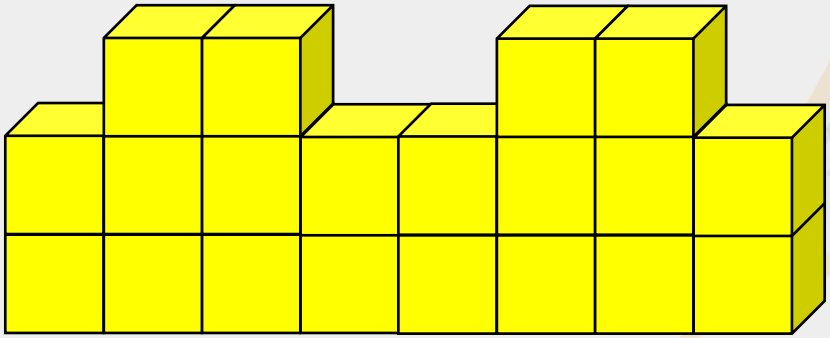
Thursday 16th July

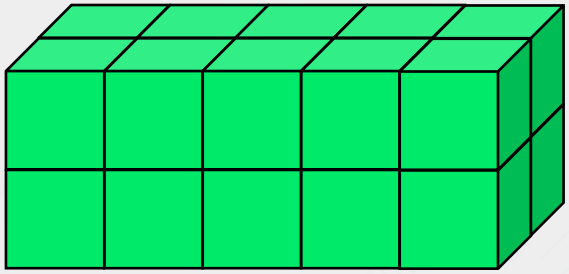
Year 5

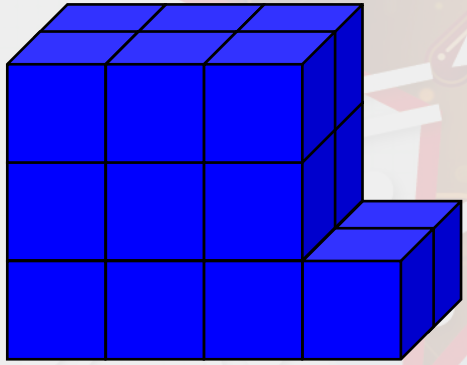
Compare Volume

Introduction

Each cube has a volume of 1cm³.
Which shape has the greatest volume?

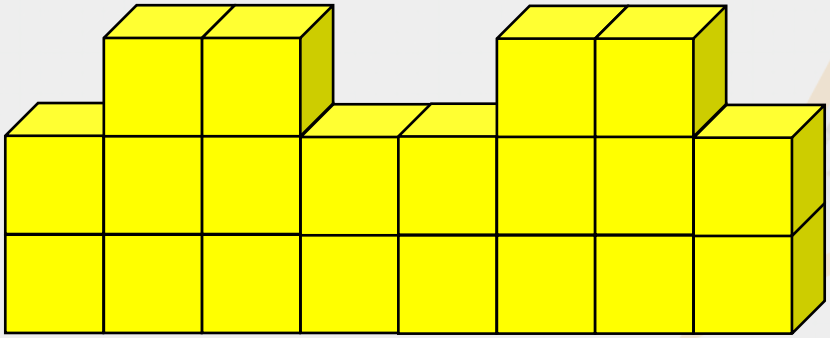


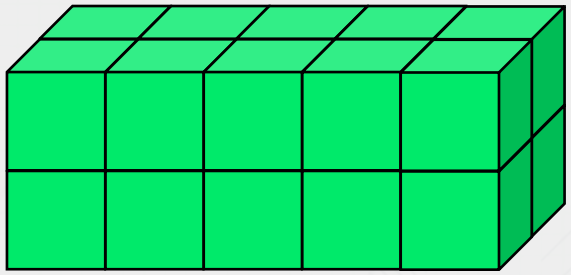


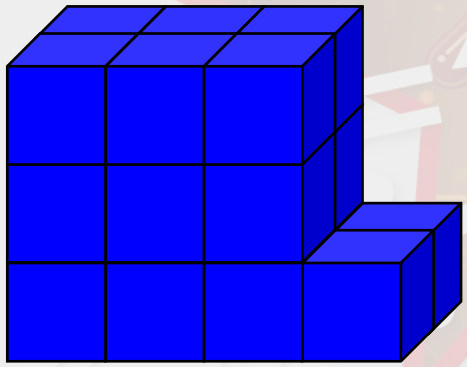


Introduction

Each cube has a volume of 1cm³.
Which shape has the greatest volume?
All three shapes have equal volumes of 20cm³.



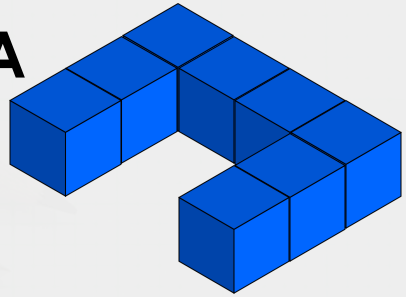




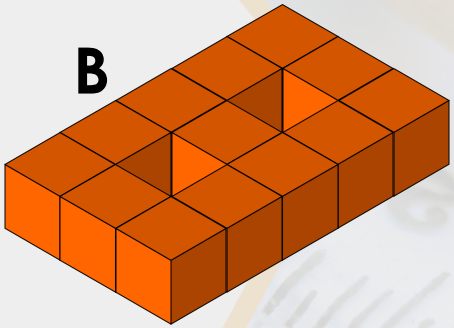
Varied Fluency 1

Here are 4 shapes made of 1cm³ cubes.

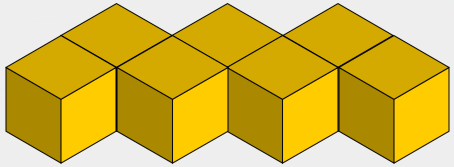
A



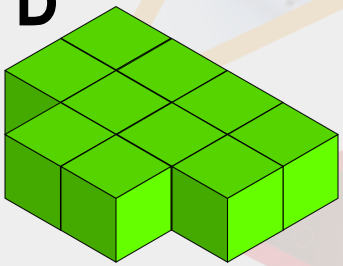
B



C



D



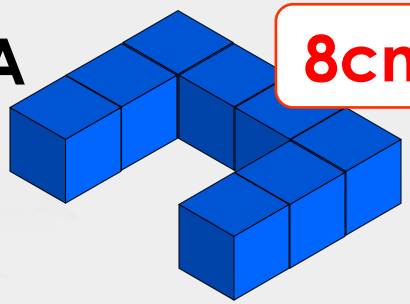
Pair these volumes with the shapes.

7cm³	8cm³	10cm³	13cm³

Varied Fluency 1

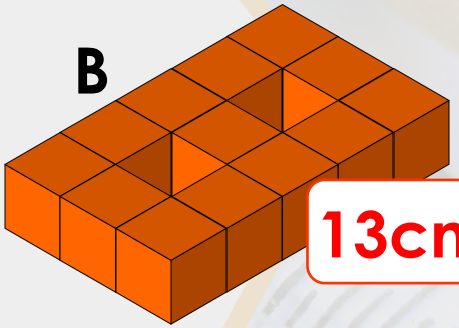
Here are 4 shapes made of 1cm³ cubes.

A



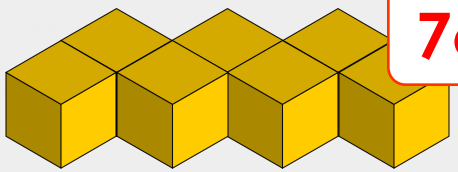
8cm³

B



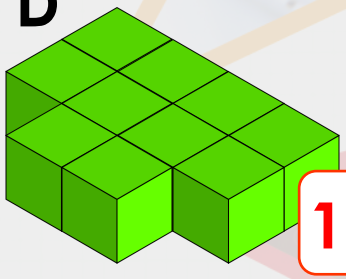
13cm³

C



7cm³

D



10cm³

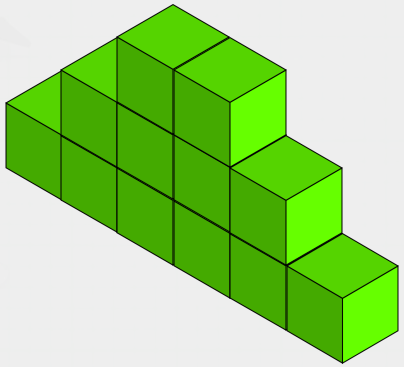
Pair these volumes with the shapes.

7cm³	8cm³	10cm³	13cm³

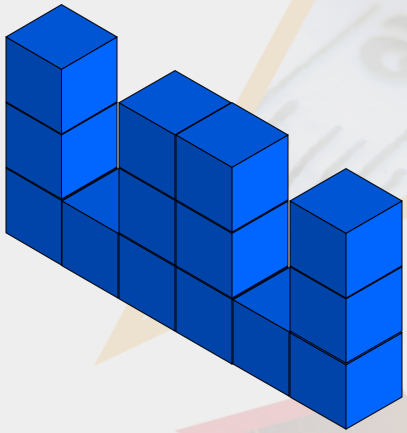
Varied Fluency 2

Which shape below has the largest volume?

A



B

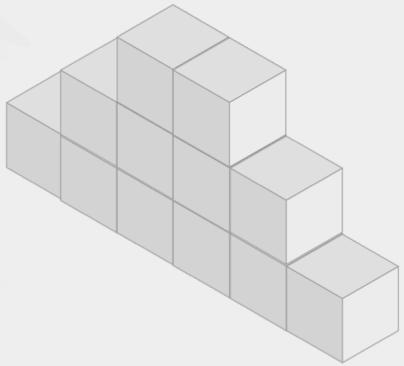


Write a sentence to compare the volumes of A and B.

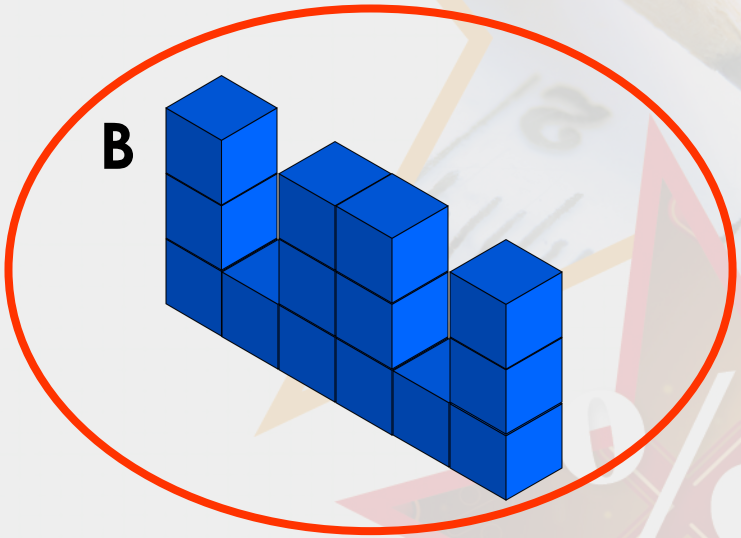
Varied Fluency 2

Which shape below has the largest volume?

A



B



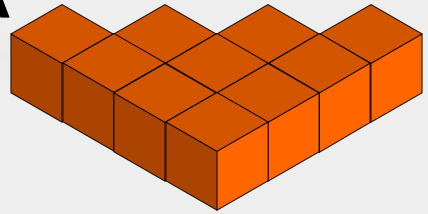
Write a sentence to compare the volumes of A and B.

Shape B. Shape A has a volume of 12cm³ while Shape B has a volume of 14cm³.

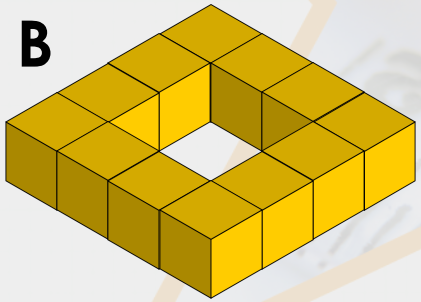
Varied Fluency 3

Put these shapes in descending order according to their volume.

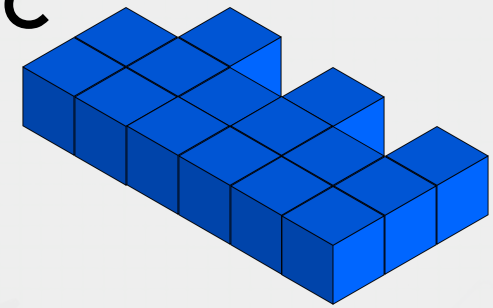
A



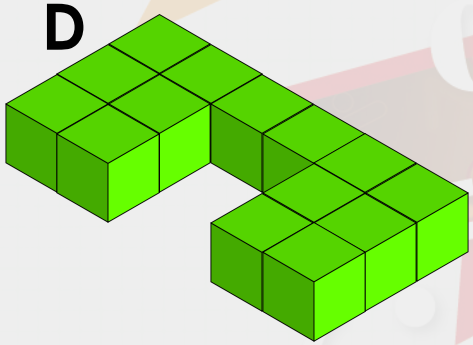
B



C



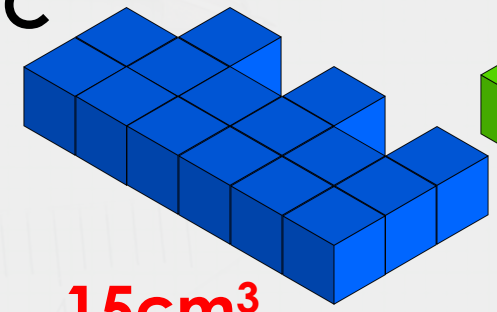
D



Varied Fluency 3

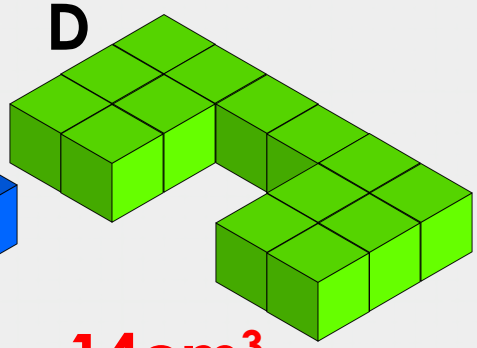
Put these shapes in descending order according to their volume.

C



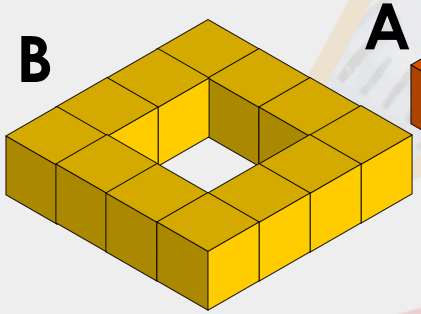
$15cm^3$

D



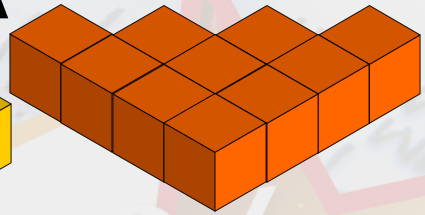
$14cm^3$

B



$12cm^3$

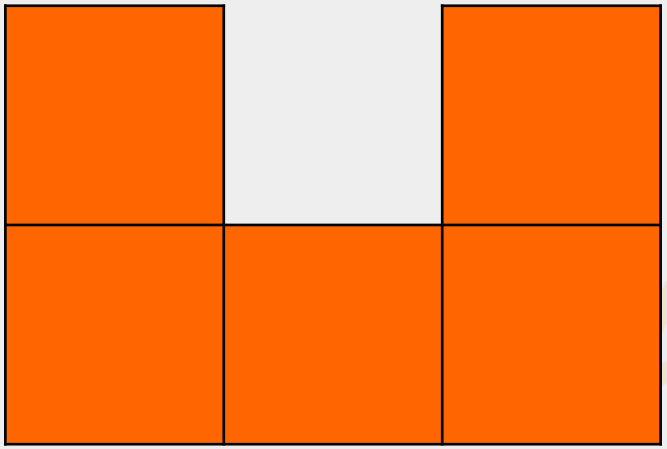
A



$10cm^3$

Reasoning 1

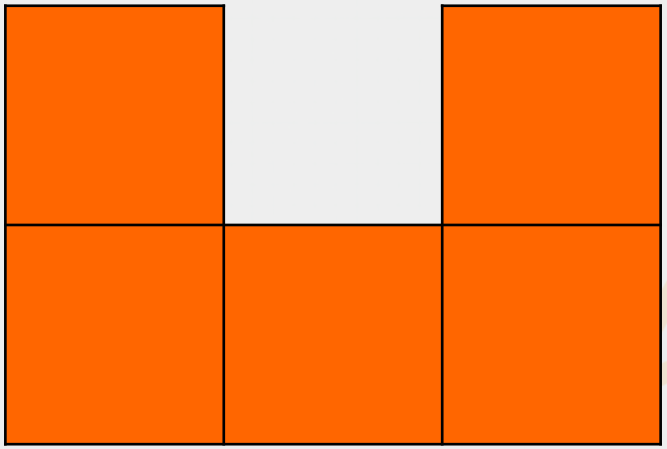
Ari can use up to sixteen 1cm³ cubes to make a shape.
This is the side view of the shape he makes:



Give one possible volume Ari's shape could have.
Explain your answer.

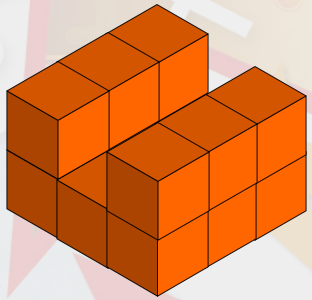
Reasoning 1

Ari can use up to sixteen 1cm³ cubes to make a shape.
This is the side view of the shape he makes:



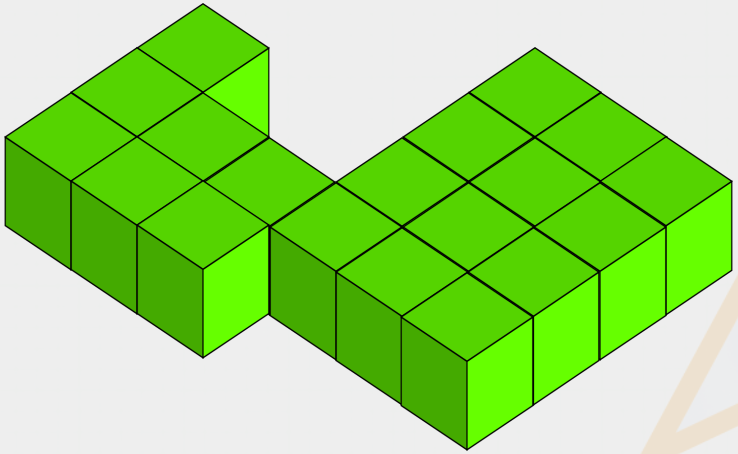
Give one possible volume Ari's shape could have.
Explain your answer.

The answer is correct if it describes a shape which could have the given side view on at least one side and a volume between 5cm³ and 16 cm³. For example:



Problem Solving 1

Lexa makes this shape from 1cm³ cubes:

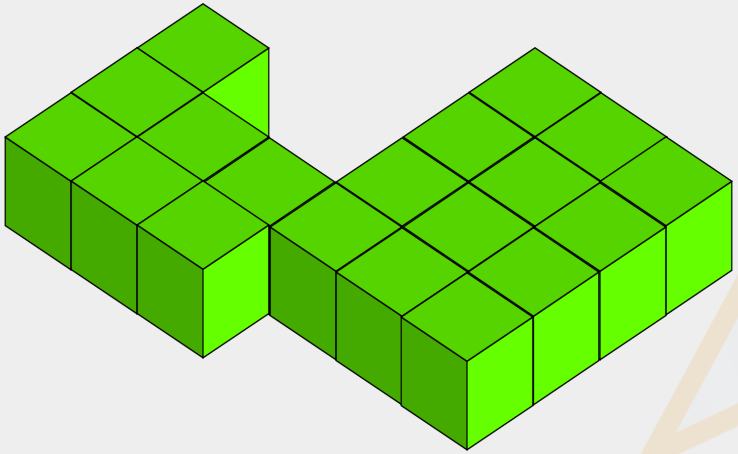


Darrell makes one shape with a volume of 17cm³ and another shape with a volume of 6cm³. He combines them.

Investigate which child now has a shape with the smallest volume?

Problem Solving 1

Lexa makes this shape from 1cm³ cubes:



Darrell makes one shape with a volume of 17cm³ and another shape with a volume of 6cm³. He combines them.

Investigate which child now has a shape with the smallest volume?

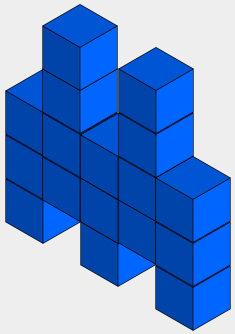
Lexa's shape has a volume of 19cm³.

Darrell's combined shape has a volume of 23 19cm³.

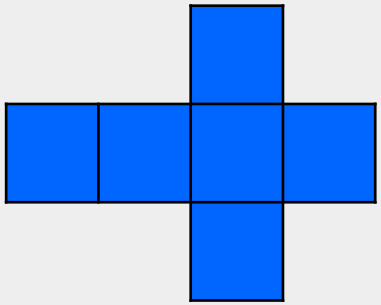
Lexa has the shape with the smallest volume.

Reasoning 2

Maria makes this shape:



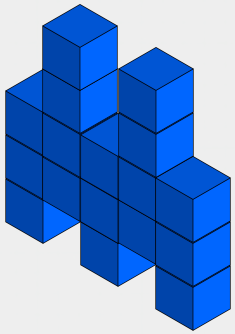
She makes a new shape with this base:



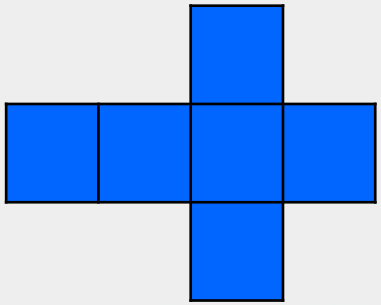
Can her new shape ever have a larger volume than her first shape? Convince me.

Reasoning 2

Maria makes this shape:



She makes a new shape with this base:

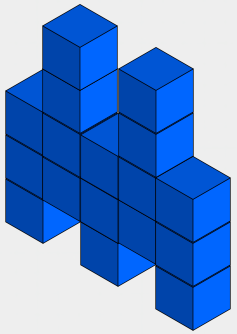


Can her new shape ever have a larger volume than her first shape? Convince me.

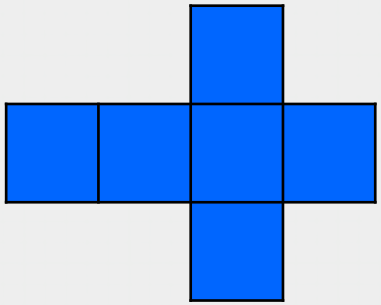
Yes because…

Reasoning 2

Maria makes this shape:



She makes a new shape with this base:



Can her new shape ever have a larger volume than her first shape? Convince me.

Yes because the first shape has a volume of 17cm³.
Three layers of cubes arranged in the given base shape would give the new shape a volume of 18cm³.

Year 5 Developing

2a. Which shape below has the largest volume?

A 

B 

Write a sentence to compare the volumes of A and B.

VF

2b. Which shape below has the smallest volume?

A 

B 

Write a sentence to compare the volumes of A and B.

VF

3a. Put these shapes in ascending order according to their volume.

A 

B 

C 

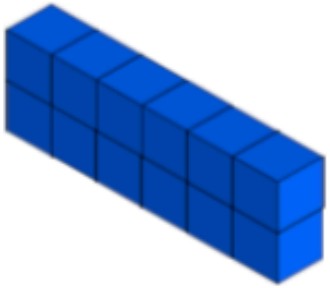
3b. Put these shapes in descending order according to their volume.

A 

B 

C 

2a. Jamal makes this shape from 1cm³ cubes:



Lara makes one shape with a volume of 4cm³ and another shape with a volume of 6cm³. She combines them.
Investigate which child now has a shape with the smallest volume.

D

PS

2b. Mia makes this shape from 1cm³ cubes:

Harry makes one shape with a volume of 6cm³ and another shape with a volume of 2cm³. He combines them.
Investigate which child now has a shape with the largest volume.

D

PS

3a. Shane makes this shape:

He makes a new shape with this base:

Can his new shape ever have a smaller volume than his first shape? Convince me.

3b. Tyler makes this shape:

He makes a new shape with this base:

Can his new shape ever have a larger volume than his first shape? Convince me.

Year 5 Expected

5a. Which shape below has the smallest volume?

A  B 

Write a sentence to compare the volumes of A and B.

VF

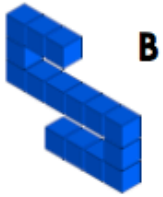
5b. Which shape below has the largest volume?

A  B 

Write a sentence to compare the volumes of A and B.

VF

6a. Put these shapes in descending order according to their volume.

A  B 

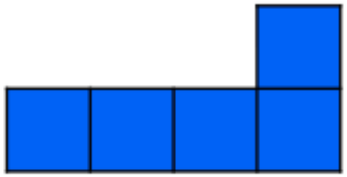
C  D 

6b. Put these shapes in ascending order according to their volume.

A  B 

C  D 

4a. Jaziba can use up to twenty 1cm³ cubes to make a shape. This is the side view of the shape she makes:



Give one possible volume Jaziba's shape could have.
Explain your answer.

E R

4b. Thierry can use up to eighteen 1cm³ cubes to make a shape. This is the side view of the shape she makes:

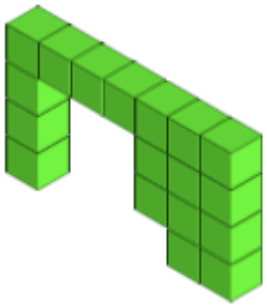
Give one possible volume Thierry's shape could have.
Explain your answer.

E R

5a. Neil makes this shape from 1cm³ cubes:

Karl makes one shape with a volume of 15cm³ and another shape with a volume of 9cm³. He combines them.
Investigate which child now has a shape with the largest volume.

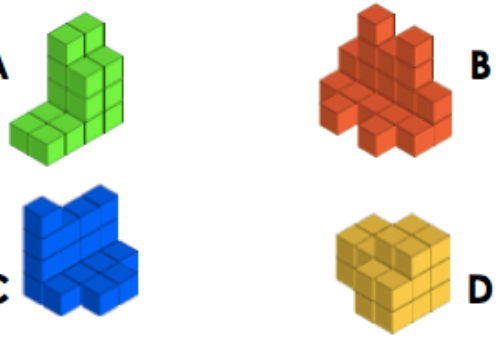
5b. Jay makes this shape from 1cm³ cubes:



Noah makes one shape with a volume of 14cm³ and another shape with a volume of 7cm³. He combines them.
Investigate which child now has a shape with the smallest volume.

Year 5 Greater Depth

7a. Here are 4 shapes made of 1cm³ cubes.



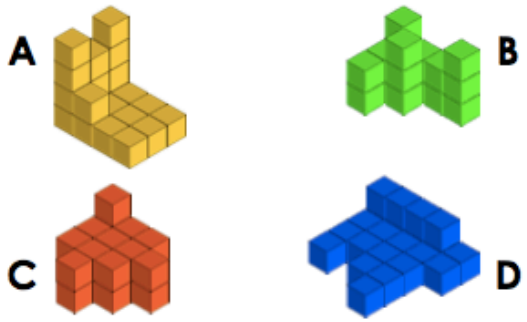
Pair these volumes with the shapes.

19cm³	22cm³	18cm³	24cm³

GD

VF

7b. Here are 4 shapes made of 1cm³ cubes.



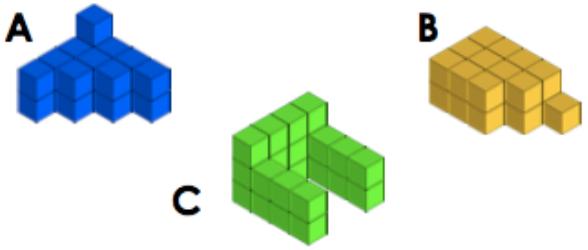
Pair these volumes with the shapes.

21cm³	23cm³	22cm³	17cm³

GD

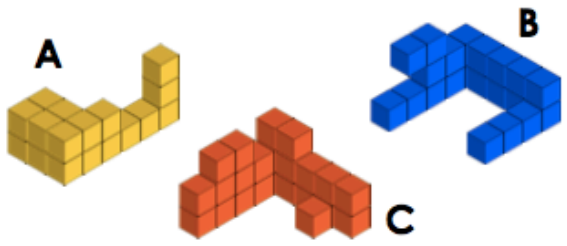
VF

8a. Which shape below has the largest volume?



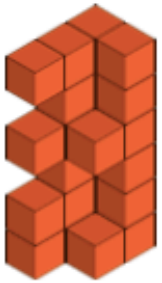
Write a sentence to compare the volumes of A, B and C.

8b. Which shape below has the smallest volume?



Write a sentence to compare the volumes of A, B and C.

8a. Jane makes this shape from 1cm³ cubes:



Shaina makes three shapes with volumes of 12cm³, 5cm³ and 4cm³. She combines them.
Investigate which child now has a shape with the largest volume.

GD PS

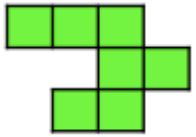
8b. Ian makes this shape from 1cm³ cubes:

Michelle makes three shapes with volumes of 4cm³, 9cm³ and 11cm³. She combines them.
Investigate which child now has a shape with the smallest volume.

GD PS

9a. Jackson makes this shape:

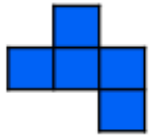
He makes a new shape with this base:



If his new shape is 3 cubes tall at its highest, can it ever have a larger volume than his first shape? Convince me.

9b. Chloe makes this shape:

She makes a new shape with this base:



If her new shape is 4 cubes tall at its highest, can it ever have a larger volume than his first shape? Convince me.