

# Collecting Data for Bar Graphs and Line Graphs– A Co-Teaching Lesson Plan

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## Co-Teaching Approaches

A “(Y)” in front of the following list items indicates the approach is outlined in the lesson. An “(N)” in front of the following list items indicates the approach is not outlined in the lesson.

- (Y) Parallel Teaching
- (Y) Team Teaching
- (N) Station Teaching
- (N) One Teach/One Observe
- (N) Alternative Teaching
- (Y) One Teach/One Assist

## Subject

Grade 4 Mathematics

## Strand

Collect, Organize, and Interpret Data

## Topic

Graphing

## SOL

- 4.14 The student will
1. collect, organize, and represent data in bar graphs and line graphs.

## Lesson Outcomes

The student will be collect data to create a graph.

## Materials

- Sandwich Data 1 and 2 activity sheets (attached)
- Exit Ticket (attached)
- LINCS Vocabulary Strategy (attached; blank)
- Chart paper
- Markers

**Vocabulary**

*bar graph, chart, circle (pie) graph, data, line graph, line plot, survey, tally mark, tally table*

## Co-Teacher Actions

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
<p><b>Anticipatory Set</b></p>	<p>One teach, one assist Team Teaching</p>	<p>Divide the class into two groups, placing one group at the front of the classroom and the other at the back. Distribute the Sandwich Data 1 activity sheet to the group at the front and the Sandwich Data 2 activity sheet to the group at the back. When distributing, place the handouts face-down on the desks and instruct students not to turn the papers over.</p> <p>Tell students that you are going to ask some questions about sandwiches, that the answers are contained in the information on the activity sheet, and that you are going to keep track of those who raise their hands first to answer the questions. Give a signal for students to turn their papers over, and begin asking questions (see below).</p> <p>Call on the first student who raises their hand to answer the question.</p> <p>Keep a record of those who answer first (the student and side of class), anticipating that those who have the data in graphical form will respond first.</p> <p>What sandwich was preferred by the most people? What sandwiches were preferred by only two people? What sandwich did Oliver prefer? Which sandwiches have</p>	<p>Help identify whose hand is up first to answer the question.</p>

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		<p>same number of people choosing them as their favorite? What is the difference between the number choosing peanut butter and jelly over plain peanut butter? Who chose plain fluff?</p> <p>After establishing that students in one group did better than those in the other, reveal that the handouts were not the same. Display both handouts for the class to see, and explain that this is an example of the importance of the way statistical data or information is presented. Distribute the alternate handouts so that each student has a copy of both.</p> <p>Lead the students in a discussion of the reasons one handout is quicker to read and easier to understand than the other. They should conclude that the data in the bar graph is quicker to read and easier to understand than the data in the narrative because the bar graph groups and categorizes the important information simply and clearly.</p> <p>Instruct students to summarize this activity in their mathematics journals.</p>	<p>Assist and guide the discussion by writing students' suggestions on the chart paper.</p> <p>Ask students to create additional questions that could be asked from the data.</p>

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
<b>Lesson Activities/ Procedures</b>	Team teaching	<p>Tell the students we are going to collect data about our class using tally marks. Then we are going to place the information in a bar graph.</p> <ol style="list-style-type: none"> <li>1. Ask the students about their favorite ice cream flavor (vanilla, chocolate, strawberry, chocolate chip, cookie dough).</li> <li>4. Monitor students as they work. Listen for vocabulary use, ask the “Why?” questions, check for misconceptions, and select those students to share their thinking as the teams share out and post their graphs.</li> <li>5. Facilitate the student share-out and posting of their graphs. Have the entire class answer questions about the data while looking at and comparing all the posted graphs. Ask questions interpreting the data.</li> </ol>	<ol style="list-style-type: none"> <li>2. Tally student responses within a chart on the board.</li> <li>3. Give student teams large chart paper.</li> </ol> <p>Divide the class into 6 teams to use this data:</p> <ul style="list-style-type: none"> <li>• Team 1 creates a vertical bar graph (unit of 1)</li> <li>• Team 2 creates a horizontal bar graph (unit of 1)</li> <li>• Team 3 creates a vertical bar (unit of 2)</li> <li>• Team 4 creates a horizontal bar (unit of 2)</li> <li>• Team 5 creates a vertical bar (unit of 5)</li> <li>• Team 6 creates a horizontal bar (unit of 5)</li> </ul> <ol style="list-style-type: none"> <li>4. Monitor students as they work. Listen for vocabulary use, ask the “Why?” questions, check for misconceptions, and select those students to share their</li> </ol>

Lesson Component	Co-Teaching Approach(es)	General Educator (GE)	Special Educator (SE)
		<p>7. Ask students to compare and contrast the graphs.</p>	<p>thinking as the teams share out and post their graphs.</p> <p>6. Follow up each question asked of the class by asking, “Which graph did you think was the easiest to use to answer the individual questions? Why?”</p>
<p><b>Guided/Independent Practice</b></p>	<p>Parallel Teaching</p>	<p>Collect whole-class data on the following:</p> <ul style="list-style-type: none"> <li>• favorite sport</li> <li>• favorite gaming system</li> </ul> <p><b>Independent Practice</b></p> <p>Divide class in half and have them use the data based on students’ favorite sport. Students will create a chart for the information and create a bar graph using the data collected.</p> <p>Remind students to put a title, labels, and key on graphs.</p> <p>Students will create and write questions to ask the other half of the class about the graph that was created.</p> <p>Monitor student work. Listen for misconceptions, understandings, use of vocabulary, and the depth of questions being created (push students to ask strong</p>	<p>Record the whole-class data for both questions on the board.</p> <p><b>Guided Practice</b></p> <p>Divide class in half and have them use the data based on students’ favorite gaming system.</p> <p>Students will create a chart for the information and create a bar graph using data collected.</p> <p>Remind students to put a title, labels, and key on graphs.</p> <p>Students will create and write questions to ask the other half of the class about the graph that was created.</p> <p>Monitor student work. Listen for misconceptions, understandings, use of vocabulary, and the depth of questions being created (push students to ask strong questions).</p>

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		questions).	
<b>Closure</b>	Parallel Teaching	Facilitate the share out from this group. Ask students to compare and contrast the data – to create questions comparing the two different data sets.	Facilitate the share-out from this group.
<b>Formative Assessment Strategies</b>	Team Teaching	Exit Ticket Observe students as they work. After class, use data to form groups.	Same as GE.
<b>Homework</b>		<b>Optional:</b> Students can create a graph based on information collected from family members.	

### **Specially Designed Instruction**

- The vocabulary LINCing routine could be used with students as a specialized instruction/review device. While not used directly in this lesson, it could be used the next day to help struggling students develop a better understanding of content. A blank template is attached.
- Accompany instruction with manipulatives, illustrations, and thinking aloud to help students understand difficult concepts and procedures.

### **Accommodations**

- Students draw graphs for other students who have difficulty placing information correctly.
- Provide partially completed graphs

### **Modifications**

- For those student who require a modified curriculum, they could use the data to complete an ordered list, or tally chart.

## Notes

- “Special educator” as noted in this lesson plan might be an EL teacher, speech pathologist, or other specialist co-teaching with a general educator.
- The co-teachers who developed this lesson plan received required professional development in the use specialized instruction techniques which combine an explicit instructional routine with the co-construction with the frame helps to develop understanding of information and procedures by associating main ideas and details. These content enhancement routines were developed at the [Center for Research on Learning at the University of Kansas](#).
- Other graphic organizers should be used by teachers who have not received professional development in these routines. If Virginia teachers would like to learn content enhancement routines, contact your regional TTAC.

**Note: The following pages are intended for classroom use for students as a visual aid to learning.**



## Exit Ticket

Print and cut out.

<p><u>Exit Ticket</u></p> <p>Explain why it might be easier and quicker to interpret data from a graph or a chart.</p>	<p><u>Exit Ticket</u></p> <p>Explain why it might be easier and quicker to interpret data from a graph or a chart.</p>
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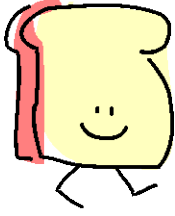
# LINCS Vocabulary Strategy

Name: \_\_\_\_\_ Date: \_\_\_\_\_

<b>Term</b>	<b>LINCing Story</b>	<b>LINCing Picture</b>	<b>Definition</b>
<b>Reminding Word</b>			

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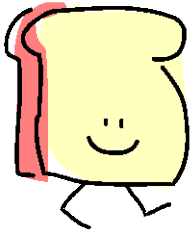
<b>Term</b>	<b>LINCing Story</b>	<b>LINCing Picture</b>	<b>Definition</b>
<b>Reminding Word</b>			



# Sandwich Data 1

## The Lunch Bunch's Favorites

Laura liked peanut butter and jelly. Kenny liked plain jelly. Oliver also liked plain jelly. Kate and David liked plain peanut butter. Oh, I forgot to mention that Steve, Isabel, and Sam also preferred peanut butter and jelly. Kristen liked peanut butter and fluff. Mariko liked plain fluff, while Sally and Ty liked jelly and fluff.



# Sandwich Data 2

The Lunch Bunch's Favorites

