

Making Solids: Investigation

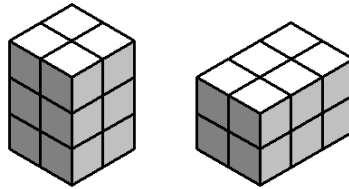
Name

Date

12 Centicubes

The diagrams below show two solids made from **12 centicubes** each.

They are both $3 \times 2 \times 2$ **rectangular prisms** and are considered to be the same.



The rectangular prism above has a **surface area of 32 cm^2** .

$$\begin{aligned} \text{Surface area} &= 6 + 6 + 4 + 4 + 6 + 6 \\ &= 32 \text{ cm}^2 \end{aligned}$$

There are **three** more rectangular prisms that can be made from 12 centicubes.

Build each of the rectangular prisms and find the **surface area** of each.

Prism	Surface Area
$3 \times 2 \times 2$	32 cm^2
$12 \times 1 \times 1$	
$6 \times 2 \times 1$	
$4 \times 3 \times 1$	

16 Centicubes

How many different rectangular prisms can you make using **16 centicubes** (there are 4)?

Find the surface area of each. Which prism has the smallest surface area?

Prism	Surface Area

20 Centicubes

How many different rectangular prisms can you make using **20 centicubes** (there are 4)?

Find the surface area of each. Which prism has the smallest surface area?

Prism	Surface Area

Answers

12

Cubes

SA

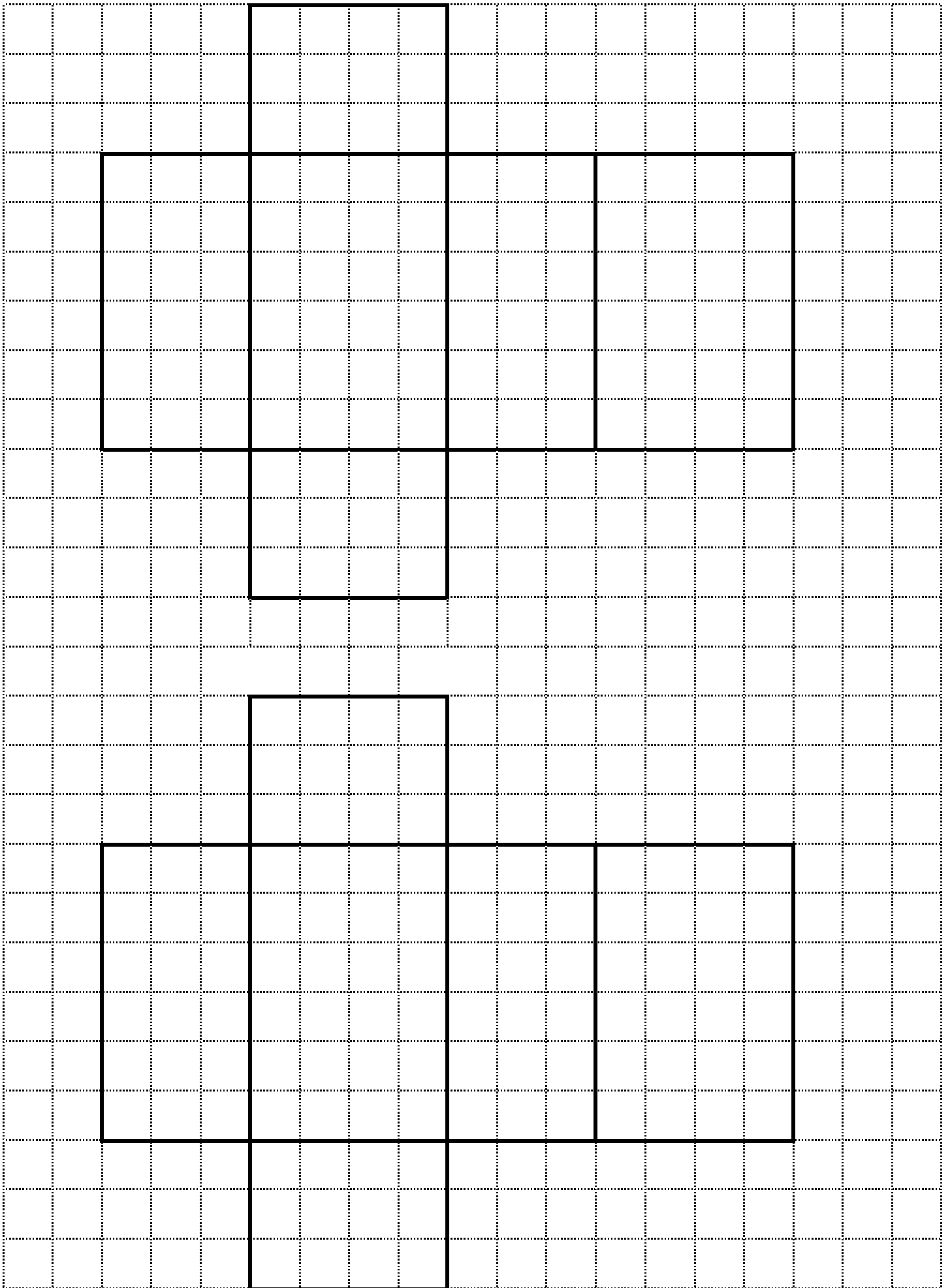
3	2	2	32
12	1	1	50
6	2	1	40
4	3	1	38

16 cubes

16	1	1	66
8	2	1	52
4	4	1	48
4	2	2	40

20 cubes

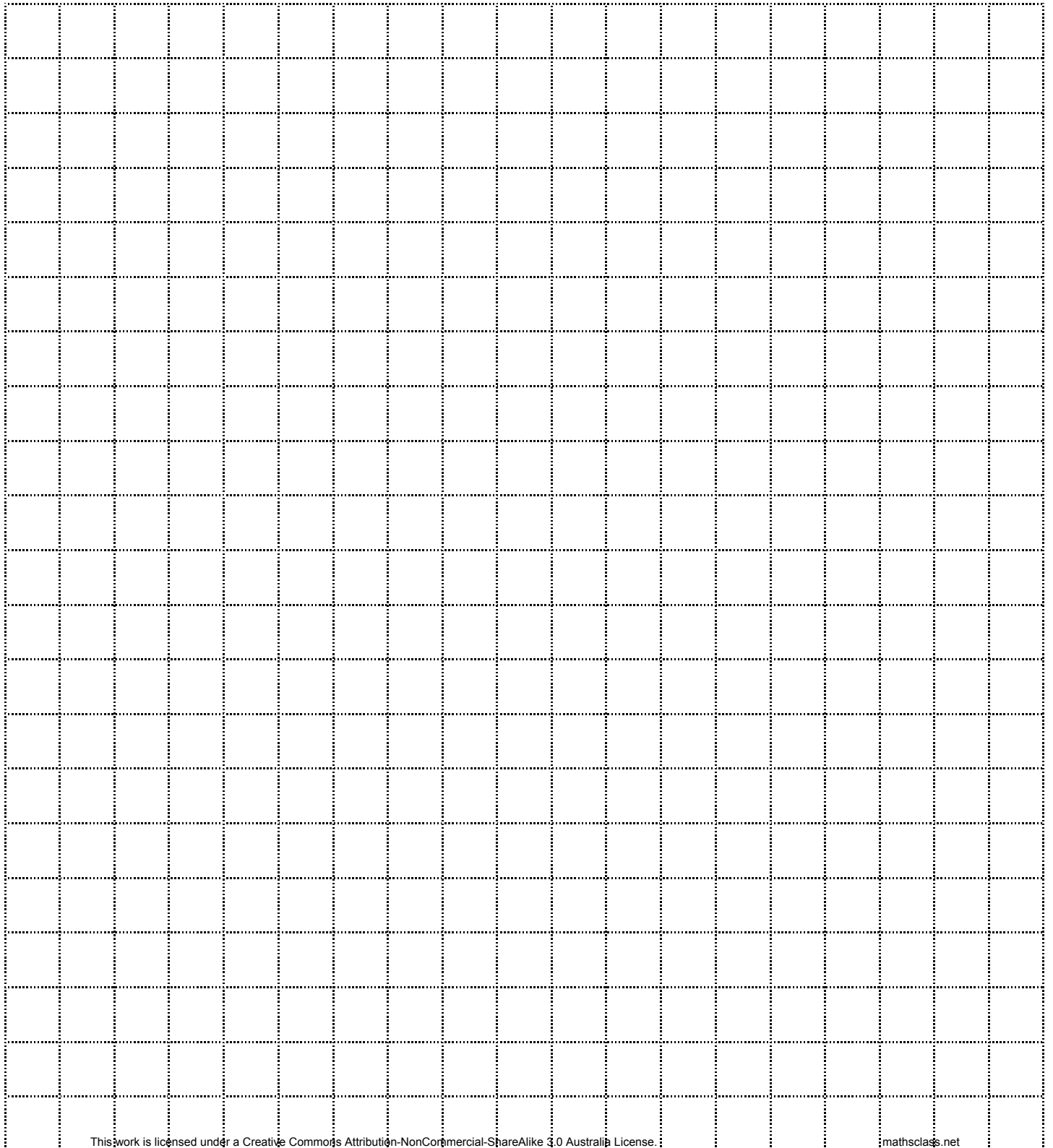
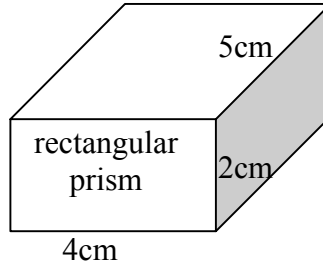
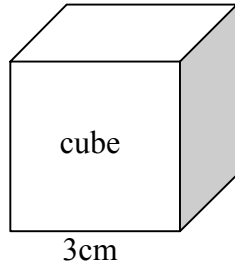
20	1	1	82
10	2	1	64
5	4	1	58
5	2	2	48



Surface Area

For each solid,

1. Draw its net
2. Count squares to find its **surface area**.



Answer

