InsightMath California

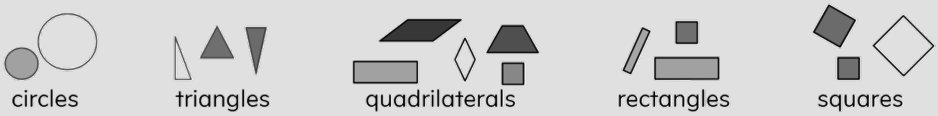
Discovering Shapes

Family Guide | Grade K | Unit 5

Your student is exploring how objects can be named, sorted, and compared based on particular attributes.

Key Math Ideas

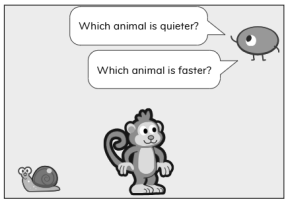
Mathematicians define flat shapes by their attributes, such as the number of sides or vertices (corners), whether the sides are equal, whether the sides are curved or straight, and whether there are right angles. For example, rectangles and squares always have four right angles, but quadrilaterals can have wide or narrow corners.



Solid shapes are defined by what flat shapes are used to make their faces and where curves are present. For example, cylinders have two circle faces, while cones have one circle face and one vertex.

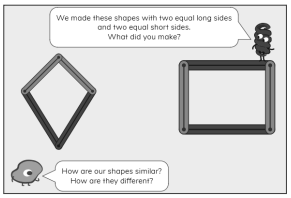
→ In the first part of the unit, your student will learn to

- use positional language (above, below, beside) to describe the relative position of two objects;
- use comparative language (louder/quieter, taller/shorter, heavier/lighter, holds more/holds less) to compare objects in multiple ways.



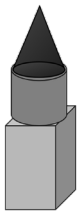
→ In the middle of the unit, your student will learn to

- identify flat shapes by their attributes (for example, rectangles have 4 vertices, 2 pairs of equal sides, and right angles);
- draw or build basic shapes based on their names or descriptions (for example, make a shape with 3 sides and a right angle);
- compose complex flat shapes from other flat shapes;
- rote count forward to 60 and count forward or backward from any starting point within 40.



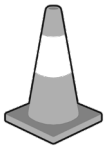
→ In the last part of the unit, your student will learn to

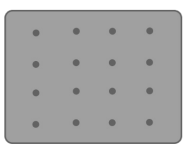
- identify 3-D shapes by their attributes;
- build 3-D shapes from clay based on their names or descriptions.
- compose complex 3-D shapes from other 3-D shapes.



Helpful Hint

In casual language, we often describe objects by shapes that they are similar to, without using formal mathematical language. For example, we might say "circle the answer" when we actually mean drawing a loop that is not a real circle. Kindergarteners learn that we can only name shapes when they are closed and meet all requirements of a shape. For example, a traffic cone is not a real cone because it is open at the bottom and does not meet at a single vertex at the top. A graham cracker is not a real rectangle if it has rounded corners.





Tips for Supporting Your Student at Home

Questions to Ask Your Student

→ In the first half of the unit:

- Which one is heavier / lighter / faster / slower / louder / quieter, etc.? What other words could you use to compare these two things?

→ In the middle and end of the unit:

- What shapes do you see around you? How do you know?
- Is it really that shape or just close to that shape?

If...	Try...
your student names a solid shape as a flat shape, like calling a cube a square . . .	having them trace the sides of a flat shape, then the edges of the face on a solid shape. Discuss the similarities and differences between a flat shape and a solid shape.

Student Strengths Spotlight

We try our best.	Students notice that even if they frustrated with something difficult, like making a specific shape from clay, they can keep trying to improve.
We talk about our ideas.	Students share multiple ways that they can describe the same shape or make comparisons between objects using informal and mathematical language.

Try This Together!

- **Compare Everywhere.** Hold up two objects that are similar sizes (for example, egg and bread roll) and ask, "Which one do you think is heavier / lighter?" Have your student predict, and then hold both to compare. In the bathtub, hold up two containers and ask, "Which do you think can hold more water?" After your student makes a prediction, have them fill one container to the top and then pour it into the other container to compare.
- **I Spy Shapes.** At home or outside, find objects that look like shapes. Challenge your student to name the shape and then explain whether it's a real shape or just similar to that shape and explain why. (For example, a closed cereal box is a real rectangular prism because it has flat faces, clear vertices, and it is closed. A drinking glass is not a real cylinder because it is open at the top.)
- **Draw it! Build it!** Use pencil and paper, clay, markers, or sticks of different lengths to draw or build shapes. Take turns with your student to give each other challenges such as "Make a shape with two short lines and two long lines," then compare what you both made.