

Unit 6 Lesson 17: Applying Volume and Surface Area

1 You Decide (Warm up)

Student Task Statement

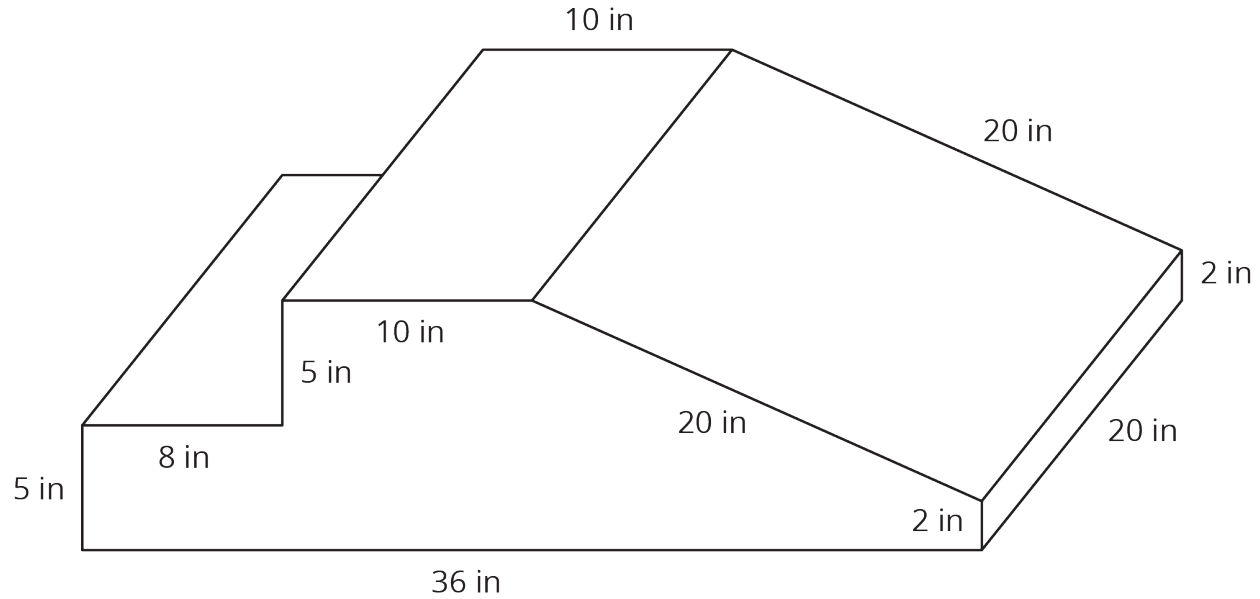
For each situation, decide if it requires Noah to calculate surface area or volume. Explain your reasoning.

1. Noah is planning to paint the bird house he built. He is unsure if he has enough paint.
2. Noah is planning to use a box with a trapezoid base to hold modeling clay. He is unsure if the clay will all fit in the box.

2 Foam Play Structure

Student Task Statement

At a daycare, Kiran sees children climbing on this foam play structure.



Kiran is thinking about building a structure like this for his younger cousins to play on.

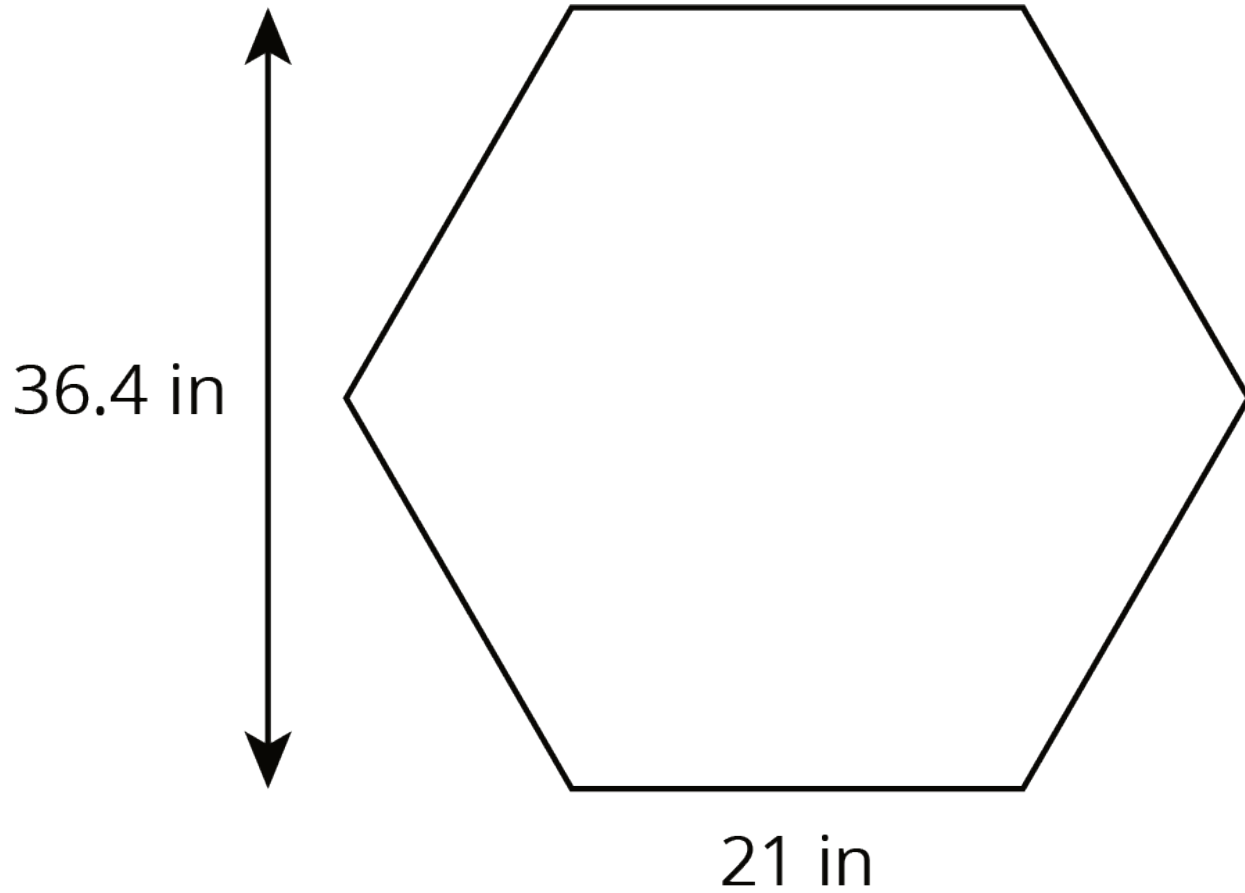
1. The entire structure is made out of soft foam so the children don't hurt themselves. How much foam would Kiran need to build this play structure?
2. The entire structure is covered with vinyl so it is easy to wipe clean. How much vinyl would Kiran need to build this play structure?

3. The foam costs 0.8¢ per in^3 . Here is a table that lists the costs for different amounts of vinyl. What is the total cost for all the foam and vinyl needed to build this play structure?

vinyl (in^2)	cost (\$)
75	0.45
125	0.75

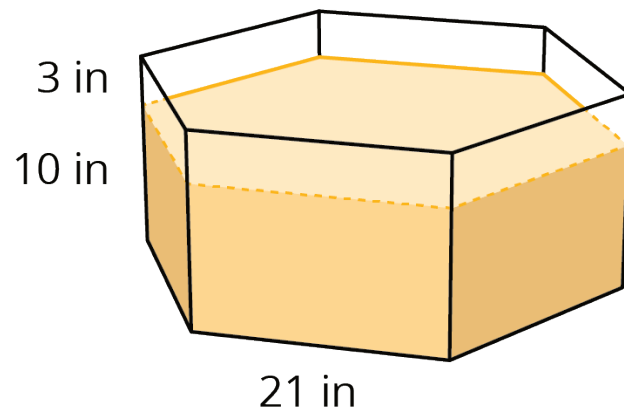
3 Filling the Sandbox

Images for Launch



Student Task Statement

The daycare has two sandboxes that are both prisms with regular hexagons as their bases. The smaller sandbox has a base area of $1,146 \text{ in}^2$ and is filled 10 inches deep with sand.



1. It took 14 bags of sand to fill the small sandbox to this depth. What volume of sand comes in one bag? (Round to the nearest whole cubic inch.)
2. The daycare manager wants to add 3 more inches to the depth of the sand in the small sandbox. How many bags of sand will they need to buy?

3. The daycare manager also wants to add 3 more inches to the depth of the sand in the large sandbox. The base of the large sandbox is a scaled copy of the base of the small sandbox, with a scale factor of 1.5. How many bags of sand will they need to buy for the large sandbox?
4. A lawn and garden store is selling 6 bags of sand for \$19.50. How much will they spend to buy all the new sand for both sandboxes?