

Welcome to Remote Learning for Fourth Class

Maths 2



Notes for Parents / Guardians

This is a menu of activities available for your child to complete.
Please do not feel under any pressure. All sections are optional.

Included:

- 3D Shape – Warm up Game, Introduction, Visuals, Properties, Questions, Game, Related Art and 3D Nets
 - Perimeter: Introduction, Measuring and Problem Solving
 - Area: Introduction, Measuring and Problem Solving
 - Tables - links
 - Additional Resources / Differentiation
 - Optional Extra Challenges
-
- ***Children may like to show us some of their work. If they wish they can pick their favourite piece completed each day and send it on to 4thClassTeachers@hollyparkbns.ie. Please do not send any videos or photos of children themselves.***



You will need!



- A pencil and a rubber
- A ruler and red pen
- A copy / blank page to record work
- Access to the internet for certain videos and online activities
(this can be omitted if it doesn't suit the family)

3 D Shape



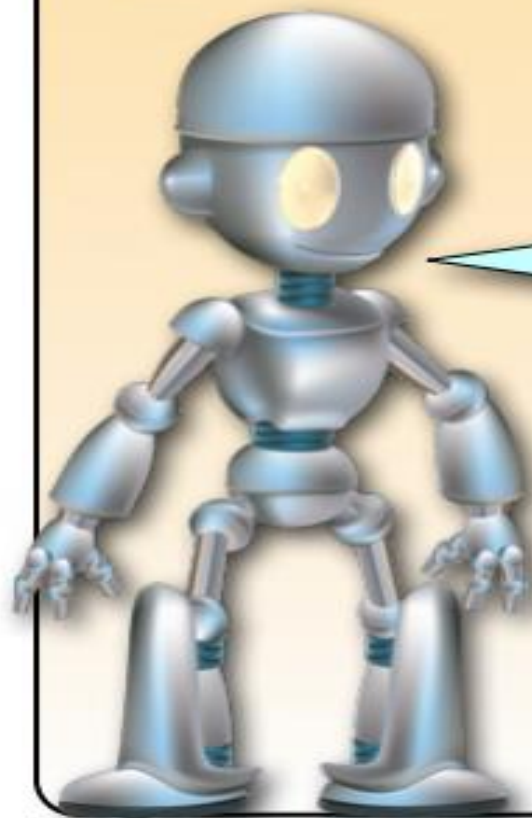
**Click below to
play a warm
up game**



**Watch an
introductory
video**

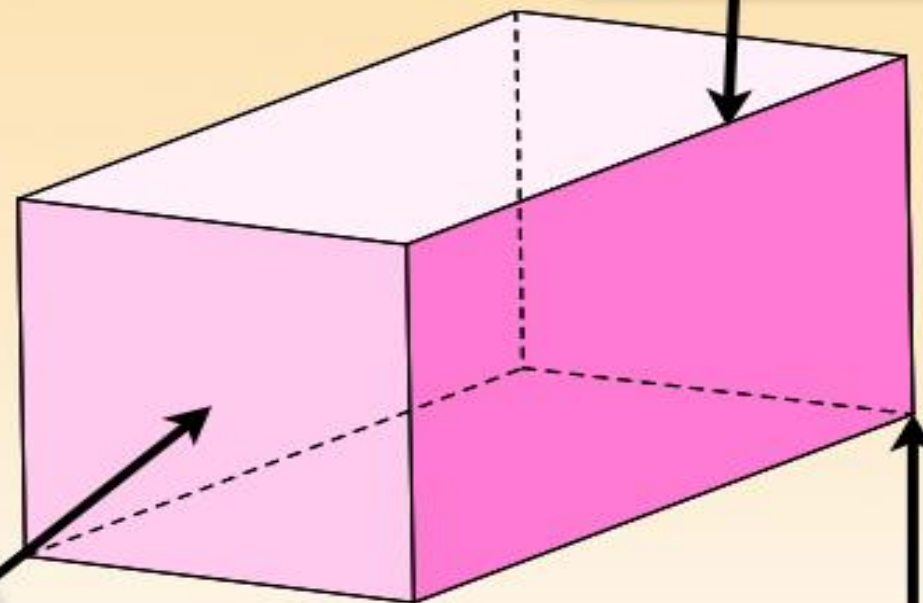


3D SHAPES



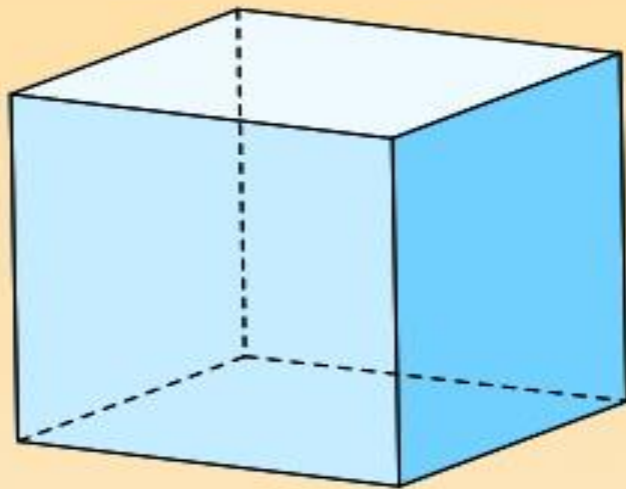
3D shapes have **faces**, **vertices** and **edges**.
Do you know where they are?

Edges are where the two faces meet.



Faces are the flat surfaces.

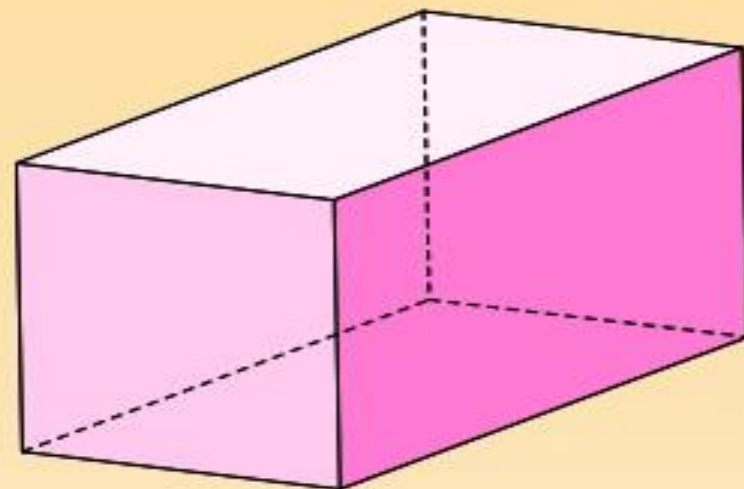
A **vertex** is another word for corner. The plural is **vertices**.



CUBE

Cubes and cuboids are shaped like boxes. They have:

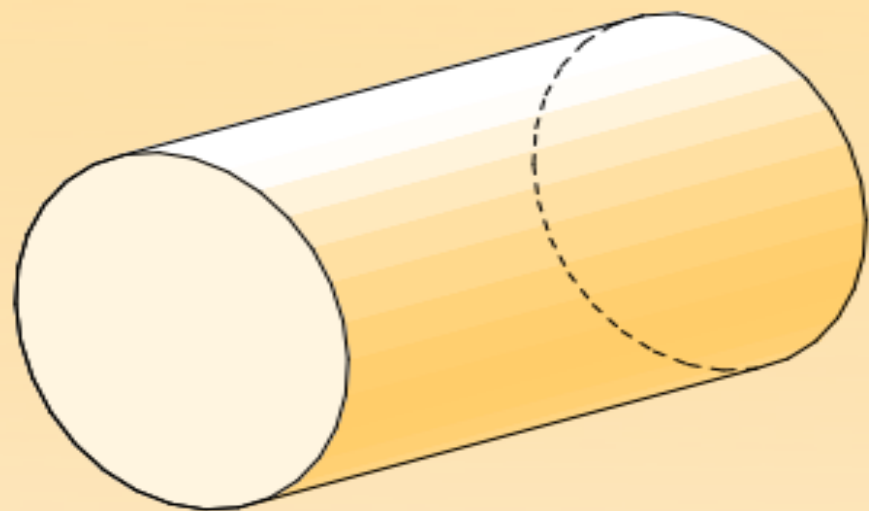
6 faces
8 vertices
12 edges



CUBOID

Can you see what is special about the angles on each face?



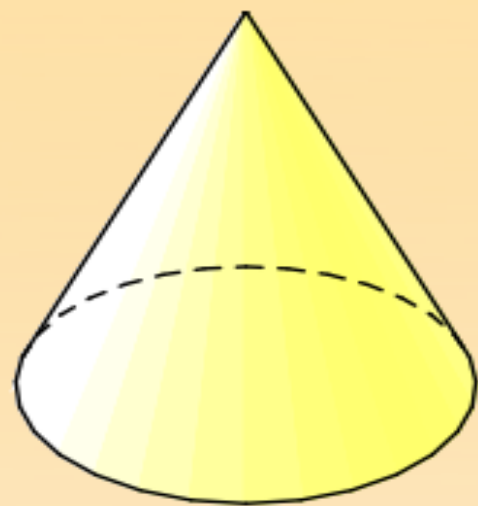


CYLINDER

A cylinder has two flat faces (which can be circles or ellipses) and one curved face.



Is a cylinder a prism?



CONE

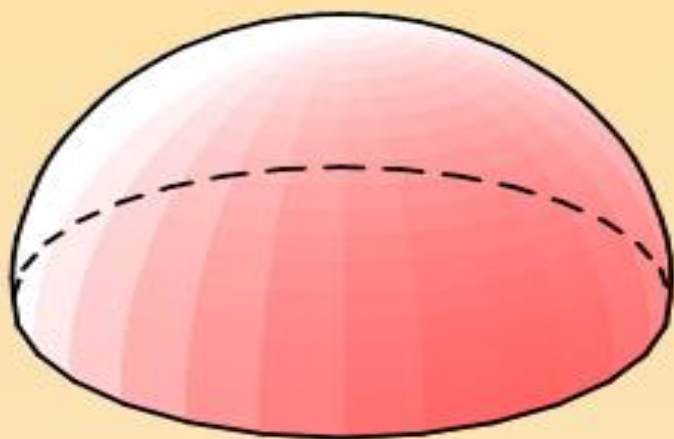
A cone has a flat base and one curved face which narrows to a vertex.



SPHERE

Spheres are perfectly symmetrical,
with no edges or vertices.

A hemisphere is half of a sphere.

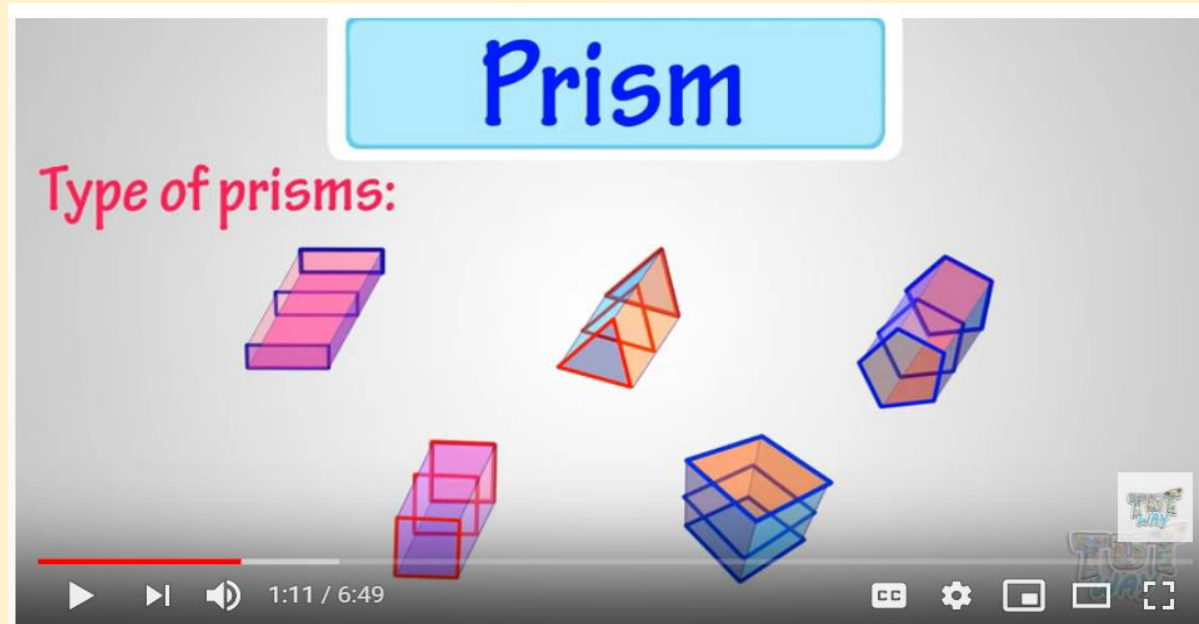


HEMISPHERE

The Earth is
nearly a sphere.
It is squashed a
little, so we call it
a spheroid.



Click on the video to find out about Prisms and Pyramids



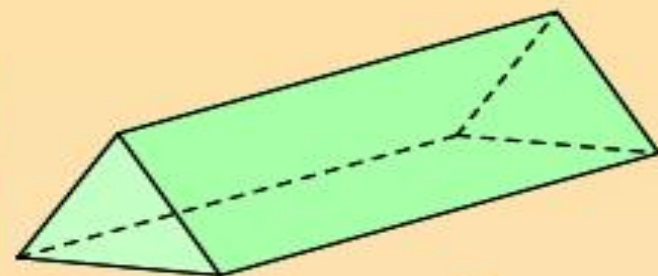
PRISMS

The two opposite faces on a prism are always the same shape. A prism can be also cut into slices which are all the same shape.

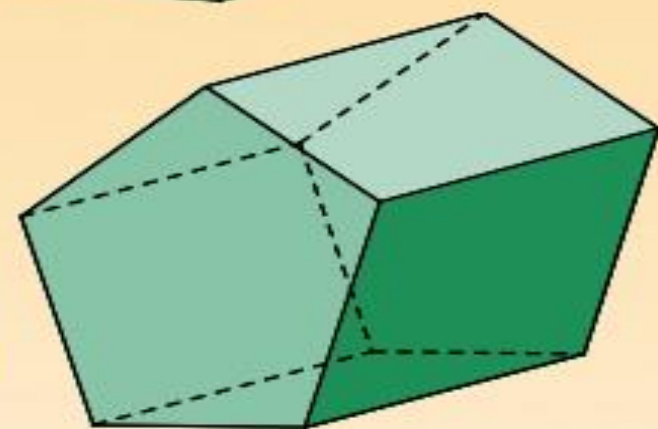


Did you know that cubes and cuboids are rectangular prisms?

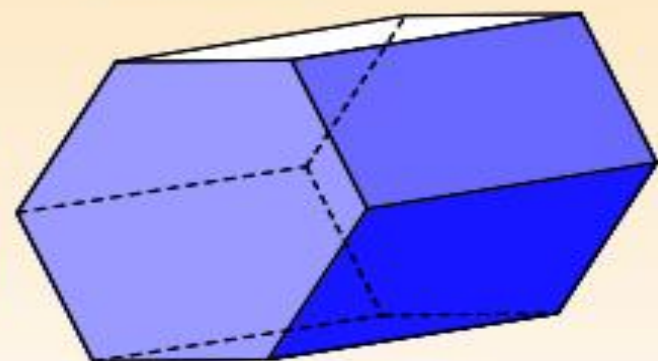
TRIANGULAR PRISM



PENTAGONAL PRISM



HEXAGONAL PRISM



How many other prisms can you think of?

Prisms

A

Match the names with the prisms.

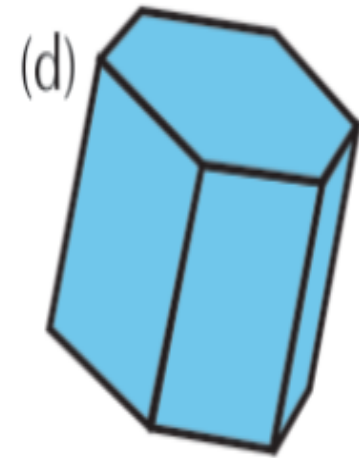
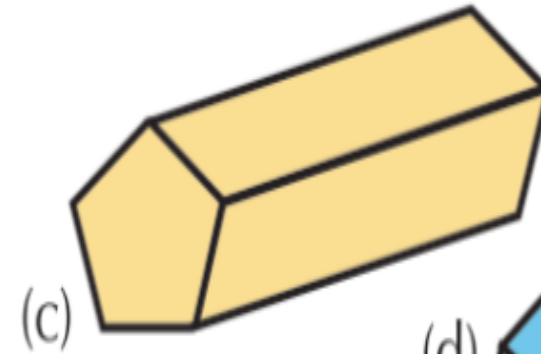
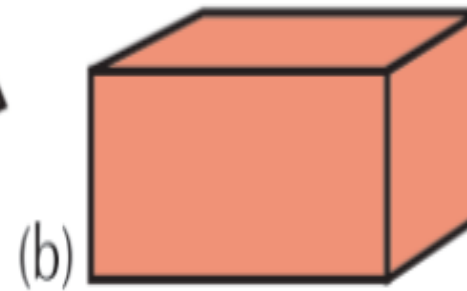
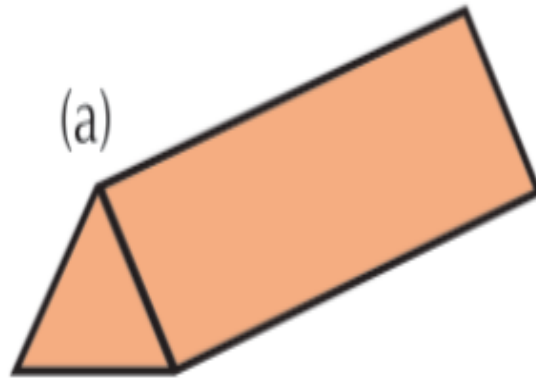
A prism may be sliced in such a way that all of the slices are the same size. Match the name to the correct prism.

Pentagonal prism

Triangular prism

Cuboid

Hexagonal prism



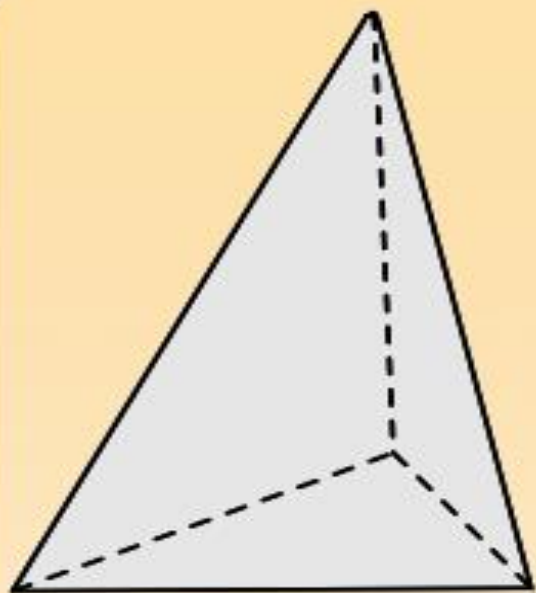
Answers (Prisms)

- A) Triangular Prism
- B) Cuboid
- C) Pentagonal Prism
- D) Hexagonal Prism

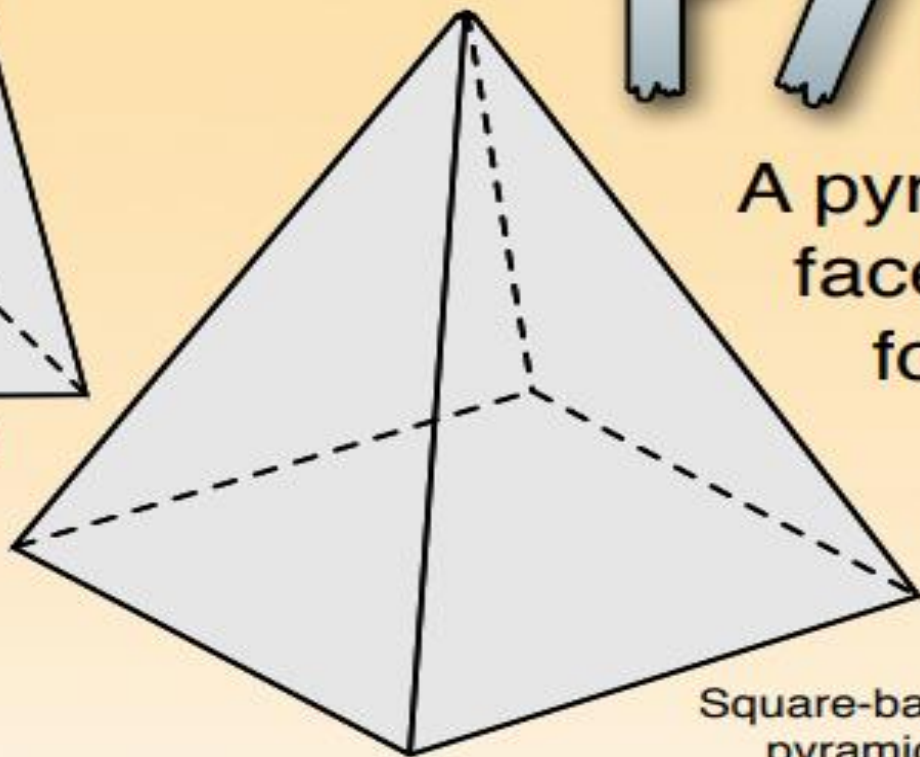
PYRAMIDS

A pyramid has a flat base and faces that slope inwards to form a vertex at the top.

Pyramids are named according to the shape of their base.



Triangle-based pyramid



Square-based pyramid



The Great Pyramids of Egypt are the most famous pyramids in the world. Do you know what shape their bases are?



Pyramids

B Match the names with the pyramids.

When a pyramid is cut into slices, the slices are not the same size. The shape of the base names the pyramid. Match the name to the correct pyramid.

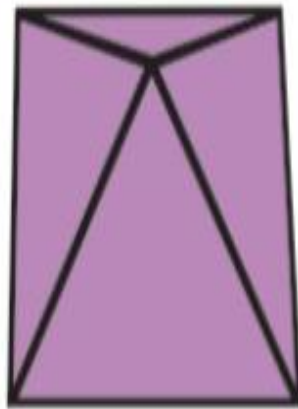
Triangular pyramid

Square pyramid

Pentagonal pyramid

Hexagonal pyramid

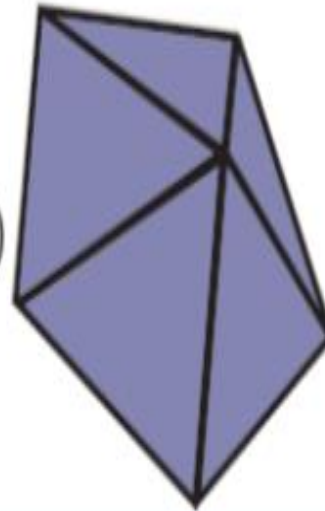
(a)



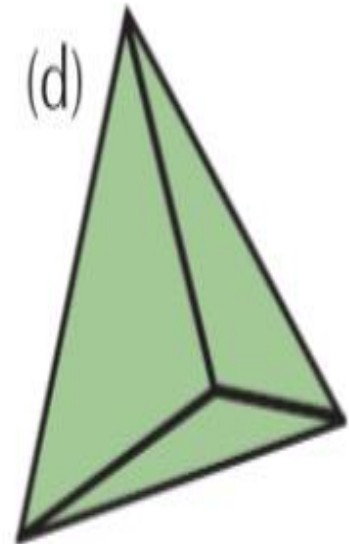
(b)



(c)



(d)



Answers (Pyramids)

- A) square based pyramid
- B) hexagonal pyramid
- C) pentagonal pyramid
- D) triangular pyramid (also called a tetrahedron)

I have 6 flat faces, 12 edges, and 8 corners. All my edges are the same.

What am I?

Guess my shape...

I have 5 flat surfaces. 2 of them are triangular. 3 of them are rectangular.

What am I?

I am a solid 3D that is perfectly round. I don't have flat faces and I don't have straight edges.

What am I?

I have 1 flat surface and 1 curved surface. My flat face is circular. My curved surface makes a sharp point. I don't have sides. I look like a party hat!

What am I?

I have 2 flat surfaces and 1 curved surface. My flat surfaces are circular. I don't have any sides or corners.

What am I?

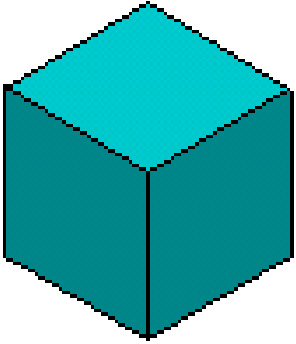
I have 6 flat faces, 12 edges, and 8 corners. NOT all my edges are the same. I look like a box.

What am I?

I have 5 flat surfaces. My base surface is square. The other 4 surfaces are triangular, that make a sharp point.

What am I?

Cube

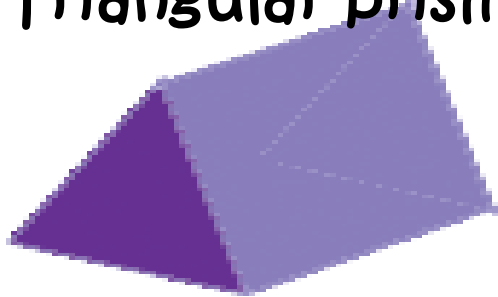


Answers

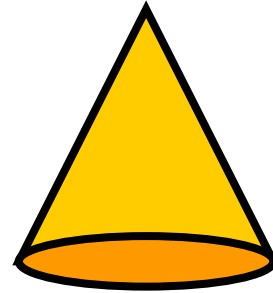
Cylinder



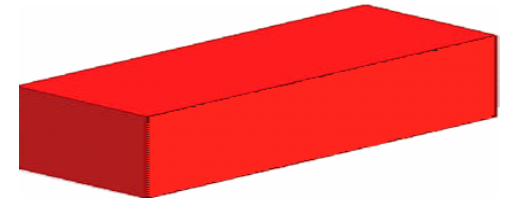
Triangular prism



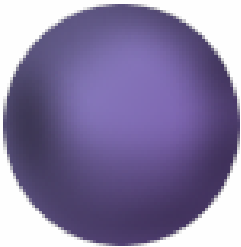
Cone



Cuboid/
Rectangular prism

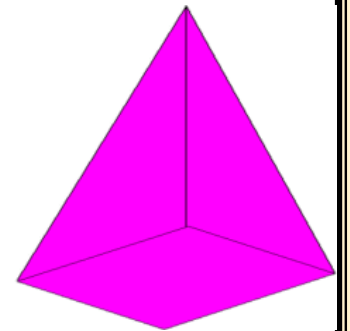


Sphere



Come up with your
own shape clues for a
family member, make
it challenging!

Pyramid



Take a break! Try some 3D Art – Cubist style



Click on Pablo Picasso to find out what Cubism is ?

Click on the picture below to see how an artist creates some Cubist art



Complete this grid

- Faces are flat surfaces
- Vertices are corners / points
- Edges are where two faces meet

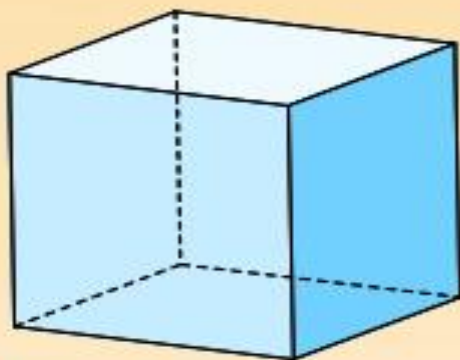
	Faces	Vertices	Edges
Cube			
Cuboid			
Triangular prism			
Pentagonal prism			
Hexagonal prism			
Triangular pyramid			
Square pyramid			
Pentagonal pyramid			
Cone			

Grid Answers

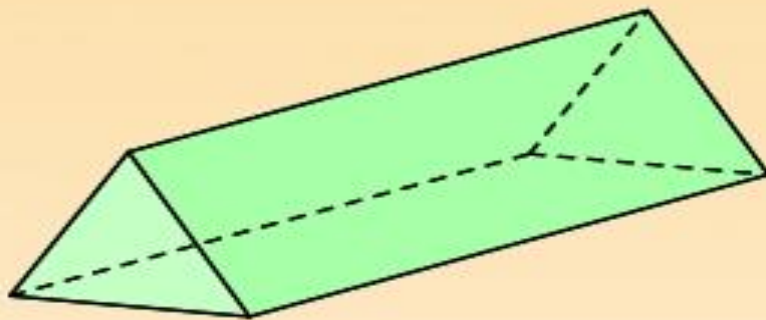
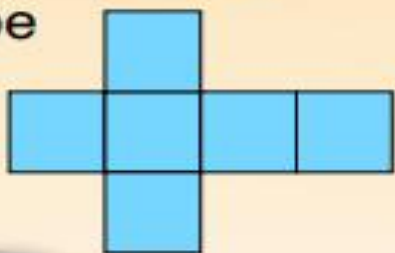
	Faces	Vertices	Edges
Cube	6	8	12
Cuboid	6	8	12
Triangular prism	5	6	9
Pentagonal prism	7	10	15
Hexagonal prism	8	12	18
Triangular pyramid	4	4	6
Square pyramid	5	5	8
Pentagonal pyramid	6	6	10
Cone	2	1	1 (curved)

3D SHAPE NETS

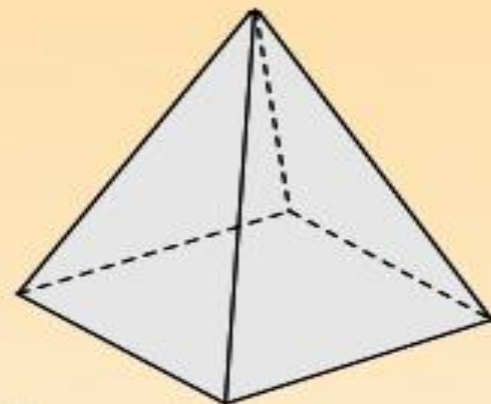
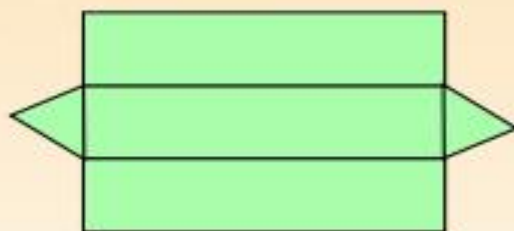
The net of a shape is what it looks like when it is opened out flat.



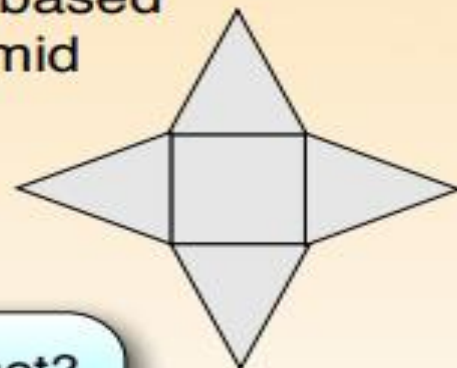
Cube



Triangular prism

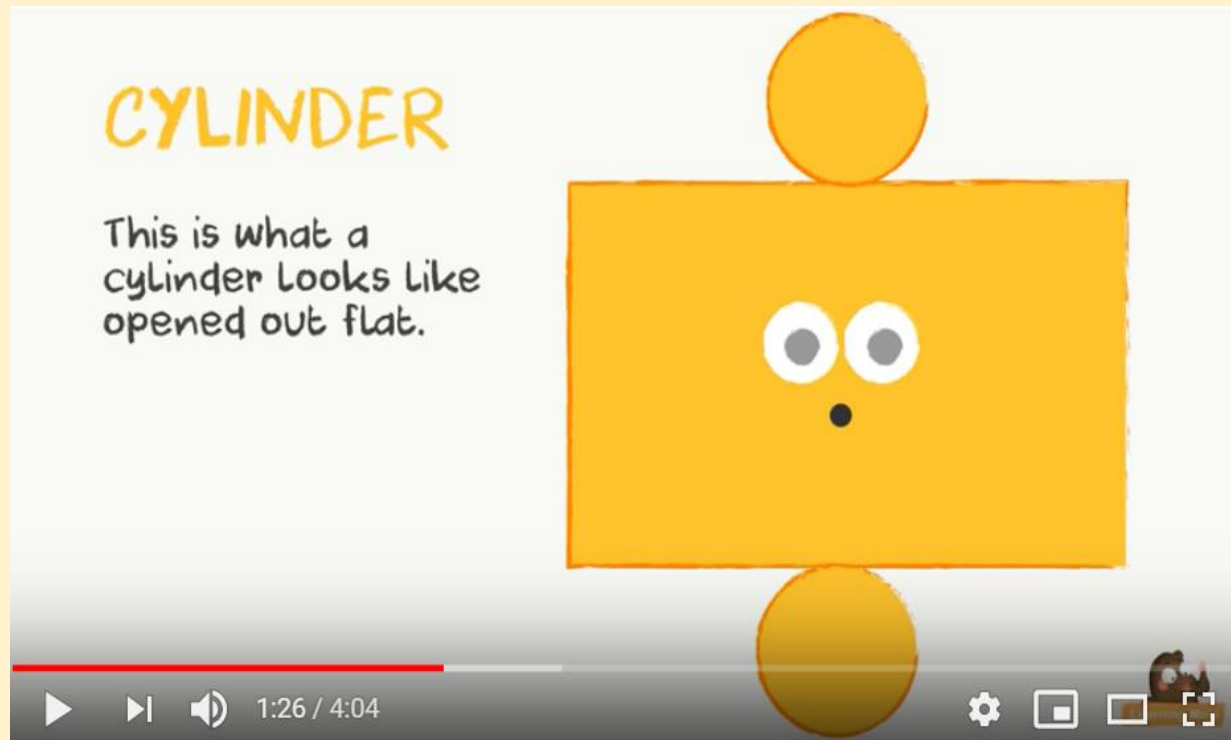


Square-based pyramid



Did you know that some shapes have more than one net?
Can you find different nets for a cube?

Click on the video to find out more about the nets of 3D shapes



Use these nets to create some 3D shapes



Babble Dabble Do templates
<https://cdn.babbledabbledo.com/wp-content/uploads/2017/11/3D-Geometric-Shapes-Templates-BABBLE-DABBLE-DO.pdf>

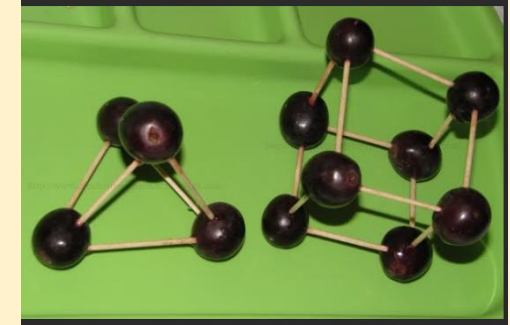
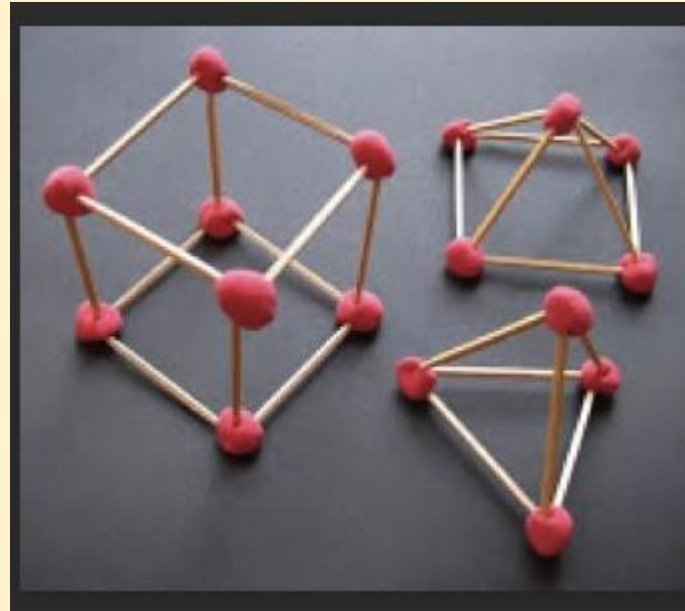
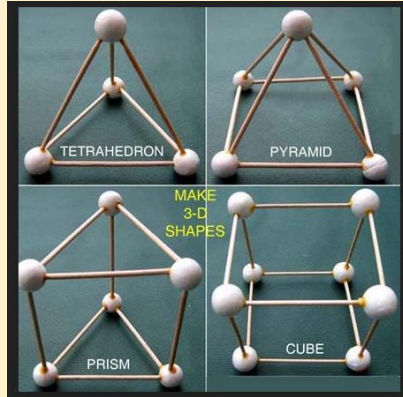
There are alternative 3D shape net templates at the following links
<https://www.math-salamanders.com/3d-geometric-shapes.html>
<https://www.twinkl.ie/resource/t-n-2545148-3d-shape-nets-ks1-activity-sheets>
<https://www.twinkl.ie/resource/3d-shape-nets-au-t2-m-2379>

Click below to view a related video



If you don't have a printer try the activity on the next slide instead!

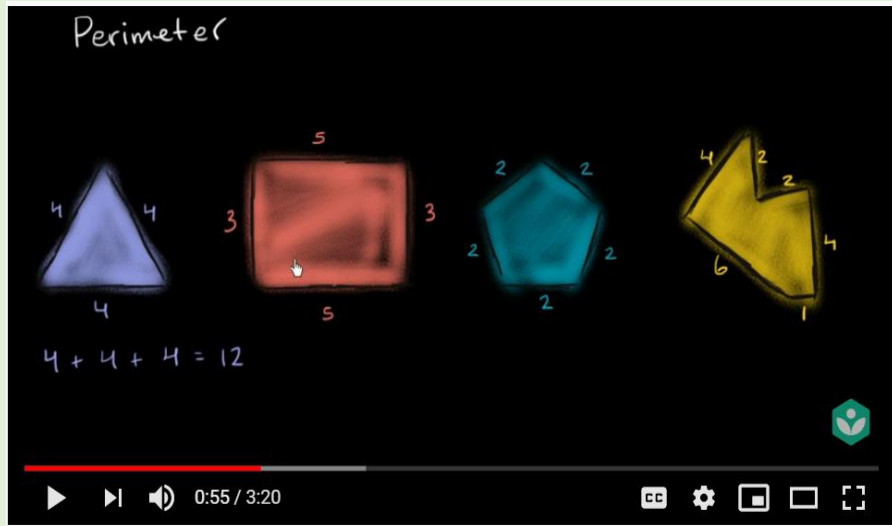
Use can use anything to build 3D shapes!!



You could try toothpicks, pipe-cleaners, lollipop sticks, straws, raisins, plasticine, blue tac or marshmallows.

What is Perimeter?

Watch this video to understand how to measure the perimeter of basic shapes



Remember:

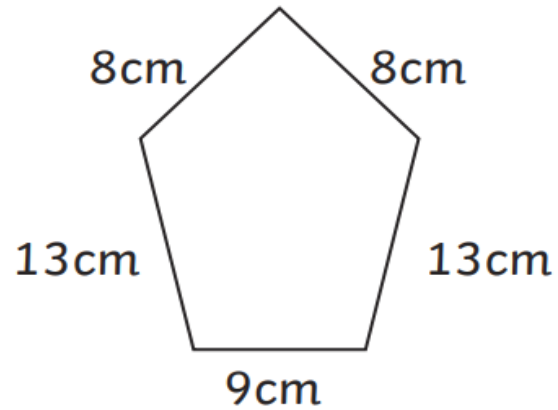
$$100 \text{ cm} = 1 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

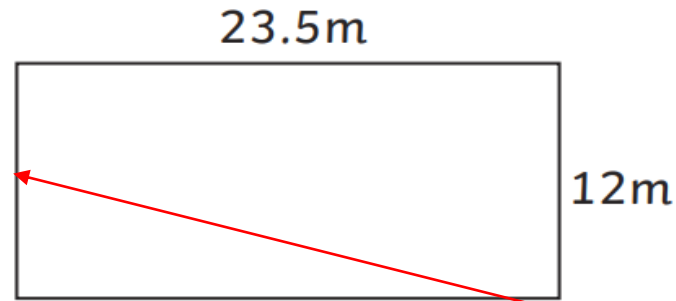
- Perimeter is the distance around the outside edge of a shape. E.g. the fence around a garden.
- Perimeter is generally measured in centimetres or metres.

Calculate the perimeter of each of these shapes

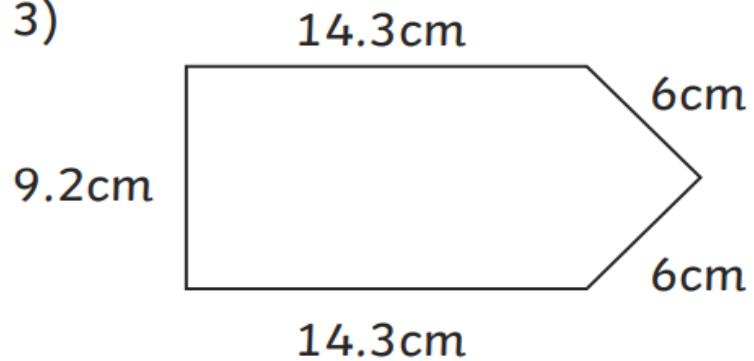
1)



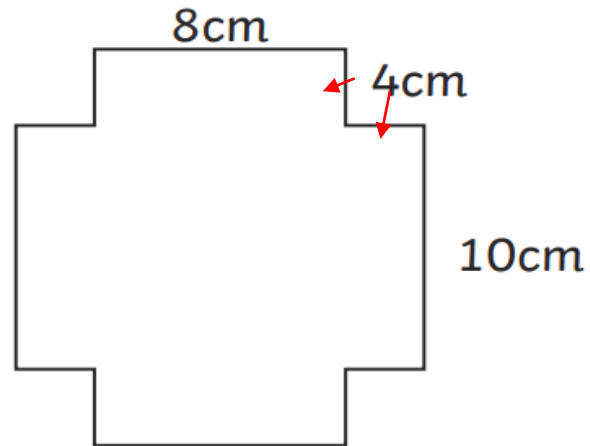
2)



3)



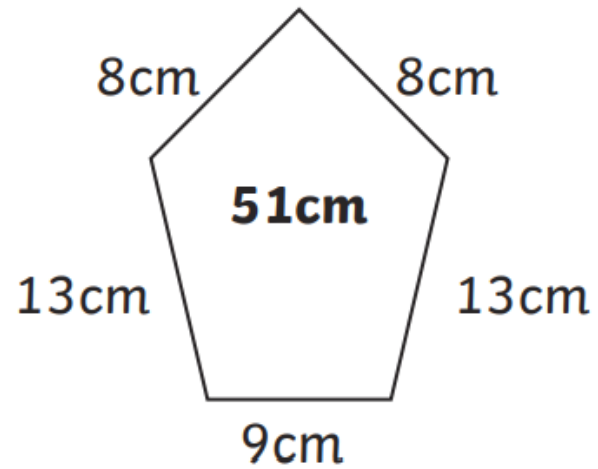
4)



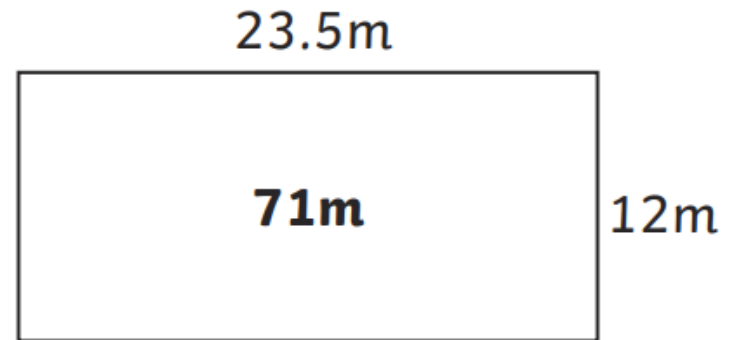
Opposite sides
will be equal in
length

Answers

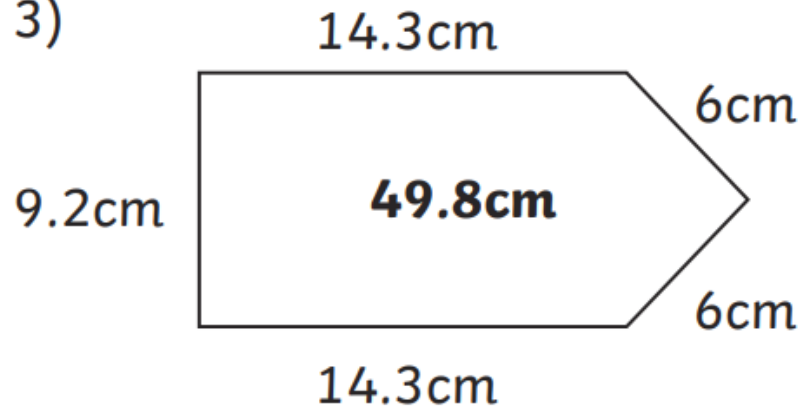
1)



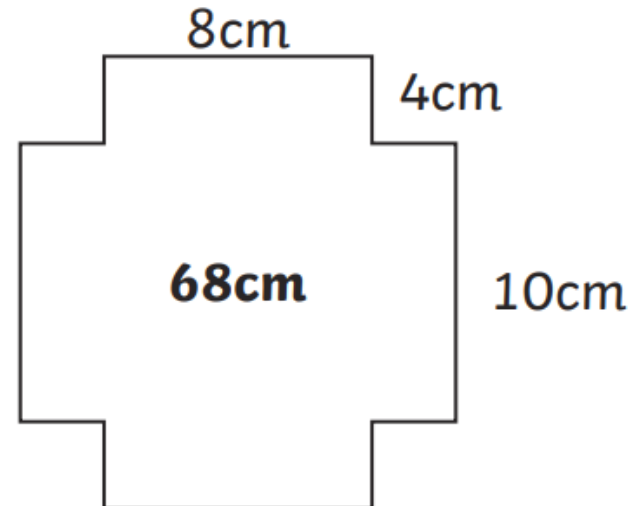
2)



3)



4)



Now try these!

Hint!! Draw a picture to help you if you're stuck.

Perimeters

1. What is the perimeter of a triangle if each side measures 54m?
2. What is the perimeter of a square if each side is 64m long?
3. The length of each side of a pentagon is 36m. **What is its perimeter?**
4. A hexagon has sides each measuring 45m. **What is the perimeter of the hexagon?**
5. Figure out the length of the sides of the shapes. Each shape's sides are the same length.
(The perimeters shown are pretend perimeters for these shapes.)



(a)



Perimeter 24cm

(b)



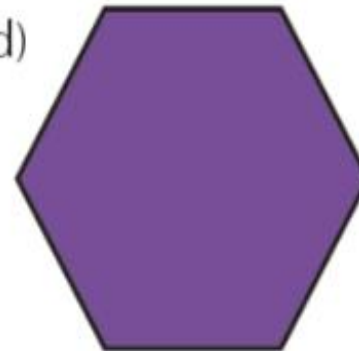
Perimeter 33cm

(c)



Perimeter 85cm

(d)



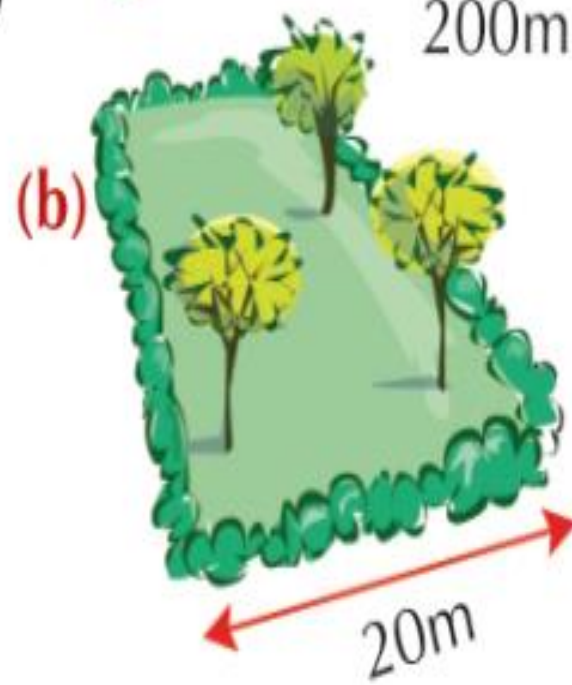
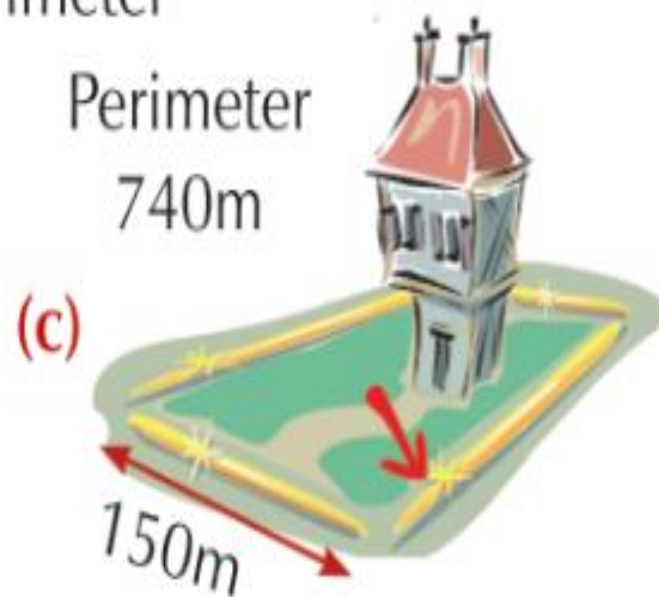
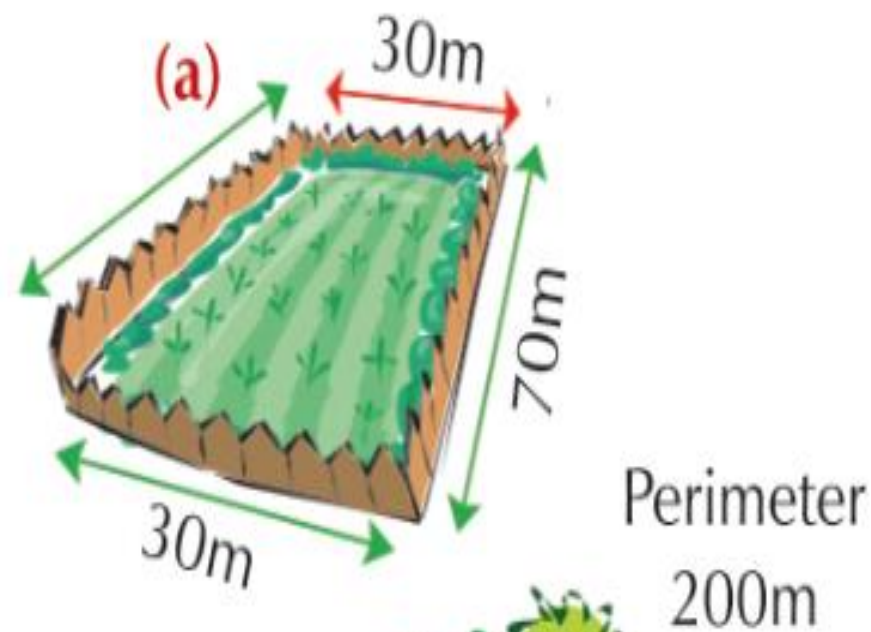
Perimeter 96cm

Answers

- | | | | | |
|----|--------|---------|---------|---------|
| 1. | 162 m | | | |
| 2. | 256 m | | | |
| 3. | 180 m | | | |
| 4. | 270m | | | |
| 5. | a) 6cm | b) 11cm | c) 17cm | d) 16cm |

Solve it!

1. If you walked twice around a square whose sides each measure **50m**, **how far would you walk?**
2. A rectangular field (picture a) has a fence measuring **200m**. **What is the length of the fence on the far side?**
3. The field in picture (b) also has a perimeter of **200m**. **How long is the field?**
4. A house (picture c) is protected by a beam in the shape of a rectangle. **What is the length of the beam to which the large red arrow points?**

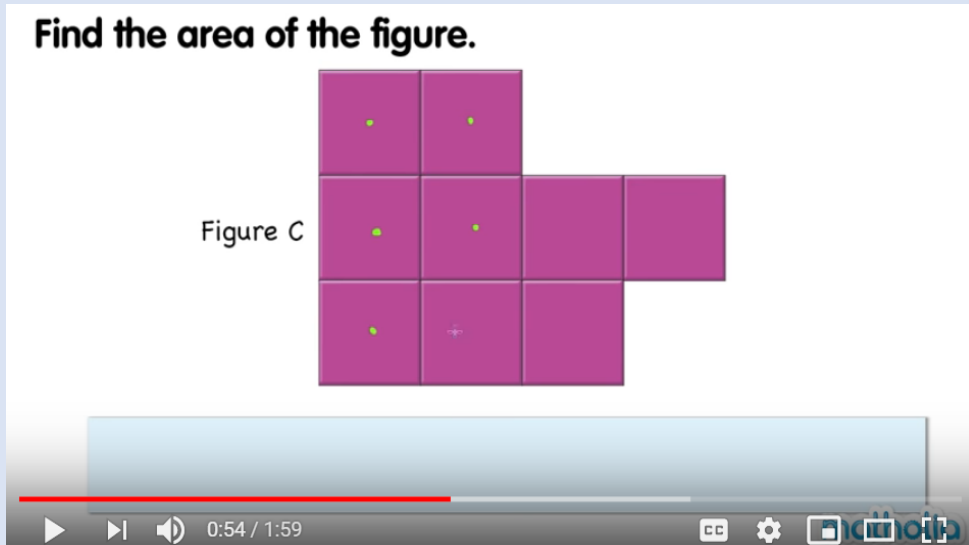


Answers

- | | |
|----|-------|
| 1. | 400 m |
| 2. | 70 m |
| 3. | 80 m |
| 4. | 220 m |

What is Area?

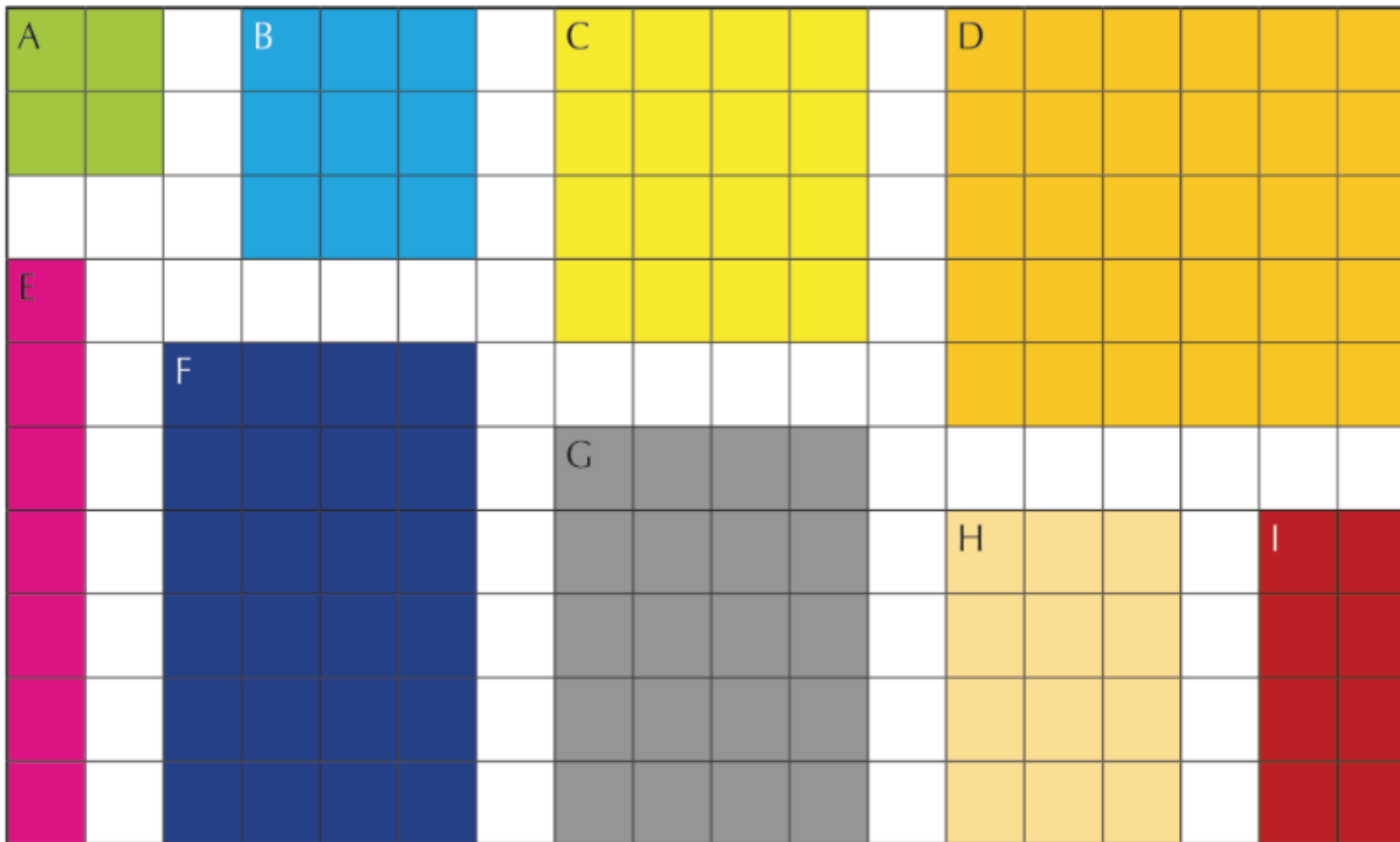
Watch this video to understand how to complete the next few activities



- Area is the space inside a shape. E.g. the carpet in a room or the grass in a field.
- Area is generally measured in centimetres squared or metres squared.

A

What is the area of each shape?

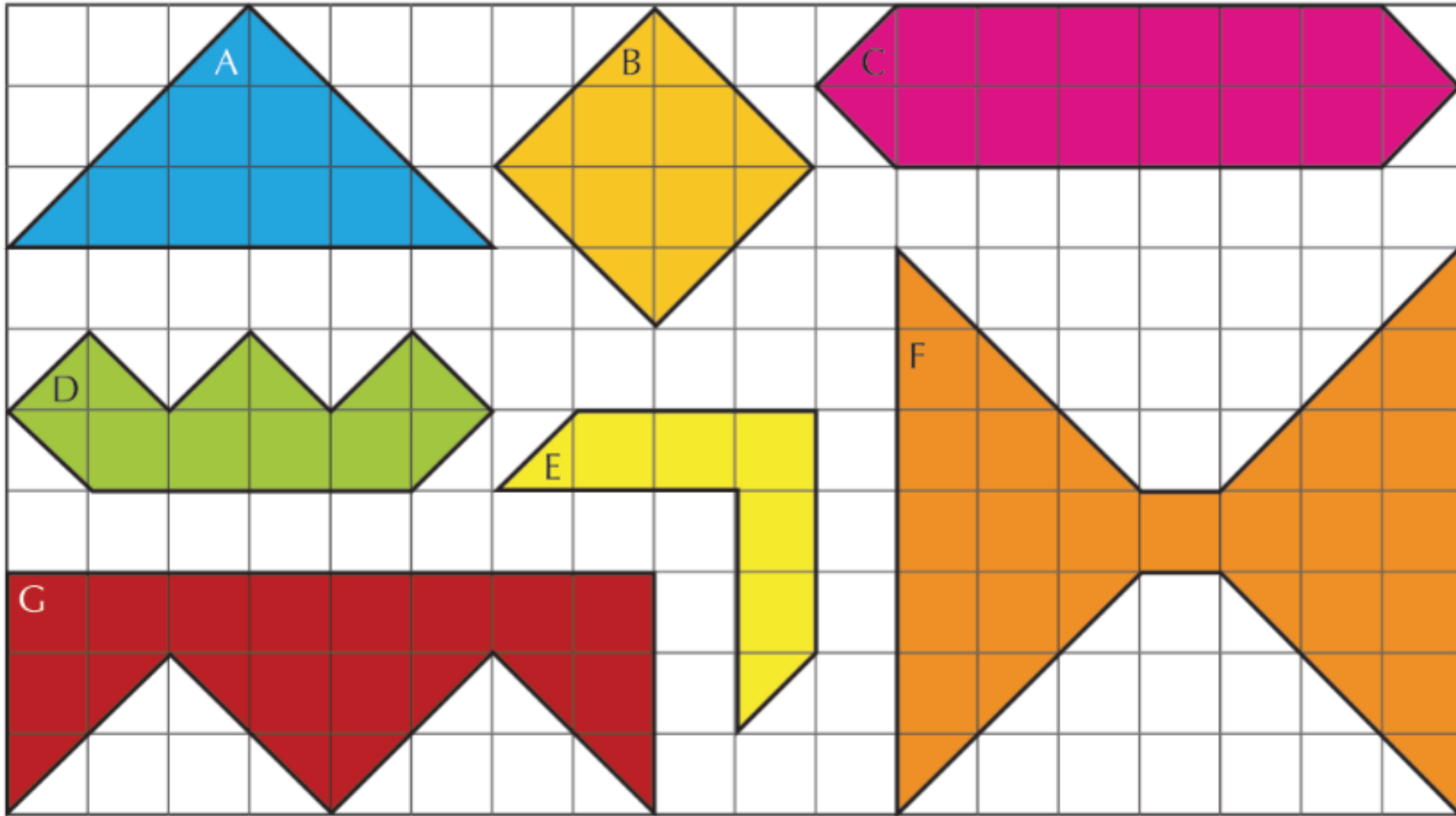


Count the squares.

E.g.
 $A = 4\text{cm}^2$

***Remember two halves make a whole!**

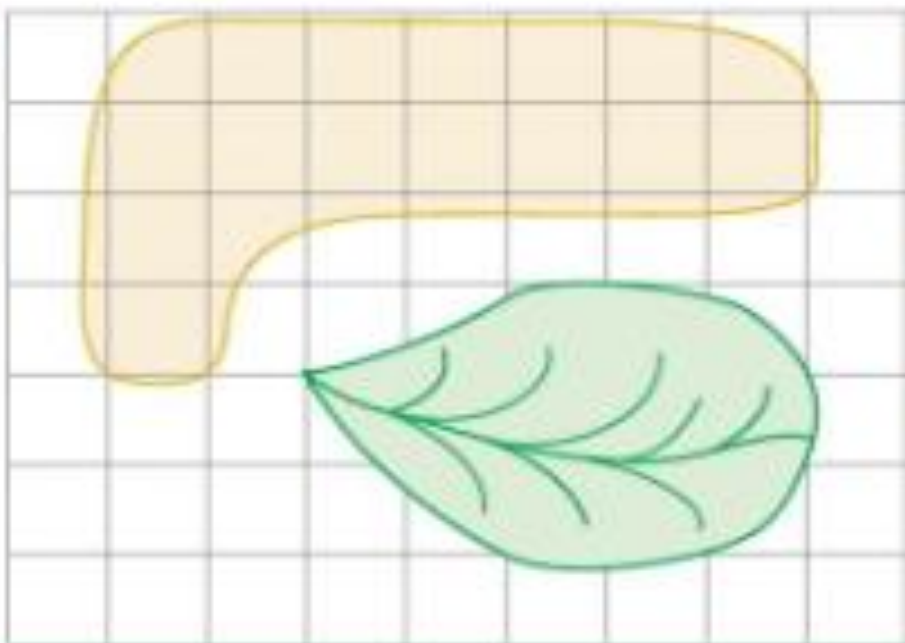
What is the area of each shape? Estimate before you count.



Finding the area of a curved shape

- (a) Estimate using sq. cm. (b) Count the whole sq. cm.
(c) If more than $\frac{1}{2}$ sq. cm, count as 1. (d) Do not count if less than $\frac{1}{2}$ sq. cm.

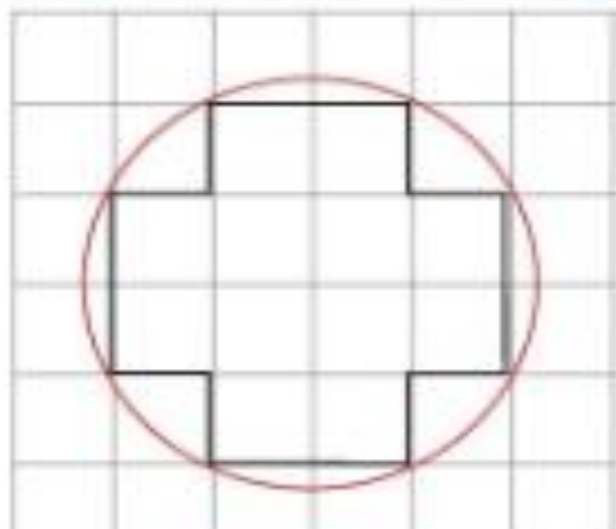
3.



- My estimate of the area of the leaf is $\square \text{ cm}^2$.
- My estimate of the area of the curve is $\square \text{ cm}^2$.
- The approximate area of the leaf is $\square \text{ cm}^2$.
- The approximate area of the curve is $\square \text{ cm}^2$.

4.

4. (a) My estimate of the area of the circle is $\square$ cm².
 (b) How many whole sq. cm are in the circle? $\square$
 (c) How many squares are more than $\frac{1}{2}$ sq. cm? $\square$
 (d) How many squares are less than $\frac{1}{2}$ sq. cm? $\square$
 (e) The approximate area of the circle is $\square$ cm².



Answers to previous three slides

A: Count the squares

A	4cm^2
B	9cm^2
C	16cm^2
D	30cm^2
E	7cm^2
F	24cm^2
G	20cm^2
H	12cm^2
I	8cm^2

Calculating area with full squares and half squares

A	9cm^2
B	8cm^2
C	14cm^2
D	8cm^2
E	6cm^2
F	25cm^2
G	16cm^2

Finding the area of a curved shape

Approximate area of leaf 13cm^2

Approximate area of curve 17cm^2

Whole squares in the circle 12cm^2

Squares more than half $\text{cm}^2 = 4\text{cm}^2$

Squares less than half $\text{cm}^2 = 8\text{cm}^2$

Approximate area of circle = 16cm^2

Solve it!

1. The area of ground covered by a house measures 88m^2 . Write the floor area of the house if it has:
(a) two storeys (b) three storeys
2. The house has three solar panels, each with an area of 1.8m^2 . What is the total area of the solar panels?



The pond in a garden has an area of 72m^2 . If the area of the garden is 300m^2 , what is the area of the ground around the pond?



Answers

1. a) 176m^2

b) 264m^2

2. 5.4m^2

Challenge: $300 - 72 = 228\text{m}^2$

Tables (daily)

- Daily 10

<https://www.topmarks.co.uk/maths-games/daily10>

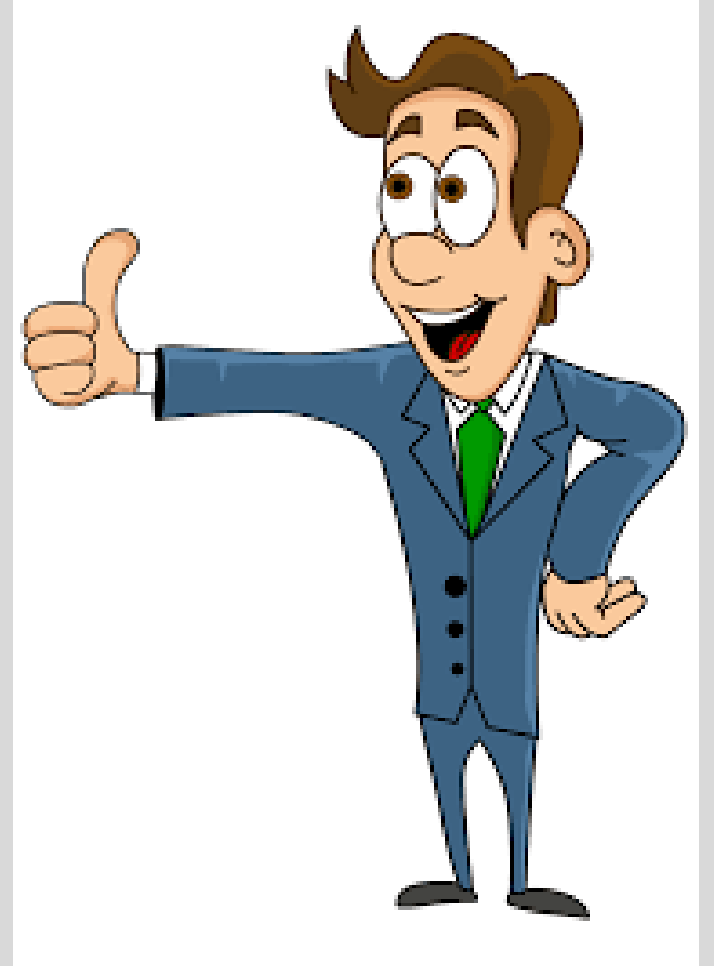
- Hit the button

<https://www.topmarks.co.uk/maths-games/hit-the-button>

Congratulations!!!

We are so proud of you!

Keep up the amazing work...



Additional Resources

- Link to additional resources <https://padlet.com/sarahjpouer82/ot9udhc6o7p4>
- Scroll down in each section to see all the options.
- Scroll across to access areas such as Movement Activities, Art ideas, Special Educational Needs etc.

Differentiation

- If you find the work a little tricky, try the first two in each section.
- If you need any extra Maths challenges, check out the next few slides.



3D Shape: True or False

D Say it! True or false?

1. A cube has the same number of faces as a cuboid.
2. The D in 3D stands for diagonal.
3. A cylinder will roll.
4. A cylinder will stack. (Think of tin cans.)
5. It is possible to build a bigger cube using exactly nine smaller cubes.
6. A prism always has five faces.
7. The roof of a house is often in the shape of a triangular prism.
8. The pyramids of Egypt are square pyramids.
9. All the faces of a cuboid always have a square shape
10. Some of the faces of a pyramid are triangles.



Answers (True or False)

- | | |
|----------|----------|
| 1. True | 7. True |
| 2. False | 8. True |
| 3. True | 9. False |
| 4. True | 10. True |
| 5. False | |
| 6. False | |

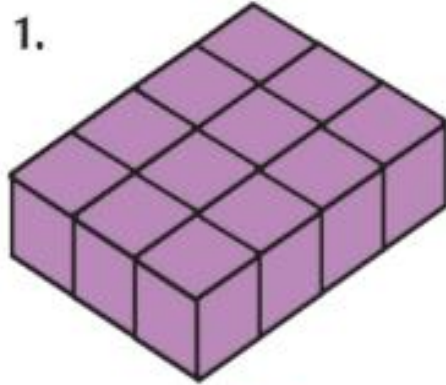
3D Shape: Cube Constructions

A

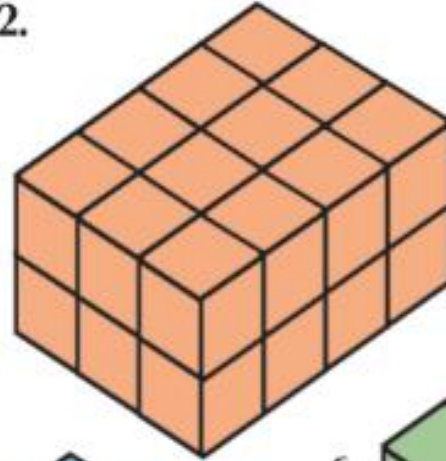
Making shapes from cubes.

How many cubes were used to make each cuboid?

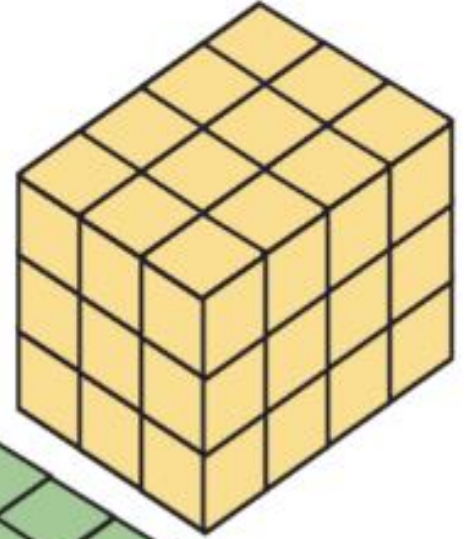
1.



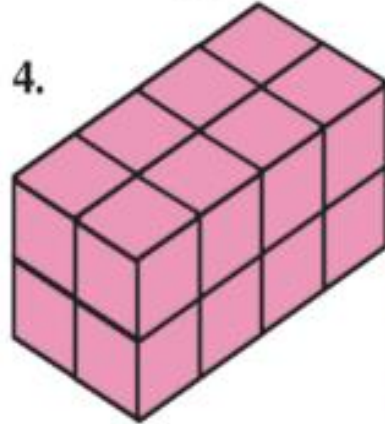
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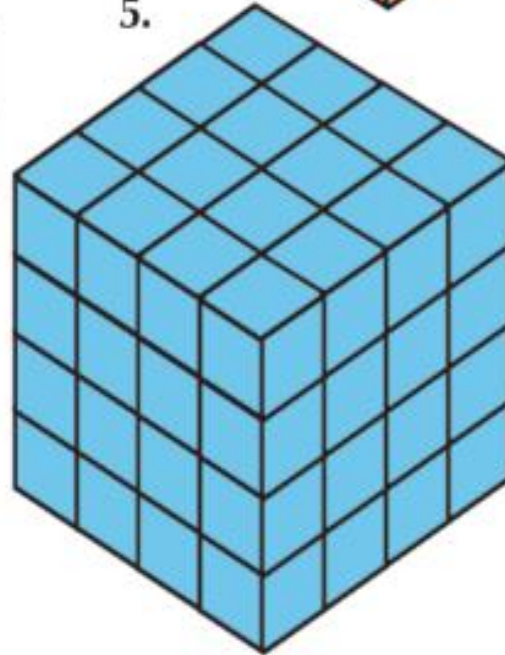
3.



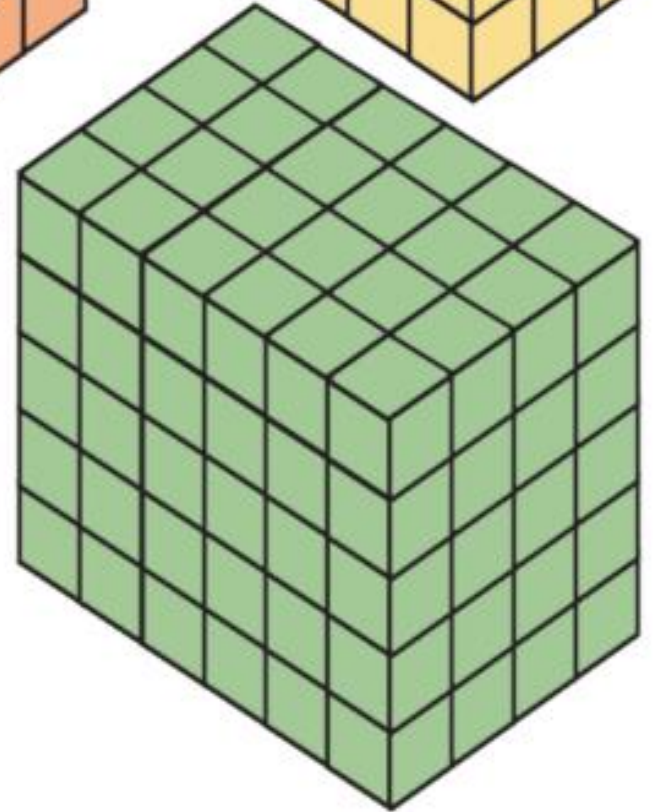
4.



5.



6.



Answers (Cube Constructions)

1. $3 \times 4 = 12$

2. $2 \times 4 \times 3 = 24$

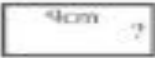
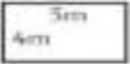
3. $3 \times 3 \times 4 = 36$

4. $2 \times 2 \times 4 = 16$

5. $4 \times 4 \times 4 = 64$

6. $6 \times 5 \times 4 = 120$

Mental Problems

1. A rectangle is 7cm long and 5cm wide.
What is its area? _____
2.  Find the area of a garden 20m long and 10m wide. _____
3.  What is the area of a rectangular lawn 12m long and 8m wide? _____
4. A rectangle is 9cm long and 6cm wide.
What is its perimeter? _____
5.  What is the perimeter of a rectangular garden 13m long and 10m wide? _____
6.  The area of a rectangle is 36cm^2 .
If its length is 9cm, what is its width? _____
7.  Each side of a square measures 8cm.
What is the area of the square? _____
8.  The perimeter of a rectangle is 24cm.
If its length is 7cm, what is its width? _____
9. Each side of a square measures 16cm.
What is the perimeter of the square? _____
10. A square playground has a perimeter of 60 metres.
What is the length of each side? _____
11.  A room is 5 metres long and 4 metres wide.
How much does it cost to carpet the room at €10 per square metre? _____
12.  A square garden has a perimeter of 40 metres.
What is the area of the garden? _____



Watch out! There are a mixture of Area and Perimeter questions here.

The area is
the amount of space inside a shape.

To calculate the area of
a square or rectangle,
multiply the **length** by the **height**.

Example:
Q.1. $7\text{cm} \times 5\text{cm} = 35\text{cm}^2$

Answers (Area and Perimeter Problems)

1. $7\text{cm} \times 5\text{cm} = 35\text{cm}^2$
2. $20\text{m} \times 10\text{m} = 200\text{m}^2$
3. $12\text{m} \times 8\text{m} = 96\text{m}^2$
4. $9\text{cm} + 6\text{cm} + 9\text{cm} + 6\text{cm} = 30\text{cm}$
5. $13\text{m} + 10\text{m} + 13\text{m} + 10\text{m} = 46\text{m}$
6. 36cm^2 divided by $9\text{cm} = 4\text{cm}$
7. $8\text{cm} \times 8\text{cm} = 64\text{cm}^2$
8. $7\text{cm} + 7\text{cm} = 14\text{cm}$, $24\text{cm} - 14\text{cm} = 10\text{cm}$, 10 divided by $2 = 5\text{cm}$ (width)
9. $16\text{cm} + 16\text{cm} + 16\text{cm} + 16\text{cm} = 64\text{cm}$
10. $60\text{m} = 15\text{m} + 15\text{m} + 15\text{m} + 15\text{m}$, Length = 15m
11. $5\text{m} \times 4\text{m} = 20\text{m}^2$, $20\text{m}^2 \times \text{€}10 = \text{€}200$
12. $40\text{m} = 10\text{m} + 10\text{m} + 10\text{m} + 10\text{m}$, Length = 10m , Width 10m , So Area = $10\text{m} \times 10\text{m} = 100\text{m}^2$