3D-figure

The images below show the first and the fourth in a
series of 3D figures made of small cubes.
There are no empty spaces in the shapes, and an
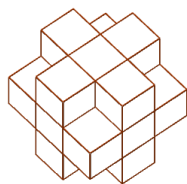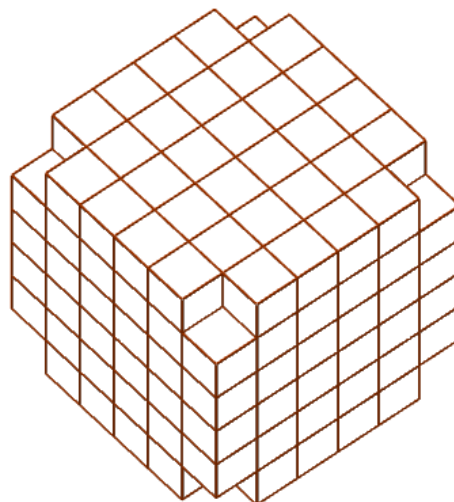infinite number of figures of this kind can be obtained
by adding more cubes.

Fig 1   Fig 4

A   SCIENTIFIC REPORT

a) You should investigate the relationship between the figure number and the number of
cubes required to make each figure.
- Solve this problem in as many ways as you can.
- Compare and contrast the different solutions.
What are the similarities and the differences?

b) Which of the approaches/solutions in a) do you think is
- a normal/standard approach/solution,
- a difficult approach/solution
- a smart approach/solution
Give a reason for your answers.

c) Find a relationship between the figure number and the number of cubes that have
- 0 visible sides
- 1 visible sides
- 2 visible sides
- 3 visible sides
- 4 visible sides

d) Is there a relationship between the answers to parts a) and c)?

e) Make a joint scientific report that carefully explains
how you reached your various results.

B   EXHIBITION AND PRESENTATION

a) Explain what isometric transformations are.
b) Find *one* example from art, clothes design, architecture or similar and explain what
isometric transformation(s) have been used.

C   PROCESS LOG

The process log should describe how the class worked with part A of the task.