UNIT 5 LESSON 2

START (10')

Children play the game "Who am I?" in pairs:

A child thinks of a 3D figure "I have _ 6 faces
_ 8 vertices
_ 12 edges
Who am I?"

The partner guesses the figure.
They have to do at least 3 questions each.

MAIN TEACHING (40')

Show children a closed cardboard box, an empty container such as cereal box.

Ask questions about the box such as numbers of faces, edges,…:

How many faces has the box got?
Are all faces the same shape?
Which faces are the same?
How many faces meet in a vertex?
How many edges has the box got?
How many vertices has the box got?

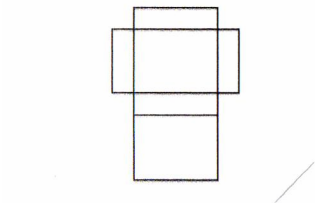
Ask if the box was opened out into a single piece of cardboard, what it would look like:

If the box was opened out into a single piece of cardboard, what would it look like?

Give the children centimetre squared paper and ask them to sketch the single piece of cardboard to give the shape but not to scale, only a small diagram is needed.

Remind them this single piece of cardboard is called the net of the shape_ it can be folded into the shape exactly.

Draw a net on the board. Agree the net is something like the shape on the board.



Open the box to confirm this.

Explain that the box is called a cuboid or rectangular prism and you want the children to work on cubes now.

Discuss the differences between cubes and cuboids, reminding them that all faces of a cube are identical squares.

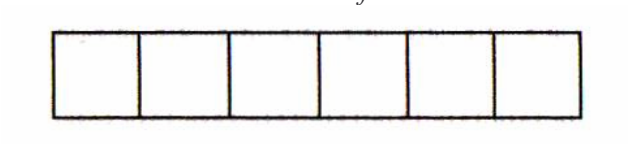
Ask what the net of a closed cube with dimensions 3cm by 3cm by 3cm is:

What is the net of a closed cube with dimensions 3cm by 3cm by 3cm?

Give children time to sketch a net on the squared paper. Collect one correct net from the children and discuss why this works.

Sketch a shape of a net on the board. Ask if it could be the net of a cube:

Could this be the net of a cube?



Agree that it cannot be and if necessary demonstrate using a strip of six squares.

Ask children to continue to find nets for the 3 cm cube on the cm squared paper.

Collect answers, discuss which are correct and why. Establish there is more than one answer and compare different nets for the cube.

Remind children of the names and features of prisms and pyramids.

Explain that the cube and cuboids are both prisms, and the name given to any pyramid refers to the shape of the base.

"A net is a flat shape which can be fold up into a three dimensional solid "
"The name given to any pyramids or prisms refers on the shape of the base".

ENDING (10')

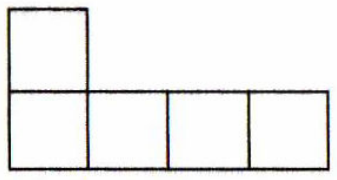
Hold up a square-based pyramid and ask how many faces it has and what shapes are they:

How many faces has it?
What shapes are they?

Give out worksheet 5.2. Ask children which of the diagrams shown represents the net of a square-based pyramid.

Repeat, asking children to identify the other pyramids represented.

On the board draw a net of a cube.



Agree that this is the net of an open cube.

Give children a sheet of squared paper for homework and worksheets 5.3 and 5.4.

Ask how many nets of an open cube, made from 5 squares, they can find:

How many nets of an open cube made of 5 squares can you find?

Tell children to do the worksheets first and secondly draw the cube nets found on the squared paper.

RESOURCES

Centimetre squared paper, cardboard box, models of prisms and pyramids, worksheets 5.2, 5,3 and 5.4, P.Point Guess me U5 L2
http://www.harcourtschool.com/activity/mmath/mmath_dr_gee.html
http://www.harcourtschool.com/activity/elab2004/gr4/21.html, computer worksheet U5 L2.