

Net me a cube

Learning objectives

(Y4) Make shapes and discuss properties.
(Y5 and Y6) Make shapes with increasing accuracy. Visualise 3-D shapes from 2-D drawings and identify different nets.

Mental starter

See the starter 33 on page 21.

You will need

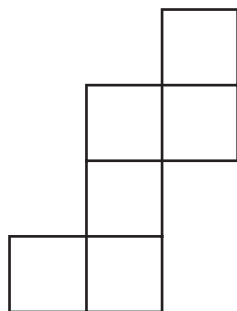
Photocopiable page 93 for each pair; six Polydron squares or similar; squared paper.

Whole class work

- Draw a net of an open cube on the board (such as one that forms a cross). Ask: *How can we tell that this net will fold to make an open cube?* Invite the children to describe folding the sides.
- Now draw an incorrect net for an open-topped cube and ask: *How can we tell that this one will not fold to make an open cube?* Encourage the children to see that two of the sides overlap. Demonstrate with the linking squares.
- Ask the children to use the squared paper to draw all of the nets they can for an open cube. You may wish to give them linking squares for support, though the children should be encouraged to visualise the folding process. Collect the solutions on the board. (See page 105 of the *Framework for Teaching Mathematics* (DfEE) for examples.)
- The children may have difficulty deciding if two apparently different nets are the same or not. Discuss with the children what 'different' and 'the same' mean with respect to nets.

Paired work

- Give each child, in pairs, a copy of photocopiable page 93 and six linking squares. Ask them to arrange the six squares into the net of a cube and to check by folding them up. Ask the children to find the net they have made on the sheet and put a tick by it. (It is possible, but unlikely, that a child makes the net that is missing and which forms the final part of the activity.)
- Explain that the children need to find the 'impostors' in the list of nets. To do this they either make each one to check, or decide by folding the sides up mentally. The children should mark each net with a tick and those that are not nets with a cross. (The 'impostors' are C, F, L and N.) The missing net is shown here.



Plenary

- Collect together the suggested missing nets. Ask the children to test each one to see if it is correct.

Moving on

- Ask the children to write a B in one square to represent the bottom of each cube. They must then put a T in the square that will be the top of each cube.

Potential difficulties	Further support
Some children with poor motor skills may need to practise linking and unlinking squares.	Give the children some linking squares to experiment with before the lesson.