Big Idea/ Topic

- Organize, represent, and interpret data up to 3 categories

Standard Alignment

MGSE1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Diagnostic Assessment

The following is a sample that can be given to students to assess their understanding of interpreting data.

1. The data below was collected in a 1st grade class about the students’ favorite flavor of ice cream. What question was asked to collect the data?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chocolate</td>
<td>12</td>
</tr>
<tr>
<td>Vanilla</td>
<td>5</td>
</tr>
<tr>
<td>Strawberry</td>
<td>6</td>
</tr>
</tbody>
</table>

2. What do you notice?

3. How many students voted for their favorite ice cream flavor?

4. How many more students liked strawberry than vanilla?
Instructional Design

Desmos Activity link: Data Driven

1 Organizing Data
Jenise loves the turtle pattern she made. She wants to know how many of each shape was used to create the turtle so she can make it the next time she works with pattern blocks.

Use the sketch tools to make tally marks to show how many of each shape was used to create the turtle.

How many of each shape did Jenise use?

Teacher Moves

Highlight student responses. Guide students make tables with tallies and numbers. A table has been provided for students to record their totals for each shape after tallying the totals using the sketch tools.

Note: pictographs and bar graphs are not an expectation until Grade 2.

Sample Responses

Students should organize the shapes in categories with tallies.

Engage

● Synchronous: Complete during a classroom discussion as described above while pausing the activity to engage students in a discussion. Be sure to highlight interesting student responses as well as those responses that may show misconceptions.

● Asynchronous: Using the teacher dashboard, restrict screens so that only screen one is available for students. 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. Model organization strategies not shared by students.

● Unplugged/ Offline: Provide the attached opening image 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

Mrs. Carter’s class is having a class party. She asked her class to vote for their favorite foods. They chose from hamburgers, pizza, and tacos.

Drag the foods to organize the data to help Mrs. Carter determine which food to serve at the party.

Fill in the table below to show how many people voted for each.

Teacher Moves

Students are provided with movable images that they can drag to sort and count the totals for each food type. While students are not expected to create pictographs until 2nd grade, this sorting activity provides students with the opportunity to organize data in a way that makes sense within this context.

How many students voted for their favorite food?

Teacher Moves

Highlight student responses to the Favorite Food data questions. Be sure to highlight interesting responses and well as responses that may show misconceptions. Engage students in a discussion about the responses to the questions and about the data in general. What three foods would the students in your class choose as their favorites? Once they find out, have them vote on their favorite and create another representation with tallies. What will you do with these data?

Apply

Write 3 statements that compare the data?

Teacher Moves

Now that you’ve had the discussion about the data, what comparisons can we make? Highlight interesting student responses as well as those that may show misconceptions. Allow students to answer questions as well as ask questions about the data. Engage students in the collection of data that interests them to continue the dive into understanding data.

- Synchronous: Complete the Desmos activity as described above, either face to face, virtual, or blended. Highlight student responses that are interesting and/or show misconceptions. Allow students the opportunity to answer each other’s questions as well as ask questions about the data.
- Asynchronous: Using the teacher dashboard, unrestrict the remaining screens. 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 the attached paper version of the activity. 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.
**Synchronous:** Complete Desmos activity as described above either face to face, virtual, or blended. This might be a good time to pause the activity to have a discussion about what statements that compare data might look like. Ask students what it means to compare two or more things. What words are used? Write a comparing statement together, first, then ask students to work with a partner to write one more, then have students try to write one on their own. Unpause the activity once students are ready and allow them to type their comparing statements into the Desmos platform.

**Asynchronous:** Give students time to complete the screens and provide feedback. Before unrestricting screen four, it may be helpful to have a discussion about what statements that compare data might look like. Ask students what it means to compare two or more things. What words are used? Write a comparing statement together, first, then ask students to work with a partner (parent or older sibling) to write one more, then have students try to write one on their own. Ensure that enough time is provided for students to participate and respond to your feedback and edit responses as needed.

**Unplugged/Offline:** Provide the paper version of the activity. Before engaging students in this part of the activity, it may be helpful to have a discussion with them about what statements that compare data might look like. This could be by phone or by email. Ask students what it means to compare two or more things. What words are used? Write a comparing statement together, first, then ask students to work with a partner (parent or older sibling) to write one more, then have students try to write one on their own. 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.

**Reflect**
Students could have an opportunity to reflect with an exit ticket. Wrapping up the lesson with “Today we practiced organizing data. How did you organize your data to answer questions?”

- **Synchronous:** Students will reflect upon the Desmos lesson in a journal. Students will share 1 way to organize data. Share reflections anonymously with the class.

- **Asynchronous:** Students will reflect upon the Desmos lesson in a journal. Students will share 1 way to organize data. Students could utilize a video/recording application.

- **Unplugged/Offline:** A paper copy could be sent to the student to reflect with pencil and paper. If math notebooks are a part of teacher routines, the reflection could be performed here.
Evidence of Student Success

Formative Assessment Questions:

- What does the data tell us?
- How does organizing data help to understand it?
- Which item did you have the most of? Least of?
- How many more/less did you have? How did you figure that out?
- What did you discover about organizing data?
- What questions do you still have about organizing data?

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.

Engaging Families

Students can collect data from family and friends. This data could be anything that the student would find interesting, such as favorite places to visit, favorite vegetable or food, first car, how old they were when they left home, etc. Students can collect these data and organize it, then share the results with family and friends. This might be especially beneficial for the student if the data collected is used to make a decision or provide some information about the group.