MSTAR PRACTICE WORKSHEET

Lesson 5-6: Represent Three-Dimensional Figures in Two Dimensions

Grade 6 Mathematics · Standard 6.GR.4

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

A rectangular prism has l = 6 in, w = 4 in, h = 2 in. What is its surface area?

(A) 44 in²

(B) 48 in²

(C) 88 in²

(D) 88 in³

Question 2 SELECTED RESPONSE · 1 POINT

How many faces does a rectangular prism have?

(A) 4

(B) 6

(C) 8

(D) 12

Question 3 SELECTED RESPONSE · 1 POINT

Surface area is measured in which type of unit?

(A) Cubic units (in³, cm³, ft³)

(B) Square units (in², cm², ft²)

(C) Linear units (in, cm, ft)

(D) No units needed

Question 4 SELECTED RESPONSE · 1 POINT

A cube has edges of 5 cm. What is its surface area?

(A) 30 cm²

(B) 125 cm²

(C) 150 cm²

(D) 150 cm³

Question 5 SELECTED RESPONSE · 1 POINT

You unfold a time capsule that is a cube. Its net shows 6 equal squares, and each square has an area of 4 cm². What is the cube's total surface area?

(A) 10 cm²

(B) 12 cm²

(C) 16 cm²

(D) 24 cm²

Question 6 SELECTED RESPONSE · 1 POINT

Your team unfolds a rectangular time capsule box into a flat net. How many faces (flat sides) will the net show in all?

(A) 4

(B) 5

(C) 6

(D) 8

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 net folds into a rectangular prism. How many rectangular faces does that net have?

Fill in the bubble next to the one best answer.

(A) 4

(B) 6

(C) 8

(D) 12

Part B

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

Which statement must be true for a flat pattern to be a valid net of a solid?

(A) It must be a single long strip.

(B) Every face must be the same size.

(C) It folds into the solid with no faces overlapping and none missing.

(D) It must contain only triangles.

Question 8 SELECT ALL THAT APPLY

Select ALL statements that are true about nets of three-dimensional figures:

Mark the box next to EVERY answer that is true. More than one is correct.

[A] A net shows every face of the solid laid flat.

[B] A triangular prism net has 2 triangles and 3 rectangles.

[C] The area of a net equals the surface area of the solid.

[D] A net may have faces that overlap when folded.

[E] One solid can have more than one correct net.

Part C — Show Your Thinking

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

Question 9 WRITTEN RESPONSE · 2 POINTS

Two boxes have the same volume of 60 in³. Box A is 5 × 4 × 3. Box B is 10 × 6 × 1. Which box uses less wrapping paper (has less surface area)? Show your calculations and explain why a more cube-like shape might use less material.

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.