Stewards Academy

Maths Summer 1

Year 8

Blended Learning Booklet

Name:

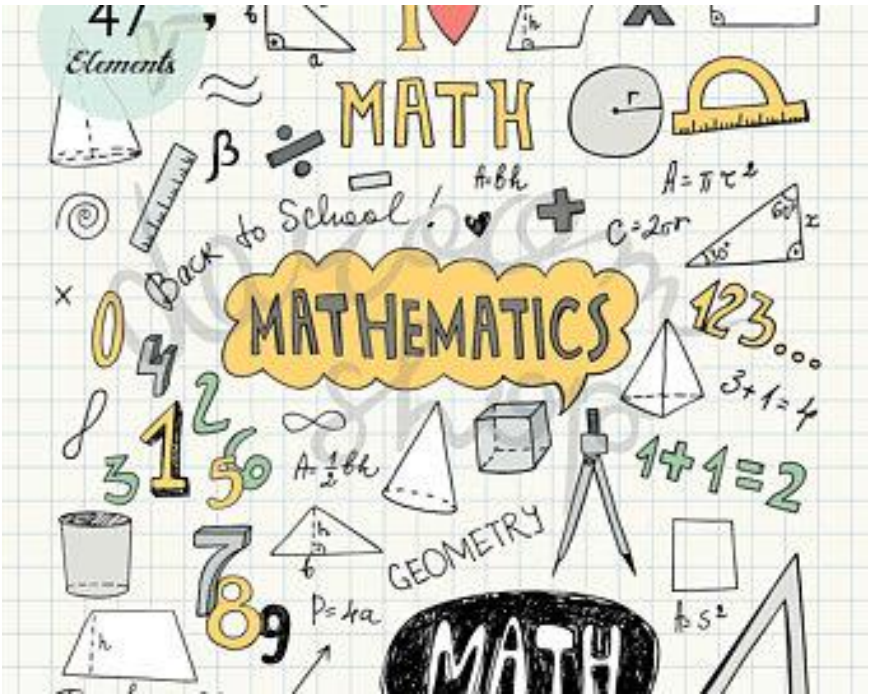
Form:

Each week covers topics you would complete in your 3 Maths lessons that week. Write out the title and LI and then complete the tasks.

All video links are online using the ClassCharts link.

The Knowledge Organiser on page 4 has further practice questions and page numbers linking to your pocket revision guides for all the key information and examples to help you with this unit.

Upload all work onto ClassCharts for feedback.



Contents

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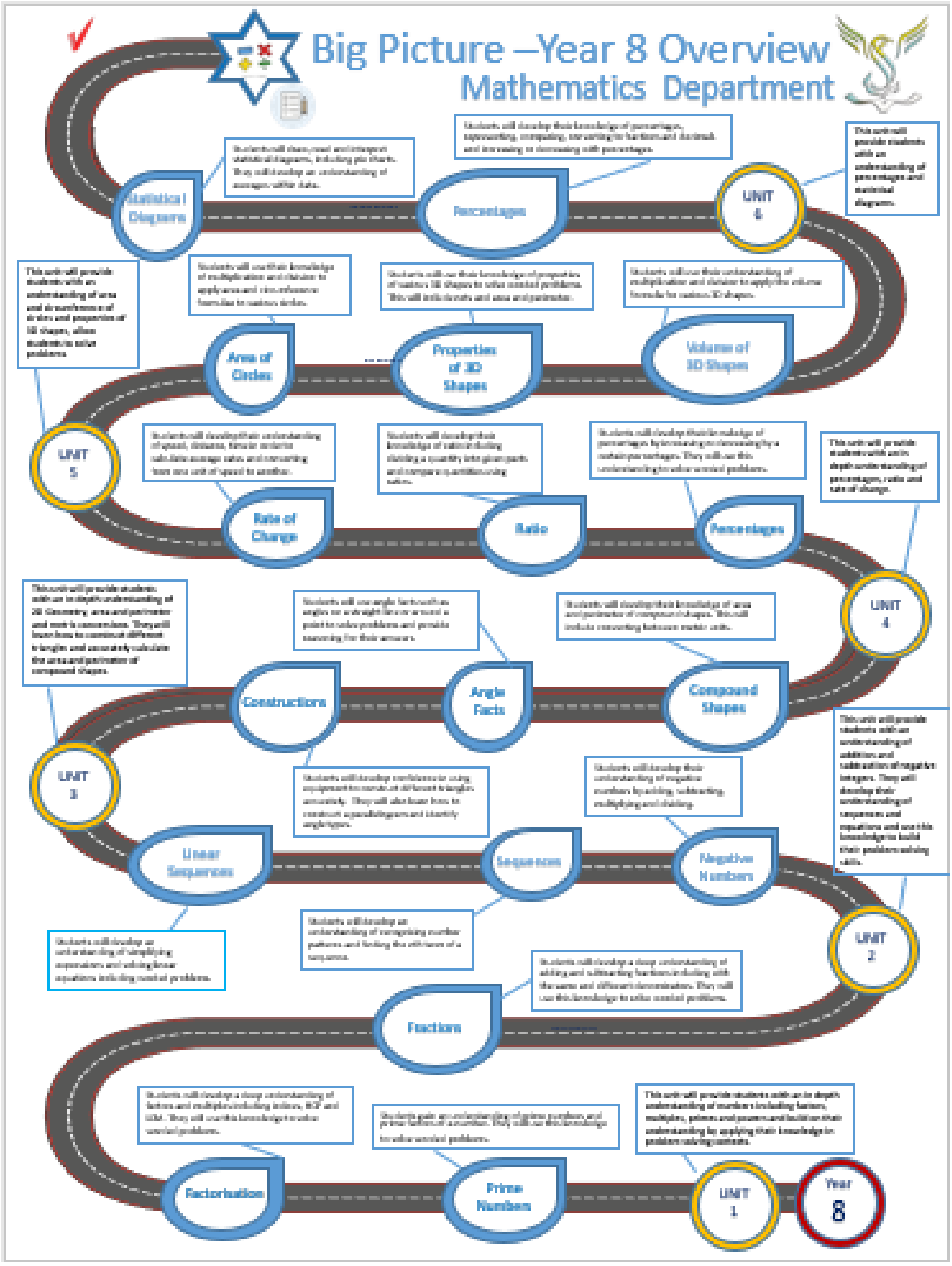

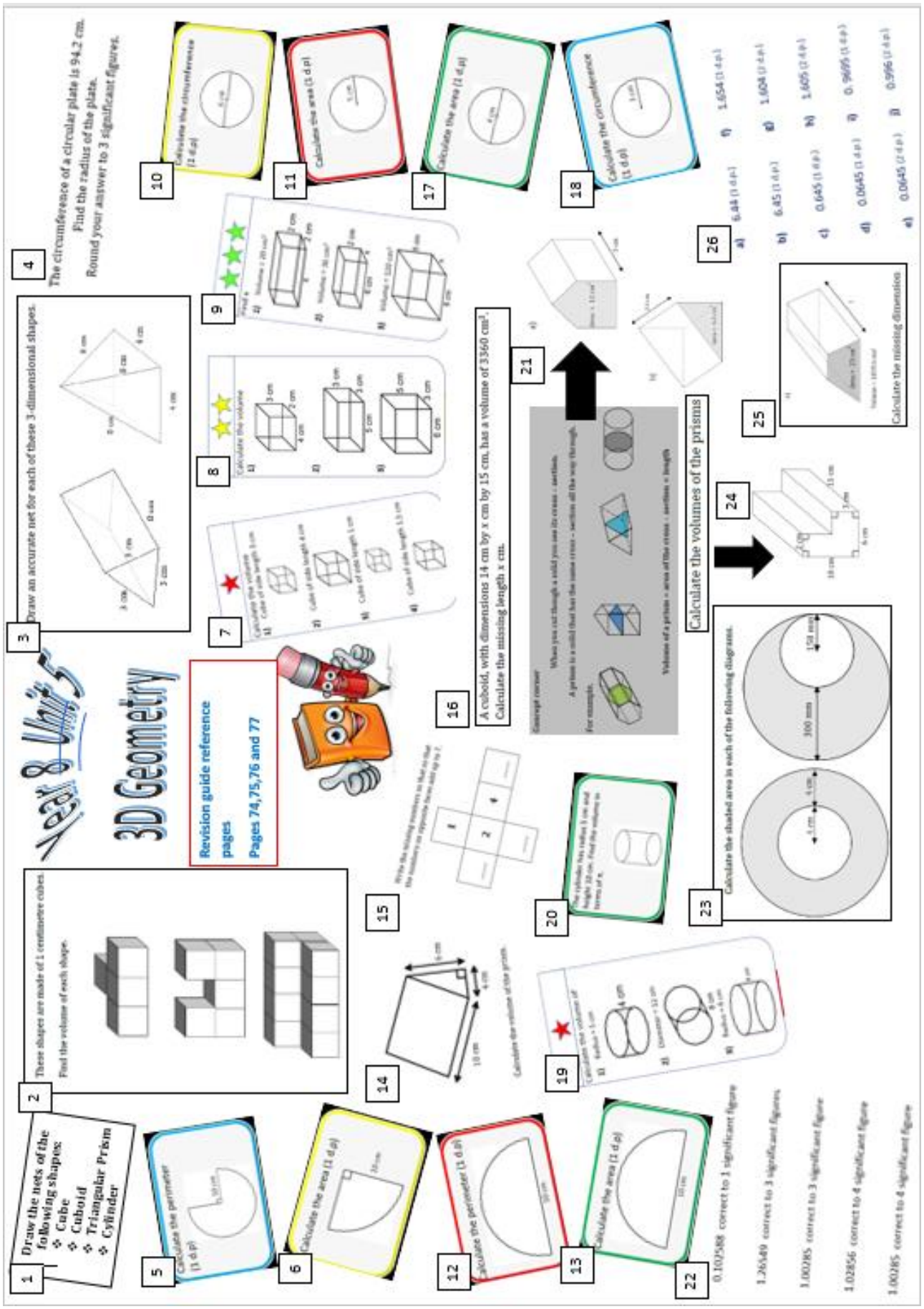
Year 8 Unit 5
3D Geometry
Revision guide reference pages
Pages 74,75,76 and 77
1 Draw the nets of the following shapes:
Cube
Cuboid
Triangular Prism
Cylinder
2 These shapes are made of 1 centimetre cubes.
Find the volume of each shape.
3 Draw an accurate net for each of these 3-dimensional shapes.
4 The circumference of a circular plate is 94.2 cm.
Find the radius of the plate.
Round your answer to 3 significant figures.
5 Calculate the perimeter (1 d.p)
6 Calculate the area (1 d.p)
7
8
9
10 Calculate the circumference (1 d.p)
11 Calculate the area (1 d.p)
12 Calculate the perimeter (1 d.p)
13 Calculate the area (1 d.p)
14
15
16 A cuboid, with dimensions 14 cm by x cm by 15 cm, has a volume of 3360 cm³.
Calculate the missing length x cm.
17 Calculate the area (1 d.p)
18 Calculate the circumference (1 d.p)
19
20
21
22 0.102588 correct to 1 significant figure
1.26589 correct to 3 significant figures
1.00285 correct to 3 significant figure
1.02856 correct to 4 significant figure
1.00285 correct to 4 significant figure
23 Calculate the shaded area in each of the following diagrams.
24
Calculate the volumes of the prisms
25 Calculate the missing dimension
26
a) 6.44 (1 d.p)
b) 6.45 (1 d.p)
c) 0.645 (1 d.p)
d) 0.0645 (1 d.p)
e) 0.0645 (2 d.p)
f) 1.654 (1 d.p)
g) 1.604 (1 d.p)
h) 1.605 (1 d.p)
i) 0. 9695 (1 d.p)
j) 0.996 (1 d.p)

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Week 1:

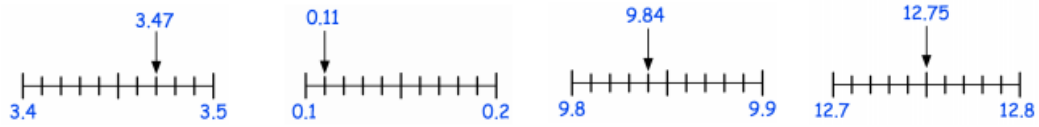
- **LI:** I can round a number to a required number of decimal places

Demonstration Videos: https://corbettmaths.com/2013/09/07/rounding-to-1-or-2-decimal-places/

Tasks:

Question 1: Round each of the numbers below to 1 decimal place.

(a) 3.47 (b) 0.11 (c) 9.84 (d) 12.75



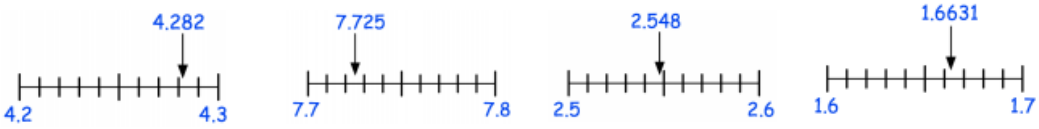
Question 2: Round each of the following numbers to 1 decimal place.

(a) 4.82 (b) 6.19 (c) 9.77 (d) 10.63 (e) 21.41 (f) 3.14 (g) 48.18

(h) 29.26 (i) 80.85 (j) 0.43 (k) 248.38 (l) 637.51 (k) 62.89 (l) 9.99

Question 3: Round each of the numbers below to one decimal place.

(a) 4.282 (b) 7.725 (c) 2.548 (d) 1.6631



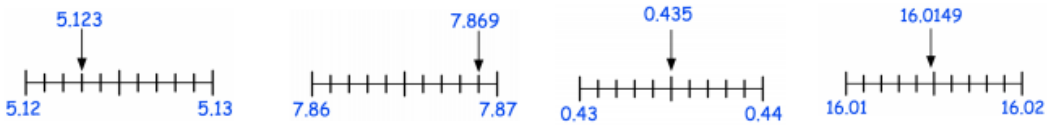
Question 4: Round each of the numbers below to the nearest tenth (1 decimal place)

(a) 5.191 (b) 8.246 (c) 10.087 (d) 39.555 (e) 0.831

(f) 93.2941 (g) 38.3152 (h) 7.26229 (i) 0.54868696

Question 5: Round each of the numbers below to 2 decimal places.

(a) 5.123 (b) 7.869 (c) 0.435 (d) 16.0149



	Round to the nearest whole number	Round to 1 decimal place	Round to 2 decimal places	Round to 3 decimal places
58.473178				
98.6577501				
348.9876				
2.7802				
0.499989				

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Name

Rounding to 1, 2 or 3 d.p.

12.43	0.2	2.1	12.426	12.367
7.06	0.3	7.156	12.37	7.152
12.338	7.1	7.15	12.34	0.35
7.057	8.25	7.16	8.09	8.3
12.4	8.1	8.2	0.15	8.246

7.0573 to 3 d.p.	7.1562 to 2 d.p.	7.1518 to 3 d.p.	12.3674 to 1 d.p.
7.0573 to 1 d.p.	12.3379 to 2 d.p.	12.3379 to 3 d.p.	12.3674 to 3 d.p.
8.0889 to 2 d.p.	8.2456 to 2 d.p.	12.4255 to 3 d.p.	7.0573 to 2 d.p.
7.1518 to 2 d.p.	8.2574 to 1 d.p.	7.1562 to 3 d.p.	8.2456 to 1 d.p.
12.4255 to 2 d.p.	12.3674 to 2 d.p.	8.2456 to 3 d.p.	8.0946 to 1 d.p.

TOTAL

Question 6: Round each of the numbers below to 2 decimal places

(a) 3.487 (b) 2.613 (c) 1.984 (d) 10.046 (e) 8.155

(f) 19.367 (g) 3.141 (h) 6.0698 (i) 4.26317 (j) 93.46197

Question 7: Round each of the numbers below to 3 decimal places

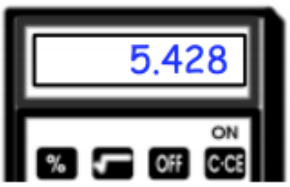
(a) 0.0346 (b) 6.7568 (c) 4.2251 (d) 1.7583

(e) 40.48546 (f) 128.01891 (g) 0.5059802 (h) 384.456094

Question 1: 51.26% of the people living in a town are female.
Round this figure to one decimal place.

Question 2: Walter has worked out a calculation on a calculator
Shown on the calculator is the answer.

(a) Round the answer to one decimal place
(b) Round the answer to two decimal places



Question 3: Daniel has been asked to round 1.725 to one decimal place.
His answer is 172.5
Explain Daniel's mistake.

Question 4: Nicole has rounded a number to one decimal place.
Her answer is 9.2
Write down 10 different possible numbers that she could have rounded.

Question 5: A chocolate bar contains 0.4715g of salt.
Round this to two decimal places.

Question 6: Dominic writes down two numbers, A and B.
A and B have 2 decimal places.
Dominic rounds A to 1 decimal place and calls his answer C.
He rounds B to 1 decimal place and calls his answer D.
Dominic says the difference between A and B cannot be the same as the difference between C and D.
Show he is incorrect

Week 1:

- **LI:** I can round a number to a required number of significant figures

Demonstration Videos: https://corbettmaths.com/2013/09/07/rounding-significant-figures/

Tasks:

Question 1: Round each of the following numbers to 1 significant figure

(a) 36 (b) 22 (c) 83 (d) 68 (e) 97 (f) 120 (g) 519

(h) 260 (i) 741 (j) 888 (k) 408 (l) 650 (m) 148 (n) 972

(o) 3900 (p) 5400 (q) 4125 (r) 2732 (s) 6349 (t) 8099 (u) 6499

Question 2: Round each of the following numbers to 1 significant figure

(a) 12000 (b) 46000 (c) 74500 (d) 83771 (e) 95120 (f) 330000

(g) 863000 (h) 248220 (i) 489331 (j) 13800000

Question 3: Round each of the following numbers to 1 significant figure

(a) 2.9 (b) 3.2 (c) 5.7 (d) 46.81 (e) 57.25 (f) 80.96 (g) 94.9

(h) 115.1 (i) 8.482 (j) 13.65 (k) 66.321 (l) 5501.4 (m) 48.02 (n) 99.99

Question 4: Round each of the following numbers to 1 significant figure

(a) 0.54 (b) 0.86 (c) 0.161 (d) 0.048 (e) 0.0943 (f) 0.0071 (g) 0.0038

(h) 0.06482 (i) 0.8835 (j) 0.00064 (k) 0.00098 (l) 0.00002789

Question 5: Round each of the following numbers to 2 significant figures

(a) 844 (b) 665 (c) 129 (d) 2840 (e) 9250 (f) 1359 (g) 298

(h) 504 (i) 999 (j) 3841 (k) 48500 (l) 13.7 (m) 58.3 (n) 49.6

(o) 1.41 (p) 42.64 (q) 0.3189 (r) 22490 (s) 186110 (t) 0.04912 (u) 4.98

(v) 997826 (w) 2.99517 (x) 0.06014

Question 6: Round each of the following numbers to 3 significant figures

(a) 9433 (b) 1891 (c) 2496 (d) 3.226 (e) 37756 (f) 57147 (g) 7.0078

(h) 51.564 (i) 0.90341 (j) 2.7892 (k) 0.08906 (l) 0.007812 (m) 9909.1 (n) 0.6006

3. Complete the table below. Some entries are done for you.

Number	Round to 3 significant figures	Round to 2 significant figures	Round to 1 significant figure
4213			
23.65		24	
0.04654	0.0465		
0.009231			
0.9649			
0.4054			
0.005007			0.005

Question 1: In an election 43.8% of people voted for a candidate.
Round this figure to one significant figure

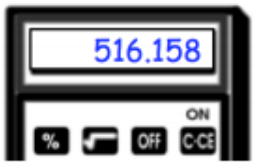
Question 2: 32641 people watch a rugby match between Italy and Argentina.
Round this number to 2 significant figures.

Question 3: Round the following numbers to 1 significant figure

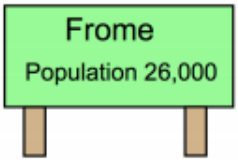
(a) eight million, six hundred thousand (b) the product of 19 and 351

Question 4: Tom has been asked to round the number on the calculator to 2 significant figures.
Tom says the answer is 516.16

Can you explain Tom's mistake?



Question 5: The population of Frome to 2 significant figures is 26,000.



(a) Write down the lowest number of people that could live in Frome?

(b) Write down the greatest number of people that could live in Frome?

Question 6: Round 7.494×10^7 to 2 significant figures.
Give your answer as an ordinary number.

Week 1:

- **LI:** I can estimate the answer to a given problem

Demonstration Videos: https://corbettmaths.com/2012/08/21/approximation-to-calculations/

Tasks:

Question 1: Work out an estimate to each of the following

(a) $906 + 397$ (b) $578 + 720$ (c) $912 - 114$ (d) $4998 - 592$

(e) $1965 - 370$ (f) $8.31 + 9.74$ (g) $50.6 - 5.25$ (h) $44.34 + 98.101$

Question 2: Estimate the answers to the following

(a) 2.1×6.8 (b) 5.7×7.2 (c) 38×22 (d) 41×79

(e) 56.2×11.52 (f) 5.84×32.02 (g) 27×304 (h) 195×92

(i) 3625×2.3 (j) 1.79×8311 (k) $48.55 \times 5.3 \times 7.6$

Question 3: Work out an estimate to each division

(a) $61.2 \div 10.13$ (b) $59.62 \div 3.93$ (c) $6.87 \div 9.79$ (d) $403.8 \div 21.51$

(e) $900.41 \div 59.75$ (f) $7018.3 \div 5.281$ (g) $\frac{703}{2.04}$ (h) $\frac{9850}{38.6}$ (i) $\frac{314}{2008}$

Question 4: Work out estimates to the following

(a) $\frac{291 + 602}{102}$ (b) $\frac{8019}{711 - 508}$ (c) $\frac{7.14 + 16.88}{10.96 - 4.85}$

(d) $\frac{132 + 291}{31 - 12}$ (e) $\frac{3890}{9.8 \times 51}$ (f) $\frac{42 \times 194}{10.3 \times 7.8}$

Question 6: Work out an estimate to each of the following

(a) 8.9^2 (b) 6.02^2 (c) 7.1^2 (d) 11.95^2 (e) 21^2 (f) 49^2

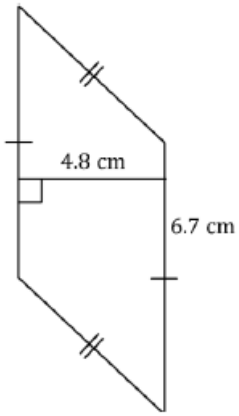
(g) 81.72^2 (h) 597^2 (i) 3.2^3 (j) 1.95^3 (k) 9.88^3 (l) 20.4^3

4.

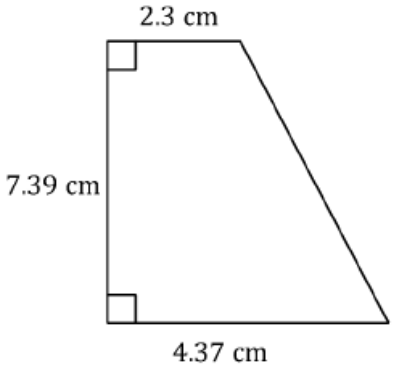
a) Estimate the area of each shape

.....

Shape A

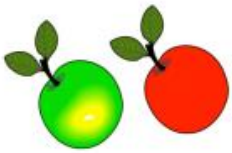


Shape B



b) Calculate the area of each shape and round to a sensible degree of accuracy.

Apply



Question 1: Suzie buys 53 apples at 38p each.
Estimate the total cost.

Question 2: A rectangular flowerbed has a length of 8.03 metres and a width of 2.93 metres.

(a) Work out an estimate of the area of the flower bed.
(b) Work out an estimate of the perimeter of the flower bed.

Question 3: A roll of wallpaper cost £7.85.
Richard buys 29 rolls of wallpaper.
Work out an estimate for the total cost.

Question 4: The scientist Robert Boyle was born in 1627.
Work out an estimate for how many years ago he was born.

Question 5: Estimate the total cost of 32 printers at £198 each and 58 ink cartridges at £31.15 each.

Question 6: In a cinema there are 28 rows and in each row there are 22 seats.
Each ticket costs £8.10

Work out an estimate for the total income from the ticket sales.

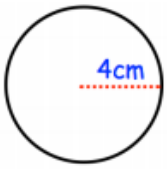
Week 2:

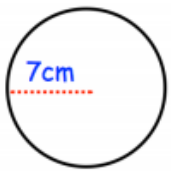
- **LI:** I can calculate the area of a circle

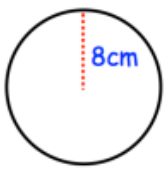
Demonstration Videos: https://corbettmaths.com/2013/12/22/area-of-a-circle-video-40-and-59/

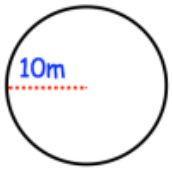
Tasks:

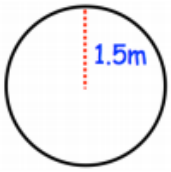
Question 1: Calculate the area of the following circles. Give your answers to 1 decimal place.

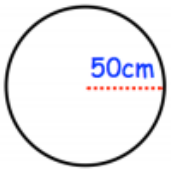
(a) 

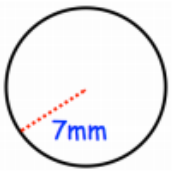
(b) 

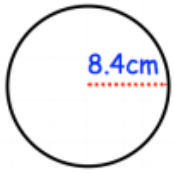
(c) 

(d) 

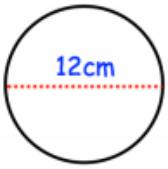
(e) 

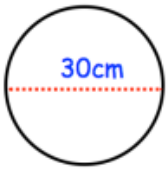
(f) 

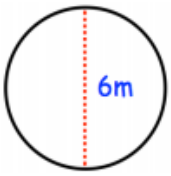
(g) 

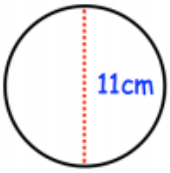
(h) 

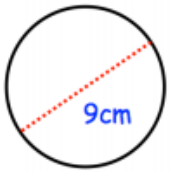
Question 2: Calculate the area of the following circles. Give your answers to 1 decimal place.

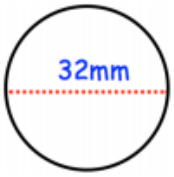
(a) 

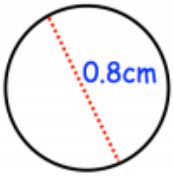
(b) 

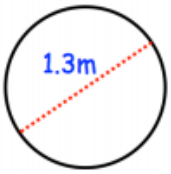
(c) 

(d) 

(e) 

(f) 

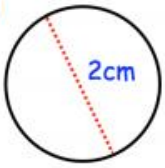
(g) 

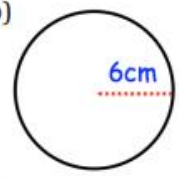
(h) 

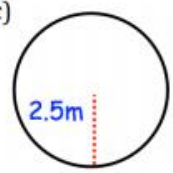
Question 3: Work out the area of the following circles. Give your answers to 1 decimal place.

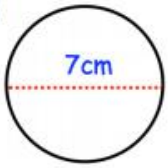
(a) A circle with radius 9cm
(b) A circle with radius 12m
(c) A circle with diameter 40cm
(d) A circle with diameter 1km
(e) A circle with diameter 5 yards
(f) A circle with radius 10.5m

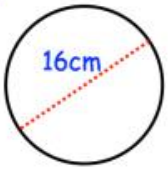
Question 4: Calculate the area of the following circles. Give your answers to 1 decimal place.

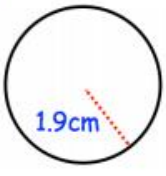
(a) 

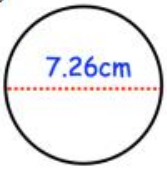
(b) 

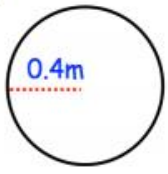
(c) 

(d) 

(e) 

(f) 

(g) 

(h) 

The lid on a tin of paint is a circle of radius 84 mm.
Calculate the area of the lid.

Give your answer correct to the nearest whole number.

The diameter of a dinner plate is 25 cm.
Calculate the area of the plate.

Give your answer correct to the nearest whole number.

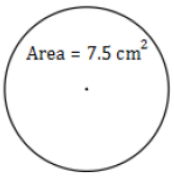
A circular tablecloth has an area of 84 cm^2.

Explain why the radius of the tablecloth must be more than 5 cm.

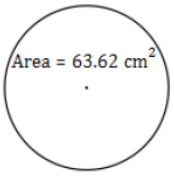
6. Calculate the radius and diameter of each of these circles.
Round your answers to a suitable degree of accuracy.

a)

Diagrams are not drawn to scale.



b)



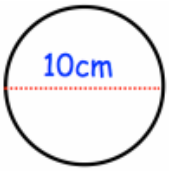
Week 2:

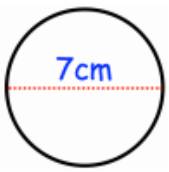
- **LI:** I can calculate the circumference of a circle

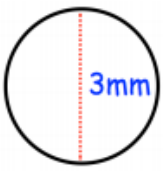
Demonstration Videos: https://corbettmaths.com/2013/12/21/circumference-video-60/

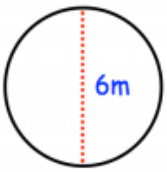
Tasks:

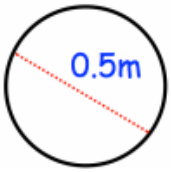
Question 1: Calculate the circumference of the following circles.
Give your answers to 1 decimal place.

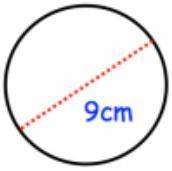
(a) 

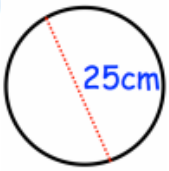
(b) 

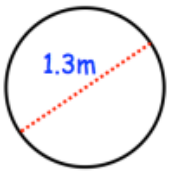
(c) 

(d) 

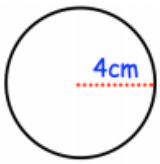
(e) 

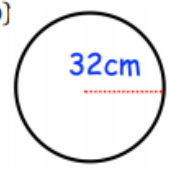
(f) 

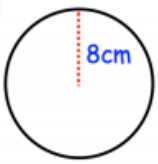
(g) 

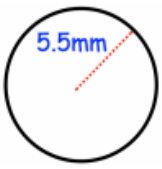
(h) 

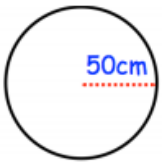
Question 2: Calculate the circumference of the following circles.
Give your answers to 1 decimal place.

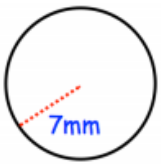
(a) 

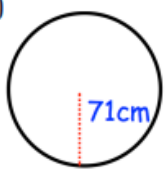
(b) 

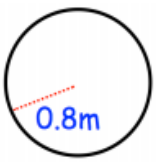
(c) 

(d) 

(e) 

(f) 

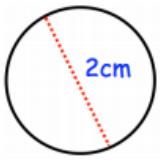
(g) 

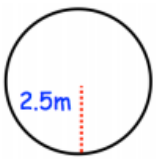
(h) 

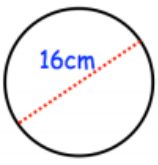
Question 3: Work out the circumference of the following circles.
Give your answers to 1 decimal place.

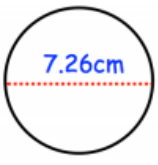
(a) A circle with diameter 2cm
(b) A circle with diameter 14m
(c) A circle with radius 3cm
(d) A circle with radius 0.15km
(e) A circle with diameter 90 inches
(f) A circle with radius 5.7 yards

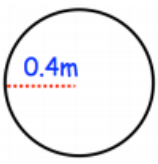
Question 4: Calculate the circumference of the following circles.
Give your answers to 1 decimal place.

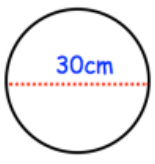
(a) 

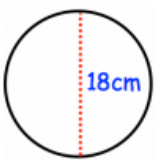
(b) 

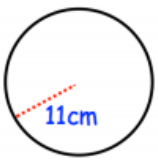
(c) 

(d) 

(e) 

(f) 

(g) 

(h) 

A circular biscuit tin has a diameter of 32 cm.
What is the circumference of the tin?
Give your answer correct to 3 significant figures.

The radius of a tractor wheel is 0.9 m.
Calculate the circumference of the wheel.
Give your answer correct to 1 decimal place.

Laura has a circular tablecloth that has a diameter of 1.2 m.

She wants to buy lace to sew to the edge of the cloth.

Using 3 as an approximate value for π she calculates that she needs 3 × 1.2 m = 3.6 m of lace.

Will this be enough? Give reasons for your answer.

A piece of wire 30 cm long is bent to form a circle.

What is the length of the diameter?

Round your answer to 1 decimal place.

Stewards Academy

Week 2:

- **LI:** I can find the area and circumference of circles

Demonstration Videos: https://corbettmaths.com/2013/12/21/circumference-video-60/

Tasks:

Name

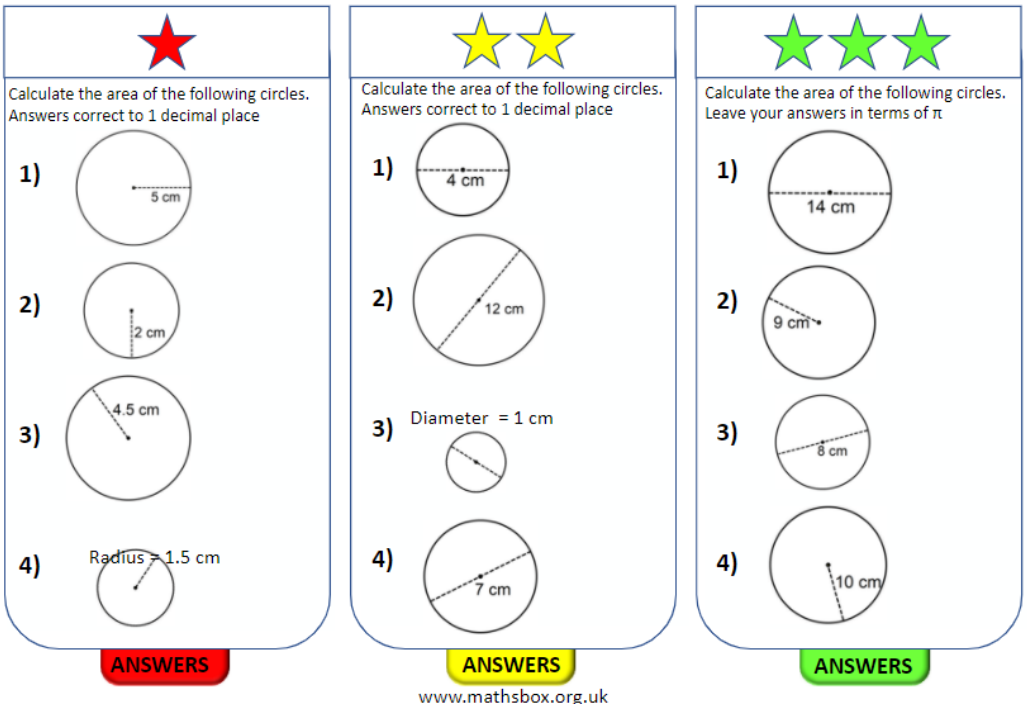
Calculate the area of the circles : Answers correct to 1 decimal place

78.5	63.6	380.1	28.3	50.3
132.7	122.4	153.9	452.4	3.1
113.1	615.8	30.5	15.8	95.0
94.0	530.9	254.5	19.6	37.3
201.1	706.9	314.2	12.6	28.3

diameter = 14 cm	diameter = 6 cm	diameter = 30 cm	radius = 5.5 cm
radius = 3 cm	diameter = 16 cm	radius = 4 cm	radius = 4.5 cm
diameter = 10 cm	diameter = 26 cm	radius = 9 cm	diameter = 2 cm
radius = 11 cm	radius = 2.5 cm	radius = 12 cm	diameter = 28 cm
radius = 6.5 cm	radius = 10 cm	radius = 2 cm	diameter = 12 cm

TOTAL

Area (3)



www.mathsbox.org.uk

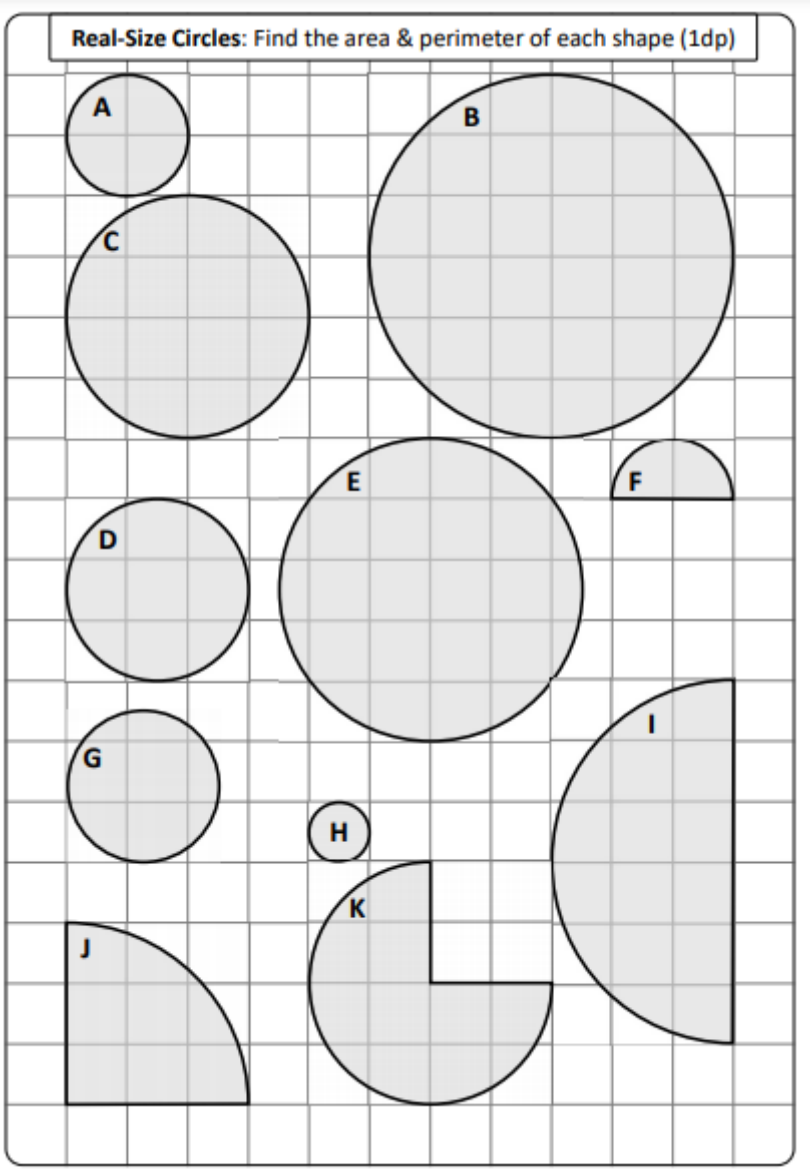
Name

Calculate the circumference of circles (Answers correct to 2 decimal places)

37.70	43.98	48.69	6.28	37.69
28.27	12.57	31.42	65.97	59.69
53.41	18.85	21.99	44.70	25.13
47.12	45.53	7.85	34.56	45.55
15.71	42.24	29.85	20.42	29.84

radius = 3 cm	diameter = 9.5 cm	diameter = 14 cm	radius = 9.5 cm
diameter = 15.5 cm	diameter = 4 cm	diameter = 14.5 cm	radius = 5 cm
diameter = 15 cm	radius = 10.5 cm	diameter = 2.5 cm	radius = 4 cm
radius = 4.5 cm	radius = 2.5 cm	radius = 3.5 cm	radius = 8.5 cm
diameter = 12 cm	radius = 5.5 cm	diameter = 6.5 cm	diameter = 2 cm

TOTAL



START! You can only pass through rooms where the calculation is correct.

4 cm = 50.2 cm²	2 cm = 12.5 cm	5 m = 78.4 m²	6 cm = 113.1 cm²	8 m = 50.2 m
6 cm = 18.8 cm	8 m = 50.3 m²	5 cm = 19.6 cm²	10 m = 31.4 m	3 cm = 7.0 cm²
7 cm = 44.0 cm	9 m = 254.4 m²	7 m = 21.9 m	10 cm = 314.1 cm²	12 cm = 75.3 cm
9 m = 63.6 m²	1 cm = 6.2 cm	11 m = 95.0 m²	1 m = 0.8 m²	6.5 m = 40.8 m
0.8 cm = 5.0 cm	6.8 m = 36.3 m²	3.5 cm = 22.0 cm	2.1 m = 13.1 m	8.2 m = 52.8 m²
1.4 m = 6.1 m²	7.2 cm = 40.6 cm²	9.5 m = 59.6 m	4.3 cm = 14.5 cm²	8.2 cm = 51.5 cm

FINISH!

Stewards Academy

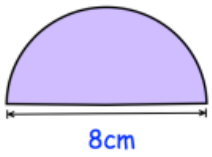
Week 3:

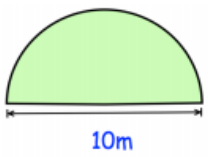
- **LI:** I can find the area and perimeter of semicircles and quarter circles

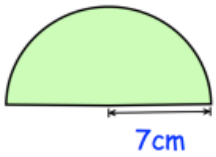
Demonstration Videos: https://corbettmaths.com/2012/08/02/perimeter-of-a-semi-circle/

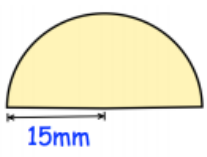
Tasks:

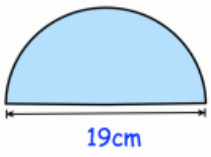
Question 1: Calculate the perimeter of each of these semi-circles.
Give your answers to 1 decimal place and include suitable units.

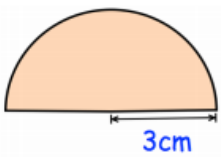
(a) 

(b) 

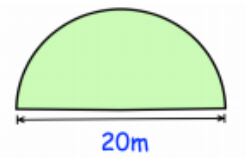
(c) 

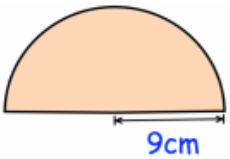
(d) 

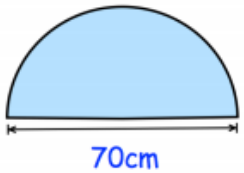
(e) 

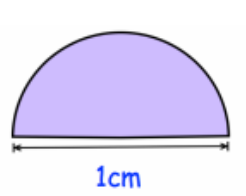
(f) 

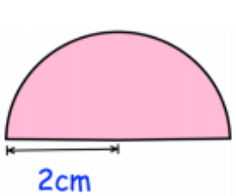
Question 2: Work out the perimeter of each of these semi-circles.
Give your answers in terms of π and include suitable units.

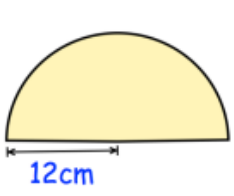
(a) 

(b) 

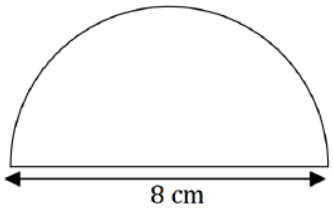
(c) 

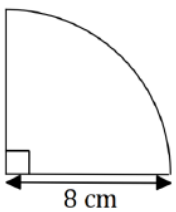
(d) 

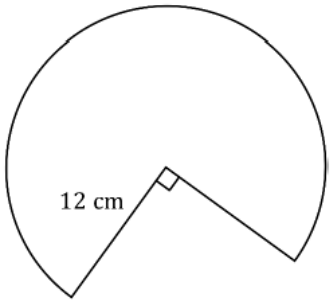
(e) 

(f) 

1. Calculate the perimeter of the shapes below.
Round your answers to a suitable degree of accuracy.

a) 

b) 

c) 

A square sheet of metal has sides of length 20 cm.

A quadrant (one quarter of a circle) of radius 10 cm is cut from each of the four corners.

Sketch the shape that is left and find its perimeter.
Round your answer to a suitable degree of accuracy.

The handle of a paint pot is half the circumference of the pot (a semi-circle).

If the handle is 28 cm long, what is the diameter of the pot?
Give your answer correct to 3 significant figures.

The widest part of a tea cup has a circumference of 24 cm.
What is the radius of the cup?
Round your answer to a suitable degree of accuracy.

Five of these cups are stored edge to edge in a straight line on a shelf.
What length of the shelf do they occupy?
Round your answer to a suitable degree of accuracy.

Stewards Academy

Week 3:

- **LI:** I can find the area and perimeter of semicircles and quarter circles

Demonstration Videos: https://corbettmaths.com/2012/08/02/perimeter-of-a-semi-circle/

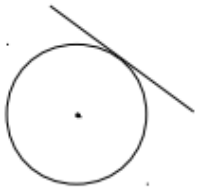
Tasks:

1 (a) On a circle, draw a radius of the circle.

(b) On a circle, draw a sector of the circle.
Shade the sector.

(Total for question 1 is 2 marks)

2 (a) Write down the mathematical name for the straight line touching the circle.



(b) Write down the mathematical name for the straight line shown in the diagram.

(Total for question 2 is 2 marks)

3 A circle has a radius of 6.5 cm.
Work out the circumference of the circle.
Give your answer correct to 2 decimal places.

(Total for question 3 is 3 marks)

5 A circle has a diameter of 12 mm.
Work out the circumference of the circle.
Give your answer in terms of π

(Total for question 5 is 3 marks)

6 A circle has a radius of 8 cm.
Work out the area of the circle.
Give your answer in terms of π

(Total for question 6 is 3 marks)

7 A semi-circle has an area of 50 m^2.

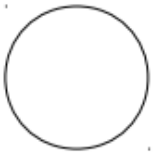
Find the perimeter of the semi-circle.
Give your answer correct to one decimal place.

(Total for question 7 is 3 marks)

8 A circular field has a diameter of 32 metres.
A farmer wants to build a fence around the edge of the field.

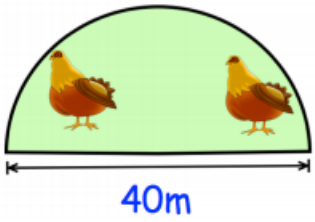
Each metre of fence will cost £15.95

Work out the total cost of the fence.

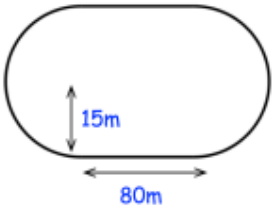


(Total for question 8 is 3 marks)

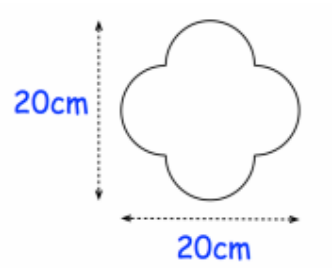
Question 1: Farmer Jones is building a pen for his chickens.
Each metre of fencing costs £3
Work out the total cost of building the pen.



Question 2: Newtown Primary School has a running track.
Calculate the distance around the running track.

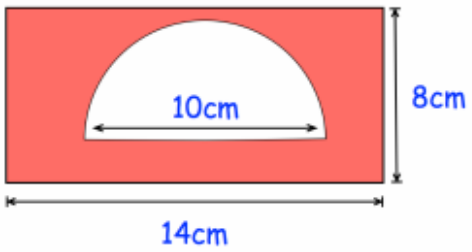


Question 3: Calculate the perimeter of this shape

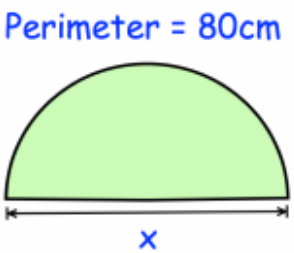


Question 4: Jamie makes a picture frame by cutting a semi-circle out of a rectangular piece of wood. The picture will be placed in the semi-circular region.

Jamie wants to put gold trim around entire picture frame and also around the picture. What length of gold trim does Jamie need?



Question 5: A semi-circle has a perimeter of 80cm.
Calculate x



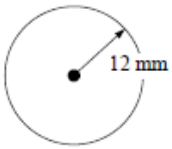
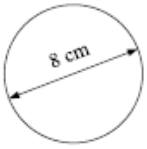
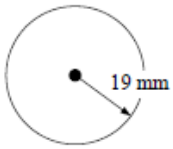
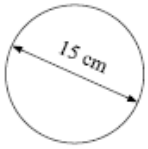
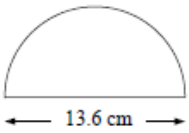
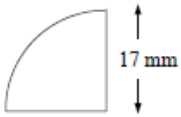
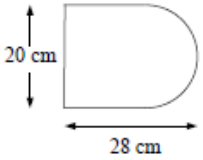
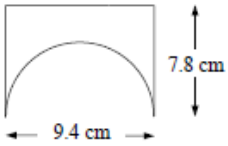
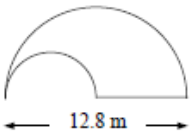
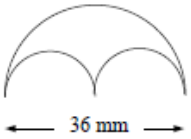
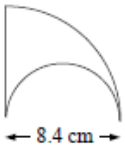
Stewards Academy

Week 3:

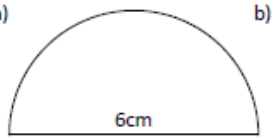
- **LI:** I can find the area and perimeter of semicircles and quarter circles

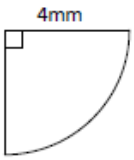
Demonstration Videos: https://corbettmaths.com/2013/12/23/area-of-a-semi-circle-video-47/

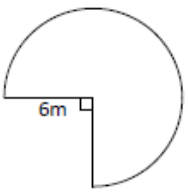
Tasks:

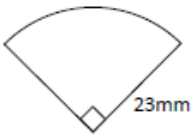
A1 Find the area of the circle 	**A2** Find the area of the circle 	**A3** Find the area of the circle 	**A4** Find the area of the circle 
B1 Find the area 	**B2** Find the area 	**B3** Find the area 	**B4** Find the area 
C1 Find the area 	**C2** Find the area 	**C3** Find the area 	**C4** Find the area 

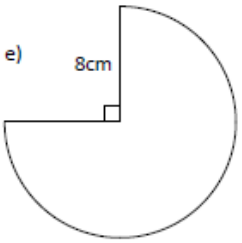
4. Find the areas of these shapes. Think carefully about whether the length you are given corresponds to a radius or a diameter. Give your answers to 1 decimal place.

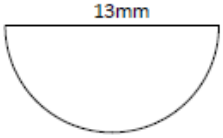
a) 

b) 

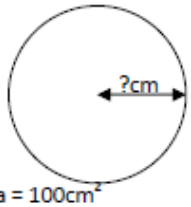
c) 

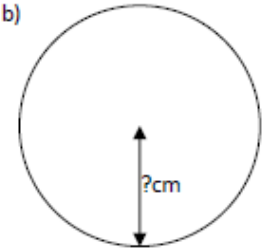
d) 

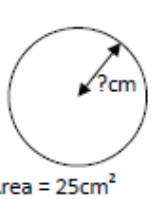
e) 

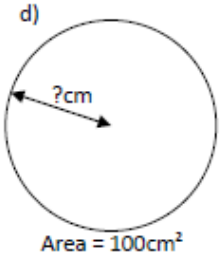
f) 

5. Find the radius in each of these circles. Give your answers to 1 decimal place.

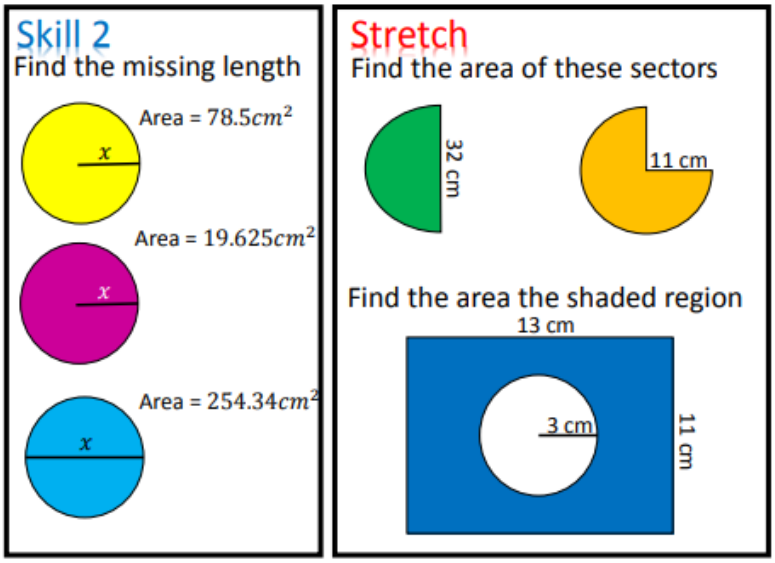
a) 
Area = 100cm²

b) 

c) 
Area = 25cm²

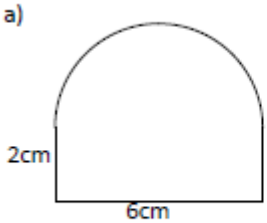
d) 
Area = 100cm²

A1 A circle has a radius of 23 mm. Calculate the area of the circle.	**A2** A circle has a diameter of 21 cm. Calculate the area of the circle.	**A3** A quadrant is cut from a circle of radius 14.5 cm. Calculate the area of the quadrant.	**A4** A circle of diameter 67 mm is cut in half. Calculate the area of each of the semi-circles.
B1 A ten pence coin has a diameter of 24.5 mm Work out the area of one face of the coin.	**B2** A regulation dart board has a diameter of 451 mm. Work out the area of the dart board. Give your answer in cm^2.	**B3** A circle has a circumference of 21 cm. Calculate the area of the circle.	**B4** A circle has an area of 32 cm^2. Work out the length of the radius of the circle.
C1 A round dinner table has an area of 2.84 m^2. Work out the length of the circumference of the dinner table.	**C2** A semi-circle has an area of 20 cm^2. Work out the perimeter of the semi-circle.	**C3** Nathan eats a whole 12 inch pizza. Joshua eats half of a 10 inch pizza and half of a 14 inch pizza. Who eats the most pizza? Show clear working out.	**C4** Penny is varnishing the floor of a circular room of diameter 5 metres. One tin of varnish will cover an area of 8 m^2. Work out the number of tins of varnish Penny needs to buy to varnish the whole floor of the room.

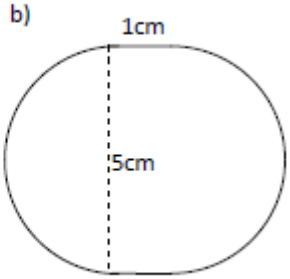


6. Find the area of these shapes. You will need to break each one into shapes you can work out the area of.

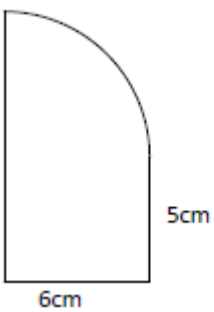
a)



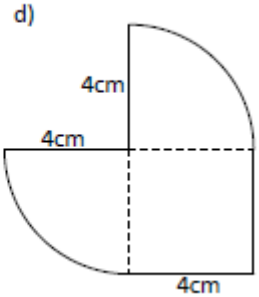
b)



c)



d)



Week 4:

- **LI:** I can solve word problems involving area and perimeter of a rectangle

Demonstration Videos: https://corbettmaths.com/2013/12/20/area-of-a-rectangle-video-45/

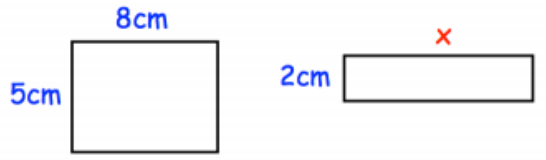
Tasks:

Question 1: A farmer has a field that is 300m long and 70m wide.
Calculate the area of the field.

Question 2: A piece of paper has a length of 18cm and a width of 6cm.
Find the area of paper.

Question 3: A rectangle has an area of $30cm^2$
Write down the length and width of **three** rectangles with an area of $30cm^2$

Question 4: These two rectangles have the same area.
Find the length of the second rectangle.



Question 5: A rectangle has an area of $80cm^2$ and a perimeter of 48cm.
Find the length and width of the rectangle.

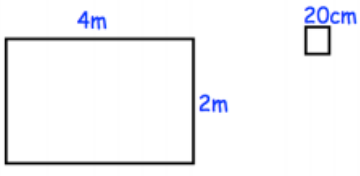
Question 6: A rectangle has an area of $100cm^2$ and a perimeter of 104cm.
Find the length and width of the rectangle.

Question 7: Mr Jenkins has a grass lawn that is 24m wide and 30m long.
Mr Jenkins cuts the grass at a rate of $9m^2$ per minute.
How long will it take Mr Jenkins to cut all the grass?

Question 8: A football pitch is 110m long and has a perimeter of 360m.
Find the area of the football pitch.

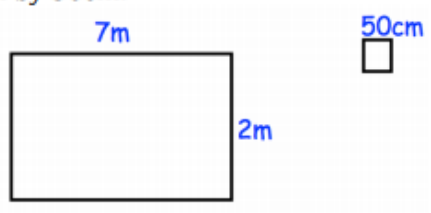
Question 9: A rectangular room is 14m long and 8m wide.
Jessica is going to carpet the room with carpet that costs £17.50 per square metre.
Work out the cost of carpeting the room.

Question 10: Mr Harris is tiling his bathroom floor.
The bathroom floor is a rectangle measuring 4m by 2m.
Each tile is 20cm by 20cm.



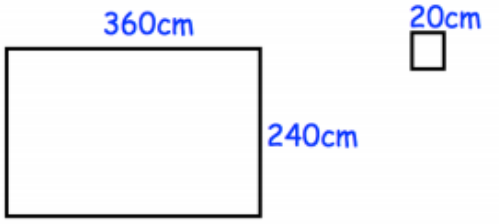
How many tiles does he need?

Question 11: Henry is tiling his kitchen wall.
The kitchen wall is a rectangle measuring 7m by 2m.
Each tile is 50cm by 50cm.



How many tiles does he need?

Question 12: Mrs Rodgers is tiling her bathroom wall.
The bathroom wall is 360cm long and 240cm high.
Each tile is 20cm by 20cm



The tiles are sold in boxes of 6.
Each box costs £8.
How much will it cost Mrs Rodgers to tile her bathroom wall?

Andi wants to grow potatoes, carrots cabbage, tomatoes & broccoli in their new allotment.
Can you help them plan?

Each type of vegetable needs its own **plot** of land.
The **table** shows the **area** of each plot for each vegetable.

Every plot needs **fencing** around the outside.

There must be at least a **1 m walkway** around each plot.

Andi also wants to build a **storage shed** with an area of 9 m^2.

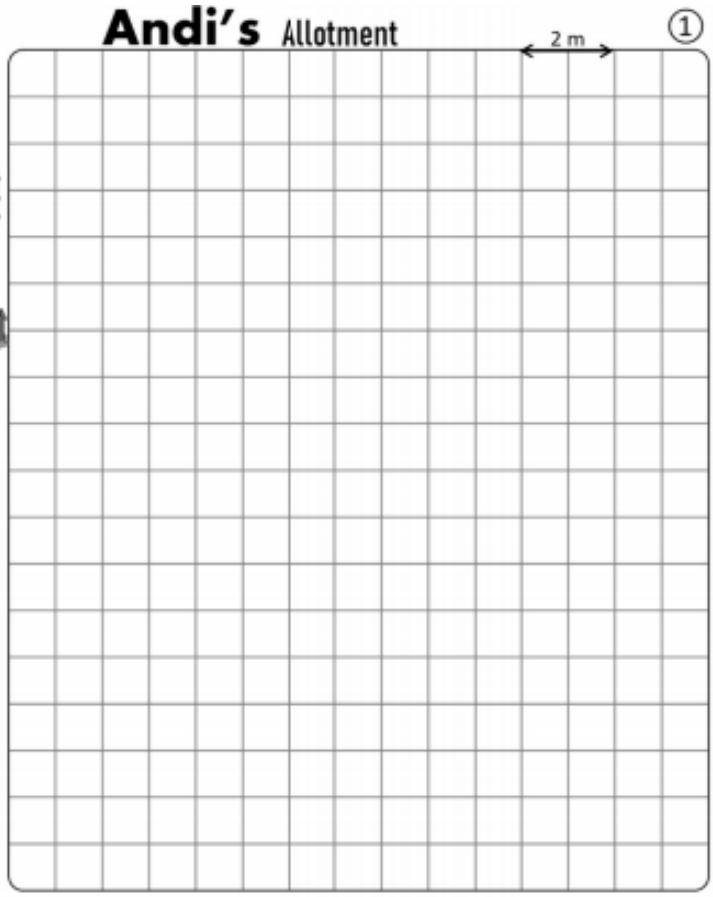
Use the grid to plan the allotment:
how long & wide will each vegetable plot be?

After drawing the vegetable plots,
calculate the **amount of fencing** needed for each plot.

Vegetable	Plot Area (m^2)	Plot Fencing (m)
Potatoes	8	
Carrots	12	
Cabbage	24	
Tomatoes	15	
Broccoli	16	
	Total Fencing =	

What other vegetables could Andi grow with the remaining area?
Draw 3 more plots & complete the table.

Andi's Allotment ①



Week 4:

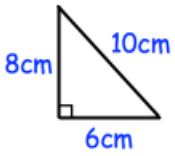
- **LI:** I can solve word problems involving area and perimeter of a triangle

Demonstration Videos: https://corbettmaths.com/2013/12/20/area-of-a-triangle-video-49/

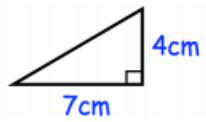
Tasks:

Question 1: Find the area of each triangle.

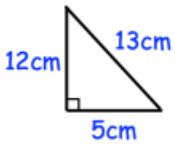
(a)



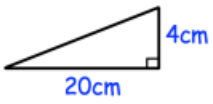
(b)



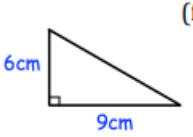
(c)



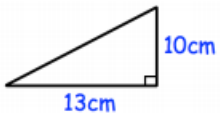
(d)



(e)



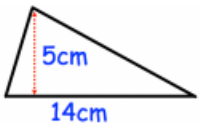
(f)



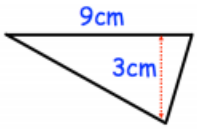
Question 2: Find the area of each triangle.

(a)

(b)

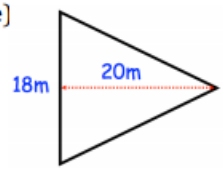


(c)



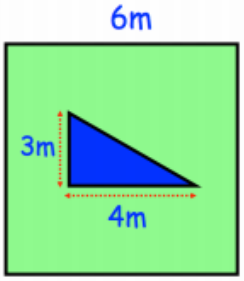
(d)

(e)

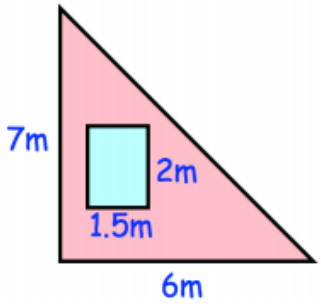


(f)

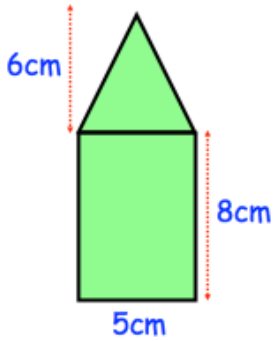
Question 1: Shown is a square garden with a triangular pond.
Find the area of the garden that is grass.



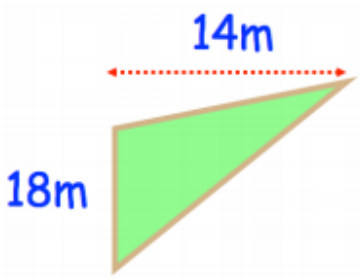
Question 2: Shown is a triangular brick wall with a rectangular window.
Find the area of the wall that is brick.



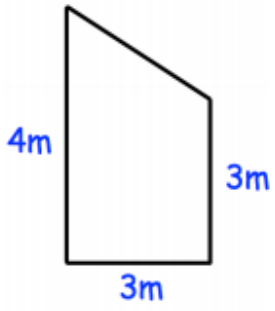
Question 3: Shown is a pattern that is made from a rectangle and a triangle.
Find the area of the pattern.



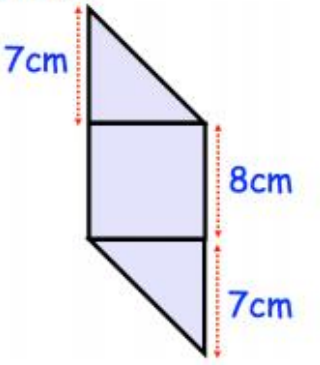
Question 4: Shown below is a triangular field.
Each chicken requires $3m^2$.
How many chickens can be kept in this field?



Question 5: Shown below is a wall.
Calculate the area of the wall.



Question 6: Shown below is a logo made from a square and two triangles.
Calculate the area of the logo.



Stewards Academy

Week 4:

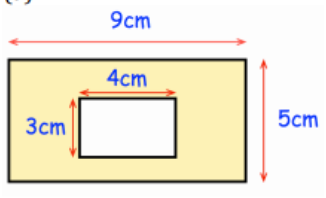
- **LI:** I can solve word problems involving area and perimeter of compound shapes

Demonstration Videos: https://corbettmaths.com/2012/08/02/area-of-compound-shapes/

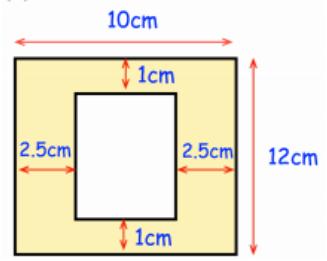
Tasks:

Question 2: Work out the shaded area.

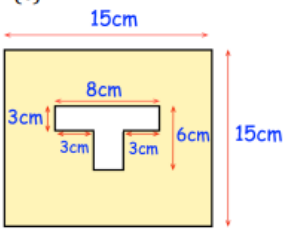
(a)



(b)

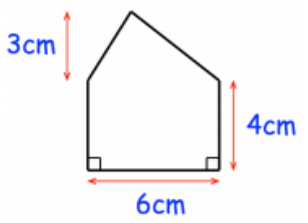


(c)

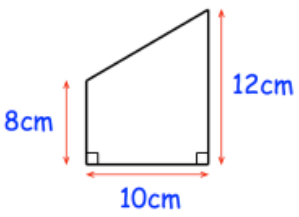


Question 3: Work out the area of each of these shapes.

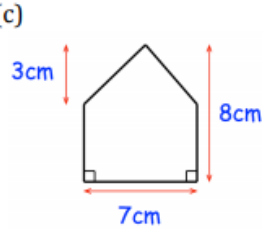
(a)



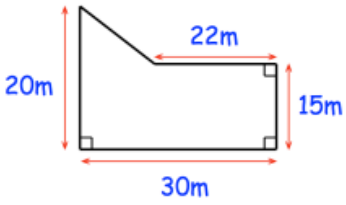
(b)



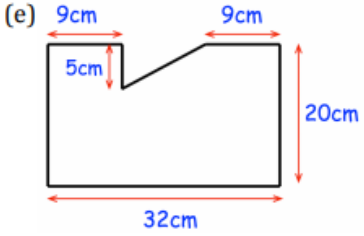
(c)



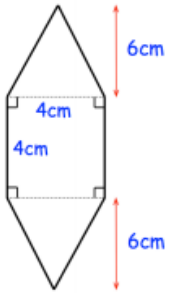
(d)



(e)



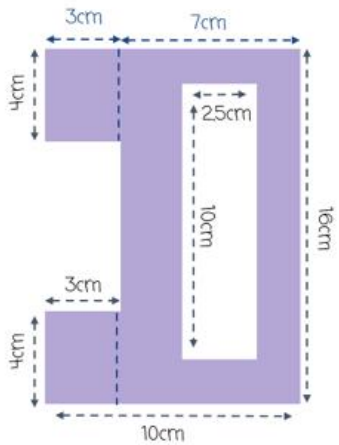
(f)



Spot the Errors - Can you use your skills of deduction to spot the errors in this solution?

Question

Calculate the area that is shaded purple.



Area of the big rectangle

$7 \times 16 = 112\ cm^2$

Area of the small rectangle

$3 \times 4 = 12\ cm^2$

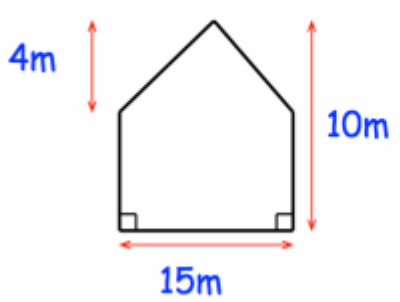
Area of the bit in the middle

$2.5 \times 10 = 25\ cm^2$

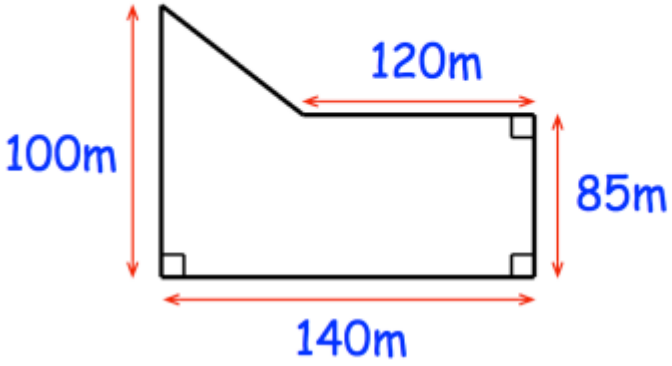
Total area

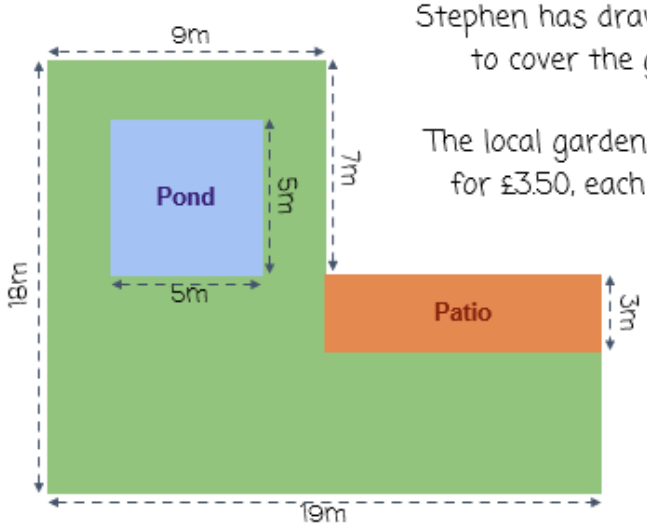
$112 + 12 + 25 = 149\ cm$

Question 1: William is painting the side of his house.
He has 8 litres of paint and each litre of paint covers $16m^2$
Does William have enough paint?



Question 2: Farmer Martin keeps chickens in the field below.
Each chicken needs $3m^2$.
What is the maximum number of chickens that he can keep?





Stephen has drawn a plan of a garden. He wants to cover the green area with grass seeds.

The local garden centre sells bags of grass seed for £3.50, each of these bags will cover $10m^2$.

How much will it cost Stephen to buy enough grass seeds?

Stewards Academy

Week 5:

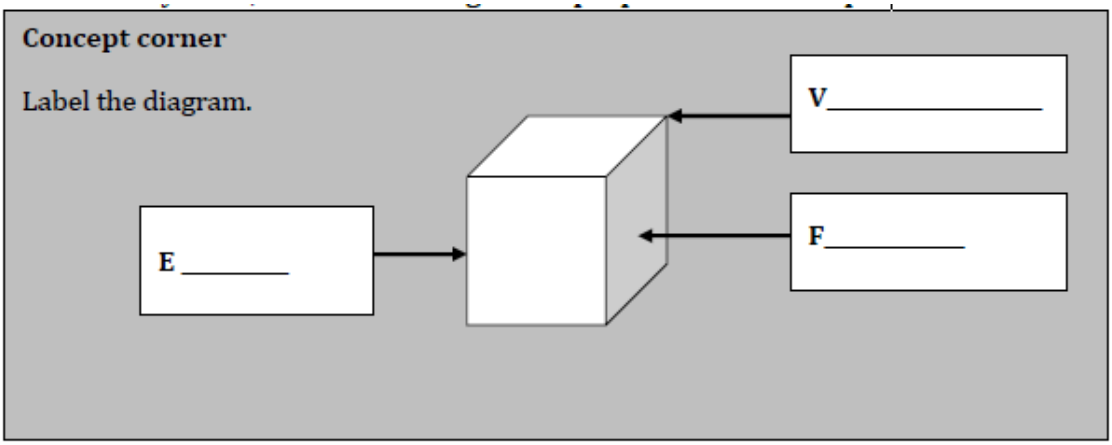
- **LI:** I can identify faces, vertices and edges and properties of 3D shapes

Demonstration Videos: https://corbettmaths.com/2013/12/23/names-of-3d-shapes-video-3/
https://corbettmaths.com/2013/12/27/edges-face-vertices-video-5/

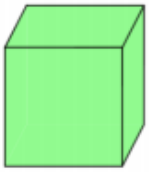
Tasks:

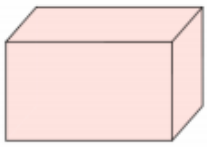
Concept corner

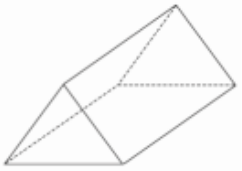
Label the diagram.

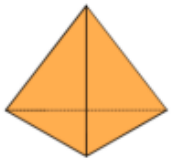


Question 1: For each 3D shape below, write down how many edges, faces and vertices it has.

(a) 

(b) 

(c) 

(d) 

(e) 

(f) 

(g) 

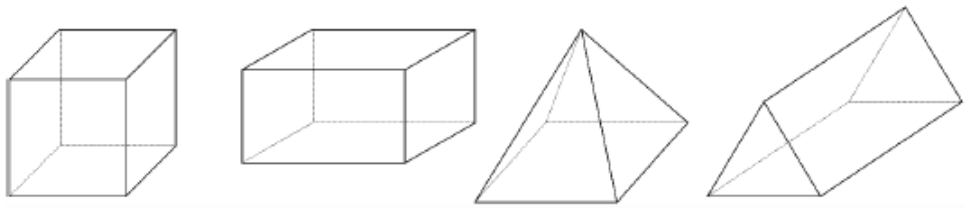
2. A solid shape has 7 faces and 10 vertices.
   a) How many edges will it have?

   b) What shape is it? Sketch it.

Question 1: Can you spot any mistakes in the question below?

	Faces	Edges	Vertices
Cube	12	6	8
Square-based Pyramid	5	5	5
Triangular Prism	9	9	6

1. The dotted lines are used to show the edges which cannot be seen when you look at the shape from one side.



Look at these diagrams to help you complete the table below.

Name of shape	Number of faces	Number of vertices	Number of edges

GCSE — AQA Foundation: November 2017 Paper 1, Q12

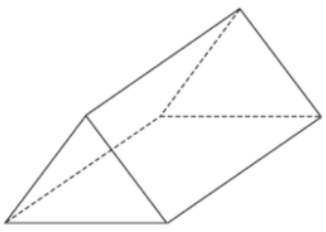
1 (a) How many edges are there on a square-based pyramid? Circle your answer. **[1 mark]**

4 5 8 12

1 (b) How many faces of a triangular prism are triangles? Circle your answer. **[1 mark]**

2 3 4 5

5. Below is a solid shape.



(a) What is the mathematical name for the shape?

..... **(1)**

(b) Write down the number of vertices

..... **(1)**

(c) Write down the number of faces

..... **(1)**

(d) Write down the number of edges

..... **(1)**

Stewards Academy

Week 5:

- **LI:** I can recognise nets of 3D shapes

Demonstration Videos: https://corbettmaths.com/2013/12/23/nets-2/

Tasks:

Concept corner

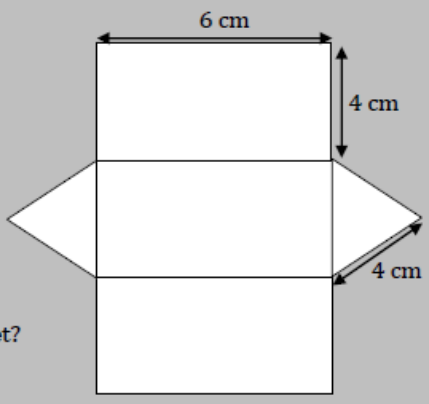
A net can be used to make a solid shape.

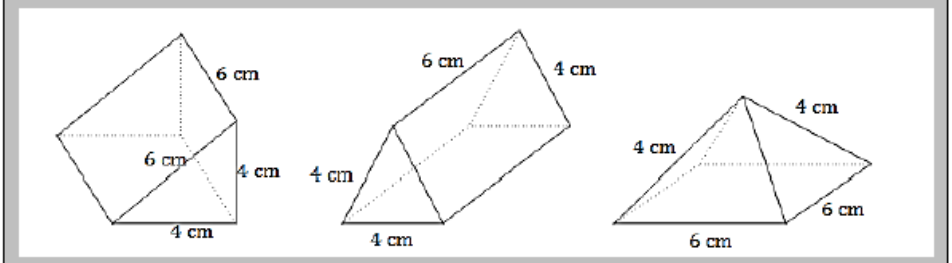
The prism is 6 cm long.

The ends are equilateral triangles

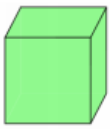
with sides 4 cm.

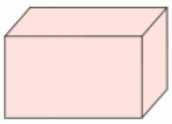
Which of the shapes below represent this net?

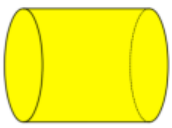




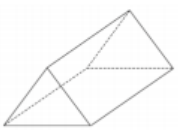
Question 1: Draw the nets for these 3D shapes

(a) 

(b) 

(c) 

(d) 

(e) 

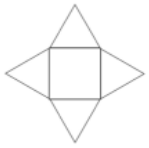
(f) 

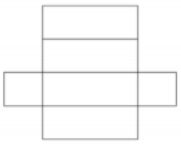
(h) 

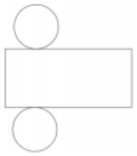
(i) 

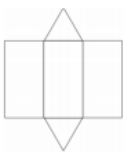
Question 2: Below are nets for various 3D shapes. Name the 3D shapes.

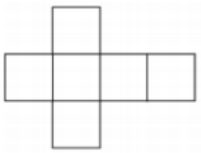
(a) 

(b) 

(c) 

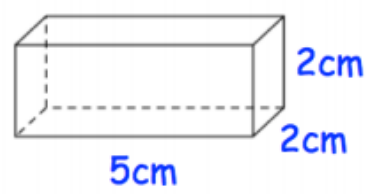
(d) 

(e) 

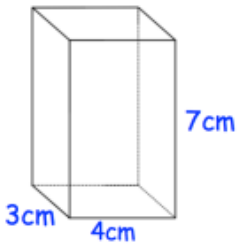
(f) 

Question 3: Draw accurate nets for these 3D shapes on squared paper.

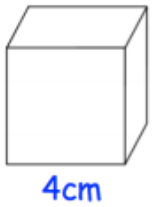
(a)



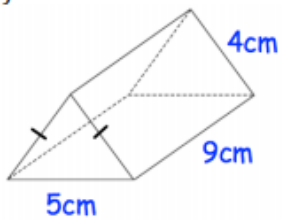
(b)



(c)



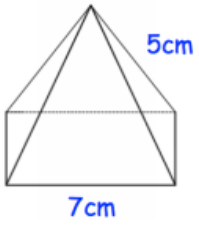
(d)



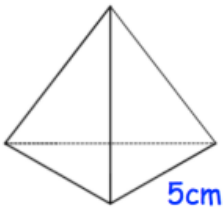
Question 4: Shown below is a square-based pyramid and a tetrahedron.
Draw accurate nets for these 3D shapes on squared paper.

Question 4: Shown below is a square-based pyramid and a tetrahedron.
Draw accurate nets for these 3D shapes on squared paper.

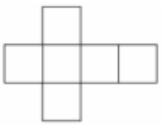
(a)



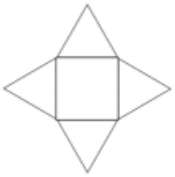
(b)



Question 1: Shown below is a net for a cube. Draw all the other possible nets for a cube.

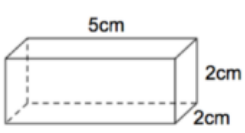


Question 2: Shown below is a net for a square-based pyramid. Draw all other possible nets for a square-based pyramid.



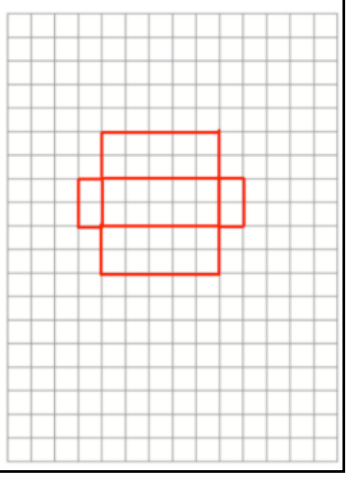
Question 3: Can you spot any mistakes below?

Shown below is a cuboid.



Draw a net for the cuboid.

Each square represents 1cm²



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Week 5:

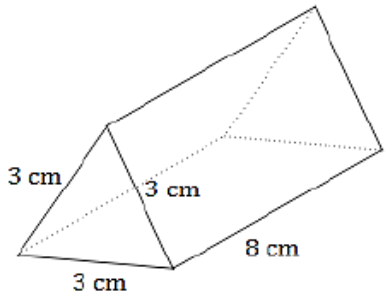
- **LI:** I can build and name 3D shapes

Demonstration Videos: https://corbettmaths.com/2013/12/23/names-of-3d-shapes-video-3/

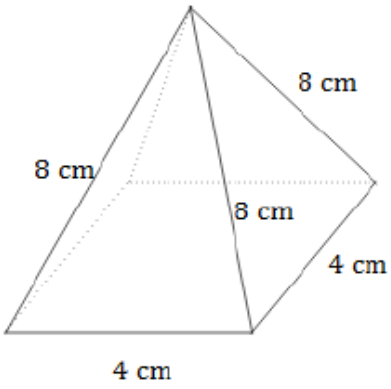
Tasks:

Draw an accurate net for each of these 3-dimensional shapes.

a)

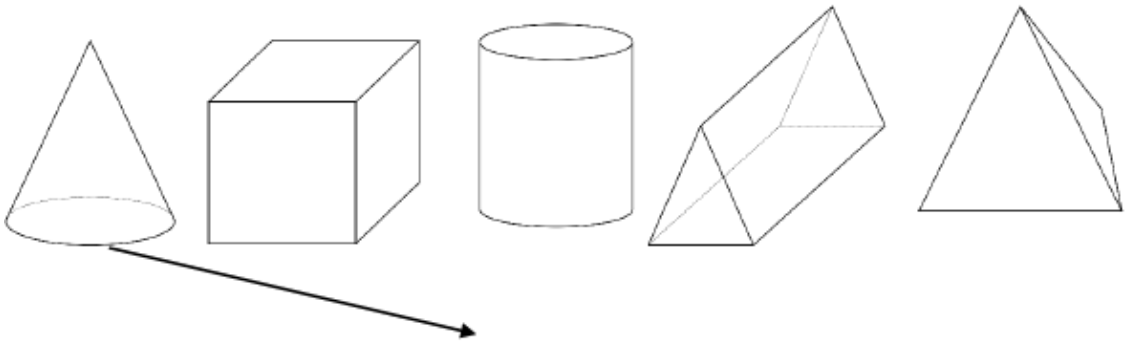


a) Draw an accurate net



1.

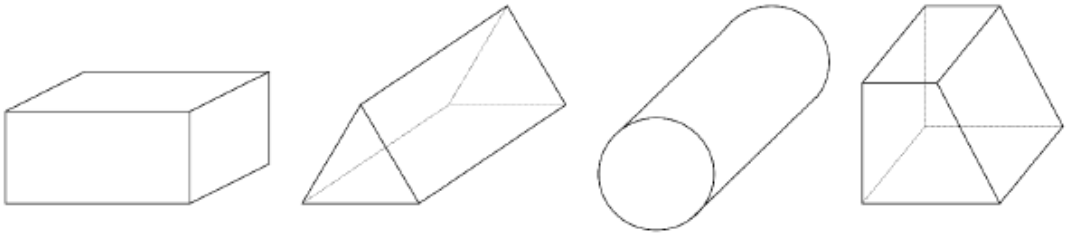
a) Match the 3-dimensional shapes their names.



Cube Pyramid Cone Cylinder Triangular prism

b) What other 3-dimensional shapes do you know? Sketch them.

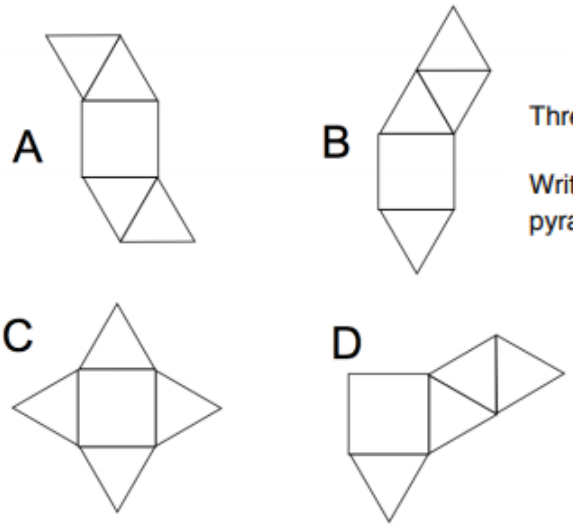
2. These 3-dimensional shapes are called prisms.



a) What do these prisms have in common?

b) Draw a different 3-dimensional shape which is also a prism.

Here are 4 diagrams.



Three of these diagrams show a net for a square-based pyramid.

Write down the letter of the diagram which is **not** a net for a square-based pyramid.

Week 6:

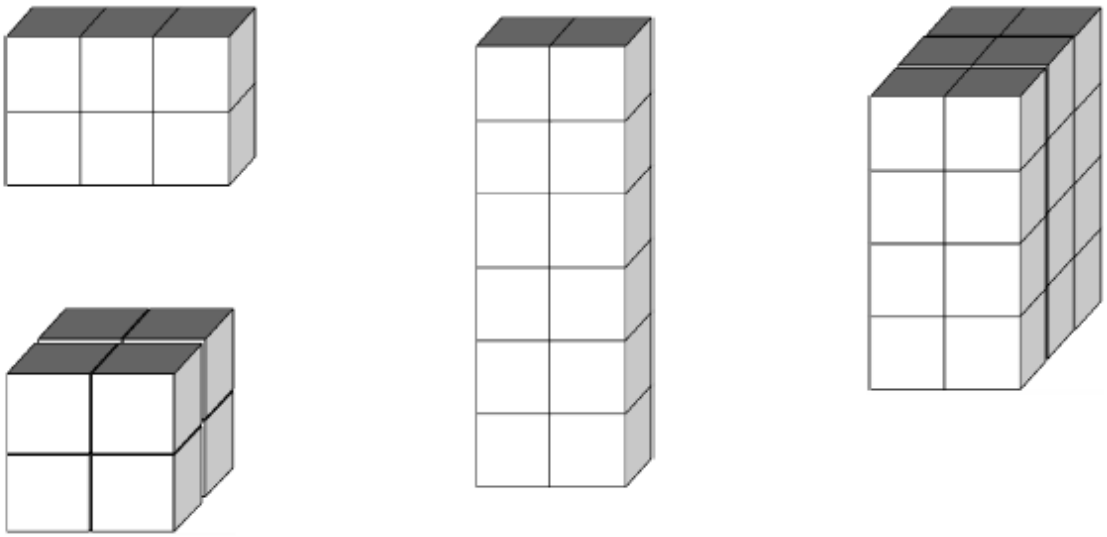
- **LI:** I can find the volume of cubes and cuboids

Demonstration Videos: https://corbettmaths.com/2012/08/09/volume-of-cuboids-and-cubes/

Tasks:

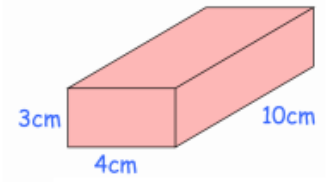
1. These cuboids are made of using one-centimetre cubes.

   What is the volume of each cuboid?

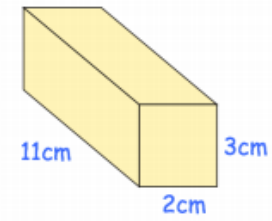


Question 1: Work out the volume of each cuboid.
Include suitable units.

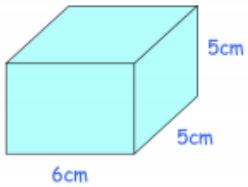
(a)



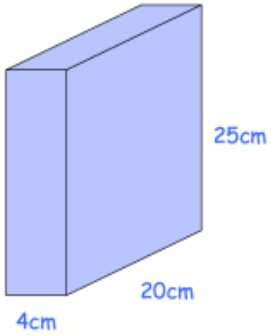
(b)



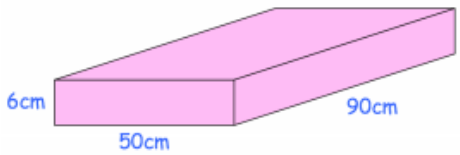
(c)



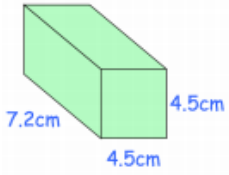
(d)



(e)

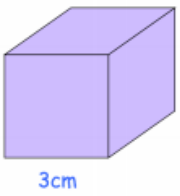


(f)

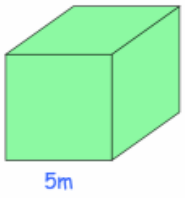


Question 2: Work out the volume of each cube.
Include suitable units.

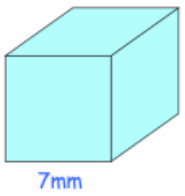
(a)



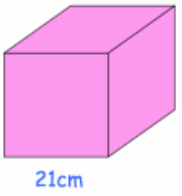
(b)



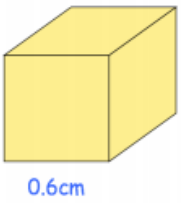
(c)



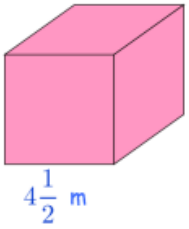
(d)



(e)

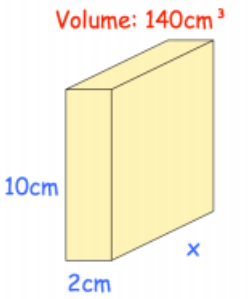


(f)

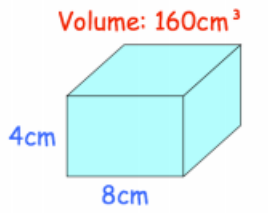


Question 3: Find the length of each cuboid.

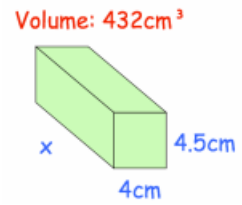
(a)



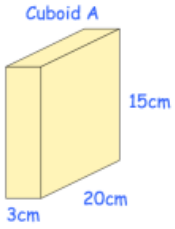
(b)

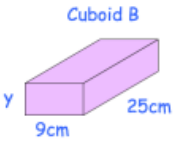


(c)

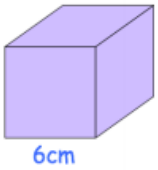


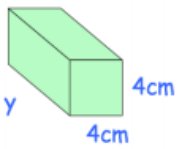
Question 4: Both cuboids below have the same volume.
Find the height of cuboid B.





Question 5: The volume of the cube is twice the volume of the cuboid.
Find the length of the cuboid.





Question 6: The cuboid container below is used to store boxes.
Each box is a cube with side length 1m.
How many boxes can be stored in the container?

Question 1: Find the volume of a water tank that is 80cm long, 40cm wide and 20cm high.

Question 2: A wooden beam measures 4 inches wide by 4 inches high by 60 inches long.
Work out the volume of the wooden beam.

Question 3: The cube on the TV show "The Cube" is a cube with each side measuring 4m.
Work out the volume of the cube.

Stewards Academy

Week 6:

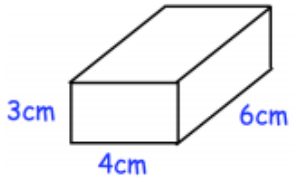
- **LI:** I can find the volume of a prism

Demonstration Videos: https://corbettmaths.com/2013/04/20/volume-of-a-prism/

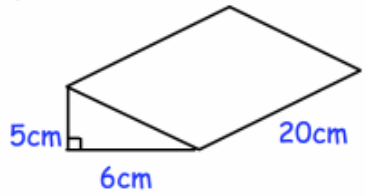
Tasks:

Question 1: Calculate the volume of each prism below

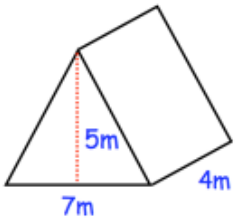
(a)



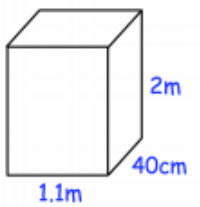
(b)



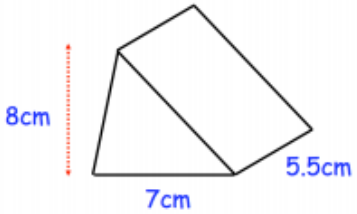
(c)



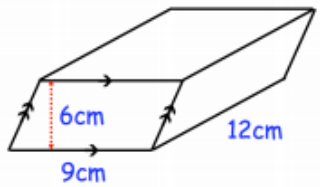
(d)



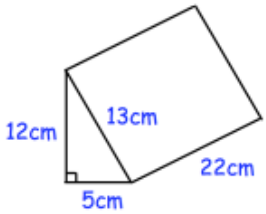
(e)



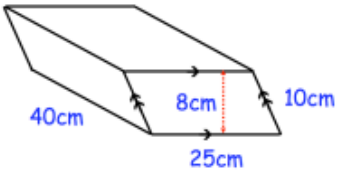
(f)



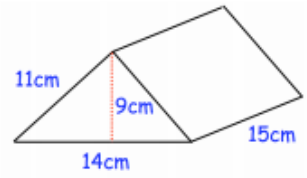
(g)

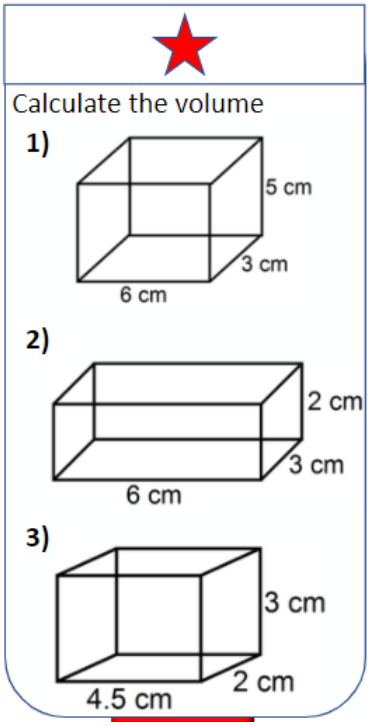


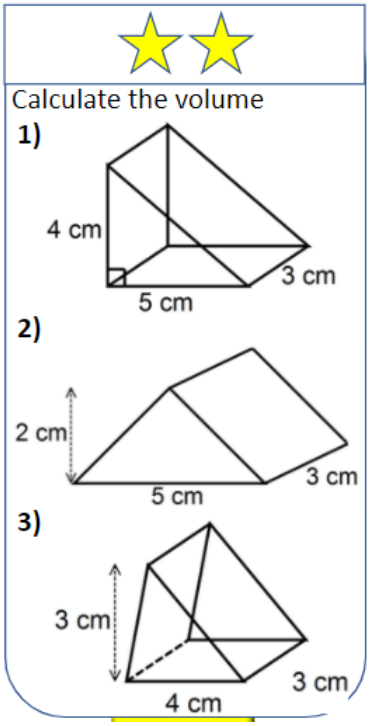
(h)

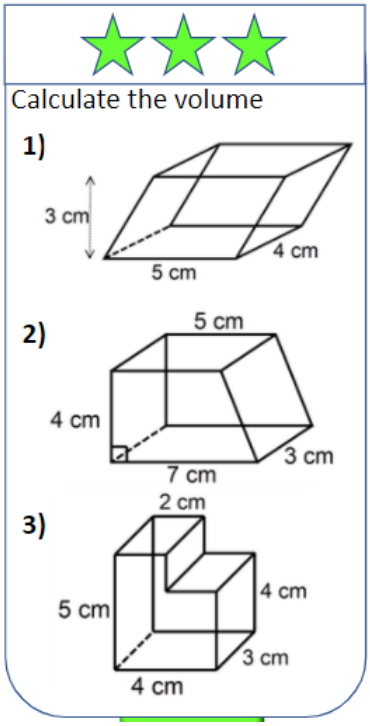


(i)

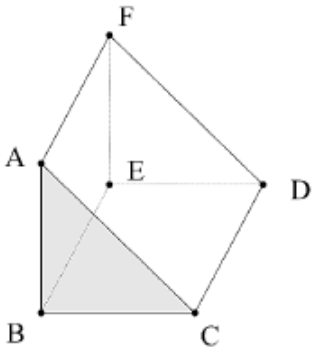








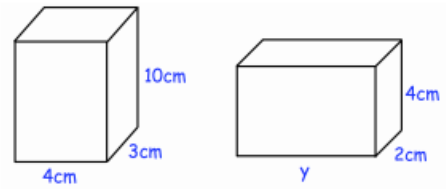
3. Use the triangular prism below to complete the table.



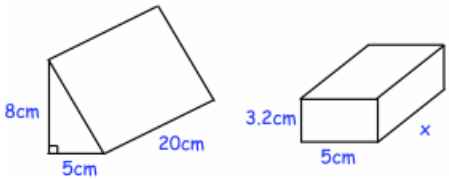
AB	BC	CD	Area of triangle ABC	Volume of prism
5 cm	5 cm	8 cm		
6 cm		12 cm	24 cm^2	
	15 cm	2 m		9000 cm^3
0.4 m	2.46 cm			38 376 mm^3

Apply

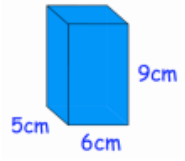
Question 1: Cillian makes two cuboids out of clay.
Both cuboids have the same volume.
Find y

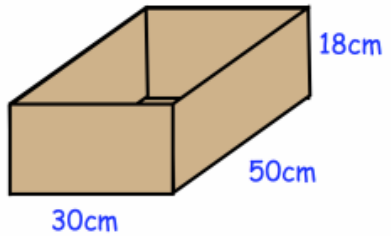


Question 2: The cuboid and the triangular prism have the same volume.
Find x.



Question 3: Boxes of coffee are placed into a crate.
Each box of coffee is a cuboid and the crate is also a cuboid.
How many boxes of coffee fit into the crate?





Stewards Academy

Week 6:

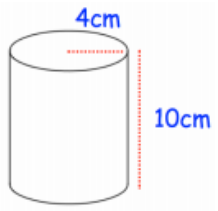
- **LI:** I can find the volume of a cylinder

Demonstration Videos: https://corbettmaths.com/2013/02/15/volume-of-a-cylinder/

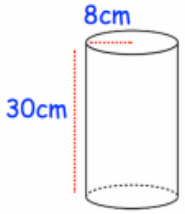
Tasks:

Question 1: Work out the volume of each cylinder.
Give each answer to one decimal place.

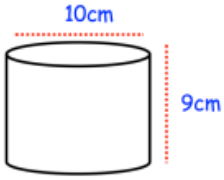
(a)



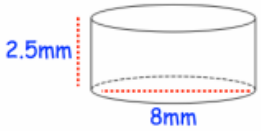
(b)



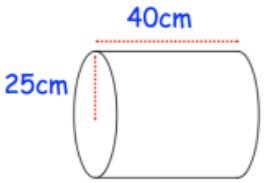
(c)



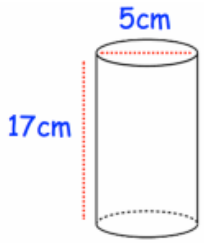
(d)



(e)

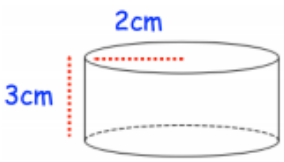


(f)

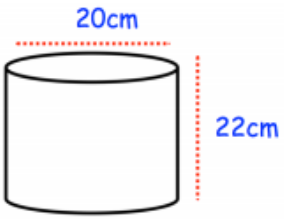


Question 2: Work out the volume of each cylinder.
Give each answer in terms of **π**.

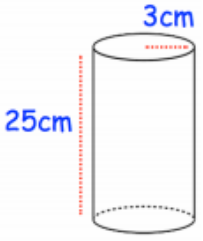
(a)



(b)

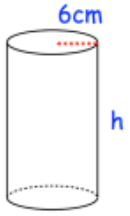


(c)



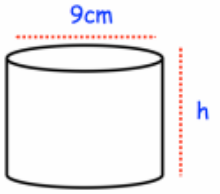
Question 3: Work out the height of each cylinder.
Give each answer to one decimal place.

(a)



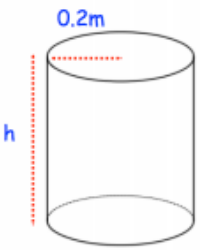
Volume = 1600cm³

(b)



Volume = 800cm³

(c)

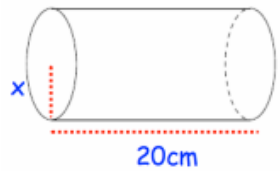


Volume = 0.11m³

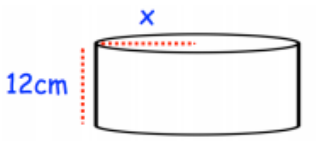
Question 4: Work out the value of x.
Give each answer to one decimal place.

(a)

Volume = 725cm³

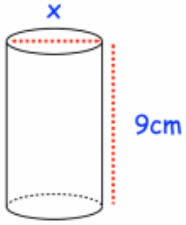


(b)



Volume = 9000cm³

(c)



Volume = 170cm³

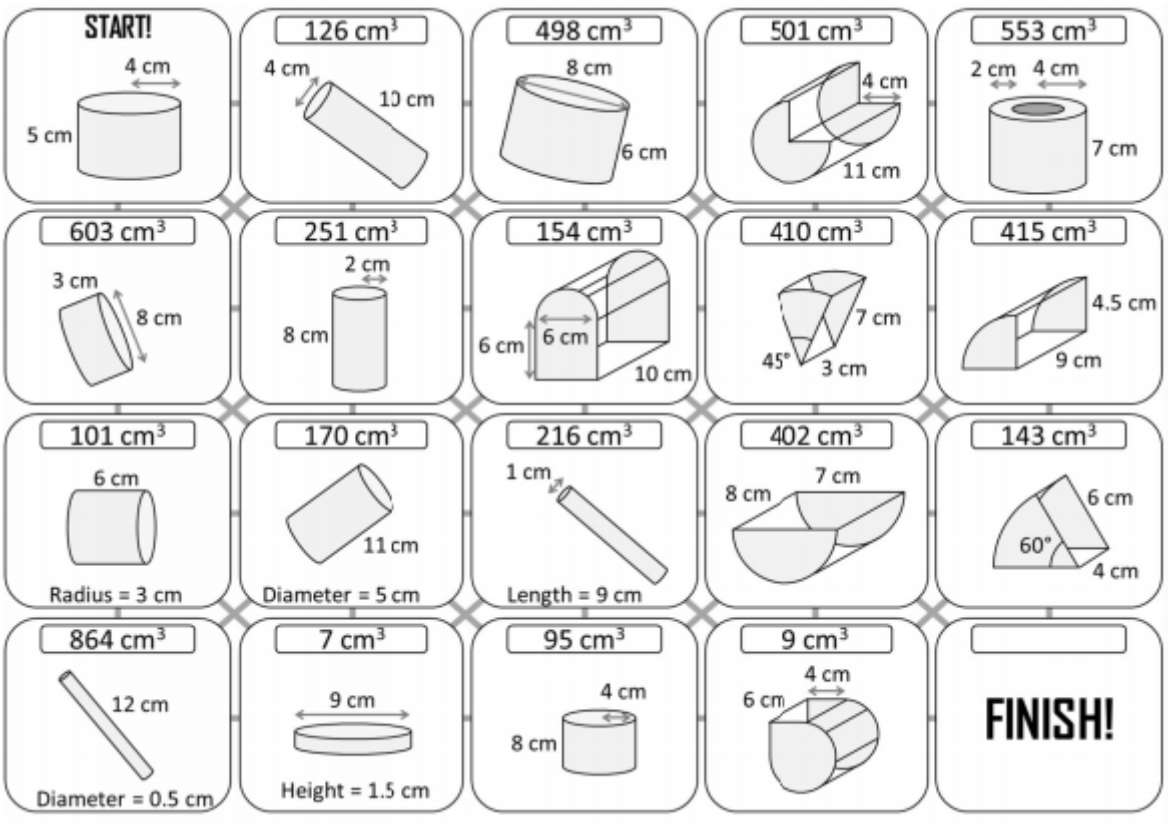
Calculate the volume of a cylinder with radius 5 cm and height 4 cm Correct to 1 d.p.

Calculate the volume of a cylinder with diameter 8 cm and height 5 cm Correct to 1 d.p.

Calculate the height of a cylinder which has volume 300 cm^3 and radius 5 cm (correct to 1 d.p.)

Calculate the radius of a cylinder which has volume 450 cm^3 and height 6 cm (correct to 1 d.p.)

Can you find your way out of the maze?



Stewards Academy

Week 7:

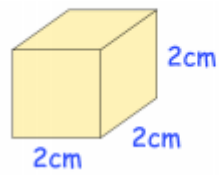
- **LI:** I can find the surface area of cubes and cuboids

Demonstration Videos: https://corbettmaths.com/2013/03/29/surface-area-of-a-cuboid/

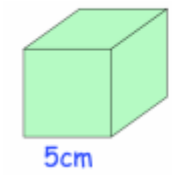
Tasks:

Question 1: Work out the surface area of each of the following cubes.

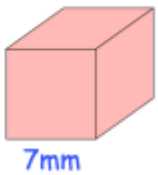
(a)



(b)

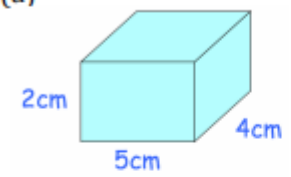


(c)

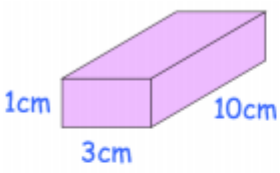


Question 2: Work out the surface area of each of the following cuboids.

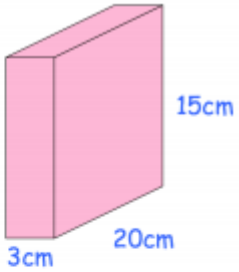
(a)



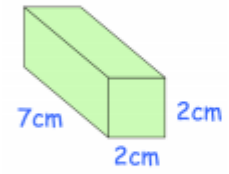
(b)



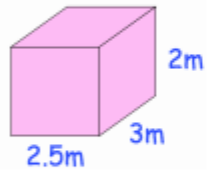
(c)



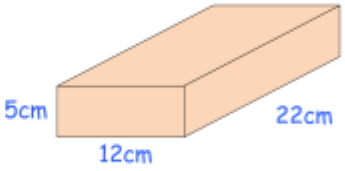
(d)



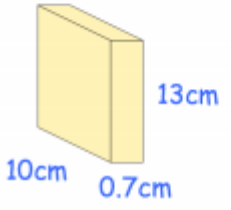
(e)



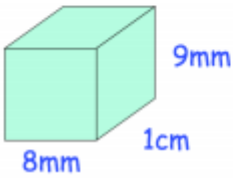
(f)



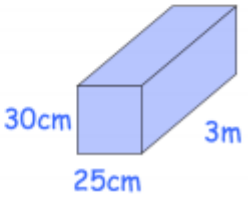
(g)



(h)



(i)

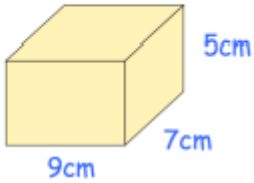


Question 3: Calculate the surface area of a cube with side length 12cm

Question 4: Calculate the surface area of a cube with side length ½ cm

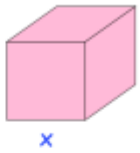
Question 4: Jamie is trying to work out the surface area of the cuboid below.
Can you spot any mistakes?

$$9 \times 5 = 45$$
$$7 \times 5 = 35$$
$$9 \times 7 = 63$$
$$45 + 35 + 63 = 143cm^3$$

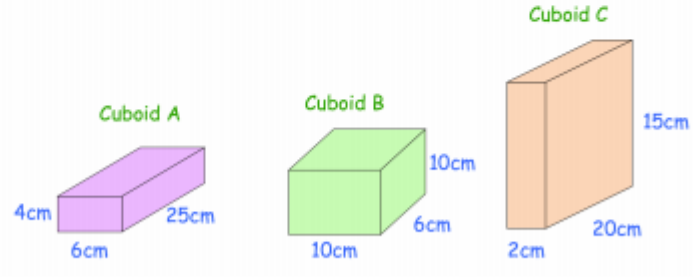


Apply

Question 1: A cube has a surface area of $54cm^2$
Find the side length, x, of the cube

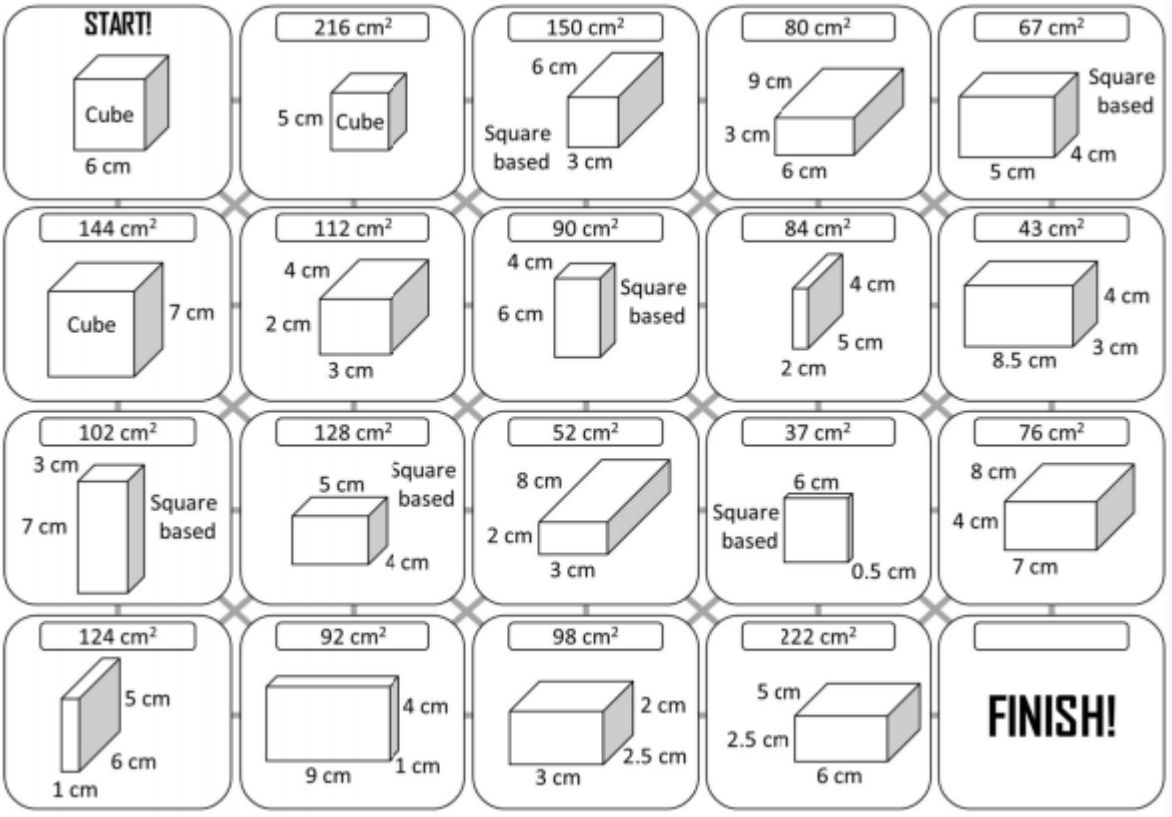


Question 2: A company is designing a new box to hold coffee.
They have 3 designs, cuboids A, B and C.
All 3 designs have the same volume of $600cm^3$
The company want to choose the design with the smallest surface area.
Which cuboid should they choose?



Question 3: A cube has a volume of $1000cm^3$.
Work out the surface area of the cube.

Can you find your way out of the maze?



Attainment Band :	Unit 5 – 3D Geometry	
	Knowledge and Understanding	**Skills**
Yellow Plus	Understands the formula for finding the volume of a cylinder 10*	Finds the area of a quarter of a circle 2 Calculates the volume of a cylinder when given the diameter 10b
Yellow	Understands how to find the area of part of a circle 2* Knows the volume of a 3D shape is the product of the cross-sectional area and its height/length 10*	Calculates the radius of a shape when given the circumference 3 Finds the volume of a triangular prism 7b Solves word problems involving circumference 8b Finds the volume of a rectangular tin, when given the cross-sectional area and the height 10a
Blue	Knows the area formula of a circle 1* Understands how to round to 3 significant figures 3* Uses mathematical reasoning to deduce how the volume and surface area of 3D shapes change if the number of cubes used are varied 6b Knows the circumference formula of a circle 8*	Calculates the area of a circle 1 Draws an accurate net of a 3D shape, when given specific measurements 4 Finds the volume of a cuboid 7a Calculates the circumference of a circle 8a
Green	Understands how to round to 1 decimal places 8/10b* Understands how to round to 2 decimal places 1* Understands how to round to the nearest metre 8b*	Draws the different views of 3D shapes (plan view, front and side elevation) 5 Recognises the length, volume and surface area of 3D shapes, represented with cubes 6a Solves problems involving the specific properties of a die/dice 9
White	Recognises the principal of rounding Identifies parts of a circle	Rounds a number to a set number of decimal places