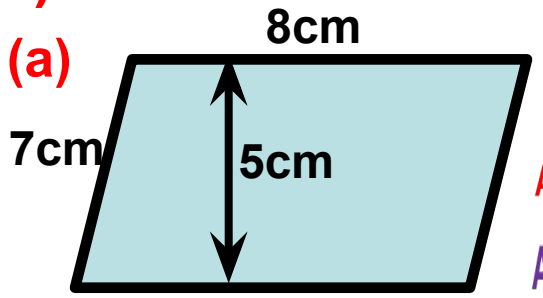
# Mental Math

**LO: Identify and draw nets of different 3D solids.**

## TASK

1) Work out the area for the following:

**(a)**

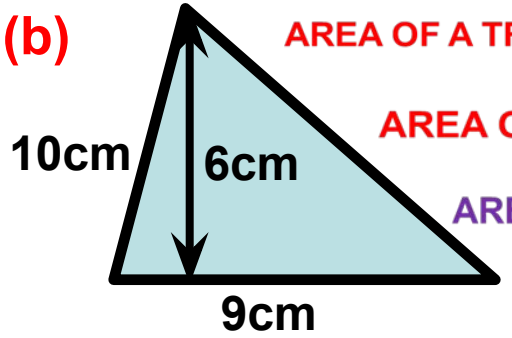



AREA OF PARALLELOGRAM = BASE X VERTICAL HEIGHT

AREA OF PARALLELOGRAM = 8 x 5

AREA OF PARALLELOGRAM = $40cm^2$

**(b)**

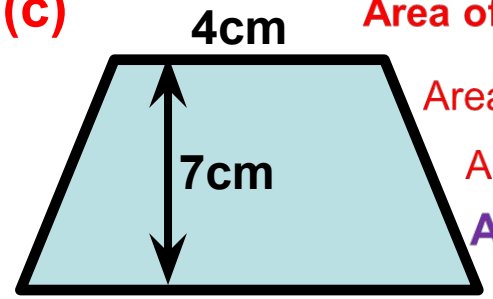



AREA OF A TRIANGLE = $\frac{\text{BASE X VERTICAL HEIGHT}}{2}$

AREA OF A TRIANGLE = $\frac{9 \times 6}{2}$

AREA OF A TRIANGLE = $27cm^2$

**(c)**




Area of a trapezium = $\frac{1}{2}(a + b) \times h$

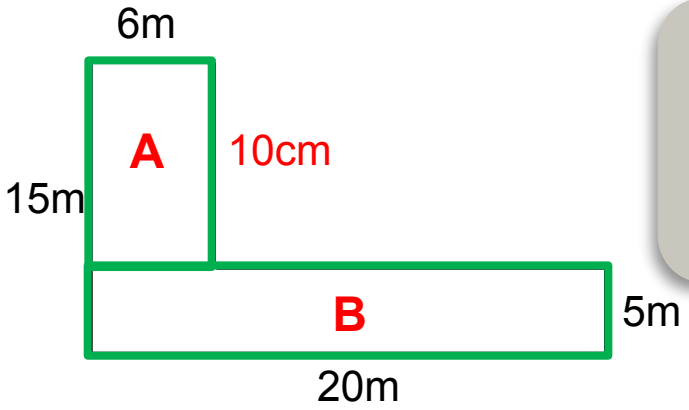
Area of a trapezium = $\frac{1}{2}(4 + 6) \times 7$

Area of a trapezium = $\frac{1}{2}(10) \times 7$

Area of a trapezium = $35cm^2$

## EXTENSION

1) Work out the difference between the areas of Shapes A and B.




05:00

Area of rectangle A = length x width

Area of rectangle A = 10 x 6

Area of rectangle A = $60m^2$

Area of rectangle B = length x width

Area of rectangle B = 20 x 5

Area of rectangle B = $100m^2$

Difference = $40m^2$

# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

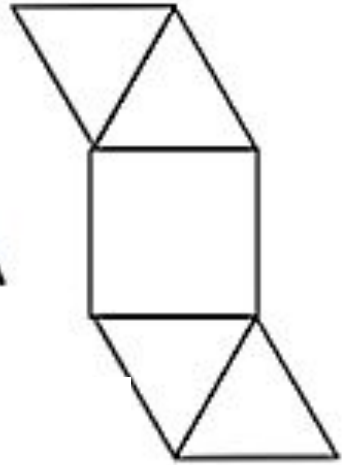
## STARTER

Here are 4 diagrams.

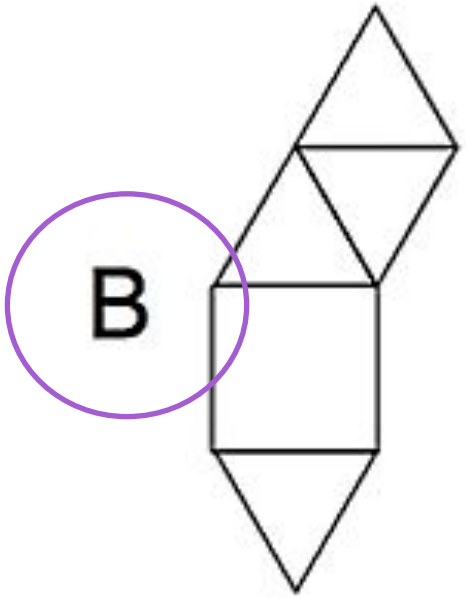
Three of these diagrams show a net for a square-based pyramid.

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

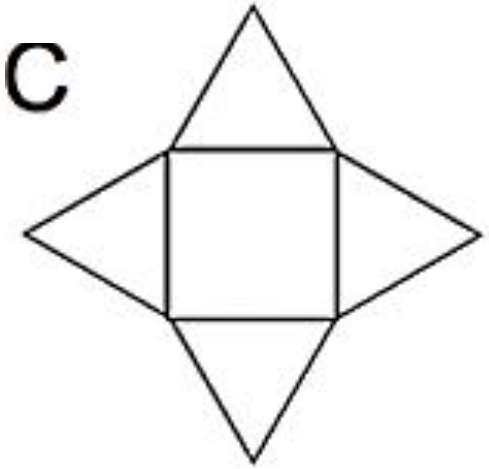
A



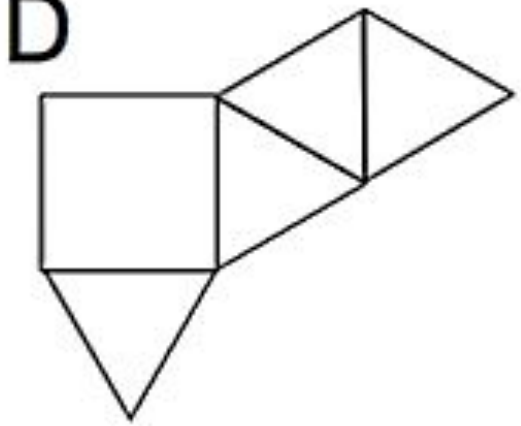
B



C



D



05:00

# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

## GCSE/iGCSE Assessment Objective Specification – Foundation/Higher

| | |
|---|---|
| A ✓ | recognise and give the names of solids |
| B | understand the terms 'face', 'edge' and 'vertex' in the context of 3D solids |

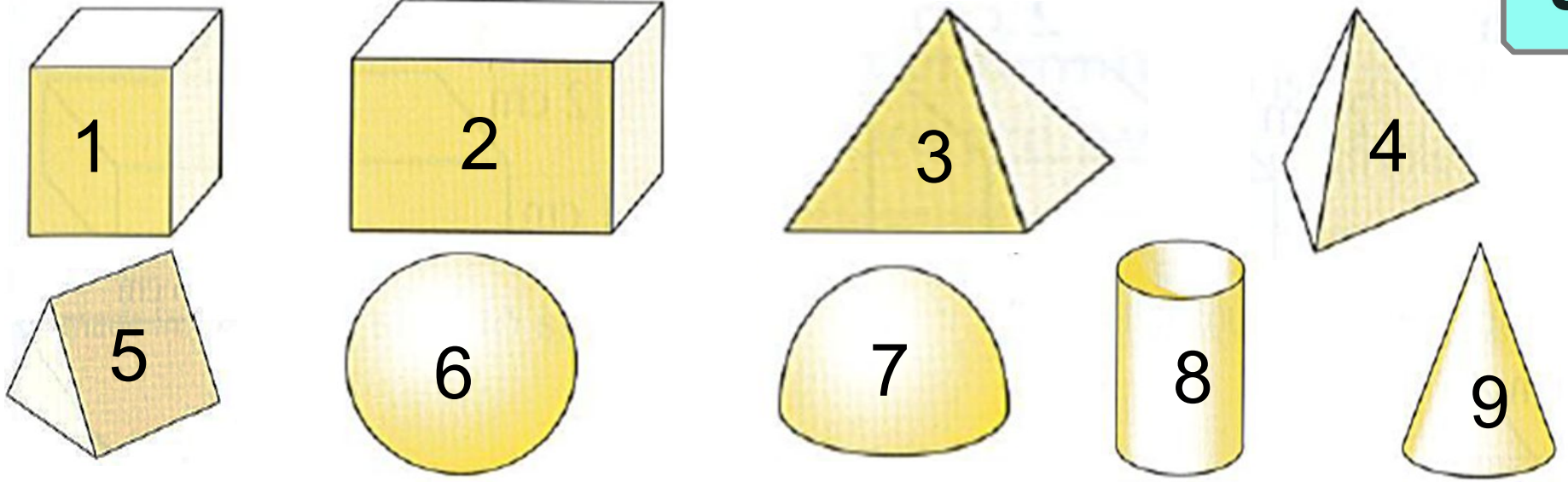
# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

Mini-Plenary

02:00

Match the solids with their respective names:




CYLINDER

TETRAHEDRON

CONE

HEMISPHERE

TRIANGULAR PRISM

CUBE

CUBOID

SQUARE BASED PYRAMID

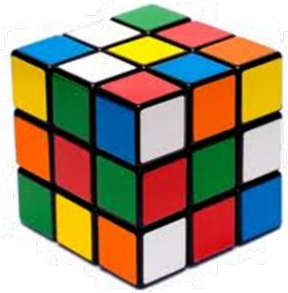
SPHERE

# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

## EXTENSION

Use your enterprise skills to find connections on where you might see these solids in the real world.



CUBE


CUBOID

SQUARE BASED PYRAMID

SPHERE

TETRAHEDRON


CONE


HEMISPHERE

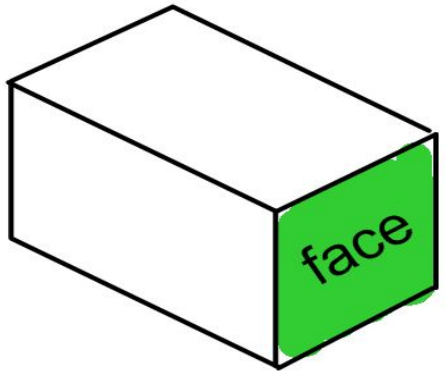

CYLINDER

# KEY CONCEPT

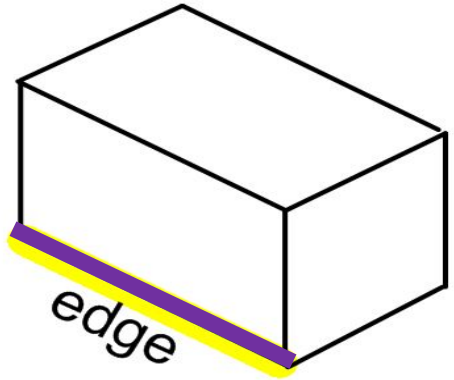
**LO: Identify and draw nets of different 3D solids.**

10 minutes

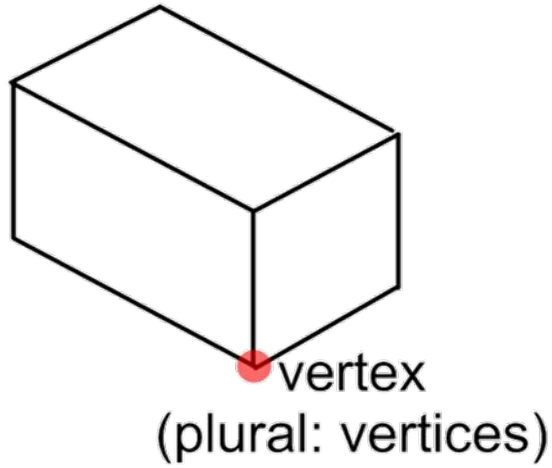
## FACES, EDGES AND VERTICES




**PLANES**




**LINES**




**CORNERS**

# PAIR AND THINK

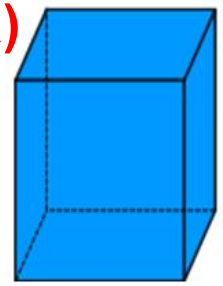
LO: Identify and draw nets of different 3D solids.

05:00

## FACES, EDGES AND VERTICES

Write down the number of faces, edges and vertices for the following solids:

(a)

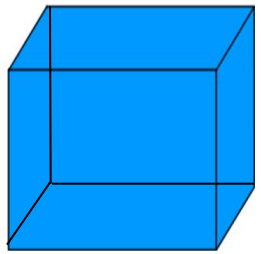


Faces = 6

Edges = 12

Vertices = 8

(b)

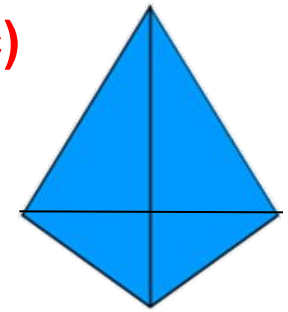


Faces = 6

Edges = 12

Vertices = 8

(c)

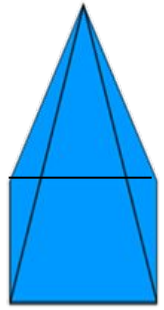


Faces = 4

Edges = 6

Vertices = 4

(d)

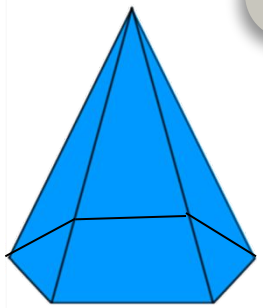


Faces = 5

Edges = 8

Vertices = 5

(e)



Faces = 7

Edges = 12

Vertices = 7

## EXTENSION

Use your enterprise skills to find a formula that connects the number of faces, vertices and edges.

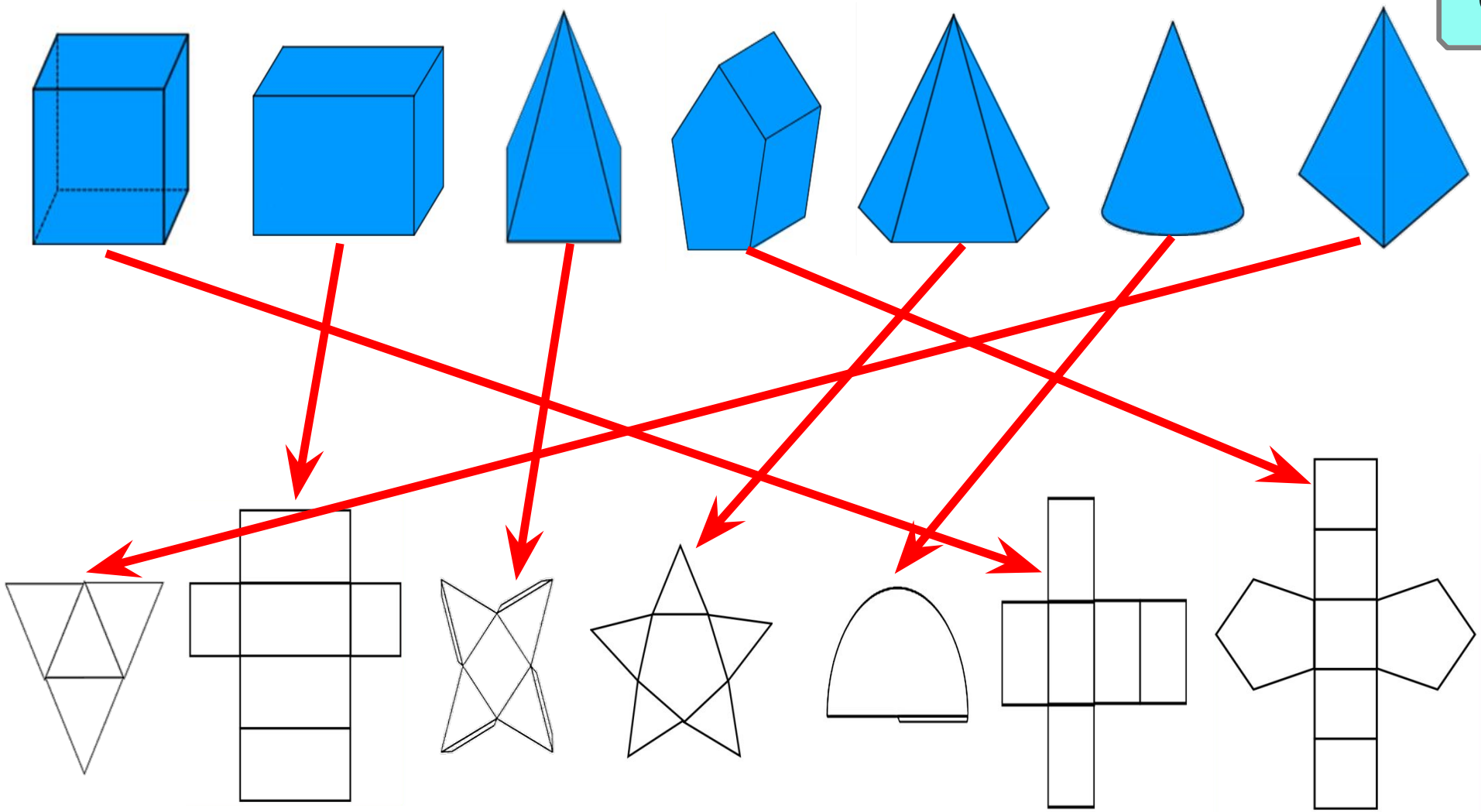
**Euler's Formula → Faces + Vertices – Edges = 2**

# GROUP ACTIVITY

**LO: Identify and draw nets of different 3D solids.**

Match the solids with their respective nets:

02:00



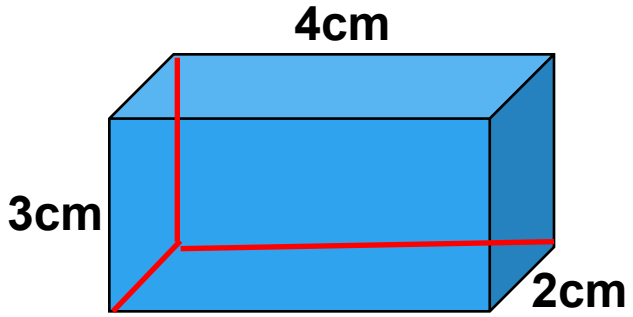
# KEY CONCEPT

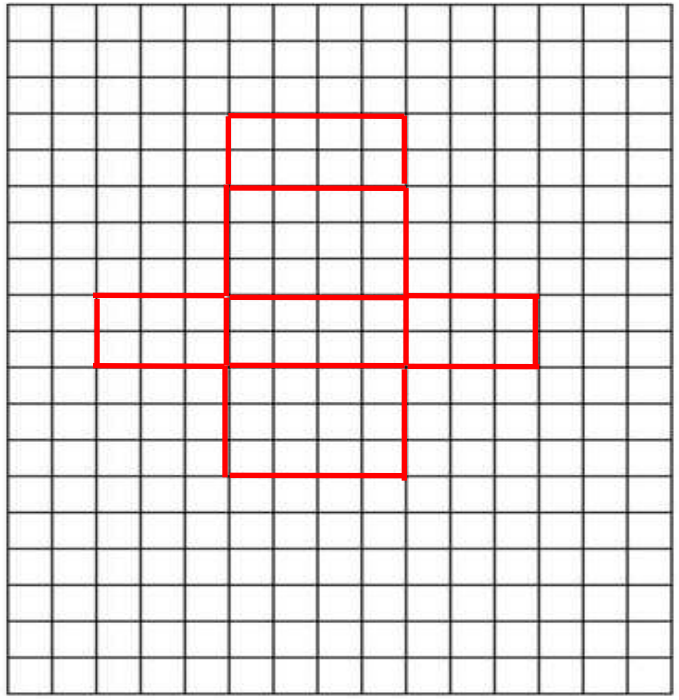
**LO: Identify and draw nets of different 3D solids.**

10 minutes

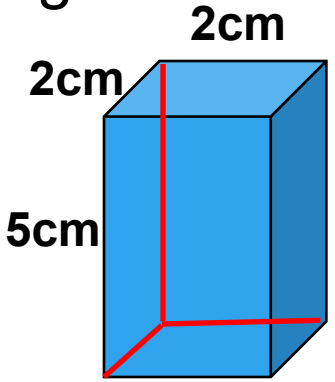
**1)** Draw accurate nets for each of the following cuboids below:

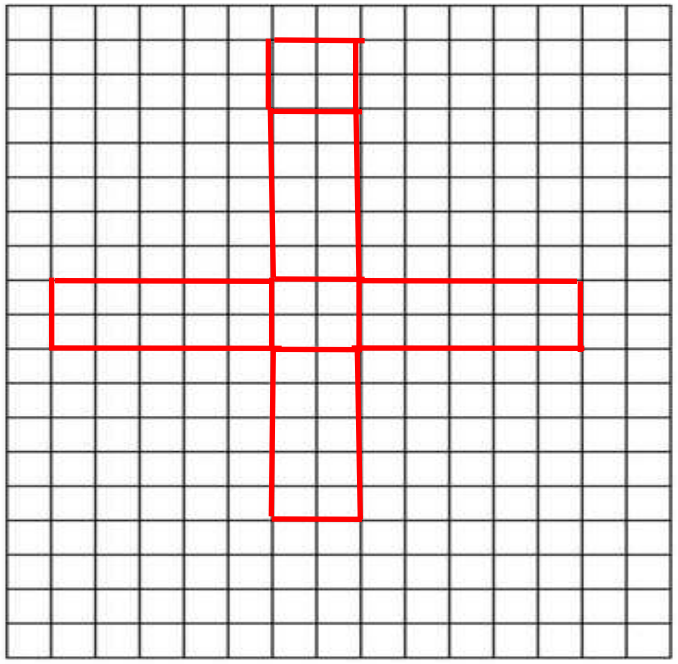
**(a)**



**(b)**



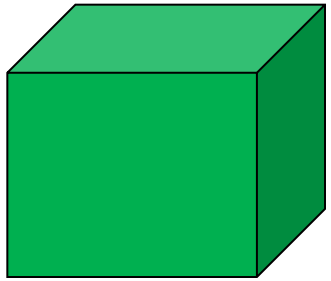



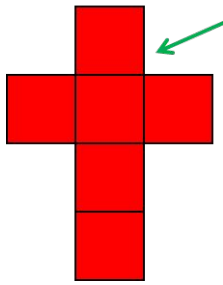
# KEY CONCEPT

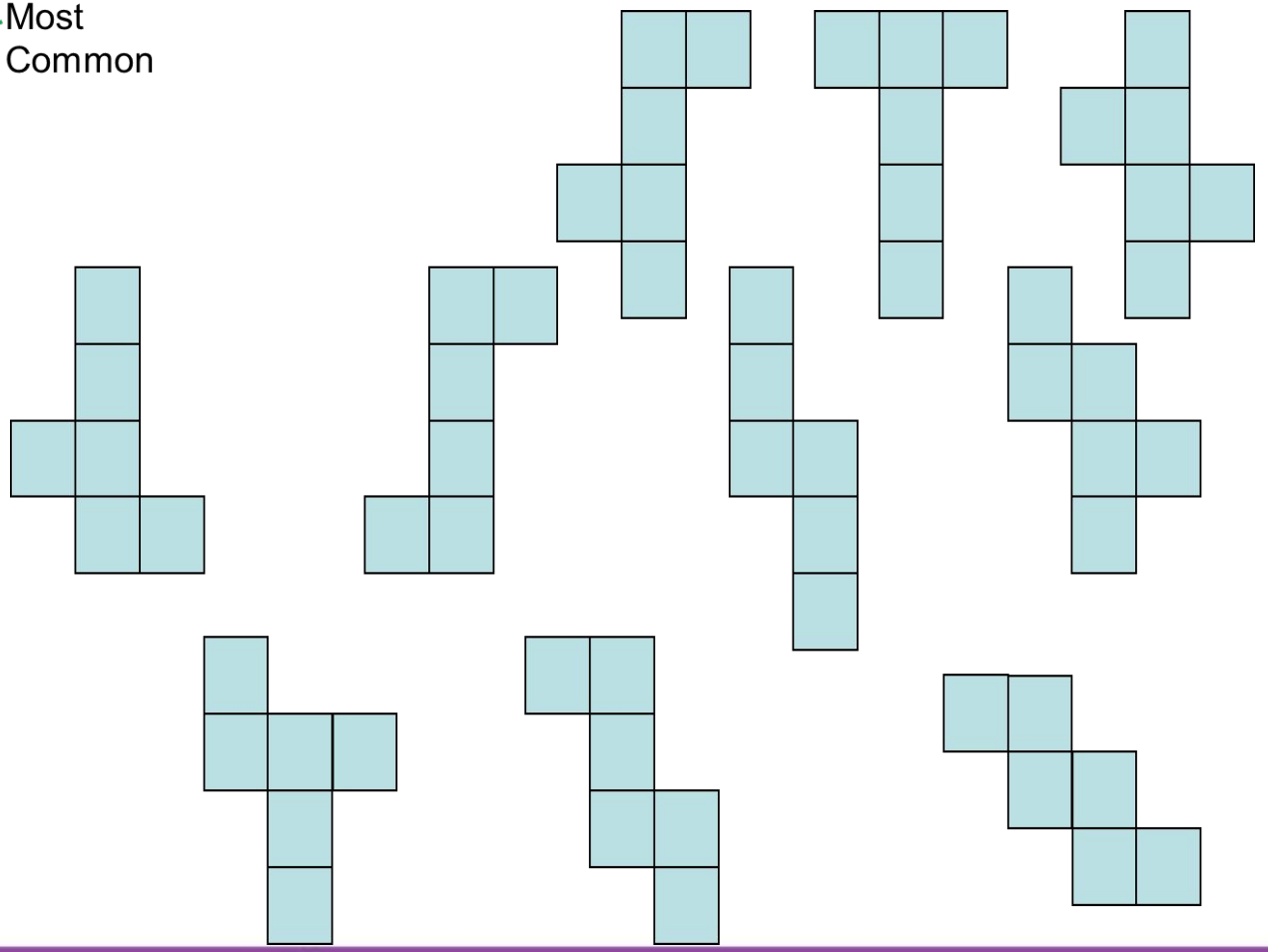
**LO: Identify and draw nets of different 3D solids.**

## EXTENSION (LEVEL 6)

**1)** There are eleven different ways of drawing the nets of cubes. See if you can find them all.





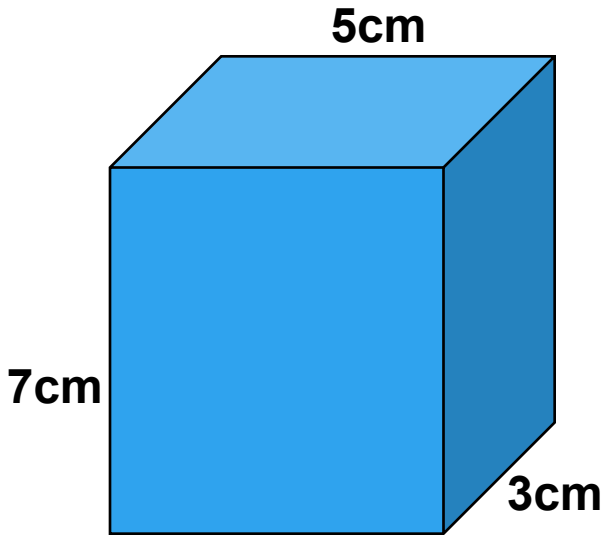



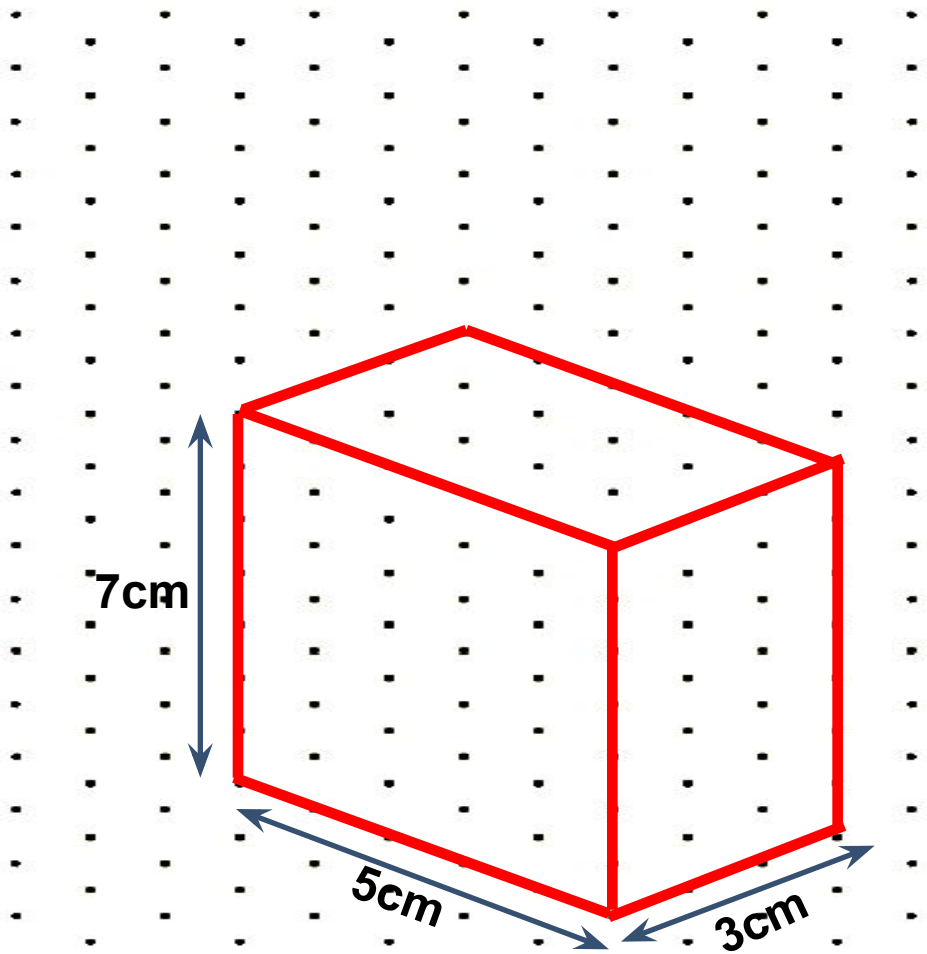
# KEY CONCEPT

**LO: Identify and draw nets of different 3D solids.**

10 minutes

Draw the following shape accurately on an isometric grid.



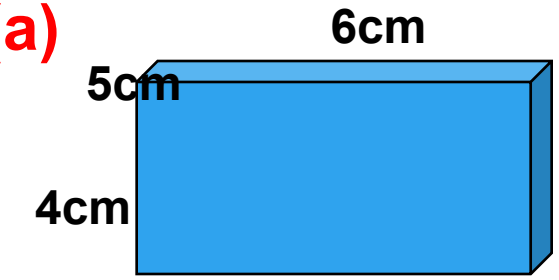
# PAIR ACTIVITY

**LO: Identify and draw nets of different 3D solids.**

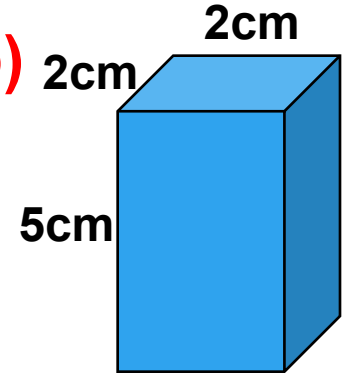
**02:00**

**1)** Draw the following shapes accurately on isometric paper.

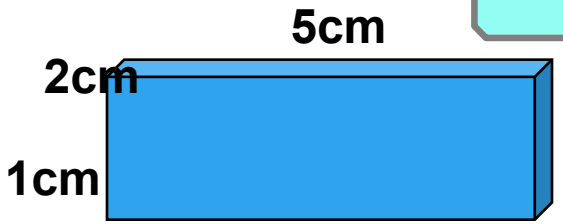
**(a)**

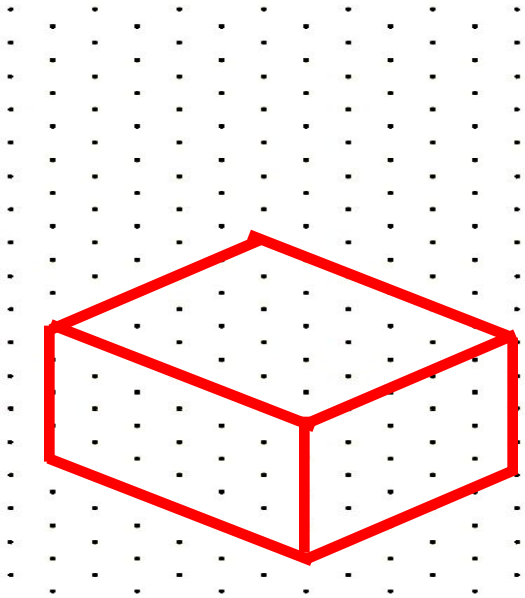


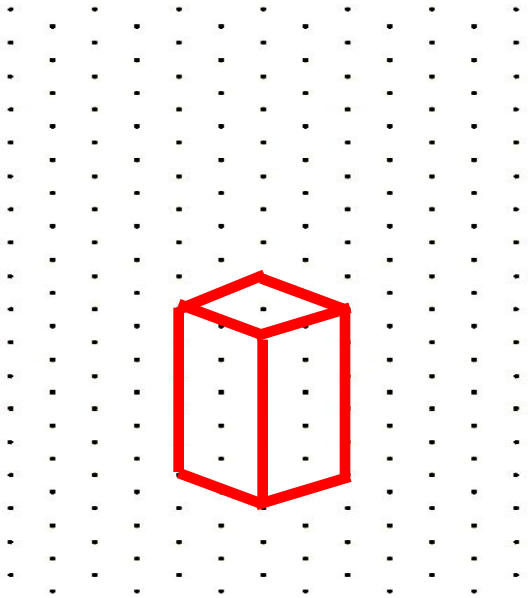

**(b)**

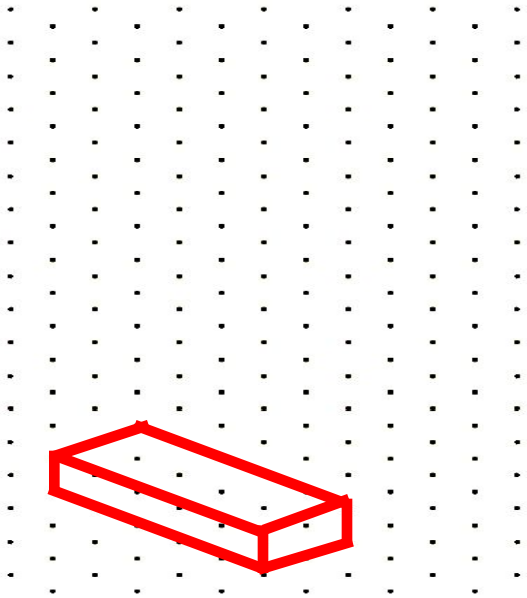



**(c)**







# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

## GCSE/iGCSE Assessment Objective Specification – Foundation/Higher

| | |
|---|---|
| A ✓ | recognise and give the names of solids |
| B ✓ | understand the terms 'face', 'edge' and 'vertex' in the context of 3D solids |

# Core Task

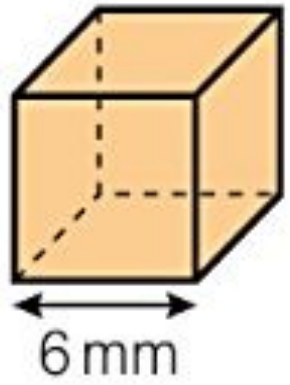
**LO: Identify and draw nets of different 3D solids.**

**Task 1:**

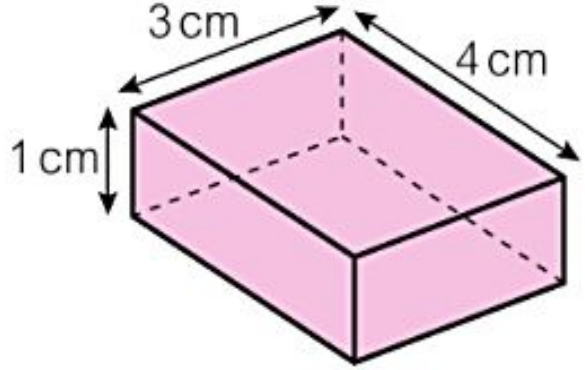
**10:00**

Sketch a net for each of these solids. Label the lengths.

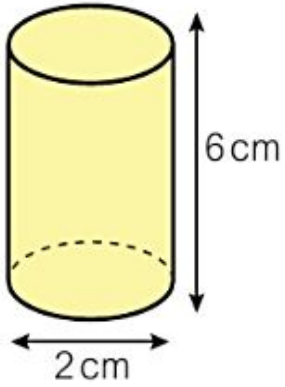
a



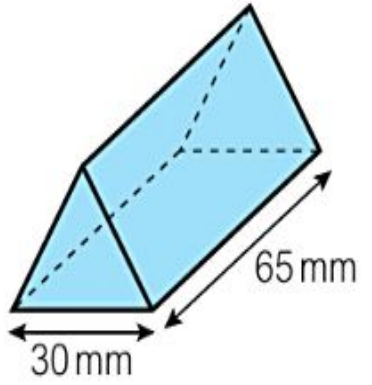

b




c



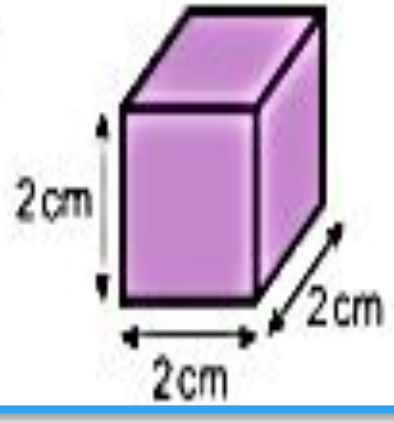

d



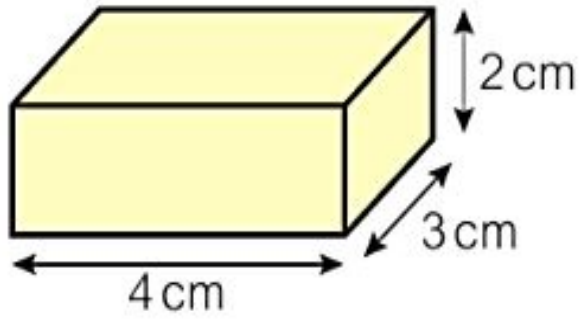

**Task 2:**

Draw these shapes on isometric paper.

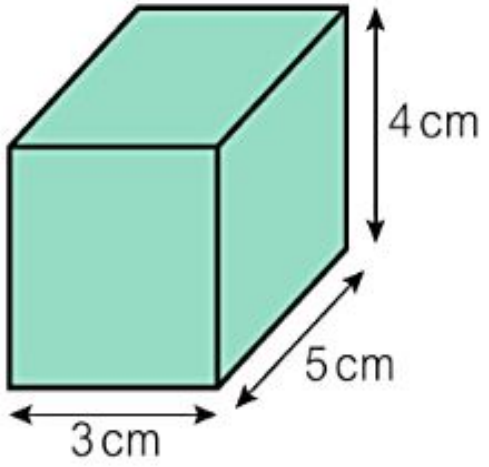
a




b




c

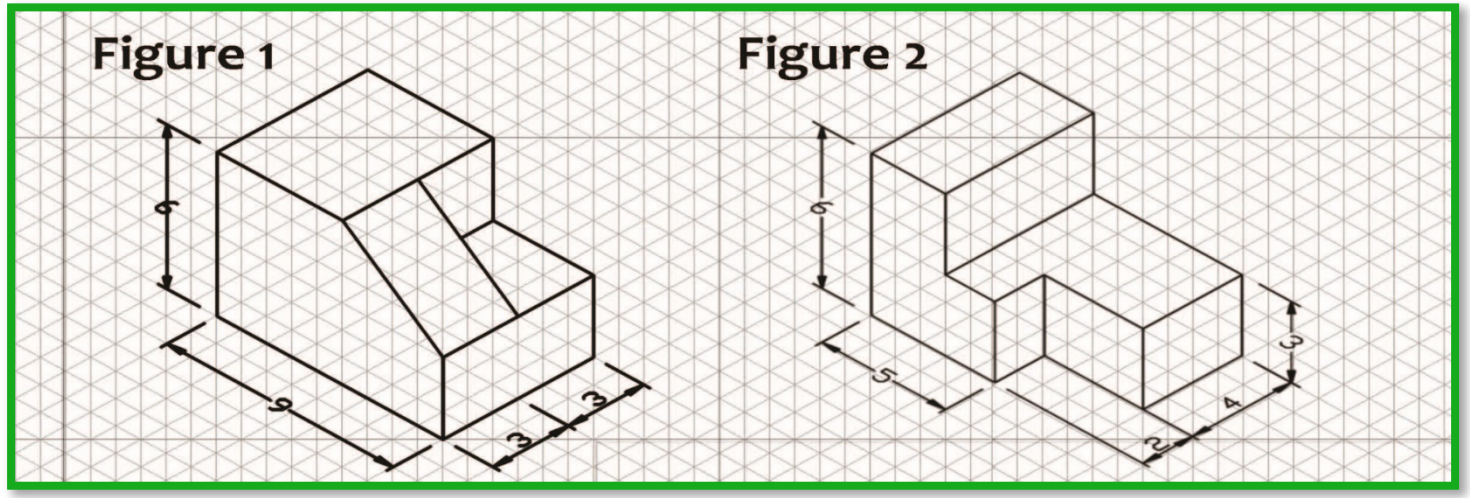


# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

**Task 3:**

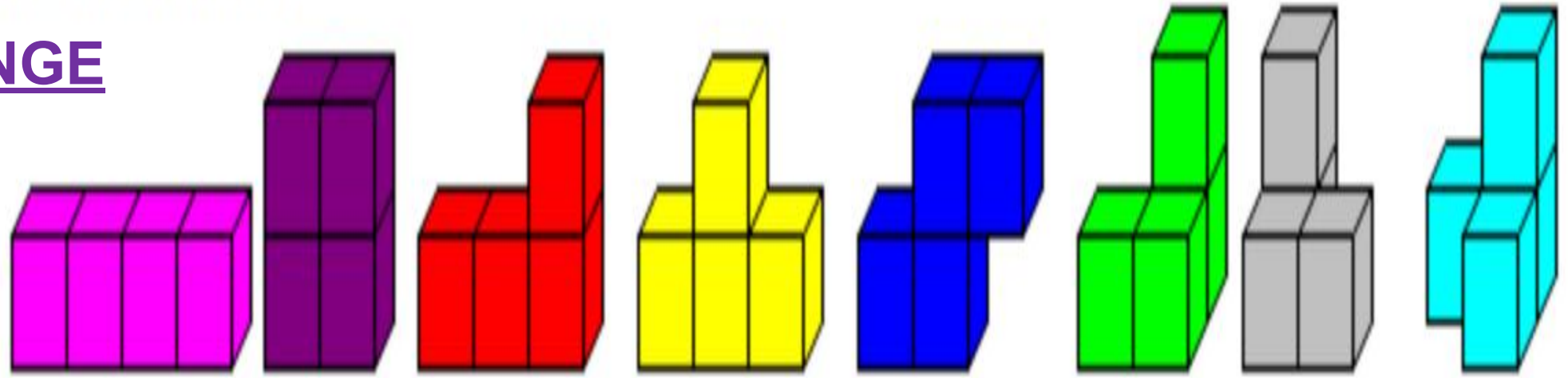
**10:00**




**1)** On an isometric grid draw all the possible different solids that can be made from four cubes.

**There are eight different ways of drawing tetracubes**

## CHALLENGE



# Sketch Nets of Solids

**LO: Identify and draw nets of different 3D solids.**

# Draw your brain

In your brain, write or draw everything you can remember about finding edges, vertices, faces, drawing nets and representing solids on isometric paper. It can be a skill or a reflection, or something else that might be prominent in your brain.

**Where are we in our journey?**

**What level are we working at?**