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GRADE PK • MODULE 2

Shapes

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Grade PK • Module 2

Shapes

OVERVIEW

In Module 2, in the context of classroom play, children learn to identify, describe, sort, compare, and create two-dimensional (2-D) and three-dimensional (3-D) shapes and objects (**PK.G.1–4**). Children generally progress through the following levels of geometric understanding during the pre-kindergarten year to varying degrees:

* Being able to recognize and name exemplar and variant shapes (e.g., an equilateral triangle and a right triangle oriented diagonally) from among other shapes.
* Attending to shape attributes: “I counted three sides and three corners on this shape.”
* Thinking about parts: “This triangle is made of three sides and three corners!”
* Relating parts to the whole: “Any shape with three sides and three corners is a triangle!”

In this module, children develop vocabulary to describe the relative position of objects (e.g., *top, bottom, up, down, in front of, behind, over, under,* and *next to*), building foundational spatial reasoning abilities (**PK.G.1**). In Module 1, students developed an understanding of numbers to 5. In Module 2, students practice these counting skills in the context of geometry (counting sides, corners, a group of triangles, etc.).

In Topic A, students identify, sort, describe, and position two-dimensional shapes: circles, rectangles, squares (special rectangles), and triangles (**PK.G.2**). Through various games and activities, children uncover and discuss the attributes of each shape (e.g., number of sides and corners). After finding a particular shape, they might playfully enact its number of sides by hopping the same number of times, as pictured to the right. Students further compare (**PK.G.3**) the different attributes of two-dimensional shapes and position them using new relational terms (e.g., *up, down, in front of, behind, under,* and *next to*). By the end of Topic A, students learn to think about and describe shapes according to their attributes, rather than by relating the shape to a familiar object in the environment. For example, a student might say, “It’s a rectangle because it has four sides and four corners,” rather than “It’s a rectangle because it looks like a door.”

Topic B reinforces attention to attributes as students build two-dimensional shapes from components (**PK.G.4**). For example, students use three small balls of clay and three straws to create a triangle, which leads students to relate the parts of a triangle to the whole. Inadvertently, they also see that the whole triangle consists only of its outline, or the stick sides and clay corners; the area of the shape does not need to be filled in to be a triangle. Similar construction activities are done with rectangles and circles.

In Topic C, students identify, sort, describe, position, and build with three-dimensional shapes in their environment (**PK.G.1–3**). Focus is placed on analyzing three-dimensional shapes (real world, wooden, or foam) by considering their two-dimensional faces and describing the functional properties of the three-dimensional shapes (e.g., sliding, stacking, or rolling). Position words (see Topic A above) are reinforced as students use three-dimensional foam or wooden blocks to create buildings, towers, bridges, and models of familiar places such as their classroom. These activities support spatial reasoning, meaning-making, and mathematical communication.



Focus Grade Level Standards

Identify and describe shapes (squares, circles, triangles, rectangles).

PK.G.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as top, bottom, up, down, in front of, behind, over, under, and next to.

PK.G.2 Correctly name shapes regardless of size.

Analyze, compare, and sort objects.

PK.G.3 Analyze, compare, and sort two- and three-dimensional shapes and objects, in different sizes, using informal language to describe their similarities, differences, and other attributes (e.g., color, size, and shape).

PK.G.4 Create and build shapes from components (e.g., sticks and clay balls).

Foundational Standards

**PK.CC.3** Understand the relationship between numbers and quantities to 10; connect counting to cardinality.

1. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
2. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement of the order in which they were counted.

**PK.CC.4** Count to answer "how many?" questions about as many as 10 things arranged in a line, a rectangular array, or a circle, or as many as 5 things in a scattered configuration; given a number from 1–10, count out that many objects).

**PK.MD.2** Sort objects into categories; count the number of objects in each category.[[1]](#footnote-1)

Focus Standards for Mathematical Practice

**MP.1 Make sense of problems and persevere in solving them.** Children consider a group of triangles and put other triangles in the group based on the understanding that a triangle has three sides and three corners. They persevere in sorting as they come across variant triangles, perhaps reconsidering some of their sorting choices.

**MP.3 Construct viable arguments and critique the reasoning of others.** Children construct viable arguments as they identify shapes based on their attributes (sides and corners).

**MP.6 Attend to precision.** When children are able to describe a shape using its attributes, “It’s a rectangle because it has four sides and four corners,” instead of, “It’s a rectangle because it looks like a door,” their descriptions become precise.

**MP.7 Look for and make use of structure.** Children sort shapes based on attributes.

Overview of Module Topics and Lesson Objectives

| **Standards** | **Topics and Objectives** | | **Days** |
| --- | --- | --- | --- |
| **PK.G.1**  **PK.G.2**  **PK.G.3**  PK.MD.2 | A | **Two-Dimensional Shapes**  Lesson 1: Find and describe circles, rectangles, squares, and triangles using informal language without naming.  Lesson 2: Identify, analyze, sort, compare, and position triangles.  Lesson 3: Identify, analyze, sort, compare, and position rectangles and squares.  Lesson 4: Identify, analyze, sort, compare, and position circles.  Lesson 5: Identify, analyze, sort, compare, and position circles, rectangles, squares, and triangles. | 5 |
| **PK.G.4**  PK.G.3 | B | **Constructing Two-Dimensional Shapes**  Lesson 6: Construct a triangle.  Lesson 7: Construct a rectangle and a square.  Lesson 8: Construct a circle. | 3 |
| **PK.G.3**  PK.MD.2  PK.G.1 | C | **Three-Dimensional Shapes**  Lesson 9: Find and describe solid shapes using informal language without naming.  Lesson 10: Identify, analyze, sort, compare, and match solid shapes to their two-dimensional faces.  Lesson 11: Identify, analyze, sort, compare, and build with solid shapes.  Lesson 12: Position solid shapes to create a model of a familiar place. | 4 |
|  |  | End-of-Module Assessment: Topics A–C (assessment day, remediation or further applications) | 3 |
| Total Number of Instructional Days | | | **15** |

Fluency

New Fluency Topics Appearing in Module 2 Instruction

* Sort shapes and count within 5
* Rote count to 7

Familiar Fluency

* Rote count to 5
* Count one-to-one within 5
* Make a group of 1 to 5 objects

Terminology

**New or Recently Introduced Terms**

* Above, behind, below, between, down, in, in front of, next to, off, on, under, up (position words)
* Circle (two-dimensional shape whose boundary consists of points equidistant from the center)
* Corner (where two sides meet)
* Face (flat side of a solid)
* Flat (as opposed to round)
* Model (a representation of something)
* Pointy (having a sharp point)
* Rectangle (two-dimensional shape enclosed by four straight sides)
* Roll (attribute of a shape)
* Round (circular; shaped like a circle, sphere, cylinder)
* Shape (external boundary of an object)
* Side (position or with reference to a shape)
* Slide (attribute of a shape)
* Square (two-dimensional shape enclosed by four straight, equal sides)
* Stack (attribute of a shape)
* Straight (without a curve or bend)
* Triangle (two-dimensional shape enclosed by three straight sides)

Familiar Terms and Symbols

* 1, 2, 3, 4, 5 (numerals)
* Different (characteristic used to analyze objects to match or sort)
* Group (objects sharing one or more attributes)
* Match (group items that are the same or that have the same given attribute)
* One, two, three, four, five, six, seven (number words)
* Size (generalized measurement term)
* Sort (group objects according to a particular attribute)
* The same (describing a common attribute)
* The same, but… (characteristic used to analyze objects to match or sort)

Suggested Tools and Representations

* 5-corner shape template
* Counters (e.g., beans)
* Large cutouts of shapes (for shape walk)
* Large shapes template
* Modeling clay
* Numeral cards, 1–5
* Oval and wheel templates
* Park scene template
* Pattern blocks
* Shape sort template
* Small shapes template
* Stuffed animals (for position words)
* Tree template
* Two-dimensional and three-dimensional concrete materials (e.g., linking cubes, blocks, foam or wooden shapes, centimeter cubes, tiles, etc.)
* Two-dimensional and three-dimensional natural shapes (shaped kitchen food items, play items, small balls, party hats, etc.)
* Personal white boards
* Wooden craft sticks, coffee stirrer sticks, and straws

Assessment Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **Administered** | **Format** | **Standards Addressed** |
| End-of-Module Assessment Task | After Topic C | Constructed response with rubric | PK.G.1  PK.G.2  PK.G.3  PK.G.4 |

1. Limit category counts to be less than or equal to 5. [↑](#footnote-ref-1)