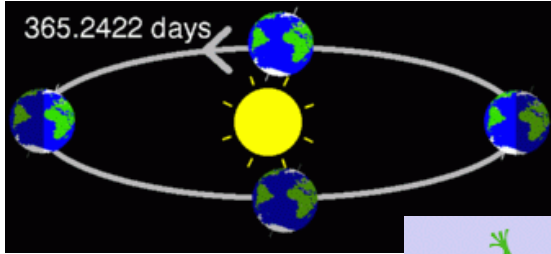
- the "knuckle method"



A knuckle is "31 days", and in between each knuckle it isn't. And where your hands meet, the two knuckles are "July, August", which both have 31 days.

February has 28 days & 29 days in a leap year (every 4 years)

Days in a year



366 days in a leap year

365 days in a year

3/25 - 2D Shapes

- With 3 sides (Triangles)



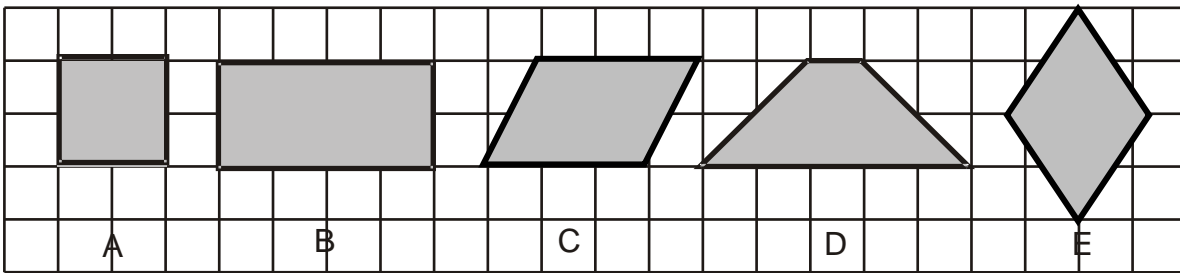
right-angled

isosceles

equilateral

scalene

- With 4 sides (Quadrilaterals)



square

rectangle

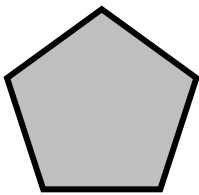
parallelogram

trapezium

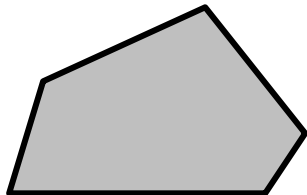
rhombus

- With 5 sides (Pentagons)

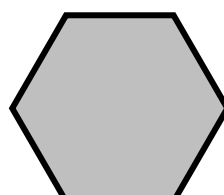
- With 6 sides (Hexagons)



regular



irregular

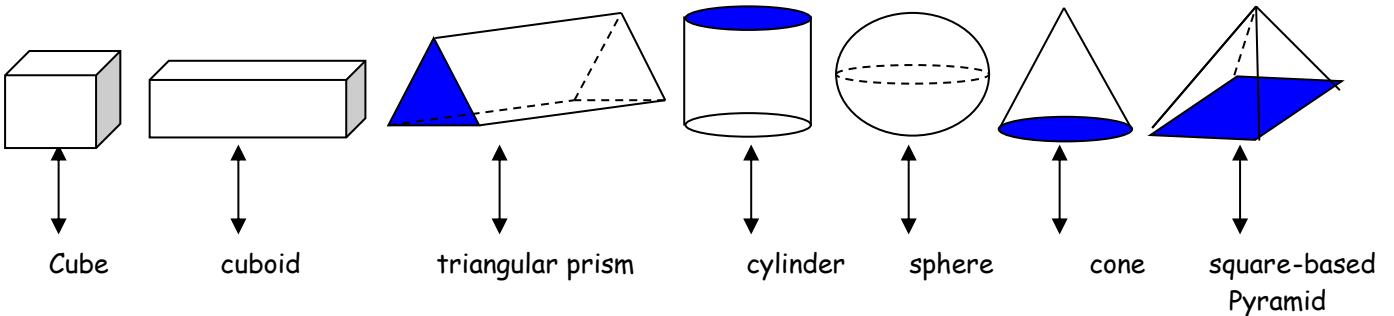


regular



irregular

3/25 - 3D Shapes



Cube

cuboid

triangular prism

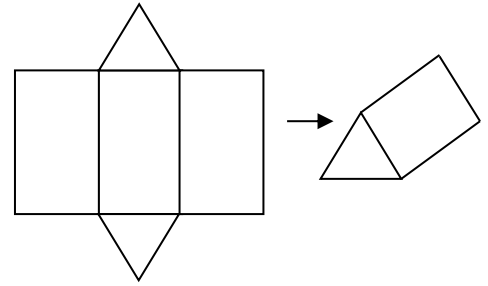
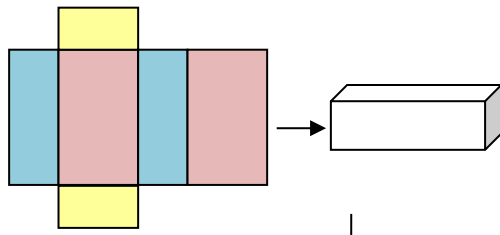
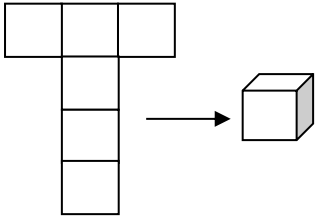
cylinder

sphere

cone

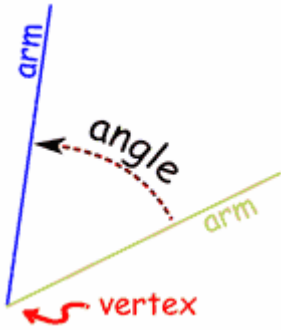
square-based
Pyramid

- Nets



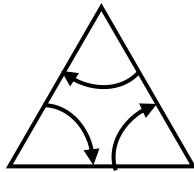
3/26 Angle

- An angle is an amount of turn

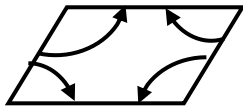


- Angles in shapes

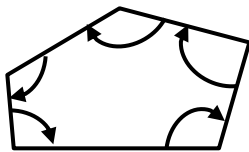
Triangle - 3 angles



Quadrilateral - 4 angles

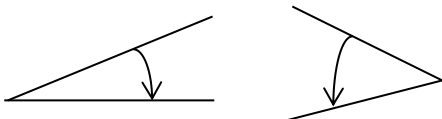


Pentagon - 5 angles

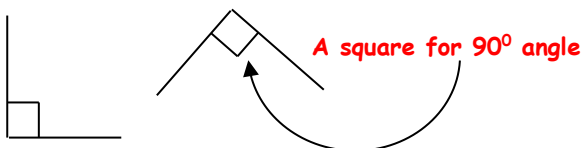


- Names of angles

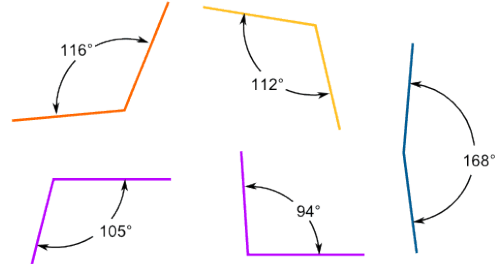
ACUTE angles are less than 90°



RIGHT angles are exactly 90°

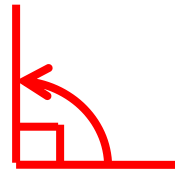


OBTUSE angles are bigger than 90°



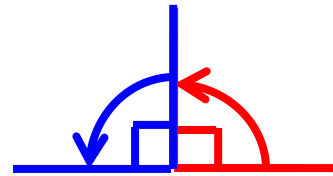
3/27 Right angles

ONE right angle measures exactly 90°



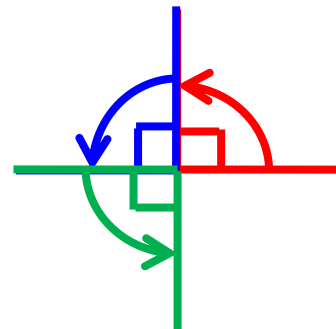
TWO right angles measure exactly 180°

This is called a half-turn



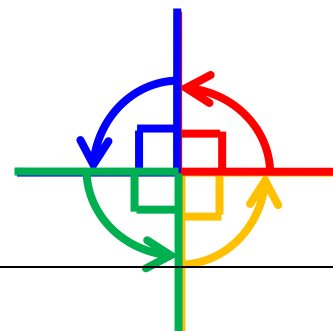
THREE right angles measure exactly 270°

This is called three quarters of a turn



FOUR right angles measure exactly 360°

This is called a full or complete turn



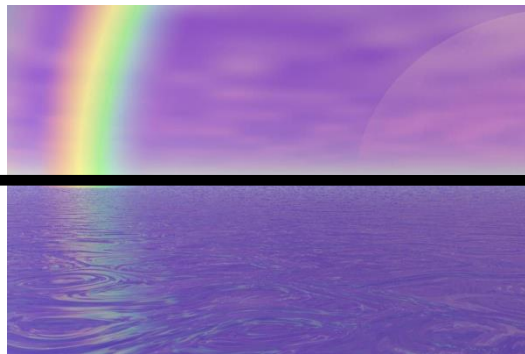
To check if an angle is bigger or smaller than a right angle, use a square corner



This angle is greater than a right angle

This angle is less than a right angle

3/28 Types of Lines



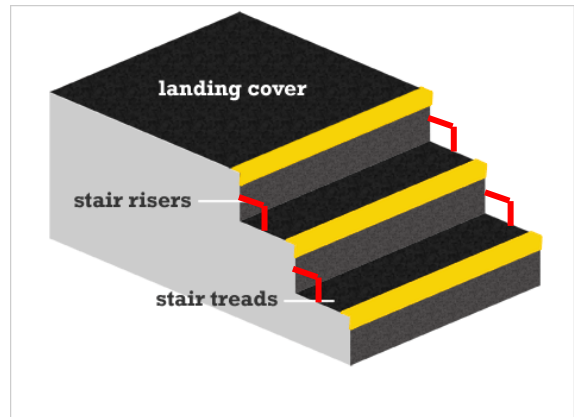
The Horizon is a horizontal line



This cliff face is a vertical line



The running track is parallel lines (never meet)



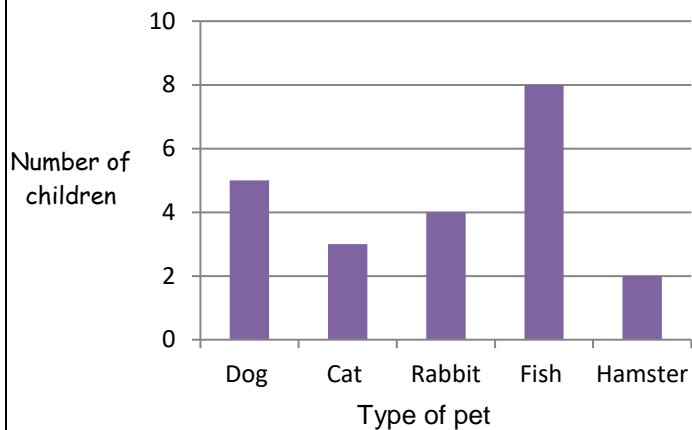
The rise & tread are perpendicular lines (meet at 90°)

3/29 Bar charts

Frequency table to show pets owned by Year 3

Type of pet	Tally	Number of pets
Dog		5
Cat		3
Rabbit		4
Fish		8
Hamster		2

A bar graph to show pets owned by Year 3



(iii) How many pets are owned **altogether** by the children Year 3?
 Answer: $5 + 3 + 4 + 8 + 2 = 22$

• **Pictogram in 3/29**

(i) How many **fewer** blue smarties are there than yellow ones?
 Answer: $11 - 5 = 6$

(ii) Work out the **total** number of smarties in the tube
 Answer: 55

Pictogram to show the colours in a tube of Smarties

Colour	Number of Smarties
Green	
Orange	
Blue	
Pink	
Yellow	
Red	
Purple	
Brown	
Key	= 2 smarties

3/30 Solve answers to questions

• **Bar chart in 3/29**

(i) How many **more** children own a rabbit than a hamster?
 Answer: $4 - 2 = 2$

(ii) What is the **difference** between the number of children who own a dog and the number of children who own a cat?
 Answer: $5 - 3 = 2$