

NORTH CAROLINA MATHEMATICS

# Grade 1 | Geometry

## Build it. Describe it.



## NC.1.G.1

Teaching scripts • construction and reasoning • reusable 60-item bank • worked keys • observation records

Current NC standards for 2026-27 and 2027-28. This packet does not use the newly adopted standards scheduled for 2028-29.

Short sessions across days. Print selected student pages. Read-aloud, AAC and child-directed construction supports are welcomed; preserve the learner's mathematical decisions.

# Free sample | Contents

NC.1.G.1 | First Grade mathematics

This sample contains 22 complete selected pages from the 97-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-21, 78

Representative activities

M01: sample PDF page(s) 19; original page(s) 18

M02: sample PDF page(s) 21; original page(s) 20

O01: sample PDF page(s) 20; original page(s) 19

O02: sample PDF page(s) 22; original page(s) 21

Selected teacher prompts and keys: original page(s) 78

Using this sample

Read the preparation and access guidance before using a selected activity.

Keep teacher keys and private preparation pages separate from student copies.

Use the original resource contents to see the scope of the complete packet.

Complete paid download

The complete resource includes the full PDF task bank and teaching materials.

**CONTENTS**

# Choose the next useful page

Teacher guide: exact standard, targets, preparation, short-session sequence and worked model. Seven section scripts identify selected items and the complete bank ranges. Teacher anchors and actual materials follow.

Student bank: one multiple-choice check and one open/performance task per number, each on its own page. Every open task includes room to draw, record or document a physical construction. Use a table or mat when a model is too large for the page.

Teacher-only keys follow all student pages. Keys include exact choice letter, answer and explanation; open keys give sample constructions, valid alternatives and evidence. Assessment pages give a local rubric, blank observation form, coverage log and extension.

## Start small

Choose a few items for one session; do not assign all 60 at once. Use the page footers, item IDs and section labels to select/copy pages. Completed anchors are for instruction, never hidden in independent work.

## Target key

A | Distinguish defining attributes from color, size and orientation.

B | Build and draw triangles, rectangles, squares, trapezoids, hexagons and circles.

C | Build cubes, rectangular prisms, cones, spheres and cylinders.

## TEACHER GUIDE

# Standard and evidence

## Exact North Carolina standard

NC.1.G.1 Distinguish between defining and non-defining attributes and create shapes with defining attributes by:

- Building and drawing triangles, rectangles, squares, trapezoids, hexagons, circles.
- Building cubes, rectangular prisms, cones, spheres, and cylinders.

## Learning targets

A | Distinguish defining attributes from color, size and orientation.

B | Build and draw triangles, rectangles, squares, trapezoids, hexagons and circles.

C | Build cubes, rectangular prisms, cones, spheres and cylinders.

## Essential question

Which features make a shape that shape, even when it looks different?

## Evidence to collect

Collect a built model AND a drawing for each of the six flat shapes. Observe construction of each of five solids. Record defining properties separately from naming and non-defining attributes. A worksheet picture or shape name cannot substitute for construction.

## TEACHER GUIDE

# Prepare for learning

## Prerequisites

Recognize common flat shapes and solids; count sides and corners to 6; explore flat versus solid. Do not require formal angle measurement. Use a paper corner to test square corners.

## Materials and safety

Blank paper, crayons, large paper strips, flexible cord, tape, safe non-toxic modeling clay, flat mat and blunt clay tools. Adults prepare strips and handle scissors. Avoid toothpicks, sharp skewers, tiny pieces and food materials. Use palm-size or larger models. Clay models are approximations; discuss intended flat/curved parts.

## Language

Defining attribute; side; corner; square corner; face; curved surface; point; triangle; rectangle; square; trapezoid; hexagon; circle; cube; rectangular prism; cone; sphere; cylinder. Say parallel informally as sides that run in the same direction and never meet if extended.

## Access without giving the answer

Read directions and all choices neutrally, repeat on request, allow pointing, sign, AAC, oral explanation or dictated recording. Offer larger materials, tactile boundaries and stable mats. An adult may follow the learner's exact construction or cutting directions for motor access; record who made each geometric decision. Do not score handwriting, accent or spelling.

Record neutral access supports separately from answer-supplying cues (naming the piece, locating the center, fixing a corner, showing the partition). Obtain a fresh attempt without the mathematical cue before treating evidence as independent.

## TEACHER GUIDE

## Short sessions, full coverage

Use 10-20 minute sessions over several days. The 60-item bank is reusable, not a single test. Choose 1-2 items per session. Continue until each required construction/partition and explanation has been observed; do not infer full coverage from a few chosen exit tasks.

Warm-up: M01-M04 and O01-O04 (4 choices + 4 open tasks). O01-O04; M01.

I Do: M05-M08 and O05-O08 (4 choices + 4 open tasks). O05-O08; M05.

We Do: M09-M13 and O09-O13 (5 choices + 5 open tasks). O09-O13; M09.

Collaborative practice: M14-M18 and O14-O18 (5 choices + 5 open tasks). O14-O18; M14.

Independent practice: M19-M23 and O19-O23 (5 choices + 5 open tasks). O19-O23; M19.

Small-group reteach: M24-M27 and O24-O27 (4 choices + 4 open tasks). O24-O27; M24.

Exit ticket: M28-M30 and O28-O30 (3 choices + 3 open tasks). O28-O30; M28.

### Practical sequence

Days 1-3: warm-up, flat-shape modeling and drawing/building centers. Days 4-6: model and build all five solids, then compare attributes. Days 7-9: independent shapes, reteach and conferences. Repeat as needed for unobserved types.

Timing is a flexible teaching suggestion, never a speed criterion. M items are recognition checks; O items supply the required authentic performances.

## TEACHER GUIDE

# Worked model and response

## Say and demonstrate

Hold a closed three-sided paper-strip triangle. Say: I trace three straight sides and three corners. These features make it a triangle. Turn it. Say: Its position changed, but those features did not. Now open one join. Say: This is a nonexample because it is not closed. Repair it. Build a square with four equal strips at square corners; turn it onto a corner. Say: This remains a square. A square is also a rectangle because it has four square corners.

## Listen for

Separate imitation during teaching from later independent construction; record which shapes were built.

## Respond to a misconception

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

## Fresh transfer

After building an upright triangle, offer different-length strips and ask for a new triangle. After modeling a clay cone, let the child build a cylinder and explain which parts differ.

## TEACHER SCRIPT | WARM-UP

# Warm-up in action

## Purpose and selected tasks

O01-O04; M01. Bank range: M01-M04; O01-O04.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

Ask: What must stay true for a triangle? Give unjoined strips; let children build, then draw. Compare a rectangle without teaching the response first.

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. Closed figure, straight sides and corners; actual construction before drawing.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER SCRIPT | I DO

# I Do in action

## Purpose and selected tasks

O05-O08; M05. Bank range: M05-M08; O05-O08.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

Model a six-sided hexagon and a flexible-cord circle. Say: The hexagon has six straight sides; the circle has no straight sides. Then model clay cube and rectangular prism using the recipes. Spread these tasks across short sessions; each child constructs, names and checks the parts.

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. Separate imitation during teaching from later independent construction; record which shapes were built.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER SCRIPT | WE DO

# We Do in action

## Purpose and selected tasks

O09-O13; M09. Bank range: M09-M13; O09-O13.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

Build cone, sphere and cylinder in separate short sessions using clay. Say: Show which parts are flat and which are curved. Then turn a triangle and change the size of a cord circle. Ask: What changed? What still proves its name? Let learners demonstrate before adding vocabulary.

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. Defining properties persist under turns and size changes.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER SCRIPT | COLLABORATIVE PRACTICE

# Collaborative practice in action

## Purpose and selected tasks

O14-O18; M14. Bank range: M14-M18; O14-O18.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

Partners alternate builder and checker. Checker traces/counts properties rather than judging color. Swap so both build square, rectangle and solids over separate centers.

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. Each child builds; peer help is recorded separately.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER SCRIPT | INDEPENDENT PRACTICE

# Independent practice in action

## Purpose and selected tasks

O19-O23; M19. Bank range: M19-M23; O19-O23.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

Supply materials, read prompt neutrally, then let child choose construction method. Ask only: Tell me about your shape. Save photo/drawing with named attributes.

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. Independent construction, drawing where required, and property explanation.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER SCRIPT | SMALL-GROUP RETEACH

# Small-group reteach in action

## Purpose and selected tasks

O24-O27; M24. Bank range: M24-M27; O24-O27.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

Use an open triangle and a closed one. Trace the gap, repair it, then offer fresh pieces. Compare sphere/cylinder and close both ends of a cylinder model.

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. After model, use a new independent attempt; do not mark modeled success independent.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER SCRIPT | EXIT TICKET

# Exit ticket in action

## Purpose and selected tasks

O28-O30; M28. Bank range: M28-M30; O28-O30.

### 0-2 minutes | Invite

Gather the specified safe materials. State the task in everyday language and ask the learner to predict a useful first move. Use the essential question to focus attention.

### 2-8 minutes | Teach, build, explain

On separate days invite a fresh flat build/drawing, solid build and nonexample. Ask: What makes your model fit the name?

### 8-12 minutes | Check and respond

Ask: How can you show that? Listen without completing the response. Choice exits are samples, not evidence for all unchosen shapes.

### If support is needed

If a child says a tipped square is a diamond rather than a square, test side lengths and corners, then rotate it back. If all rectangles are required to have four equal sides, compare a square with a non-square rectangle. Use trapezoids with exactly one parallel pair so no answer depends on competing inclusive/exclusive definitions.

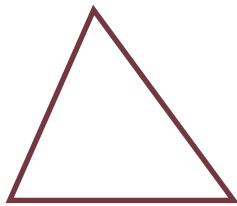
### Early finisher and record

Create another valid example and a near nonexample using the same color. Explain exactly which defining attribute distinguishes them. Record item, actual action, exact explanation, support and next step. Stop or split the session when attention or motor demands require it.

## TEACHER ANCHOR | FLAT SHAPES

# Properties that stay true

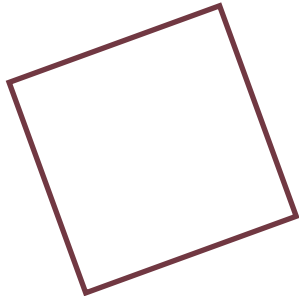
These are examples, not the only allowed sizes or orientations. All polygon boundaries are closed and straight. A square is a special rectangle. Shown trapezoids have exactly one pair of parallel sides; no task relies on a disputed boundary definition.

**triangle**

3 sides, 3 corners

**rectangle**

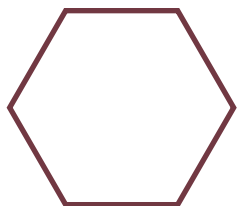
4 square corners

**square**

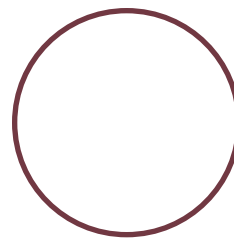
4 equal sides, 4 square corners

**trapezoid**

4 sides, a parallel pair

**hexagon**

6 sides, 6 corners

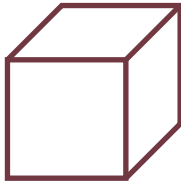
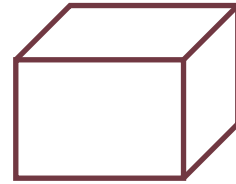
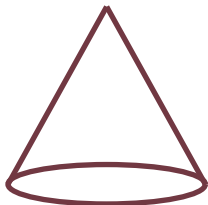
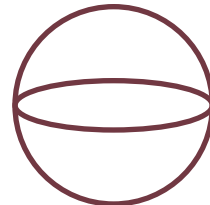
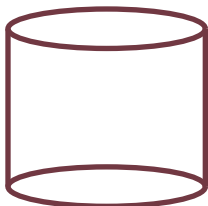
**circle**

Round; no corners

## TEACHER ANCHOR | ACTUAL SOLIDS

# Build, then test the properties

These perspective pictures guide discussion only. Learners must construct real solids. Clay builds approximate ideal geometry: inspect intended flat faces, equal faces, curved surfaces and points.

**cube****rectangular prism****cone****sphere****cylinder**

## TEACHER-ONLY BUILD RECIPES

# Make the five solids

Use substantial non-toxic clay portions on a stable mat. Adults prepare tools and supervise. Children shape the material; handing them finished solids does not establish building. Models can be refined across sessions.

## Cube

Press a clay block against the mat to make a flat face. Turn and flatten the opposite face. Flatten the four remaining faces. Use a paper square and corner as checks: six equal square faces, square corners. Adjust uneven dimensions.

## Rectangular prism

Shape a box longer in one direction. Flatten six faces in three opposite pairs. Check square corners and matching opposite rectangular faces. A cube also fits this category; make a non-cube example to compare.

## Cone

Roll a thick clay ball, taper one end to a single point, then press the opposite end flat. Smooth the curved side and circular base. Do not leave an open hollow paper cone as the only model.

## Sphere

Roll clay gently between palms in changing directions until round in all directions. Avoid pressing it into a flat disk. Check that no flat face or corner remains.

## Cylinder

Roll clay into a thick even roll; flatten both ends on the mat. Both circular ends should match and be parallel. Smooth the connecting curved surface; do not leave an open tube as the finished solid.

## STUDENT ORGANIZER

# Show, tell and check

Build a shape. Draw it here. Tell which properties make it that shape.



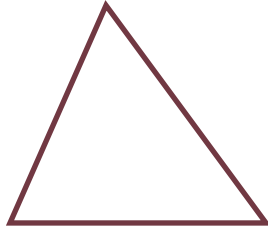
I noticed: \_\_\_\_\_

My explanation: \_\_\_\_\_

## STUDENT | WARM-UP

**M01 | Choose and explain**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**What must a triangle have?**

- A. 3 curved sides
- B. 4 straight sides
- C. 3 straight sides
- D. 6 straight sides

Tell or show how you know.

## STUDENT | WARM-UP

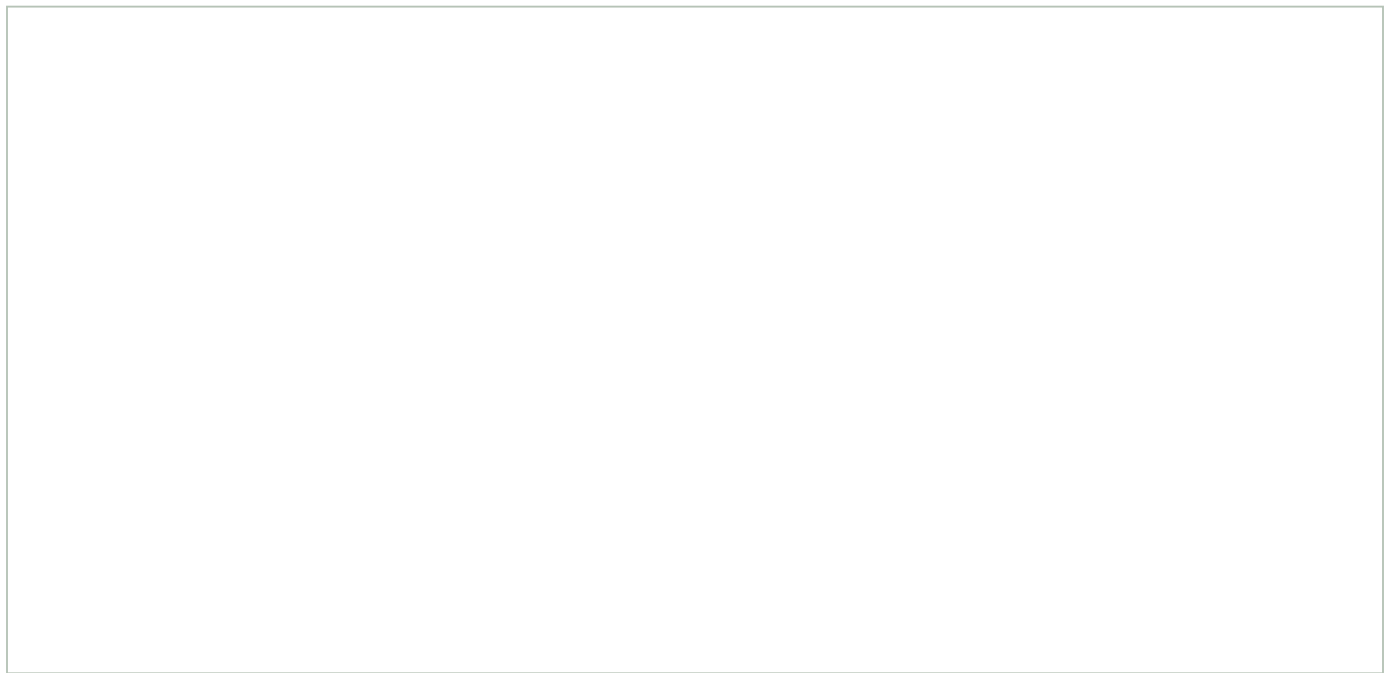
# 001 | Make and explain

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Build a triangle. Then draw one. Tell what makes both a triangle.**

Use: Blank paper, paper strips, flexible cord, tape or clay.

Build on a clear table or mat. Draw or record your work here.



Tell or show how you know. An adult may record your words.

My explanation: \_\_\_\_\_

## STUDENT | WARM-UP

## M02 | Choose and explain

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Which change keeps a square a square?**

- A. Removing a side
- B. Bending a side
- C. Opening a corner
- D. Turning it

Tell or show how you know.

## STUDENT | WARM-UP

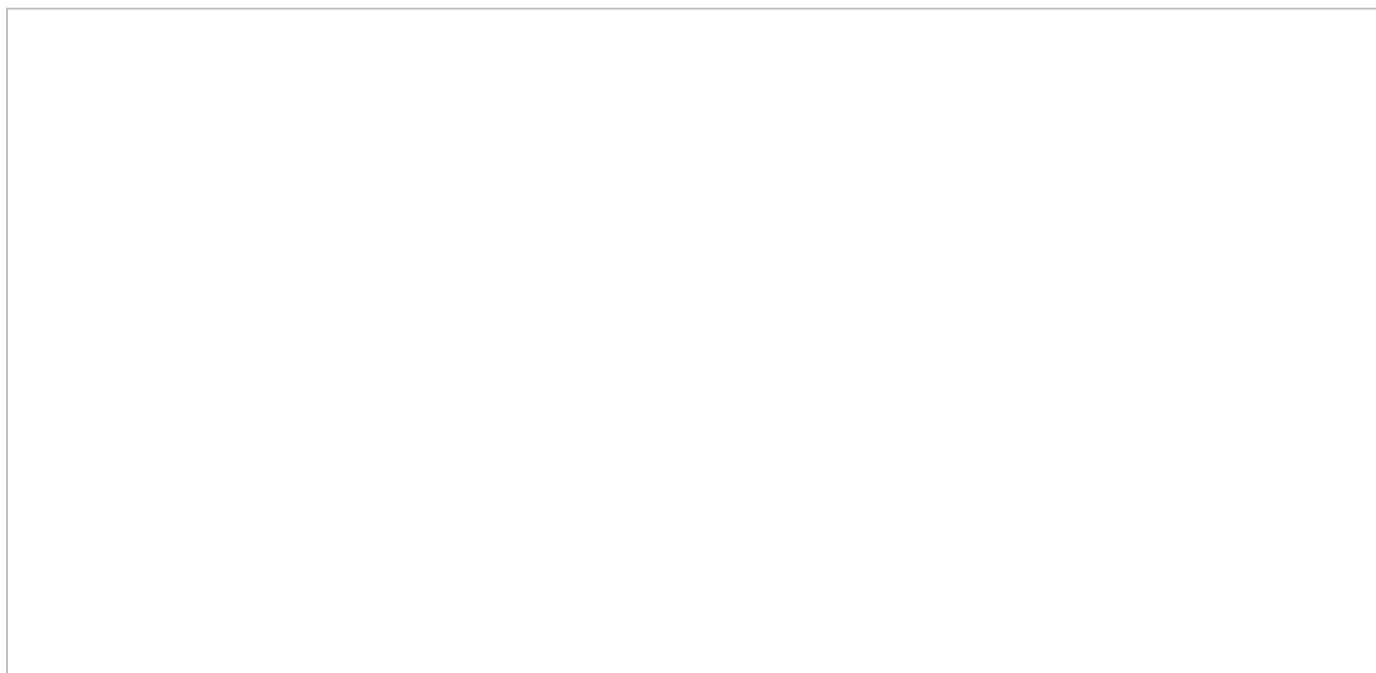
## 002 | Make and explain

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Build a rectangle. Then draw one. Tell what makes both a rectangle.**

Use: Blank paper, paper strips, flexible cord, tape or clay.

Build on a clear table or mat. Draw or record your work here.



Tell or show how you know. An adult may record your words.

My explanation: \_\_\_\_\_

## TEACHER-ONLY WORKED KEYS

# Items 01-02

## M01 | C - 3 straight sides

Target A. A triangle is closed and has exactly 3 straight sides and 3 vertices.

Distractor check: Other choices change a required property, confuse the shape/share/component, or use an irrelevant feature. Ask the learner to demonstrate the deciding property; never infer construction from a correct choice.

### 001 | Sample / accepted evidence

Target B. Both models must be closed with 3 straight sides and 3 corners. Example drawing: the triangle on the teacher anchor. Use paper strips for polygons, flexible cord or clay for the circle; accept other valid constructions. Photograph the built model and keep the drawing. A traced ready-made shape alone is not evidence of building.

Record actual work and explanation. Accept mathematically equivalent constructions or wording with the same meaning. Separate neutral access from supplied mathematical cues.

## M02 | D - Turning it

Target A. A turn preserves the four equal straight sides and four square corners.

Distractor check: Other choices change a required property, confuse the shape/share/component, or use an irrelevant feature. Ask the learner to demonstrate the deciding property; never infer construction from a correct choice.

### 002 | Sample / accepted evidence

Target B. Both models must be closed with 4 straight sides and 4 square corners; opposite sides match. Example drawing: the rectangle on the teacher anchor. Use paper strips for polygons, flexible cord or clay for the circle; accept other valid constructions. Photograph the built model and keep the drawing. A traced ready-made shape alone is not evidence of building.

Record actual work and explanation. Accept mathematically equivalent constructions or wording with the same meaning. Separate neutral access from supplied mathematical cues.