

Volume of a Ford Escape

Students use a process that Ford engineers used to determine area. While doing so, they measure volume of rectangular prisms.

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Subject: Math
Standard: 5.MD.C.4

Have A Discussion

Hook

What is the question or prompt students will discuss to get hooked?

How could you measure the volume of a car?

Watch A Video Or Demonstration

Inform

Title of what students will watch:

Count Unit Cubes in a Rectangular Prism

Directions for students

Watch the video to determine how to calculate the volume of a rectangular container.

Key information students should take away (optional)

Multiply the dimensions of the rectangle.

Length x Width x Height

Activity Resource(s)

<https://learnzillion.com/lessons/1799>

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Other Ways To Practice

Practice

How will students practice?

In pairs or groups, students will find at least 3 rectangular prisms in the room that they will measure and calculate the volume of.

Directions for students

With your partner, find at least 3 rectangular prisms in the classroom to calculate the volume of.

Measure at least 1 item using metric units.

Measure at least 1 item using inches.

Do not try to measure anyone's personal property without permission.

You have 10 minutes to measure.

Sketch your measurements and volumes in your notebook.

Voice level 2 (out of 5 - quiet talking)

What do you anticipate students will think during this practice? (optional)

Students may forget the calculations ($l \times w \times h$)

Students may forget to record their data

Students may try complex shapes (not rectangular prisms)

How can you respond to encourage student learning? (optional)

Encourage students to work together to think about how you would add cubes and determine the calculations.

Encourage students to sketch the item before they measure.

Tell students that if they want to measure a complex object, they need to measure the volume of at least 2 rectangular prisms before doing a more complicated object.

Examples of rectangular prisms in the room:

- Closet
- Book cases
- Books
- Pencil boxes
- Crates
- Sink

Solve A Problem

Apply

Describe the problem students will need to solve

What is the volume of a Ford Escape?

Description for teachers (optional)

Ford has now started measuring the volume of their cars by filling it or certain areas with ping pong balls. In the article, the engineers have developed a way to convert # of ping pong balls to volume. Students will have to attempt this.

56,778 ping pong balls fit in a Ford Escape.

Students need to measure how many ping pong balls fit in a small container. They will also need to measure the volume of their container.

The main assessment will be that they can measure the volume of the container.

If they are able to convert that to ping pong ball units and then convert them back to the volume of a Ford Escape, that is a great application of math skills.

Activity Resource(s)

<http://news.discovery.com/autos/drive/guess-how-many-ping-pong-balls-can-fit-into-a-ford-escape.htm>

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