

Data Lesson Plans

Assumption: Students know mean, median, mode and range

**Day 1** Line Plots/Bar Graph

A. Ice Cream Sundae Survey (EQL Investigation 1; Ice Cream Preferences Pg 6 and 7)

1. Purpose: To show the importance of representing data in a graph

B. Raisin Fun

1. Distribute a small box of raisins to each student (or pairs)
2. Predict number of raisins in each box
3. Count the raisins in each box
4. Make a line plot on the board with raisin box by taping boxes to board. Then make a bar graph from the line plot

Ex: 

	□		□		□	□	
	□	□	□	□	□		
	28	29	30	31	32		

5. Discuss mean, median, mode, and range

C. TV Watching (NCTM Navigating through Data Analysis in Grades 6-8, Pg 23-25, 85)

1. Students graph how many hours are watched daily over a 4 day period. (Have students think back to the last 4 days or do the study for 4 days and come back with info)

**Day 2** Bar Graph

A. Cereal nutrition activity

1. Find out how healthy your breakfast cereal choices are. (Worksheet 2, 3)

B. Graph information found and post on board

C. Class discussion on information

D. Introduce Classroom Climate activity (NCTM Navigating through Data Analysis in Grades 6-8, Pg 46-48, 91)

1. Check temperature with every class at beginning of the hour through Day 5.
2. Students will check temperature for the next 4 days in Social, Science, and English.
3. Students should record by having the day, time and classroom of temperature checked.

**Day 3** Box and Whisker

A. Cereal Data (EQL Investigation 9; Just for Kids, Pg 55)

1. Collect percent of sugar in kids and adult cereal.
2. Show how to make a box and whisker graph
3. Discuss how to read a box and whisker graph
  - a. Find median of data
  - b. Quartile 1 and 2
  - c. Outliers
4. Make box and whisker graphs for Sugar, Calories, and Sodium
5. Discuss graphs

**Day 4** Box and Whisker

A. Flick the Nick (EQL Investigation 8: Flick the Nick, Pg 49)

1. In teams of 4 every student will flick a nickel on the floor 3 times
2. Record how far the nickel is flicked to the nearest  $\frac{1}{2}$  cm.
3. Have each team put data from their team on the board.

4. Each student makes a box and whisker plot of data collected. (Assessment) Collect next day of class.

### **Day 5** Line Graph/Scatter Plot

- A. Discuss whisker plots made from previous day.
- B. Height/Arm span (scatter plot)
  1. Students measure height in cm
  2. Student measure arm span (finger tip to finger tip) in cm
  3. List information on board
  4. Student graphs the information on grid paper.
  5. Look at information found and see the relationship.
  6. It should be possible to draw a line of best fit.

**(Leave heights of each hour on board for Day 8)**
- C. Time is Money (scatter plot) (NCTM Navigating through Data Analysis in Grades 6-8, Pg 109)
  1. Hand out Pg 109
  2. Plot points on graph
  3. Answer questions from Worksheet.
    - a. Is there a relationship between the running time and the gross receipts?
    - b. What factors might influence the gross receipts of a film?

### **Day 6** Line Graph

- A. Collect information found on classroom climate. (NCTM Navigating through Data Analysis in Grades 6-8, Pg 46-48, 91)
  1. Make a line graph
  2. In groups of 2-3 make another graph to represent information.
  3. Discuss findings on classroom climate.

### **Day 7 and 8** Stem and Leaf Plot

- A. President age at inauguration and age at death.
  1. Show age on a stem and leaf graph
  2. Have students show death on a stem and leaf graph
  3. Put the information together on a back to back stem and leaf plot
  4. Discuss how it is easy to compare the 2 ages.
- B. Pulse Rate – younger vs. older
  1. Have students take their resting heart rate
  2. At home get a heart rate of an adult
  3. Gather information as a class
  4. Show on Stem and Leaf Plot the difference
- C. Pulse Rates – resting and after exercise
  1. Have students find their heart rate just sitting in desk and record
  2. Student does some type of physical activity for 3 minutes. (Running in place, jumping jacks)
  3. Record pulse rate right after physical activity.
  4. Gather information on the board
  5. Student put information on a back to back stem and leaf plot.

3. Gather information as a class
4. Show on Stem and Leaf Plot the difference

### **Day 9** Histograms

- A. Batteries (NCTM Navigating through Data Analysis in Grades 6-8, Pg 39-42)
  1. Each student gets Pg 89 to see the life in hours of the two brands of batteries
  2. Students complete number 1 on the sheet in groups of 2-3. Students can start by graphing it one of the ways we have learned so far. We will use a histogram to graph it a second way as a class.
  3. Use a histogram numbered by 10's. Discuss how a person can use different intervals when making a histogram. Example: A person could use intervals of 2 or 5.
  4. In groups students answer questions 2-4
  5. Have some groups show the data that they have organized.
- B. Height- Histograms
  1. Student record height in cm from each hour off of the board
  2. Students make 2 histograms with the height information from each hour.
    - a. Discuss how two histograms can be read differently.

### **Day 10** Final Project

- A. Formulate a question to represent numerical data (discuss with students questions that would be appropriate.)
- B. Collect Data
- C. Represent Data in two ways
- D. Write up a half page to one page summary of information collected.
- E. Five minute presentation to class about data.

**Content Standard:** Data\_

**Level:**Grade 8

***Specific Statement(s) from the Standard:***

Formulate Questions

Design Studies

Collect Data in an organized manner

***Product(s):***

Graphical representation of a study

Written interpretation of data

***Task Description:***

Students formulate a question that can be represented with numerical data.

Students will then collect data and represent the data in at least 2 ways.

Each student will write down interpretation of the data that can be read from the graphs.

***Special Notes:***

Students will need to have their questions okayed ok'd by the teacher for their final project.

PERFORMANCE PACKAGE TASK 1  
(Data)

**FEEDBACK CHECKLIST FOR TASK 1**

The purpose of the checklist is to provide feedback to the student about his/her work relative to the content standard. Have the standard available for reference.

Y=Yes

N=Needs Improvement

<u>Student</u>		<u>Teacher</u>
_____	An appropriate question has been formulated to collect data	_____
_____	Sufficient data has been collected	_____
_____	Data represented neatly in at least two appropriate ways	_____
_____	Written summary of represented data that corresponds to the graphical representation	_____

**Overall Comments** (information about student progress, quality of the work, next steps for teacher and student, needed adjustments in the teaching and learning processes, and problems to be addressed):