MSTAR PRACTICE WORKSHEET

Lesson 5-10: Volume of Rectangular Prisms

Grade 6 Mathematics · Standard 6.GR.2

Name: _____ Date: _____

These are MSTAR-style questions written for this curriculum to rehearse the format. They are not official Maryland assessment items. MSTAR — Maryland's new state test, first given in spring 2027 — uses the same kinds of questions you see here: selected response, select-all, two-part evidence questions, and written responses.

Part A — Skills Check

Warm up with the lesson's core skills — one best answer each.

Question 1 SELECTED RESPONSE · 1 POINT

What is the volume of a rectangular prism with l = 4 in, w = 3 in, h = 5 in?

(A) 12 in³

(B) 24 in³

(C) 60 in³

(D) 60 in²

Question 2 SELECTED RESPONSE · 1 POINT

A box has a volume of 36 cm³. Its length is 6 cm and width is 3 cm. What is the height?

(A) 2 cm

(B) 3 cm

(C) 6 cm

(D) 12 cm

Question 3 SELECTED RESPONSE · 1 POINT

How is volume different from area?

(A) Volume measures 3D space (cubic units); area measures 2D surface (square units)

(B) Volume uses square units; area uses cubic units

(C) Volume only applies to cubes; area applies to all shapes

(D) There is no difference

Question 4 SELECTED RESPONSE · 1 POINT

Two boxes: Box A is 10 × 5 × 4 inches. Box B is 8 × 6 × 5 inches. Which has more volume and by how much?

A. Box B by 40 in³

B. Box A by 40 in³

C. Box B by 60 in³

D. They're equal

Question 5 SELECTED RESPONSE · 1 POINT

What is the volume of a prism with edge lengths 1/2 m, 3 m, and 4 m?

A. 3 m³

B. 6 m³

C. 7.5 m³

D. 12 m³

Question 6 SELECTED RESPONSE · 1 POINT

A cube has an edge length of 5 cm. What is its volume?

A. 15 cm³

B. 25 cm³

C. 75 cm³

D. 125 cm³

Part B — Test-Format Questions

These match the state test's formats: two-part questions, select-all, and written responses.

Question 7 TWO-PART QUESTION

Part A

A container measures 1½ feet long, 2 feet wide, and 3 feet tall. What is its volume?

Fill in the bubble next to the one best answer.

- (A) 6 cubic feet
- (B) 6½ cubic feet
- (C) 9 cubic feet
- (D) 18 cubic feet

Part B

Answer Part A before Part B — Part B asks about your reasoning.

Why is a mixed number converted to an improper fraction before multiplying edge lengths?

- (A) Because improper fractions are always larger.
- (B) Because volume cannot be a fraction.
- (C) So the whole-number part and the fraction part are both multiplied, not just one of them.
- (D) Because mixed numbers cannot be multiplied at all.

Question 8 WRITTEN RESPONSE · 2 POINTS

Type II Reasoning: Dropping the Fraction

> Omar found the volume of a box measuring 2½ ft by 4 ft by 2 ft. He wrote: 'V = 2 × 4 × 2 = 16 cubic feet' and said the half 'was too small to matter.'

Explain Omar's misconception and give the correct volume.

Write your answer in complete sentences. Show or explain your mathematical thinking.

Part C — Show Your Thinking

Answer in writing, the way the state test's constructed responses work.

Question 9 WRITTEN RESPONSE · 2 POINTS

A toy company ships action figures in boxes that are 4 × 3 × 6 inches. A shipping crate is 24 × 12 × 18 inches. How many action figure boxes fit in the crate? Explain your reasoning step by step.

Write your answer in complete sentences. Show or explain your mathematical thinking.

When you finish, check your reasoning with your teacher or family. Your teacher has the scoring guide for the written responses.