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EDG637  
Selected Response Assessment  
Topic: Third Grade Graphing

### **Unit: Graphing 3<sup>rd</sup> Grade**

**Purpose:** The purpose of this formative assessment is to provide the teacher and students with information on individual student knowledge about bar graphs. Students will identify and define various parts of a bar graph, read the scale on the axes to determine data values and interpret bar graphs, and calculate the minimum, maximum, and range from graph data. This unit builds upon graphing knowledge students received in second grade and will prepare students for fourth grade graphing standards that deal with more complex learning targets. Third grade graphing target standards focus specifically on bar graphs. Students will be asked to complete different types of activities in this assessment to show their understanding. There will be four types of questions in this assessment: fill-in-the-blank, true/false, multiple choice, and short answer. After students have completed taking the assessment, they will complete a self-assessment section where they chart their responses. Students will record their answers as correct/incorrect and sure/unsure. Furthermore, students will analyze how well they did on each of the learning targets and set personal goals in regards to progressing towards the targets they need the most work on. This information will help the teacher and the students determine what specific learning targets students have mastered, what other activities students need to practice to better understand learning targets, and what new content may be introduced. The self-assessment section will also serve as a tool to the teacher to identify students who need accommodations, to identify those students who need to be challenged with more advanced activities, and to then modify the curriculum to meet these student needs.

#### **Michigan Grade Level Content Expectations (GLCEs):**

**D.RE.03.01** Read and interpret bar graphs in both horizontal and vertical forms.

**D.RE.03.02** Read scales on the axes and identify the maximum, minimum, and range of values in a bar graph.

**D.RE.03.03** Solve problems using information in bar graphs, including comparison of bar graphs.

**Learning Targets:**

<b>Learning Target</b>	<b>Type of Standard</b>	<b>Related Test Questions</b>
A. I can identify and define the various parts of a bar graph including: title, axes labels, scale, and plotted data.	Knowledge	3, 4, 13
B. I can read and explain the data represented by a bar graph.	Reasoning	9, 10, 11, 12, 15
C. I can define maximum.	Knowledge	1
D. I can define minimum.	Knowledge	5
E. I can define range.	Knowledge	2
F. I can accurately read the scale on axes to determine the values of a bar graph.	Skill	6, 7, 8, 14
G. I can determine the maximum and minimum of a set of data from a bar graph.	Knowledge	18, 19
H. I can determine the range of a set of data from a bar graph.	Knowledge	20

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

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

# Graphing

## **Directions:**

### Why Are We Taking This Assessment?

Over the past few days we have been learning about bar graphs. We have been looking at lots of bar graphs and interpreting the data. Today, we are going to take an assessment to see how much we have learned so far and to check our understanding of the learning targets for this unit. This assessment will help us know what targets we need more practice on and what new graphing material we can start!

### After the Assessment

Once you are done answering all of the questions, you will go through the questions you missed. This will help us know what learning targets we need more practice on. It will also show me how helpful the activities we have done so far have been to you. Remember, we learn from our mistakes, so it is okay to get a question wrong.

### Types of Questions

You will be taking a short assessment with 20 questions on it. You will answer 5 fill-in-the-blank, 7 true/false, 3 multiple choice, and 5 short answer questions. Each question on the assessment is worth one point.

- Fill-in-the-Blank: You will complete each sentence by filling in the blank with a word from the Word Bank.
- True/False: You will decide whether each sentence below is true or false and circle your answer for each question.
- Multiple Choice: You will find the word or phrase that answers each question and write the capital letter of your answer choice on the line next to the question number.
- Short Answer: You will answer the question and write your response in the blank.

### Sure/Unsure

After each question you will fill in a bubble as to whether you are sure or unsure about how you answered the question. Please answer honestly because this will help us decide how well you understand the learning targets and what we need to practice more. You will not be marked down for being unsure.

# Let's Get Started

Now we are going to go through the test and look at each question. Remember, we are not answering any of the questions right now. We are just getting our minds ready.

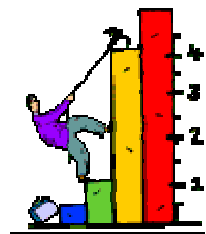
- 1) Put your **name** and **date** on page one.
- 2) Make sure you have all of your materials ready. You should have:
  - Your test
  - A pencil
  - Help Card
  - A book to read
- 3) Listen carefully as I read each question aloud. Underline words that you feel are important for you to pay attention to. If you have any questions about the directions as we read them, please raise your hand at the end of the section.

## Last Step

We are ready to begin our assessment. Remember, you have as much time as you need to take this test, so do not rush through. If you have a question, please flip your Help Card, and I will come to help you. When you are finished with your test, please turn it over on your desk. I will be around shortly to pick it up. You then have your book to read quietly until the assessment time is over.

## Encouragement!

You are a smart cookie! You have been working hard to learn this new information, so I know you can do it! Try your best! ☺



Section One: Fill-in-the-Blank (5 questions, 1-point each)

**Directions:** Complete the sentences below by filling in the blank with a word from the Word Bank. There is only **one** correct answer for each sentence. Each word will only be used **once**. Some words may not be used at all. Write the **entire** word in the blank correctly. You should spell it correctly since you can use the Word Bank as a resource. Be sure to fill in the bubble to show if you are sure or unsure about your answer. Look at the example below to help you better understand what you need to do.

**Example:**

My teacher for third grade is Miss Southwick.



Sure



Unsure

**WORD BANK**

range

data

maximum

minimum

scale

bar graph

axes

title

labels

1. The highest value of a bar graph is the \_\_\_\_\_.



Sure



Unsure

2. The highest value minus the lowest value of a graph is the \_\_\_\_\_.



Sure



Unsure

3. The unit of measure on a graph is the \_\_\_\_\_.



Sure



Unsure

4. The information that is collected and then shown on the graph is the

\_\_\_\_\_.



Sure



Unsure

5. The lowest value of a bar graph is called the \_\_\_\_\_.



Sure



Unsure

Section Two: True/False (7 questions, 1-point each)

**Directions:** Decide whether each sentence below is **true** or **false** and circle your answer for each question. Use the graphs provided to answer the questions. Be sure to fill in the bubble to show if you are sure or unsure about your answer. Look at the example below to help you better understand what you need to do.

**Example:**

Miss Southwick is a first grade student.

True

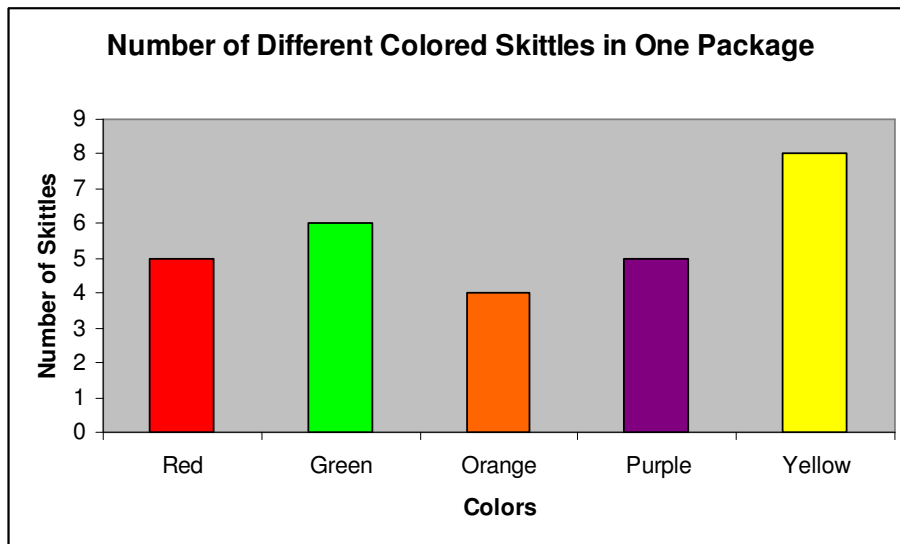
False



Sure



Unsure



6. There were 8 purple skittles in the package.

True

False



Sure



Unsure

7. Orange was the smallest amount of skittles in the package.

True

False



Sure



Unsure

8. The scale on this graph counts by ones.

True

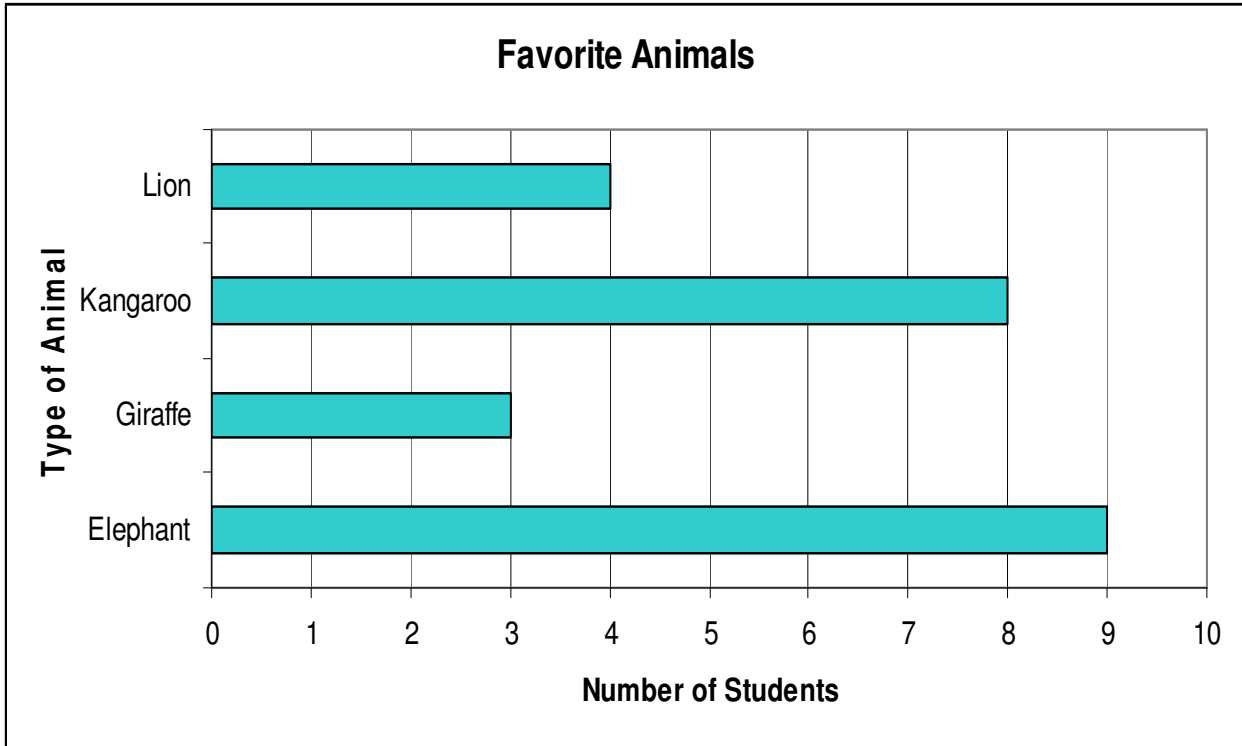
False



Sure



Unsure



9. The most popular animal voted for was the kangaroo.

True      False

Sure     Unsure

10. There were 12 total students who voted.

True      False

Sure     Unsure

11. More students voted for the lion than voted for the giraffe.

True      False

Sure     Unsure

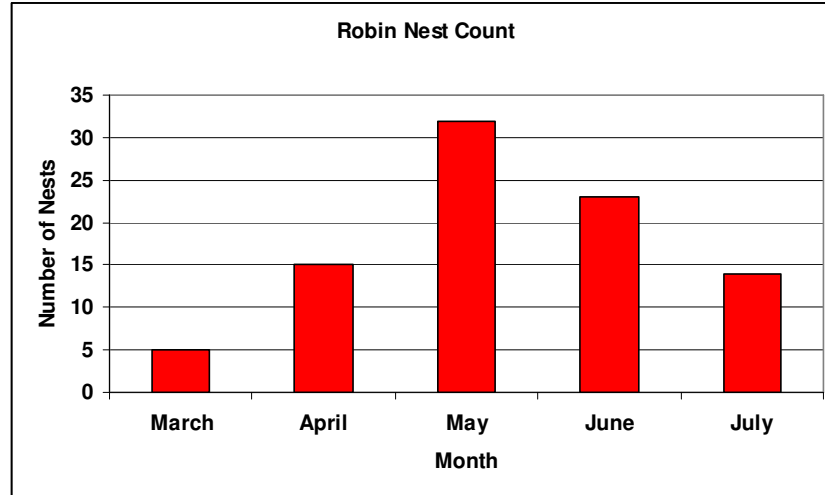
12. The unit of the scale is the number of giraffes.

True      False

Sure     Unsure

Section 3: Multiple Choice (4 questions, 1-point each)

**Directions:** Find the word or phrase that answers each question. Write the capital letter of your answer choice on the line next to the question number. Be sure to fill in the bubble to show if you are sure or unsure about your answer.



13. \_\_\_\_\_    
Sure    Unsure

What unit of measure does the scale on this graph count by?

- A ones
- B twos
- C fives
- D tens

14. \_\_\_\_\_    
Sure    Unsure

How many robin nests were found altogether from March through May?

- A 52 nests
- B 20 nests
- C 70 nests
- D 89 nests

15. \_\_\_\_\_    
Sure    Unsure

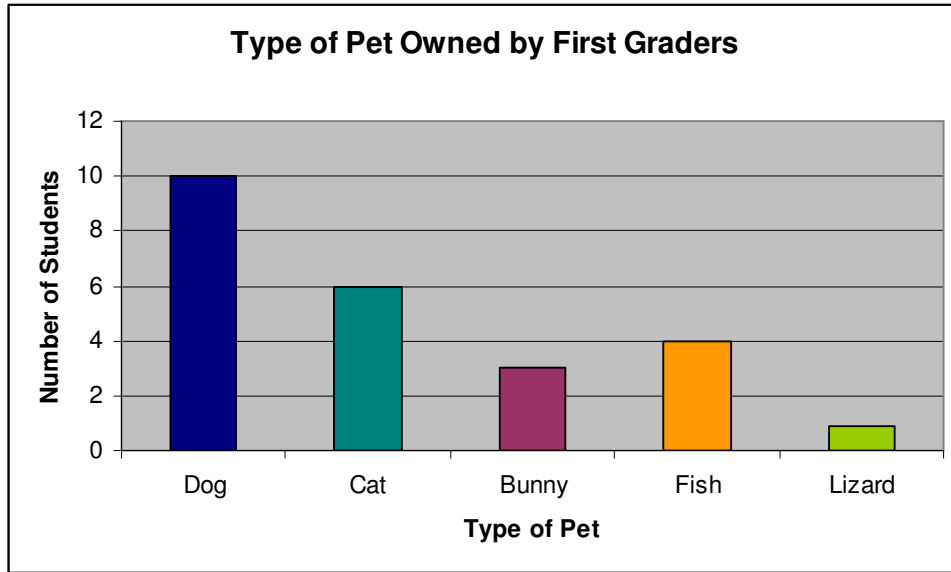
How many fewer robin nests were found in July than were found in May?

- A 9 nests
- B 18 nests
- C 27 nests
- D 17 nests

Section Four: Short Answer (5 questions, 1-point each)



**Directions:** Use the graph below to answer the questions. Write your answer in the blank that follows each question. Be sure to fill in the bubble to show if you are sure or unsure about your answer.



16. How many first grade students own a bunny as a pet? \_\_\_\_\_  
 Sure  Unsure

17. How many fewer students own a lizard than a cat? \_\_\_\_\_  
 Sure  Unsure

18. What is the maximum from this set of data? \_\_\_\_\_  
 Sure  Unsure

19. What is the minimum? \_\_\_\_\_  
 Sure  Unsure

20. What is the range? \_\_\_\_\_  
 Sure  Unsure

## Answer Key

### Section One: Fill-in-the-Blank

1. maximum
2. range
3. scale
4. data
5. minimum

### Section Two: True/False

6. False
7. True
8. True
9. False
10. False
11. False
12. False

### Section Three: Multiple Choice

13. C fives
14. A 5 nests
15. B 18 nests

### Section Four: Short Answer

16. 3 students
17. 5 students
18. 10
19. 1
20. 9

## Student Self-Assessment

**Directions:** Good job, you have finished your assessment! Now it is time to look at your answers to see what you understand really well and what you need some more practice on. You will fill out the data tables below to help us with this. For each question, you will mark whether you were **correct** or **incorrect** and whether you were **sure** or **unsure**.

### Learning Target A:

I can identify and define the various parts of a bar graph including: title, axes labels, scale, and plotted data.

Question #	Correct	Incorrect	Sure	Unsure
3				
4				
13				

Check the box that is true for the above learning target.

- I answered all of these questions correctly.
  - Good job! You know the different parts that make up a bar graph!
- I answered 1 or more of these questions incorrectly.
  - Let's work a little bit more on what makes up a bar graph. Please complete *Activity C*.

### Learning Target B:

I can read and explain the data represented by a bar graph.

Question #	Correct	Incorrect	Sure	Unsure
9				
10				
11				
12				
15				

Check the box that is true for the above learning target.

- I answered 4 or more of these questions correctly.
  - Good job! You can read and explain data represented by a bar graph.
- I answered 2 or more of these questions incorrectly.
  - Let's work a little bit more on reading and explaining data on a bar graph. Please complete *Activity B*.

**Learning Target C:**

I can define maximum.

Question #	Correct	Incorrect	Sure	Unsure
1				

Check the box that is true for the above learning target.

- I answered this question correctly.
- Good job! You know the definition of a maximum.
- I answered this question incorrectly.
- Let's work a little bit more on what a maximum is. Please complete *Activity A*.

**Learning Target D:**

I can define minimum.

Question #	Correct	Incorrect	Sure	Unsure
5				

Check the box that is true for the above learning target.

- I answered this question correctly.
- Good job! You know the definition of a minimum.
- I answered this question incorrectly.
- Let's work a little bit more on what a minimum is. Please complete *Activity A*.

**Learning Target E:**

I can define range.

Question #	Correct	Incorrect	Sure	Unsure
2				

Check the box that is true for the above learning target.

- I answered this question correctly.
- Good job! You know the definition of a range.
- I answered this question incorrectly.
- Let's work a little bit more on what a range is. Please complete *Activity A*.

**Learning Target F:**

I can accurately read the scale on axes to determine the values of a bar graph.

Question #	Correct	Incorrect	Sure	Unsure
6				
7				
8				
14				

Check the box that is true for the above learning target.

- I answered 3 or more of these questions correctly.
- Good job! You can read the scale on a axes to determine the values of a bar graph.
- I answered 2 or more of these questions incorrectly.
- Let's work a little bit more on reading a scale to determine values of a bar graph. Please complete *Activity B*.

**Learning Target G:**

I can determine the maximum and minimum of a set of data from a bar graph.

Question #	Correct	Incorrect	Sure	Unsure
18				
19				

Check the box that is true for the above learning target.

- I answered all of these questions correctly.
- Good job! You can find the maximum and minimum of a set of data from a bar graph.
- I answered 1 or more of these questions incorrectly.
- Let's work a little bit more on finding the maximum and minimum. Please complete *Activity D*.

**Learning Target H:**

I can determine the range of a set of data from a bar graph.

<b>Question #</b>	<b>Correct</b>	<b>Incorrect</b>	<b>Sure</b>	<b>Unsure</b>
20				

Check the box that is true for the above learning target.

- I answered this question correctly.
- Good job! You can find the range of a set of data from a bar graph.
- I answered this question incorrectly.
- Let's work a little bit more on finding the range. Please complete *Activity D*.

If you have no learning targets that you need more practice with or are finished with your extra practice, please see me for an enrichment tic-tac-toe board.

## Activity Sheet A

**Directions:** Complete the WORD BOX below for the word that you need more help understanding (maximum, minimum, range). If you need practice with more than one word, complete a WORD BOX for each word. Complete each section of the word box as follows:

1. Write the word.
2. Write the definition of the word.
3. Give an example of the word.
4. Draw a picture to help you remember what the word means.

<b>1. Word:</b>	<b>2. Definition:</b>
<b>3. Example:</b>	<b>4. Picture:</b>

## Activity Sheet B

**Directions:** You will need a computer for this activity. Sign out a laptop from the cart and go to the following website:

<http://www.ixl.com/math/practice/grade-3-bar-graphs>

Play the graphing game. To play, read each question and select your answer. Once you have your answer, click the **GREEN** submit button. It will tell you if you were correct or not. Play this game until you score 100 points!

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## Activity Sheet B

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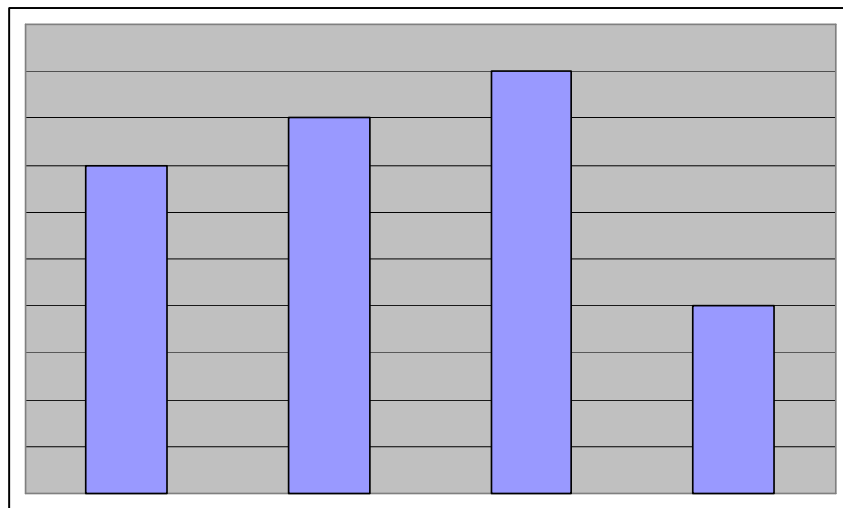
# Activity Sheet C

**Directions:** You have been given a set of data that has been graphed, but there is a big problem. The graph has missing pieces! You need to help make this graph complete by filling in the missing portions. For the graph below, you will need to give it:

1. A Title
2. Label for X-axes
3. Label for Y-axes
4. Scale
5. Labels for the bars

Check off each box as you complete it on the graph.

<b>Favorite Candy Bar</b>	<b>Number of Students</b>
Snickers	7
M&M's	8
Reese's	9
Skittles	4



## Activity Sheet D

**Directions:** A local weather station needs your help! You have been given a set of data of the average temperatures of each month in Michigan. Can you help them?

60°F	34°F	32°F	50°F	73°F	78°F
49°F	55°F	21°F	43°F	65°F	71°F

1. What is the highest average temperature? \_\_\_\_\_
2. What is the lowest average temperature? \_\_\_\_\_
3. What is the difference between the highest and the lowest average temperatures? \_\_\_\_\_

Now the weather station needs your help reporting the average rainfall per year for different states. Use the information below.

Alabama 70 inches  
Florida 50 inches  
Idaho 12 inches  
Kansas 30 inches  
Michigan 35 inches  
New York 40 inches

Ohio 37 inches  
Nevada 8 inches  
Tennessee 49 inches  
Texas 34 inches  
Virginia 45 inches  
Wyoming 10 inches

Based on these statistics determine the following:

4. Maximum: \_\_\_\_\_
  5. Minimum: \_\_\_\_\_
  6. Range: \_\_\_\_\_
  7. What state receives the most rainfall each year? \_\_\_\_\_
  8. What state has the least rainfall? \_\_\_\_\_
  9. What does the range represent? \_\_\_\_\_
-

# Enrichment: Graphing Tic-Tac-Toe Board

Complete a tic-tac-toe horizontally, vertically, or diagonally by choosing three activities below. You will need use a different type of graph for each of the three activities you chose. You may use a laptop to learn about the different types of graphs that you choose by going to our class homepage and clicking on the "different kinds of graphs" tab. Choose three different graphs from the following:

- Bar graphs
- Line graphs
- Scatter plots
- Coordinate plots
- Pictographs
- Pie Charts

<p style="text-align: center;"><b>Picture Book</b></p> <p>Design a book about a certain type of graph for an audience of first graders. Describe the important parts of your chosen graph and provide examples. Your book should have a cover, at least 5 pages, and illustrations.</p>	<p style="text-align: center;"><b>Game</b></p> <p>Create a game board that can be played to practice working with a certain type of graph.</p>	<p style="text-align: center;"><b>Play</b></p> <p>With a partner write a script for a two character play that teaches others about a certain type of graph. This could take the form of an interview if you wish.</p>
<p style="text-align: center;"><b>Song/Rap</b></p> <p>Write a song or a rap about a particular type of graph.</p>	<p style="text-align: center;"><b>Your Choice!</b></p> <p>You must get teacher approval for this. My idea is: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Teacher Approval: _____</p>	<p style="text-align: center;"><b>Pictograph on Excel</b></p> <p>Create a pictograph by using Excel on the computer. Use the following website to help you:</p> <p><a href="http://www.microsoft.com/education/createpictograph.aspx">http://www.microsoft.com/education/createpictograph.aspx</a></p>
<p style="text-align: center;"><b>Computer</b></p> <p>Create a graph by using the following website:</p> <p><a href="http://nces.ed.gov/nceskids/creategraph/default.aspx">http://nces.ed.gov/nceskids/creategraph/default.aspx</a></p> <p>Write a scenario that goes with your graph.</p>	<p style="text-align: center;"><b>Model</b></p> <p>Create a three-dimensional graph using materials from class or that you brought from home such as: clay, beads, pipe cleaners, magazines, colored paper, popsicle sticks, etc.</p>	<p style="text-align: center;"><b>Budget</b></p> <p>A family needs your help budgeting their money. Create a graph to help them see how much money they spend on different things. Choose at least 5 categories they spend money on (ex. food, movies, clothes, television, water, gas, toys, entertainment, restaurants, sports equipment, etc.)</p>

# Enrichment: Graphing Tic-Tac-Toe Board

I chose to complete these three activities: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

I used these three different types of graphs: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

<p><b>Picture Book</b></p> <p>Your writing accurately explains your graph to a first grade audience ____(/5)</p> <p>You have a cover with a title and at least 5 pages ____(/2)</p> <p>Your book is neat and clearly illustrated ____(/3)</p> <p>Total: ____(/10)</p>	<p><b>Game</b></p> <p>Your game board helps players practice working with your chosen type of graph ____(/8)</p> <p>Your game board is neat and colorful ____(/2)</p> <p>Total: ____(/10)</p>	<p><b>Play</b></p> <p>Your script accurately explains your type of graph ____(/8)</p> <p>Your script is neat ____(/2)</p> <p>Total: ____(/10)</p>
<p><b>Song/Rap</b></p> <p>Your song/rap accurately explains at least 3 fraction terms ____(/8)</p> <p>Your song/rap is written neatly ____(/2)</p> <p>Total: ____(/10)</p>	<p><b>Your Choice!</b></p> <p>Your product accurately demonstrates at least one learning target about your chosen type of graph ____(/8)</p> <p>Your product is neat ____(/2)</p> <p>Total: ____(/10)</p>	<p><b>Pictograph on Excel</b></p> <p>Your pictograph includes a title, axes labels, a scale, and appropriate data ____(/6)</p> <p>Your pictograph shows data in pictures ____(/4)</p> <p>Total: ____(/10)</p>
<p><b>Computer</b></p> <p>Your graph includes a title, axes labels, a scale, and appropriate data ____(/6)</p> <p>Your scenario fits with your graph ____(/4)</p> <p>Total: ____(/10)</p>	<p><b>Model</b></p> <p>Your model includes a title, axes labels, a scale, and appropriate data ____(/8)</p> <p>Your model is neat and accurate ____(/2)</p> <p>Total: ____(/10)</p>	<p><b>Budget</b></p> <p>Your graph includes a title, axes labels, a scale, and appropriate data ____(/8)</p> <p>You have represented at least five different categories on your graph ____(/2)</p> <p>Total: ____(/10)</p>

## **Modifications for Diverse Learners**

In my class of third grade students last year, I had a student who had extreme attention issues. It was very difficult for her to take tests or attend to individual activities without direct one-on-one support. For this test, I would have her take it to our resource room where our fabulous special education teacher would go through each question with her, have the student read each portion out loud, and help her keep attention to the task throughout. In this setting, this student could also take a break from the test if she needed one without distracting other students. This student enjoyed going to the resource room and did very well there in terms of maintaining her attention to the task at hand, so I feel that this is a very appropriate modification for her for this particular assessment.

In this class, I also had two students who were low readers in comparison to their other peers. For these students, I would read the questions out loud to them when they needed extra help with these test items. I would go through the test with them and highlight key words that would help them remember directions or important terms.

For students who struggle with reading graphs, I would give them a ruler to use to help them get more direct readings on the graphs. The rulers would help them line up the bar graph data with the scales on the graphs.

