Discussion Problems
Step 2: Compare Volume

National Curriculum Objectives:

Mathematics Year 5: (5M8) Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
Mathematics Year 5: (5M9a) Use all four operations to solve problems involving measure

About this resource:

This resource has been designed for pupils who understand the concepts within this step. It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More Year 5 Volume resources.

Did you like this resource? Don't forget to review it on our website.

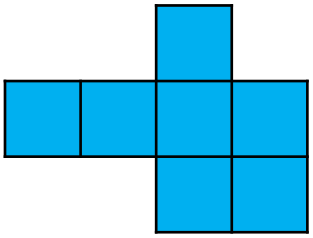
© Classroom Secrets Limited 2019

Compare Volume

1. Three children create a shape using cm cubes. This is what all three of their shapes look like from the top.

Teagan

My shape has a volume of 30cm^3.



Rima

My shape has a smaller volume than Teagan's shape.

You're all correct!

Josh

My shape has a greater volume than Teagan's shape.

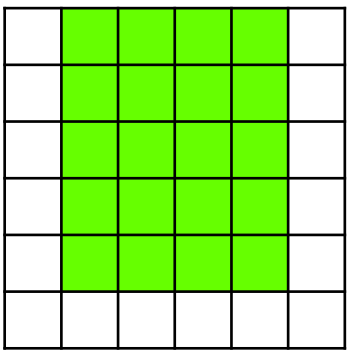
Explore how this is possible if all their shapes look the same from the top.

DP

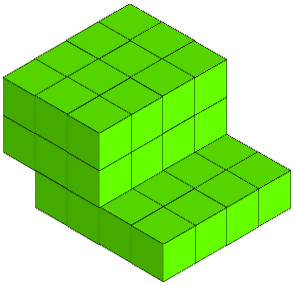
2. Here is a shape made out of 1cm cubes shown in different views.
Edit the shape so that it has a volume greater than 30cm^3 but less than 60cm^3.

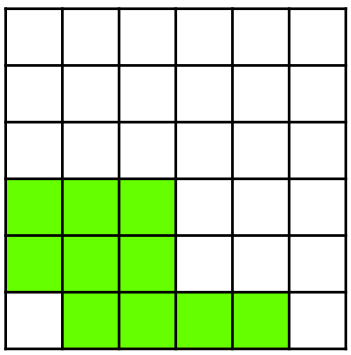
Will the number of cubes be greater or smaller than the starting number?

Explore different possible solutions.

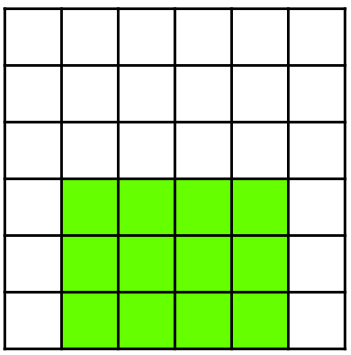


Top view





Side view



Front view

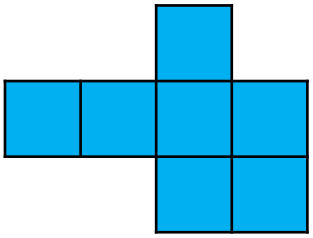
DP

© Classroom Secrets Limited 2019

Compare Volume

1. Three children create a shape using cm cubes. This is what all three of their shapes look like from the top.

Teagan: My shape has a volume of 30cm³.



Rima: My shape has a smaller volume than Teagan's shape.

You're all correct!

Josh: My shape has a greater volume than Teagan's shape.

Explore how this is possible if all their shapes look the same from the top.

Various answers, for example: Rima's shape could have fewer layers than Teagan's making her shape smaller and Josh's shape could have more layers.

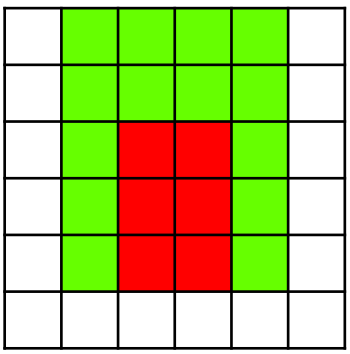
DP

2. Here is a shape made out of 1cm cubes shown in different views.
Edit the shape so that it has a volume greater than 30cm³ but less than 60cm³.

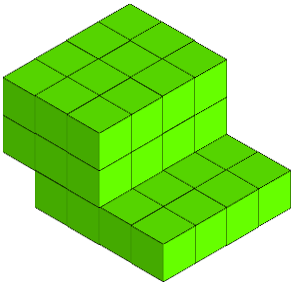
Will the number of cubes be greater or smaller than the starting number?

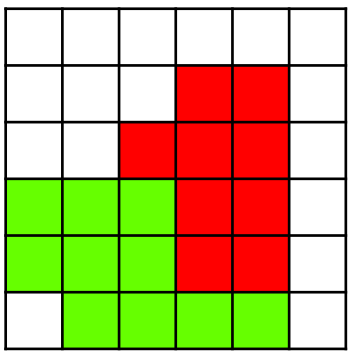
Explore different possible solutions.

Various answers, for example:
You could add more cubes in the positions shown to give the shape a greater volume. It's new volume would be 58cm³.

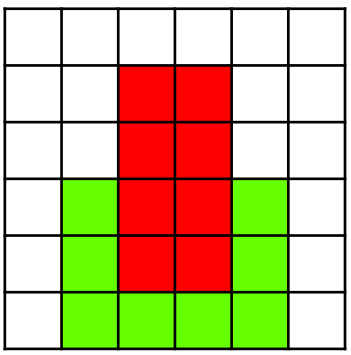


Top view





Side view



Front view

DP

© Classroom Secrets Limited 2019