Louisiana Believes.

GLE
Grade-Level Expectations

COMMON CORE
STATE STANDARDS INITIATIVE
PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

**Grade 6
Mathematics**

Transitional Curriculum
REVISED 2012

LOUISIANA DEPARTMENT OF EDUCATION

Grade 6
Mathematics

Table of Contents

2012 Louisiana Transitional Comprehensive Curriculum
Course Introduction

The Louisiana Department of Education issued the first version of the *Comprehensive Curriculum* in 2005. The *2012 Louisiana **Transitional** Comprehensive Curriculum* is aligned with Grade-Level Expectations (GLEs) and *Common Core State Standards (CCSS) as outlined in the 2012-13 and 2013-14 Curriculum and Assessment Summaries posted at http://www.louisianaschools.net/topics/gle.html. The Louisiana Transitional Comprehensive Curriculum* is designed to assist with the transition from using GLEs to full implementation of the CCSS beginning the school year 2014-15.

Organizational Structure
The curriculum is organized into coherent, time-bound units with sample activities and classroom assessments to guide teaching and learning. Unless otherwise indicated, activities in the curriculum are to be taught in 2012-13 and continued through 2013-14. Activities labeled as 2013-14 align with new CCSS content that are to be implemented in 2013-14 and may be skipped in 2012-13 without interrupting the flow or sequence of the activities within a unit. New CCSS to be implemented in 2014-15 are not included in activities in this document.

Implementation of Activities in the Classroom
Incorporation of activities into lesson plans is critical to the successful implementation of the Louisiana Transitional Comprehensive Curriculum. Lesson plans should be designed to introduce students to one or more of the activities, to provide background information and follow-up, and to prepare students for success in mastering the CCSS associated with the activities. Lesson plans should address individual needs of students and should include processes for re-teaching concepts or skills for students who need additional instruction. Appropriate accommodations must be made for students with disabilities.

Features
Content Area Literacy Strategies are an integral part of approximately one-third of the activities. Strategy names are italicized. The link (view literacy strategy descriptions) opens a document containing detailed descriptions and examples of the literacy strategies. This document can also be accessed directly at http://www.louisianaschools.net/lde/uploads/11056.doc.

Underlined standard numbers on the title line of an activity indicate that the content of the standards is a focus in the activity. Other standards listed are included, but not the primary content emphasis.

A *Materials List* is provided for each activity and *Blackline Masters (BLMs)* are provided to assist in the delivery of activities or to assess student learning. A separate Blackline Master document is provided for the course.

The *Access Guide to the Comprehensive Curriculum* is an online database of suggested strategies, accommodations, assistive technology, and assessment options that may provide greater access to the curriculum activities**.** This guide is currently being updated to align with the CCSS. Click on the *Access Guide* icon found on the first page of each unit or access the guide directly at http://sda.doe.louisiana.gov/AccessGuide.

**Grade 6
Mathematics
Unit 1: Data and Decisions**

Time Frame: Approximately four weeks

Unit Description

This unit examines the selection and use of appropriate statistical methods to analyze data in numerical and graphical ways, including the use of an input-output table.

Student Understandings

Students can display data using frequency tables, stem-and-leaf plots, and scatter plots and discuss the patterns seen in each type of display. The representation of data can be described by using measures of central tendency.

Guiding Questions

1. Can students organize and display data using frequency tables, stem-and-leaf plots, and scatter plots?
2. Can students use trends and patterns to describe given data?
3. Can students calculate measures of central tendency and range for a set of data?
4. Can students make informed decisions about which graph(s) might best be used to represent given data?

MATH: Grade 6 Grade-level Expectations and Common Core State Standards (CCSS)

Grade-Level Expectations	
GLE #	**GLE Text and Benchmarks**
Data Analysis, Probability, and Discrete Math	
29.	Collect, organize, label, display, and interpret data in frequency tables, stem-and-leaf plots, and scatter plots and discuss patterns in the data verbally and in writing (D-1-M) (D-2-M) (A-3-M)
30.	Describe and analyze trends and patterns observed in graphic displays (D-2-M)
32.	Calculate and discuss mean, median, mode, and range of a set of discrete data to solve real-life problems (D-2-M)

Patterns, Relations, and Functions	
37.	Describe, complete, and apply a pattern of differences found in an input-output table (P-1-M) (P-2-M) (P-3-M)
CCSS for Mathematical Content	
CCSS#	**CCSS Text**
Statistics and Probability	
6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
ELA CCSS	
Reading Standards for Literacy in Science and Technical Subjects 6–12	
RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

Sample Activities

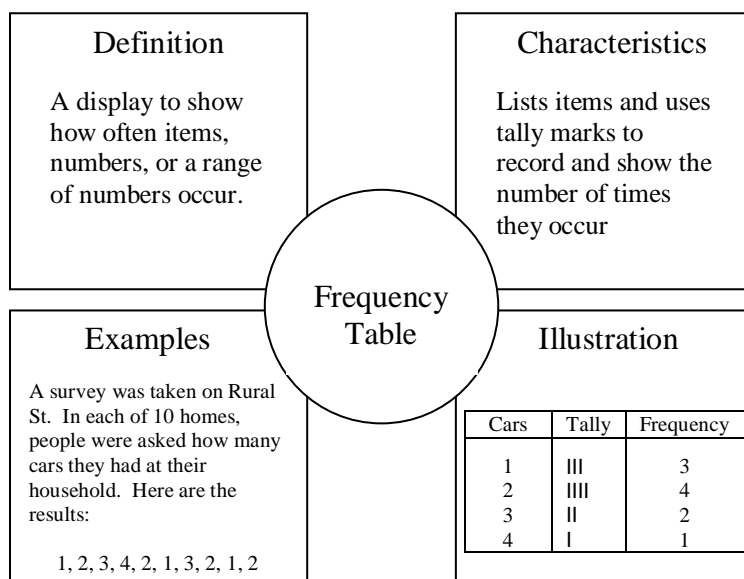**Activity 1: Analyzing Data Vocabulary (CCSS: RST.6-8.4)**

Materials List: Vocabulary Card BLM, index cards, paper, pencil, one metal ring per student

To develop students' knowledge of key vocabulary, have them create a *vocabulary card* (view literacy strategy descriptions) to define frequency table. Distribute 3×5 or 5×7 inch index cards to each student. Display the Vocabulary Card BLM to illustrate what the card should look like.
- Have students place the targeted word in the middle of the card, as in the example which follows.
- Have students work together in groups to define the term.
- Discuss the definitions as a class and select the one that best defines the word.
- Have each student write the definition in the appropriate space.
- Have students list the characteristics or a description, give one or two examples, and illustrate the term.

Throughout the unit as students come across key terms, have them create vocabulary cards for the terms. Some examples of terms that should be included are range, outlier, mean, median, mode, stem-and-leaf plot, and scatter plot. Have students punch a hole in each card and use a metal ring to hold them together throughout the year. Allow time for students to review their

cards and quiz a partner on the terms to hold them accountable for accurate information on the cards.

Definition	Characteristics
A display to show how often items, numbers, or a range of numbers occur.	Lists items and uses tally marks to record and show the number of times they occur

Frequency Table

Examples

A survey was taken on Rural St. In each of 10 homes, people were asked how many cars they had at their household. Here are the results:

1, 2, 3, 4, 2, 1, 3, 2, 1, 2

Illustration

Cars	Tally	Frequency
1	III	3
2	IIII	4
3	II	2
4	I	1

2013-2014
Activity 2: Frequency Tables (CCSS: 6.SP.2)

Materials List: teacher generated data set, Frequency Tables BLM, paper, pencil

Display a set of test scores with an odd number of grades in the set. Have students use the grades to construct a frequency table and build a related line plot from a frequency table. Once the line plot is complete, probe students to question their interpretation of the shape of the data. Ask questions such as these:
  • What is the range of the data?
  • Are there any gaps in the data?
  • Is there one grade that occurs more frequently than others? (Discuss mode.)
  • Is there one grade that is set apart from the others? (Discuss outliers.)
  • What might someone say if asked to describe a typical grade from the set of data? (Listen for many opinions. Answers may refer to mean, median, mode, or average.)

Ask students to compare and contrast the differences when categorizing the grades by numerical values and by letter grades. Have students use tally marks to show the number of students earning each letter grade. Provide opportunities for students to make similar analyses using different sets of data. For additional practice, have students complete the Frequency Tables BLM. Have the students collect data, create a frequency table, and analyze the data.

Below are several websites to provide additional data or to use instead of using grade data.
    NFL Stats
        http://www.nfl.com/stats/team

NBA Stats
http://www.nba.com/statistics/
Major League Baseball Stats
http://mlb.mlb.com/NASApp/mlb/mlb/stats/index.jsp
100 Largest School Districts Stats
http://nces.ed.gov/programs/digest/d05/tables/dt05_090.asp

Activity 3: Comparing Data (GLEs: 29, 30, 32; CCSS: 6.SP.3)

Materials List: One-Inch Squares BLM, one yard of masking tape, paper, pencil

Prior to the lesson, cut apart the One Inch Squares BLM. An alternative to the one inch squares and masking tape would be to use post-it notes and adding machine tape.

Divide the class into two equal groups. Have each group of students create a data set from the total number of letters in the first and last names of each student in their group. For example, Peggy Johnson has 11 letters in her first and last name.   Ask students to find a way to organize the data so that they can describe the length of a typical name. Create a frequency table to represent the data. The value that occurs most frequently is the mode of the set. Have students describe the range as the difference between the lowest value and the highest value in the set (i.e., $24 - 8 = 16$). To find the median, instruct each student to write the length of his/her name on a one-inch square of paper. Evenly place the squares in order from smallest to largest along a yard of masking tape so that the squares are attached to the sticky side of the tape. Cut off excess tape. Fold the train in half to discover the median. If working with an even number data set, the median will fall halfway between two numbers. Have students look for patterns and make summary statements about the data focusing on comparing the range, medians, and modes of the data sets from the two groups of students.

Activity 4: Stem-and-Leaf Plots (GLEs: 29, 32; CCSS: 6.SP.3)

Materials List: data to analyze, Stem-and-Leaf Plot BLM, paper, pencil

Introduce students to a stem-and-leaf plot. Use the following information on test scores: 95, 88, 53, 91, 85, 89, 80, 64, 77, 84, 88, 93, 88, 71, 82

Tell students the following information.
- The range is the difference between the greatest and least numbers in a set of data. The range of data in this set is from 53 to 95 or 42. Let the stems be the tens' digits from 5 to 9.
- Let the leaves be the ones' digits.
- Write the stems first and then record each test score by writing the ones' digit on the same line as its corresponding tens' digit.
- Include a key to show what the stems and leaves represent.

Unordered Stem and Leaf

Stem   Leaf

5 | 3
6 | 4
7 | 7 1
8 | 8 5 9 0 4 8 8 2
9 | 5 1 3

Ordered Stem and Leaf

Stem Leaf

5 | 3
6 | 4
7 | 1 7
8 | 0 2 4 5 8 8 8 9
9 | 1 3 5

Key: 7|1 = 71   Key: 7|1 = 71

Ask students which test score in the set of data occurs most often. Students should look for which leaf occurs most often on one stem. In this case, there are three 8 leafs on the 8 stem. 88 is the test score that occurred most often. This number is called the mode.

Tell students that most teachers use the mean to find the average test score or grade. To find the mean, have students find the sum of all of the numbers and divide by the number of test scores. (1228 by 15 = 81.9, if rounded to the nearest tenth.) The average test score is 81.9 or 82.

The median is the middle number in the set of data. Since the data is in order (in the ordered stem-and-leaf plot) from least to greatest, have students start with the smallest and largest numbers and mark them off until they get to the middle number.

stem | leaf
5 | 3̶
6 | 4̶
7 | 1̶ 7̶
8 | 0̶ 2̶ 4̶ ⑤ 8̶ 8̶ 8̶ 9̶
9 | 1̶ 3̶ 5̶

Key: 7|1 = 71

Since it is an odd set of data, 85 is the middle number. If it were an even set of data, students would have to find the mean of the two middle numbers.

Have students make distinctions between ordered and non-ordered listings in the leaves. They should see that the ordered list makes it easier to find the mode, median and range.

Distribute the Stem-and-Leaf Plot BLM. Have students work in small groups to construct a stem-and-leaf plot using different data sets, such as data from an almanac or book of facts or from the data gathered in Activity 2. Ask students to write a short interpretation of the patterns they see.

Activity 5: Measures of Central Tendency (GLEs: 29, 30, <u>32;</u> CCSS: <u>6.SP.3</u>)

Materials List: data to analyze; Mean, Median, Mode Word Grid BLM; paper; pencil

Using a set of data from Activity 1, have students find the mean, median, mode(s), and range for the data set. Have students repeat this activity with other data sets. A stem-and-leaf plot can aid students in finding the modes and medians. Make sure they have a clear understanding that the terms *mean, median*, and *mode* are all measures of "average" or central tendency and have them create *vocabulary cards* (view literacy strategy descriptions) for each of these terms. The description of *vocabulary cards* is in Activity 1.

As an extension, discuss when it is more appropriate to use one description - mean, median, or mode - over another one. On the board or a piece of chart paper draw a *word grid* (view literacy strategy descriptions) like the one below or use the Mean, Median, Mode Word Grid BLM on the overhead.   In the first column, list situations in which one of the central tendencies would be necessary. With the students' participation, fill in the *word grid* by placing a "+" in the space corresponding with the measure of central tendency that would be most appropriate for that situation and why that measure would be the most appropriate.

Situation	Mean	Median	Mode
Calculating your grade for a class	+		
Ordering jeans for the Gap			+
The average age of people in a 6th grade class when the teacher is included		+	

As a class, come up with additional situations to add to the *word grid*. Once the grid is complete, provide opportunities for students to quiz each other over information from the grid and use the grid to prepare for quizzes.

Activity 6: Looking at Data (GLEs: 29, <u>30</u>, 32)

Materials List: Analyzing Data BLM, paper, pencil

Display the Analyzing Data BLM.

Popcorn Sales at the Amusement Park
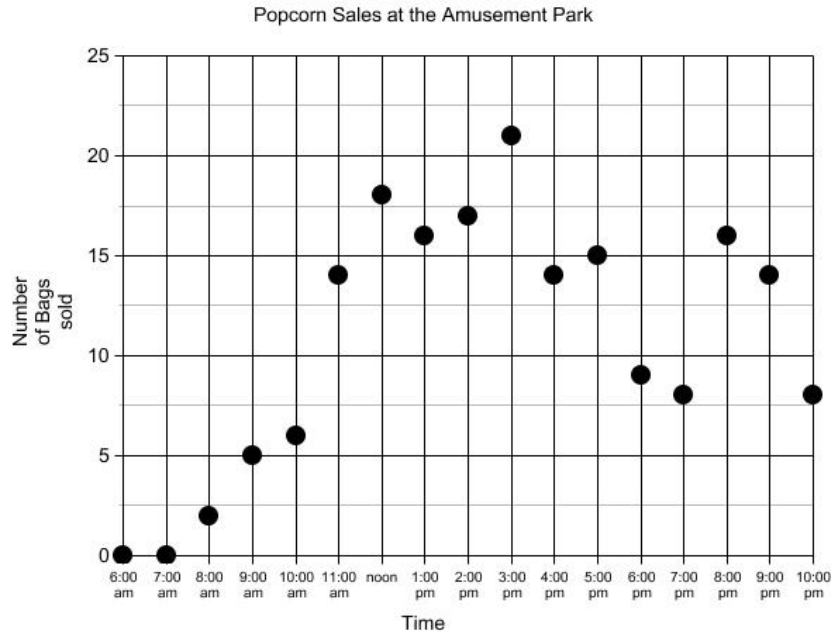
Analyze the data as a class by asking the following questions.

- What does the graph display? (*The number of bags of popcorn that were sold at different times throughout the day.*)
- When was the most popcorn sold? (*At 3:00 pm*)
- Why do you think the most was sold at that time? (*People may have wanted a snack between lunch and dinner.*)
- When was the least amount of popcorn sold? *(At 6:00 am and 7:00 am)* Why? (*The amusement park may not open until 8:00 am.*)
- When did the greatest jump in popcorn sales occur? (*Between 10 and 11 am and between 7 and 8 pm*)
- Describe the popcorn sales throughout the day. (*In the beginning of the day sales were slow, around 11 am sales picked up. After the 3pm peak, sales started dropping through dinner time and then had a spike at 8 pm before falling again.*)

Have students in groups of two, use a newspaper or one of the websites from Activity 2 to find a data set to analyze. Direct students to display their data set in a variety of ways such as in frequency charts, stem-and-leaf plots, or other graphs. Each group should have at least 2 different displays to represent the data. Have students record any trends and patterns observed in their math *learning log* (view literacy strategy descriptions) and then share their observations with the class. This *learning log* should be kept in a small notebook used only for recording math understanding. Explain to the students that they will use the math *learning log* all year to record new understandings, explain math processes, pose and solve problems, make and check predictions, and reflect on what has been learned. Invite students to personalize their math log covers with their names, illustrations, and/or pictures from magazines.

Activity 7: Input-Output Table (GLE: <u>37</u>; CCSS: 6.NS.8)

Materials List: Input-Output Table BLM, Grid Paper BLM, paper, pencil

Tell students that data could be given, perhaps in an incomplete format, where decisions and interpretations need to be made. By examining the data and identifying patterns, it is possible to find missing pieces of data and to determine a rule for the given situation. Provide students with a variety of sample input-output tables. Guide them through finding patterns so that they can find missing data and determine the rule for the table. Help students make the connection to ordered pairs that can be graphed on a coordinate plane.

Example 1   *Solution: add 5 to the input value*

input	output
0	5
1	6
2	7
3	
4	
5	
50	

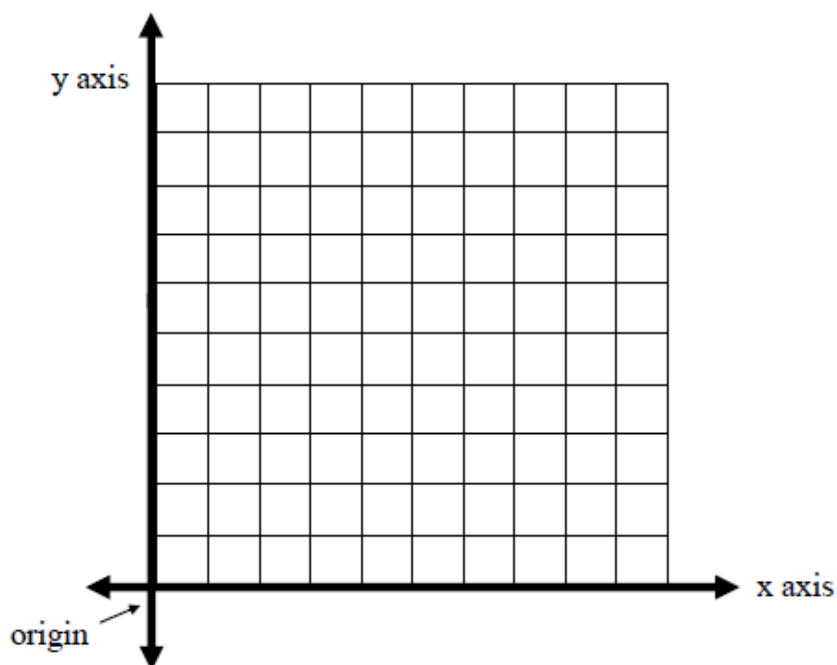| input	output
0	5
1	6
2	7
3	8
4	9
5	10
50	55

Example 2   *Solution: multiply the input value by 3*

input	output
0	0
1	3
2	6
3	
4	
5	
50	

input	output
0	0
1	3
2	6
3	9
4	12
5	15
50	150

After completing the input-output tables as a class, help students make the connection to ordered pairs that can be graphed on a coordinate plane. Distribute the Grid Paper BLM. Have students draw the *x*- and *y*-axes.

Looking at the completed input-output table from Example 1, discuss that the input and output values can be written as ordered pairs (input, output). The first ordered pair would be (0,5).

input	output	Ordered pair
0	5	(0, 5)
1	6	(1, 6)
2	7	(2, 7)
3	8	(3, 8)
4	9	(4, 9)
5	10	(5, 10)
50	55	(50, 55)

Tell students the following information about the first 2 points. When the point (0, 5) is graphed, the *x*-coordinate is 0. So the point is on the *y*-axis. The *y*-coordinate is five, so to plot the point, move up 5 spaces.

The second point is (1, 6). Starting at the origin (0, 0), move to the right 1 space and then up 6 spaces. Have students plot the remaining points. Ask students what they notice about all of the points. (All of the points are in a line.) Why do they line up? Each time the output column is 5 more than the input column.
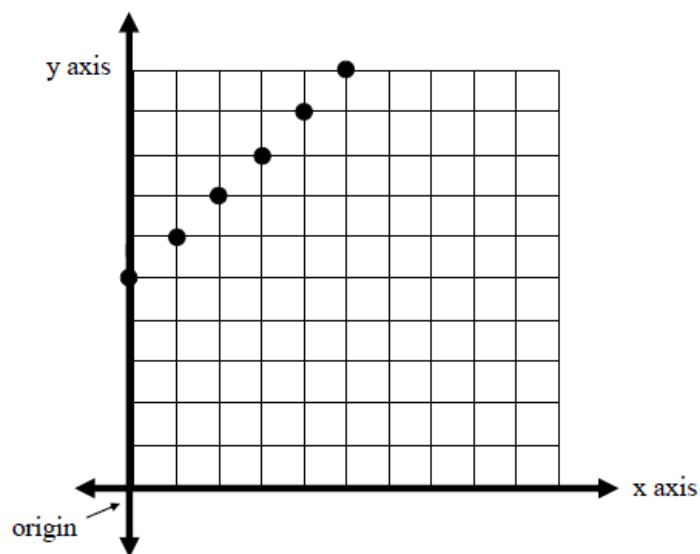
Distribute the Input-Output Tables BLM to the students. Have them work in pairs to complete the problems. Discuss solutions as a class.

These websites provide additional practice for students with input-output tables.

http://www.globalclassroom.org/2005/mctm/function_machine.xls

http://www.shodor.org/interactivate/activities/WholeNumberCruncher/?version=1.5.0_07&browser=MSIE&vendor=Sun_Microsystems_Inc

http://www.amblesideprimary.com/ambleweb/mentalmaths/functionmachines.html

Activity 8: What's My Rule? (GLE: 37)

Materials List: What's My Pattern? BLM, pencil

Present the following problem to the class. Have students work together to solve the problem and complete the input-output table.

Maria received $150 for her birthday. She put all of the money except for $50 in her savings account. If she puts $15 each month from her allowance into her savings, how much will she have after one month?

Input (Months)	Output (Savings)
0	
1	
2	
3	
4	
5	

- How much money does Maria have in her account after she deposits her birthday money, but before she starts saving her allowance? ($100)
- How much money will she have after one month? ($115) Why? (She deposits $15 each month.)
- How much will she have after two months? ($130)

Have students complete the input-output table. Discuss the answers.

Have students work with a partner to find a rule for the input-output table. Some groups may say they added 15 more each month. These students are finding the next number in the table. Other groups may multiply the input by 15 and then add 100. These students are finding a general rule for any amount of months. The rule could be written as Savings = $15(month) + $100 or
S = 15m + 100.

Have students use the rule to determine how much Maria will have in her savings after one year. (Since there are 12 months in a year, multiply 15 times 12 and add 100. $15 \times 12 + 100 = 280$. She would have saved $280 after one year.)

Have students find out how much Maria would have in her savings after 2 years. (24 months times 15 plus 100 or $24 \times 15 + 100 = 460$. She would have saved $460 after two years.)

Distribute the What's My Pattern? BLM to the students. Have students work in pairs to examine the table, identify the pattern and find the missing data for each input-output table. Have groups share how they completed the pattern. Some groups may just keep counting: 4 goldfish need 10 quarts, 5 need 12, 6 need 14, etc.; while others may discover the rule of doubling the number of goldfish and adding 2. Make sure both strategies are discussed with the class so the students can see different ways to complete the patterns. The first group is using a strategy to find the next number in the pattern but would have trouble if asked, "How many gallon of water would 100 goldfish need?" The second group is using a strategy that will allow them to find the number of gallons for any given number of goldfish.

In the second problem, some groups may just continue the pattern by adding 3 each time. Others may discover the rule of multiplying the number of scrunchies by 3 and then adding 10.

Activity 9: Scatter Plots (GLEs: 29, 30)

Materials List: Scatter Plots Data Sheet BLM, Grid Paper BLM, pencil, computers

Have students work in pairs to measure each other's heights, distance from their waists to the ground, length of the arm from the bend of elbow to the tip of the pointer finger (in inches) and length of leg from back of knee to floor (in inches). Have them record the measurements on the Scatter Plots Data Sheet BLM. Have each pair collect and record the data from other student pairs until they have data from the entire class. Before collecting other students data, have students number the rows on their Scatter Plot Data Sheet BLM up to the number of students in the class. This will help them ensure that they have collected everyone's data.

Give each student a copy of the Grid Paper BLM. Have students draw the *x*- and *y*-axes. Have students label the *x*-axis as "height" and the *y*-axis "distance from their waists to the ground." Have students plot the information from the Scatter Plots Data Sheet BLM. Trends or patterns in the data should be identified. Use the scatter plot to make predictions. For example, if a new student joined the class with a waist height of 32 inches, predict the student's height.

For additional practice, have students graph the length of the arm from the bend of elbow to the tip of the pointer finger (in inches) and length of leg from back of knee to floor (in inches). Distribute another copy of the Graph Paper BLM. Have students independently create a scatter plot of the data. Provide instruction and monitor student work to clarify any questions that may evolve.

If computers are available, have students enter the data into a spreadsheet to create the graph electronically. The following site can be used to create a scatter plot online: http://nces.ed.gov/nceskids/createagraph/default.aspx

2013 - 2014
Activity 10: Statistical or Not? (CCSS: 6.SP.1)

Materials List: Statistical or Not? BLM, paper, pencil

Begin by asking students to complete the Statistical or Not? BLM *anticipation guide* (view literacy strategy descriptions). *Anticipation guides* help promote meaningful understandings of content area topics by using prior knowledge to build interest and motivation to learn more about a particular topic. *Anticipation guides* are developed by generating statements to which students respond before learning about a topic and then revisit at the end of the lesson. This strategy is especially helpful to struggling and reluctant readers and learners. This is a modified *anticipation guide* in that it uses questions instead of statements to prompt students' hunches and guesses about whether statistics are required or not.

After the students complete the *anticipation guide,* ask them "What do you think when you hear the words "statistical questions"?" Have the students write their ideas in their math *learning logs* (view literacy strategy descriptions). Have students share their ideas. Guide them to understand

that statistical questions are questions that anticipate variability in the data related to the question. For example the first question on the *anticipation guide* asks, "How old are you?" This is not a statistical question because the data does not vary. However, the second question "How old are the students in our school?" is a statistical question because students' ages will vary. As students discuss this information, allow them to return to their *anticipation guides* and modify any original responses. Afterward, check to make sure all students' responses are correct.

In groups of four, have the students create a list of statistical questions they could use to collect data around the school. Have each group share the questions and as a class and decide if it is statistical or not.
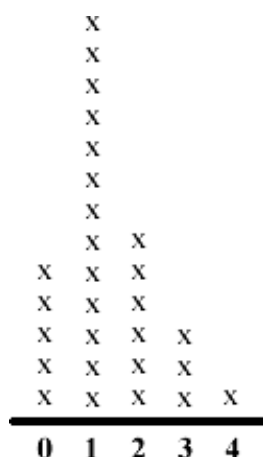

2013 - 2014
Activity 11: Data Collection and Analysis (CCSS: 6.SP.1, 6.SP.2, 6.SP.3)

Materials List: Analyzing Data Process Guide BLM, paper, pencil

Poll the students using a question from the *anticipation guide* in Activity 9. For example, ask the students how many siblings they have.   Discuss why this is a statistical questions. If there were only one student asked, would it be statistical? (No, because the data would not vary.) However, if the entire class is asked, then there will a variety of answers, so it will be statistical. When all of the data from individuals is combined, it leads to statistics.

Have a student record the answers on the board. As a class create a line plot , also called a dot plot, of the data. For example, if the collected data was as follows: 2, 1, 3, 0, 0, 1, 2, 1, 1, 2, 1, 1, 3, 4, 2, 2, 1, 3, 2, 1, 1, 0, 0, 0, 1, 1, 1,1; the line plot would look similar to the one below.

```
      X
      X
      X
      X
      X
      X
      X
      X   X
  X   X   X
  X   X   X
  X   X   X   X
  X   X   X   X
  X   X   X   X   X
 ─────────────────────
  0   1   2   3   4
```

Have the students work in groups of two to complete the Analyzing Data Process Guide BLM to analyze the data collected. As students analyze the data, their processing of the information and concepts can be guided. *Process guides* (view literacy strategy descriptions) scaffold students' comprehension within unique formats. They are designed to stimulate students' thinking during or after their reading, listening, or involvement in any content area instruction. Guides also help students focus on the important information and apply new knowledge.

After the groups of two have completed the *process guide*, have them pair up with another group of two and discuss and defend their answers. Discuss the answers as a class.

Sample Assessments

General Assessments

- Have the student provide a written analysis of trends or patterns found in the tables, graphs, and scatter plots. Facilitate a whole-group discussion concerning the student's findings.

- Whenever possible, create extensions to an activity by increasing the difficulty or by asking "what if" questions.

- Have the student create a portfolio containing samples of his/her experiments and activities.

- Give the student opportunities to reflect on the data represented by each graph, chart, and/or table. Throughout this unit, encourage the students to write about the shape of the data and why a particular type of graph is a good depiction of the data.

- Facilitate a small group discussion to determine student misconceptions, understandings, use of correct terminology, and reasoning abilities. Appropriate questions to ask might include these:
  - What have you done so far? Is there anything else to do?
  - What made you decide to use this method?
  - Is there another method that might have worked?
  - Have all the possibilities been explored? How can you tell?
  - What do you think about what ___ said?
  - Do you agree with your group's answer? Why or why not?
  - How would you convince everyone else that your answer makes sense?

- Create a performance task assessment to evaluate understanding at the end of the unit. One way to do this is to provide a small box of raisins for each student in the class, and have each student notice that the weight is given on the box but not the number of raisins. Have each student record an estimate of the number of raisins in the box on a sticky-note (no benchmarks). Instruct the student to open the box and look at the number of raisins on the top layer. Allow students to change estimates at this time, if desired. Place the sticky notes on the board or in clear view of all students. Next, have the students actually count the raisins in the box and record and display the number in a similar fashion. The data is then available for all students to use individually as they each create frequency tables, line plots, stem and leaf plots. Student end products should be evaluated as well as written reflections of the data.

Activity-Specific Assessments

- Activity 4: Have students create a stem and leaf plot using the following test scores of 26 sixth graders.

    64, 82, 85, 99, 96, 81, 97, 80, 81, 80, 84, 87, 98, 75, 86, 88, 82, 78, 81, 86, 80, 50, 84, 88, 83, 82

- Activity 9: Have students estimate the weights of their backpacks and then find actual weights. Have students collect and record information from all classmates in a table or t-chart. Using the collected data, have students represent the data in an appropriately constructed scatter plot with the actual weight recorded on the *x*-axis and the estimated weight recorded on the *y*-axis. Have students describe what patterns and trends they notice in the data.

- Activity 11: Have students create their own statistical question and survey at least 25 people. Have the students create a line plot of their data and describe the distribution of their data. Have students share their findings with the class.