



Volume Lesson Plan

Main focus of activity:

- To be able to identify if the stage blocks can be transported in one truck.

Learning objectives:

- To be able to work out the volume of simple shapes.
- To be able to work out the volume of simple prisms.
- To be able to work out if the blocks will fit into the one truck

Links to curriculum: Links to the maths curriculum are as follows

- Volume
- Dimensions
- Tessellations
- Scales

Activity outline:

Introduction

The overall objective is to decide which acts can appear at which arena

- On a simple level this activity involves working out simple volumes. At a very basic level this could involve reconstruction using physical cubes. Pupils can then actually try to fit the cubes into the container(which represents the truck)
- On a more advanced level the same principle is applied but with the need to work volumes of simple prisms. (Triangular prisms)
- Where the venues are more complex volumes of cylinders will need to be worked out.

Starter

Ask pupils to attempt to find the volumes of the cuboids. Use this as a point of reference to determine if students will need support visualising with multi-link cubes.

Main Part of Lesson:

Teaching and Learning:

- The idea is that pupils will need to calculate the volume of shapes (the shapes represent the stage blocks) and then apply this knowledge to work out if the stage blocks can be transported in one truck of a specified volume (8x5x6).
- At a simple level this is a simple determining of whether certain shapes can all fit into a larger shape. Less able pupils can physically recreate the stage blocks using cubes and actually try to fit them in to a larger container (That represents the back of a truck)
- At a middle level the pupils will need to look at the prepared resource pack and determine if the stage can fit in the truck



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- At a higher level it is as above but with added caveat of having to be able to determine how they could potentially cut the stage blocks to make them fit the one truck.
- For extremely able students this could involve Pythagoras theorem to work out the lengths of the diagonals of shapes if needed.

Suggest that pupils keep a record of their calculations and prepare a small poster justifying their decisions.

Some pupils will need cubes to challenge misconceptions that they will/won't fit in.

Plenary:

- If you compare the volumes of 3-D shapes and the container they are to fit in. Is this enough information on its own to make sure that everything will fit? What else do you need to consider?

Why is it important to try and maximise the space in the truck? Real-life application.