

Face Shape Detectives

Trace every face to make two complete sets.

GRADE 2 • 2.MG.4.a

2.MG.4.a "Trace faces of solid figures (cubes and rectangular prisms) to create the set of plane figures related to the solid figure."

NAME _____

DATE _____

Adult setup: bring a small cube, a small noncube rectangular block and a pencil. Label each solid's faces 1-6. Read each step aloud. Use the blank boxes to trace; see size guidance on the teacher key.

From a solid to a plane figure

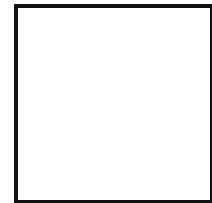
A face is a flat surface. Tracing its edge makes a plane figure. Turn a solid to find every face. Keep one tracing for each face.

Try it together

Example: a traced cube face

An adult holds one cube face flat and traces it.

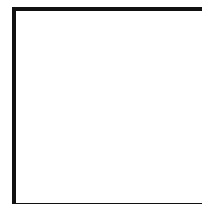
Hold the cube still. Draw around the face. The outline is a square.



1. Cube: faces 1, 2 and 3

A square outline

Put cube face 1 flat in the box. Hold still and trace around it.
Repeat for faces 2 and 3. Leave space between tracings. Label them 1, 2 and 3.

A large, empty rectangular box with a thin black border, intended for students to trace the faces of a cube and label them.

2. Cube: faces 4, 5 and 6

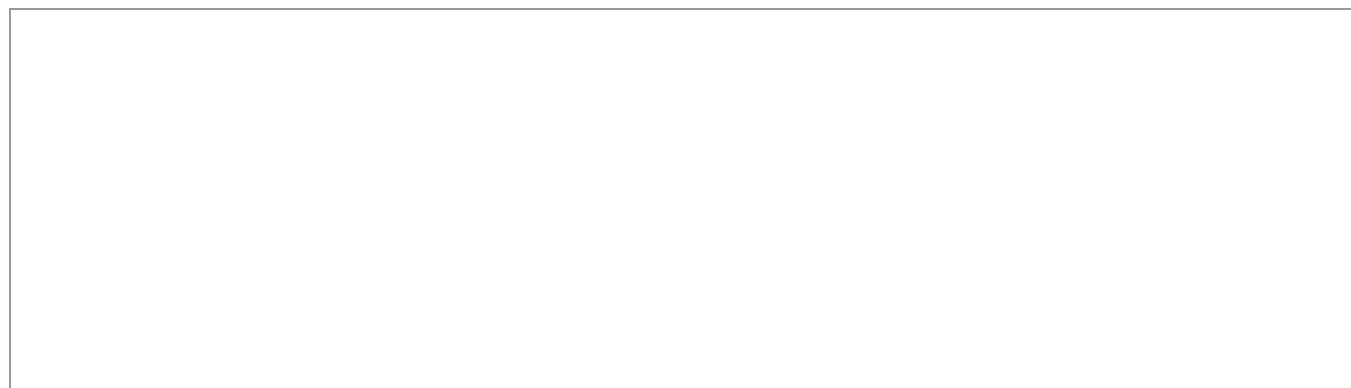
Trace the cube's other three faces in this box. Label them 4, 5 and 6. Check: did you trace each face once?

A large, empty rectangular box with a thin black border, intended for students to trace the remaining faces of a cube and label them.

3. Box: faces 1, 2 and 3

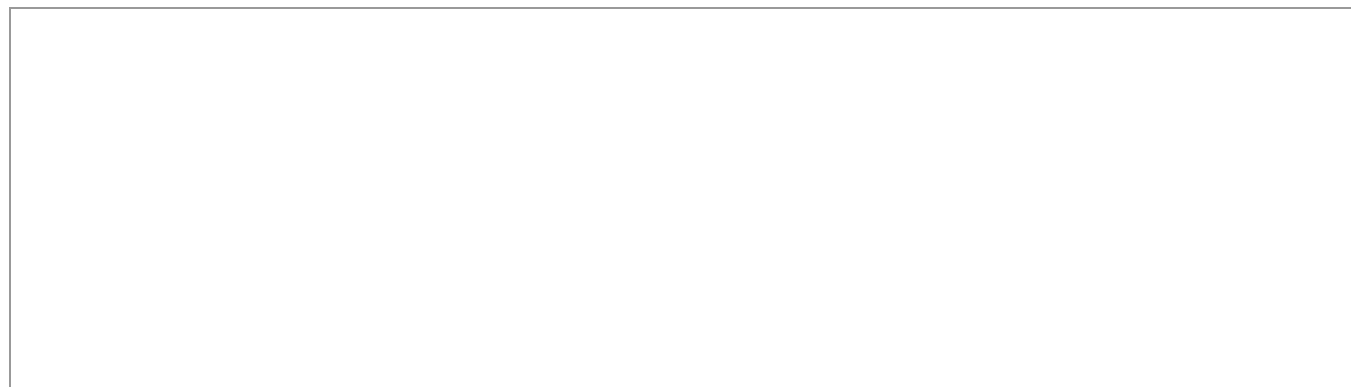
One possible face shape

Use the rectangular block. Trace faces 1, 2 and 3 in this box.
Leave space between tracings. Label them.



4. Box: faces 4, 5 and 6

Trace the rectangular block's other three faces here. Label them 4, 5 and 6. Check that each face has one tracing.



5. Make a shape display

Count your cube tracings. Write the number and their shape name. Show the complete set to a partner.

6. Check the box set

Count your rectangular-block tracings. Write the total. Point to two that match in shape and size. Check them against the real block.

7. Squares are rectangles too

A square is a rectangle with all four sides equal. Are all six cube tracings rectangles too? Tell a partner. How is your box set different?

Teacher notes

Provide a cube with faces no wider than 1 inch and a noncube rectangular block with every edge no longer than $1\frac{1}{2}$ inches. Number each model's faces 1–6 using removable labels. Read aloud and help hold models still. Three separated tracings fit each 2-inch-high box; confirm fit on the actual printout before starting. Larger models may be traced on separate blank paper. A noncube rectangular prism can have zero or two square faces; all six faces are rectangles.

Task 1

Three separate square outlines labeled 1–3, each traced from the indicated cube face.

Task 2

Three more square outlines labeled 4–6. All six cube faces are represented once.

Task 3

Three accurate face tracings of the supplied rectangular prism, labeled 1–3.

Task 4

Three remaining accurate tracings labeled 4–6; the set represents every face once.

Task 5

6 squares. All are the same size.

Compare all six outlines with the physical cube faces. Accept “6 rectangles” if the child also identifies them as squares.

Task 6

6 rectangles in three matching opposite-face pairs. Depending on the block, zero or two faces may be square.

Ask the learner to identify matching opposite faces. Judge the set against this block, not a single fixed box shape.

Task 7

Yes. Every cube tracing is a square and a rectangle. The noncube block has at least some nonsquare rectangular faces.