UNIT 5 LESSON 3

START (10')

Show sheet support 5.a.

Explain it is a circle with 12 points spaced equally about the circumference.

Join up three points to form a triangle.

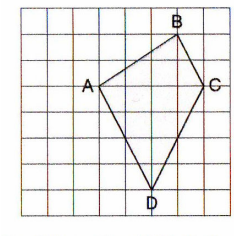
Ask what type of triangle it is:
Is the triangle equilateral, isosceles or scalene?

Children write E, I or S on their whiteboard to show their answers.

Repeat ensuring that the different types of triangle are represented; include a right-angled triangle.

Show support sheet 5.b.

Explain it is a grid of squares. On the grid draw a quadrilateral and label the vertices A, B, C, D.



Ask questions about the angles, the lines and the length:
Is the angle at C acute or obtuse?
Are lines BC, AD parallel?
Are lines AD, AB perpendicular?

Repeat with different quadrilaterals.

Show support sheet 5.c.

Explain that it represents a cuboid. Point to one of the faces, call it face A, and identify another face.

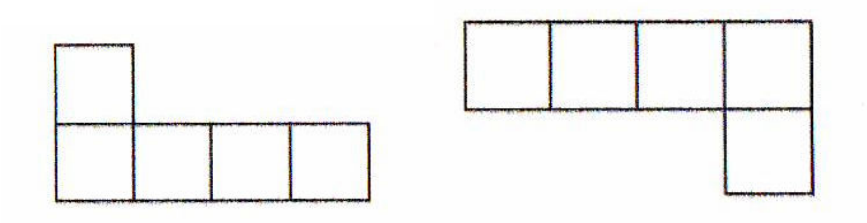
Ask if this face is parallel or perpendicular to face A:
Is this face parallel or perpendicular to face A?

Repeat using other pairs of faces and edges.

MAIN TEACHING

Discuss the homework from the last class. Remind children of the net for an open cube.

Draw two nets on the board. Agree that theses nets are the same.



Collect different nets from the children. Establish which nets are the same, which are different and why.

Give children worksheet 5.5 and a number of interlocking cubes.

Explain that the worksheet shows four views of the same object which is made up of cubes. Discuss the shapes.

Ask how many cubes were used to make the shape:

How many cubes were used to make the shape?
Can you make the shape?

Establish that six cubes were used and encourage the children to make the shape using interlocking cubes, working in pairs or small groups.

Ask children to hold their shape up in the same position as shown in the bottom left view.

Get the children to rotate their shapes through quarter turns to show each of the four views, working anti-clockwise. (Looking at the shape with one eye can help.)

In pairs, ask children to use five of their six cubes to make a shape of their own.

Using a shape made from six cubes show the children how to draw a view of the shape on a dotted paper (sheet support 5.d).

Emphasise starting with the front edge and working away from this to build up the cubes which make the shape.

Give children worksheet 5.6 and with a ruler and pencil get them to draw a view of their own shapes.

Pairs swap their drawings and make the shapes drawn by the other pairs.

Collect examples of drawings and shapes, discuss the 2D drawings and any difficulties the children had.

ENDING (10')

Show the top view of the shape on support sheet 5.e.

Ask how many cubes were used to make this shape and if there are any cubes we can not see:

How many cubes were used to make the shape?
Are there any cubes we cannot see?

Encourage children to speculate about the number of cubes and decide that the greatest number of cubes could be more than 14.

Ask what is the least number of cubes we could use to make this shape:

What is the least number of cubes we could use to make this shape?

Give children time to make the shape if it helps.

Conclude that 10 cubes is the least number.

Show the bottom view on sheet support 5.e.

Ask how many cubes now:

How many cubes now?

Establish there are 12 cubes needed; get children to make the shape.

Ask how many more cubes are needed to make a cuboid:

How many more cubes are needed to make the cuboid?

Establish that six extra cubes are needed and the cuboid is 2 by 3 by 3 cubes, a total of 18 cubes.

Give out worksheet 5.7 and 5.8 for homework.

"Two-dimensional drawings of three-dimensional objects can be made by using perspective. Perspective is the technique of drawing on a flat surface in such a way as to make the drawing look three dimensional"

RESOURCES:

White board, sheet support 5.a, 5.b, 5.c, 5.d and 5.e; worksheets 5.5, 5.6, 5.7 and 5.8; interlocking cubes; http://www.livecube.com/