

Geometry

Unit 14: 3D Shapes

Lesson 70: 3D shapes

Objective

Identify and count faces, vertices, and edges of 3-D shapes using actual shapes and pictures. [G4-10](#)

Complete all OR a selection of the following activities

Warm-up: Shape Detective Riddle Walk

- Real 3D shapes (cube, rectangular prism, triangular prism, square pyramid, cylinder, cone)
- Riddle cards

Steps:

1. Students walk around, read riddles like:
 - "I have 6 faces and all my angles are square. What am I?"
 - "I have 1 vertex, 1 face, and no edges. What am I?"
 2. Match the riddle to the correct object.
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Teaching Activity A: Touch & Count: Geometry Census

Materials:

- Physical 3D solids
- Geometry recording sheets

Steps:

1. Pick a shape and:
 - Count **faces** (flat surfaces)
 - Count **edges** (where 2 faces meet)

- Count **vertices** (corners)
 - 2. Record findings in a table.
 - 3. Create comparison charts:
 - Which shapes have the most faces?
 - Which have curved surfaces vs. flat ones?
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Teaching Activity B: Flat vs. Real

Materials: Picture cards of 3D shapes (drawings or photos) and matching 3D solids

Steps:

1. Share a **picture card** of a 3D shape.
2. Ask them to **match** the picture to the correct solid model.
3. Count and label **faces, vertices, and edges** on the image.
4. Compare their findings with the physical model—do they match?

This builds **spatial reasoning**—helping students move between 2D representations and 3D understanding.

Real-Life Anchoring: Where Shapes Live

Ask:

“Where in your world do you see these shapes?”

Explore:

- Cube: dice, boxes
- Rectangular prism: cereal boxes, books
- Triangular prism: roof peaks, tents
- Cylinder: cans, tree trunks
- Cone: ice cream, megaphones
- Sphere: balls, water droplets

“Why do certain things use certain shapes?”

“How does their shape help them hold space?”

Exploration Stations: Playing with Math

Station 1: Shape Sort & Count

- Mix of 3D objects and photos
- Sort by shape name and count faces, edges, vertices

Station 2: Build It

- Build 3D shapes using modeling clay and toothpicks/straws
- Record shape names and parts

Station 3: Sketch the Shape

- Given a real object or solid, students draw it and label parts
- Try drawing from two angles (front and side)

Station 4: Shape Math Game

- Roll a die to choose a shape
- Name it and list faces, edges, vertices as fast as possible
- Get a point for each correct part

Questions for Understanding: Perspective-taking and application

- ☐ Can a shape have faces but no edges or vertices? Give an example. (Hint: Think about round shapes!)
- ☐ Why do you think it's helpful to know the number of faces, edges, and vertices of 3D objects?

Wrap-Up Reflection: Learning into life

- ☐ "Which shape felt most familiar? Which was new?"
 - ☐ "What surprised you when you counted faces, edges, or corners?"
 - ☐ "Did any shape feel like you?"
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Extend Learning: Creative Invitation

My Geometry Comic

- Create a comic about a shape exploring the world:
“Cube goes to the park but gets stuck in a slide. Cylinder to the rescue!”

Write a Shape Chant or Poem

- Create a rhyme or chant using shape vocabulary:
“A cube is neat and full of grace,
With 6 square faces and a smiley face!”
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JUMP Math 4.2 Lessons

Identify and count faces, vertices, and edges of 3-D shapes using actual shapes and pictures. [G4-10](#)

Lesson co-created by Open AI (2025), [Aiden Cinnamon Tea, Chat GPT 4.5], Jump Math Teacher Resources and Laura Mann @ NIDES, June 2025.