


ELEMENTARY MATH PROJECT**KINDERGARTEN****Measurement and Geometry****Key Number Concept 1: Single Attributes of Shapes****Sample Week at a Glance**

This week plan focused on a general introduction to the idea of shapes and space in Kindergarten, introducing both 2D and 3D geometric shapes and objects/items. Through children's investigation and play, spatial reasoning and position in space are also explored.

If you use "soft starts" to begin the day, you could provide different geometry-focused materials on each table invitation such as:

- Pattern blocks
- Tangrams
- Unit blocks (small size)
- Puzzles
- Lego
- Pentominoes

Monday	<p>Learning focus: Introduction to concept of geometric shapes and their attributes.</p> <p>Before Share two images from the Same But Different website such as the following:</p> <div data-bbox="406 1386 998 1554" style="text-align: center;"></div> <p>Ask students to share what they notice about how the two shape are the same (pink colour, four corners, four sides, straight sides) and how they are different (shape on left has two long sides and two short sides, shape on right has all sides the same length). Students may have other ideas as well. This is an opportunity to hear what language and understanding students have to describe the attributes of shapes.</p> <p>During Invite students to make (compose and decompose) shapes out of different materials as well as math materials. On tables, provide collections of materials that allow for creating 2D shapes (straight and curved sides) such as popsicle sticks, chopsticks, dowels, twigs, pipe cleaners, or pieces of ribbon and yarn as well as math materials such as pattern blocks, tangram pieces or colour tiles. Provide</p>
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these prompts to support students' investigations: What different shapes can you make? How would you describe them? Some students may also choose to create 3D shapes with the materials.

After

Invite students to share some of the shapes they created and describe them by their attributes (small, long, straight sides, number of sides etc). If created, choose a 2D shape and a 3D shape and ask students to share how they are the same and how they are different. If needed, provide language such as "2D shapes are flat" and "3D shapes take up space." Also, based on observations, if a child makes a "squiggle" with a ribbon for example and calls it a shape, you could share this with the group and explain that in math, something is considered a shape if it is "closed".

Tuesday

Learning focus: Noticing and describing attributes of shapes in the environment.

Before



Share some of the illustrations and text about shapes in nature from the book *Shapes and Patterns in Nature* by Stepanka Sekaninova, Jana Sedlackova, and Magdalena Konecna, the book *Shapes All Around* by Kate Riggs and Laetitia Devernay, or share some images of trees or plants from the local area. Elicit noticing and discussion with prompts like: How would you describe the shapes? What do you notice about them? How are natural shapes and "math shapes" the same and how are they different?



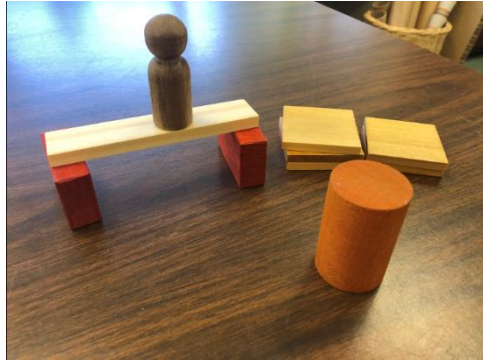
During

Take a shape walk outdoors either around your school park or in the community. Ask students to look for different types of shapes and record their findings on clipboards by drawing and labeling, tracing around the items on paper or whiteboards, or by taking photographs. Pause for some discussions such as discussing the difference between 2D and 3D and natural/organic vs geometric/math/human-made shapes. Students might say things like, "it's like a triangle" or "those leaves have points" or "that tree is like a tube" or "that long branch is curvy" to describe different attributes of the shapes they find.

After

	<p>Invite students to share a shape they found with a classmate and describe it in three ways (focused on attributes).</p> <p>As a follow-up to this lesson, you could also create a class book of the students' drawings or photographs.</p>
<p>Wednesday</p>	<p>Learning focus: 2D Shapes are made of lines (straight and curved) and are closed.</p> <p>Before Sitting together as a group, provide each student with a pipe cleaner and ask them what different types of lines they can make. Record their different lines, such as squiggle, wavy, straight, curved, zigzag, on a whiteboard or chart. Now invite them to take one of their lines and twist the ends together to create a closed shape. Have students look at each other's shapes and discuss what they notice about the different shapes.</p> <p>Optional: Read <i>When A Line Bends, A Shape Begins</i> by Rhonda Growler Greene. Provide each student with a pipe cleaner to bend and make into closed shapes as you read the story.</p> <p>During Indoors option: Provide materials such as pipe cleaners, popsicle sticks, yarn and ribbon for students to make different shapes (2D and 3D) with.</p>  <p>Outdoors option: Go for a walk outdoors and find natural materials such as sticks, twigs, leaves etc to make different shapes (2D and 3D) with.</p>  <p>After Have students use an iPad camera or similar tool to take photos of the shapes they have created and share on a screen for all the students to discuss and compare or have students do a "gallery walk" to compare the shape/s they created to those created by their classmates. Prompt students with the question: How are the shapes the same and how are they different?</p>
<p>Thursday</p>	<p>Learning focus: Connecting shapes and Indigenous design elements.</p> <p>Before</p>

	<p>Share a piece of art by a local Indigenous artist. Ask the students to describe the shapes they see. Highlight design elements/shapes of one of the local Indigenous cultures in your area. For example, Coast Salish art includes three significant shapes (more info here). Ask students what they notice about the shapes and what connections they are making.</p> <p>During Invite students to draw, paint, or create a design. Provide a range of materials such as pencils, crayons, pencil crayons, chalk pastels, watercolour or tempera paint, and surfaces to draw and create on. Loose parts and math materials can also be provided as a choice. You may include specific criteria such as “create a design with at least three different shapes.” Have students leave them in place for other children to view.</p> <p>After Share the piece of art again, highlighting the shapes that had been discussed. Invite students to do a “gallery walk” of the students’ creations and to look out for the significant shapes that had been discussed.</p>
Friday	<p>Learning focus: Using positional language and spatial reasoning to describe 3D structures.</p> <p>Before At each table group/small group of students, provide a small collection of 3D blocks and boxes and containers (invite families to send in clean boxes etc from their recycling bins). Prompt students to explore the materials with: What shapes can you find in these objects? What can you do with these objects? How could you sort these objects? Have students share their findings.</p> <p>Optional: Read Circle Over Berry by Carter Higgins if you feel the students need some vocabulary and positional language to use in their investigations.</p> <p>During Using the materials from the group investigation, along with other classroom materials, invite students to build and describe a structure. You might need to provide an example of a structure like a tower, bridge or building. As you join small groups of students while they are building, nudge their mathematical thinking by asking them to describe the objects they are using and positional language to describe their placement, for example “The little blocks are around the tall block with a curved block on the top of it.” Invite students to record their structure on paper with drawing and labeling. You may need to support students’ drawing by having them think about what lines/shapes they will draw for each object. Leave the structures in place.</p>



After

Collect the students' drawings of their structures and give them out to the students to try and match the 2D drawing with the 3D structure. Choose one structure to highlight for group discussion and prompt students: What do you notice? What shapes live here?

Noticing what students are able to do and what they know about shapes this week will determine your next steps. You may note that students may need more time to develop the specific mathematical language needed to describe and compare the attributes of shapes and this can be woven into math play centres and math read alouds with picture books throughout the school year.

Suggestions for Assessment

Most assessment of these concepts will be through observing and listening. Create a chart of related learning standards where you can make notes of your observations and how students are discussing these ideas.