## 1st Grade

### GRADE LEVEL OVERVIEW

#### Sample Mathematics Learning Plan – Shapes and Attributes

<table>
<thead>
<tr>
<th>Big Idea/ Topic</th>
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<tbody>
<tr>
<td>● Reason about shape attributes</td>
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<table>
<thead>
<tr>
<th>Standard Alignment</th>
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<tbody>
<tr>
<td>MGSE1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.</td>
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<table>
<thead>
<tr>
<th>Diagnostic Assessment</th>
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<tbody>
<tr>
<td>The attached diagnostic assessment assesses students’ understanding of defining and non-defining attributes. Within this assessment, students are asked to determine whether a statement about the given shapes is true or false and then share their reasoning for their choice.</td>
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</table>
Instructional Design

Desmos Activity link: **Sorting Shapes**

Engage

Did you know that there are shapes all around us? Take a look at the clock on the wall, and what shape do you see? What is the shape of the whiteboard at the front of the room? Is it the same shape as the clock, or is it different?

Not all shapes are the same but we can find attributes for each shape that make them look like other shapes. How many sides does a rectangle have? How many sides does a square have? These two shapes are similar because they have the same number of sides, even though they look a little different.

Today we’re going to practice looking at shapes and deciding what makes them alike or different.

Teacher Moves

Guide students to look for ways other than color and size when describing the shapes such as by number of sides, number of corners, or no corners. Students should explore discussions about defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size).

The teacher will ask the questions, “Why are attributes important? How do they help up organize a group of shapes? What are the different types of attributes? Have students give examples of things they have seen in their environment that have some of these same shapes.

Sample Responses

Some examples may be badges, buttons, awards, stickers, signs, etc.

- **Synchronous** Complete during a classroom discussion while pausing the activity to highlight student responses.
- **Asynchronous** Introduce the problem to students in a virtual platform; this can be done via e-document or video. Allow students to share responses within the Desmos platform and provide feedback via the teacher dashboard. Additionally, students could use an audio/video to share. Provide feedback to individual student responses and highlight multiple strategies used by students.
- **Unplugged/Offline** Provide the card sort for students to engage in the task. Have students share ideas through email/text/phone. Provide feedback to students and share other students’ ideas before engaging in the remaining sections.
Explore

Record the ways you described the shapes.

Teacher Moves

Guide students to look for ways other than color and size when describing the shapes such as by number of sides, number of corners, or no corners. Students should explore discussions about defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size).

The teacher will ask the questions, “Why are attributes important? How do they help us organize a group of shapes? What are the different types of attributes? Have students give examples of things they have seen in their environment that have some of these same shapes.

Sample Responses

Some examples may be badges, buttons, awards, stickers, signs, etc.

Let’s practice sorting the shapes into groups. Refer to the list you created earlier.

Choose two attributes to practice sorting your shapes. Describe how you sorted the shapes.

Teacher Moves

As students sort shapes and make their graph, make sure to ask open-ended questions so the students can verbalize how they are thinking.

Sample Responses

Students can sort by shape, pattern, size, color, etc.

- **Synchronous**: Complete Desmos activity during synchronous learning as described above either face to face, virtual, or blended.
- **Asynchronous**: Give students time to complete the screens and provide feedback. Ensure that enough time is provided for students to participate and respond to your feedback and edit responses as needed.
- **Unplugged/Offline**: Provide paper/electronic versions of the card sort presented. Allow students time to complete the work and submit through email/text or other means. Provide feedback and share with other students and provide access to other students’ thinking.

Apply

5 Sorting by Defining a...
Sort the shapes based on their defining attributes.

**Teacher Moves**

As students sort shapes and make their graph, make sure to ask open-ended questions so the students can verbalize how they are thinking.

**Sample Responses**

Explain to students that even though, in the previous task, students were able to sort by non-defining attributes, what really makes a shape a shape, are it’s defining attributes (closed, three sided, four sides, four corners, five sided, etc.).

- **Synchronous** Complete Desmos activity as described above during synchronous learning, either face to face, virtual, or blended.
- **Asynchronous** Give students time to complete the screens and provide feedback. Ensure that enough time is provided for students to participate and respond to your feedback and edit responses as needed.
- **Unplugged/ Offline** Provide students with access to card sort and venn diagram and allow students to engage in the task. Ask students to complete the task and have them submit responses via email/text/phone. Provide feedback, share these responses with other students, and share other students’ responses with them.

**Reflect**

1. Find two DIFFERENT shapes in the picture that share an attribute and circle them.
2. Type the names of the shapes and the attribute that they share in the box below.

- **Synchronous** Complete Desmos activity during synchronous learning as described above either face to face, virtual, or blended.
- **Asynchronous** Give students time to complete the screens and provide feedback. Ensure that enough time is provided for students to participate and respond to your feedback and edit responses as needed.
- **Unplugged/ Offline** Provide students with access to images and allow students to engage in the task. Ask students to complete the task and have them submit responses via email/text/phone. Provide feedback, share these responses with other students, and share other students’ responses with them.
Evidence of Student Success

Formative Assessment Questions:

- What can you tell me about the way you sorted your shapes?
- Can you think of another way to sort them?
- Why do you think there is more than one way to sort the shapes?
- Where do you see these kinds of shapes (listen for and encourage examples from in your classroom, outside, at home, etc.)
- What helped you decide how you were going to make your graph?
- How will you describe your representation to the class?

Student Learning Supports

Establish mathematics goals to focus learning.
- Make instructions and expectations clear for the activities.
- Make explicit connections between current and prior lessons or units.

Facilitate meaningful mathematical discourse.
- Explicitly model and teach good “discussion board” etiquette.

Pose purposeful questions.
- Predetermine when you will call on the student or use the pause feature within the activities.
- Break class into small discussion groups to work collaboratively and then have groups report back to the whole group.

Support productive struggle in learning mathematics.
- Offer outlines and other scaffolding tools and share tips that might help students learn.
- Provide feedback using the feedback feature within activities and offer corrective opportunities.
- Consider the pacing of the lesson.

Elicit and use evidence of student thinking.
- Anticipate any misconceptions or questions students might have about the task, materials or technology. Proactively address them with readily available and accessible resources.

Additional Supports:
Students should be given the opportunity, as in this Desmos activity, to sort based on how they think shapes should be sorted. The understanding of defining attributes comes from the rich conversations about the different ways to sort and how sometimes attributes such as color or orientation can lead to sorts that can be confusing when discussing shapes.
Engaging Families

Count On It! For Teachers and Parents

Episode 210 – Blossom and Snappy Go to the Zoo, Part Two

- Shapes – Draw funny pictures using only 2-dimensional shapes. For example, you can draw a person using only rectangles. Or you could draw a flower with only one circle, and the rest in squares. Be creative!

Students and their adult or family members can play sorting games.

- One person will sort the shapes and the other will determine how the shapes were sorted.
## Justified True/False Statements

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>T</th>
<th>F</th>
<th>WHY I (or WE) THINK SO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All triangles have three sides.</td>
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<tr>
<td>2. The following shapes are quadrilaterals.</td>
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<tr>
<td><img src="image.png" alt="Quadrilateral Shapes" /></td>
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<tr>
<td>3. The following shape is a triangle?</td>
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<tr>
<td><img src="image.png" alt="Triangle" /></td>
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<tr>
<td>4. These are rectangles because they are the same color.</td>
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<tr>
<td><img src="image.png" alt="Rectangles" /></td>
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