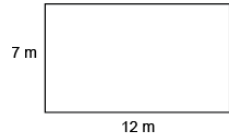


Activity 4 Assessment

Length, Mass, Capacity, and Area Consolidation

Determining Area

Understands area as an attribute of 2-D shapes that can be measured and compared.



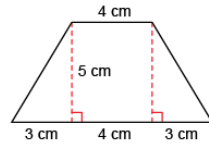
$$A = b \times h$$

$$A = 12 \text{ m} \times 7 \text{ m}$$

$$A = 84 \text{ m}^2$$

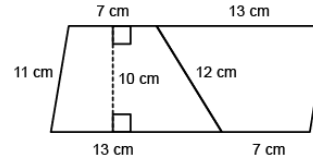
"I determined the area of the rectangle by multiplying the length of the base by the height."

Determines area by decomposing shapes into smaller shapes, then adding their areas.



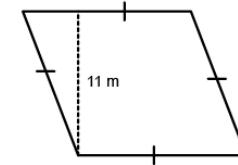
"I decomposed the trapezoid into a rectangle and 2 triangles.
 Area of rectangle:
 $4 \text{ cm} \times 5 \text{ cm} = 20 \text{ cm}^2$
 Area of each triangle:
 $3 \text{ cm} \times 5 \text{ cm} \div 2 = 7.5 \text{ cm}^2$.
 Area of trapezoid:
 $20 \text{ cm}^2 + 7.5 \text{ cm}^2 + 7.5 \text{ cm}^2 = 35 \text{ cm}^2$."

Determines area by composing and decomposing shapes into shapes with known area formulas.



"I doubled the trapezoid to make a parallelogram.
 I know the area of the trapezoid is one-half the area of the parallelogram:
 $(13 + 7) \times 10 \div 2 = 20 \times 10 \div 2 = 100$. The area of the trapezoid is 100 cm^2 ."

Flexibly composes/decomposes composite polygons and irregular shapes to solve problems



A garden is shaped like a rhombus. The perimeter of the garden is 60 m. The height of the rhombus is 11 m. What is the area of the garden?

"Side length of rhombus:
 $60 \text{ m} \div 4 = 15 \text{ m}$. A rhombus is a parallelogram with all sides equal. So, to find the area of the rhombus, I use this formula:
 $A = b \times h$; $15 \text{ m} \times 11 \text{ m} = 165 \text{ m}^2$.
 The area of the garden is 165 m^2 ."

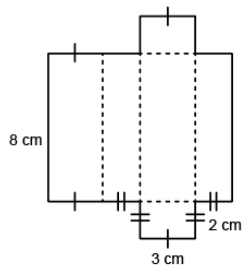
Observations/Documentation

Activity 4 Assessment

Length, Mass, Capacity, and Area Consolidation

Using Nets to Determine Surface Area of Prisms and Pyramids

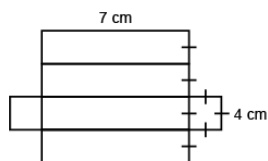
Uses nets to calculate surface area by adding the partial areas.



"I added the partial areas:

- Area of rectangle: $7\text{ cm} \times 4\text{ cm} = 28\text{ cm}^2$
- Area of 4 rectangles: $4 \times 28\text{ cm}^2 = 112\text{ cm}^2$
- Area of square: $4\text{ cm} \times 4\text{ cm} = 16\text{ cm}^2$
- Area of 2 squares: $2 \times 16\text{ cm}^2 = 32\text{ cm}^2$
- Surface area of prism: $112\text{ cm}^2 + 32\text{ cm}^2 = 144\text{ cm}^2$

Uses net to show relationship between areas of faces and surface area of prism/pyramid.



Surface Area = Sum of the areas of the 3 pairs of congruent rectangles

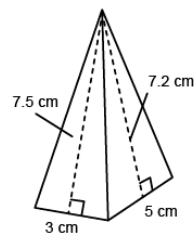
$$SA = 2(8\text{ cm} \times 3\text{ cm}) + 2(8\text{ cm} \times 2\text{ cm}) + 2(2\text{ cm} \times 3\text{ cm})$$

$$= 2(24\text{ cm}^2) + 2(16\text{ cm}^2) + 2(6\text{ cm}^2)$$

$$= 48\text{ cm}^2 + 32\text{ cm}^2 + 12\text{ cm}^2$$

$$= 92\text{ cm}^2$$

Determines surface area by visualizing net and adding the areas of its faces.



Surface Area = Area of rectangle + Sum of the areas of the 2 pairs of congruent triangles

$$SA = (3\text{ cm} \times 5\text{ cm}) + 2(5\text{ cm} \times 7.2\text{ cm} + 2)$$

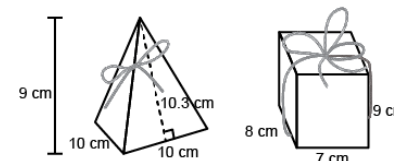
$$+ 2(3\text{ cm} \times 7.5\text{ cm} \div 2)$$

$$= 15\text{ cm}^2 + 2(18\text{ cm}^2) + 2(11.25\text{ cm}^2)$$

$$= 15\text{ cm}^2 + 36\text{ cm}^2 + 22.5\text{ cm}^2$$

$$= 73.5\text{ cm}^2$$

Flexibly solves surface area problems by adding the areas of 2-D faces.



Which box would need less wrapping paper?

Square pyramid

$$SA = (10\text{ cm} \times 10\text{ cm}) + 4(10\text{ cm} \times 10.3\text{ cm} \div 2)$$

$$= 306\text{ cm}^2$$

Rectangular prism

$$SA = 2(7\text{ cm} \times 8\text{ cm}) + 2(7\text{ cm} \times 9\text{ cm}) + 2(8\text{ cm} \times 9\text{ cm})$$

$$= 382\text{ cm}^2$$

Observations/Documentation