

LESSON TITLE

Why Graphs are Effective in Communicating Numerical Information

FOCUS DISCUSSION

- Discuss graphs: what is a graph, who uses graphs, what are graphs used for, types of graphs
- Provide examples of graphs: bar graph, pie graph, line graph
- Discuss why graphs are effective in communicating numeric information
- Discuss data

OBJECTIVES**SWBAT:****Short Term**

- Explain how and why graphs are used
- Identify common types of graphs
- Identify the elements that make up a graph
- Record information using tally marks
- Plot the information in a hand drawn graph

Long Term

- Use graphs in their science and social studies projects

PREREQUISITE KNOWLEDGE

- Tally marks
- Simple graphing concepts

MATERIALS

- 1 fun size bag of Skittles (no students in the class have food allergies)
- Graph paper
- Rulers
- Skittles Data Sheet
- Homework Information Sheet
- Graph Definitions Sheet
- Overhead projector
- Overheads presentation package
- Permanent markers for writing on transparencies
- Examples of graphs in newspapers, magazines, etc.

DESCRIPTION OF LESSON**STUDENTS WILL:**

- Open their bag and remove Skittles one at a time.
- Record on the Skittles Data Sheet the color of Skittle removed using a tally mark
- Use the ruler to draw a X and Y axis on the graph paper
- Identify the zero point on the graph
- Create labels for the Skittle colors along the X axis
- Figure out the best increment to use for the value tick marks on the Y axis
- Create the value tick marks along the Y axis and number them
- Label the X and Y axis and title the graph
- Take home the graph paper to plot the data and color in the bars
- Later in the week during Computer Lab, Mr. Gates (the computer teacher) will show them how to plot their data in Microsoft Excel

TEACHERS WILL:

- Identify and explain the parts of the graph
- Use a mnemonic device to identify the Y axis "Y to the Sky"
- Explain why it is important to be able to identify the X and Y axis
- Illustrate the importance of setting up the Y axis properly
- Illustrate the value of using color thoughtfully when setting up a graph
- Show example of the Skittle Graph that the teacher created
- Go over the homework rubric and explain the importance of following directions
- Introduce some books on graphing that were selected from the main library for our class library

ASSESSMENT

- The students will be graded on their homework graph. A homework rubric will be handed out that identifies what should be on the homework graph and how the graph will be graded
- A 10 question quiz will be given to assess what the students have learned

FOLLOW-UP

Teachers will meet after the assessments to discuss the effectiveness of the lesson

Name:

Date:

Graphing Definitions

For homework, neatly write these definitions in your Math notebooks two times. Print it the first time and write it in cursive the second time. This will be checked.

A **graph** is a visual representation of data that compares and communicates information.

A **bar graph** is used to show relationships between items in a group.

A **pie graph** is used to show how a part of something relates to the whole.

A **line graph** is used to show continuing data.

Data is information often in the form of statistics, facts, figures, or numbers obtained from experiments or surveys, used as a basis for making calculations or drawing conclusions.

Tally marks are like keeping score. You can use them to record data before it is incorporated into a graph.

Name:

Date:

Skittles Data Sheet

Remove the Skittles from your package one at a time.
Use a tally mark to record each Skittle as you remove it from your bag.

RED

ORANGE

YELLOW

GREEN

PURPLE

Name:

Date:

Graphing Homework Checklist and Grading Information

- 1. Does the graph have a proper title?
(Centered over the graph in clear, large type)
5 points
- 2. Are all the elements in the graph properly labeled?
(y axis, x axis, categories along x axis)
15 Points
- 3. Are the tick marks along the y axis appropriate for the data being represented?
20 Points
- 4. Is the supporting data provided?
(The Skittles Data Sheet should be stapled behind you graph paper)
5 points
- 5. Is the graph properly plotted?
(Do the bars on the graph correspond with the data on the data sheet?)
25 points
- 6. Are the columns in the graph color coordinated with the data?
5 points
- 7. Is the graph professionally prepared?
(neatness counts)
25 points

100 points total

A+ 100 - 95
A 94 - 90
B+ 89 - 85
B 84 - 80
C+ 79 - 75
C 74 - 70
D 69 - 60
F 59 or less

Name:

Date:

Graphing Quiz

MULTIPLE CHOICE QUESTIONS (choose the best answer)

1. Which of the following statements BEST explains why professionals use graphs in their documents?
 Because graphs make the documents look attractive.
 Because graphs make the document look more important.
 Because graphs are effective in communicating numeric data.
 Because graphs help fill the page when you don't have enough words.
2. What angle is created when you draw the X and Y axis?
 Obtuse angle
 Acute angle
 Reflex angle
 Right angle

COMPLETE THE SENTENCE (use an answer from the answer bank to complete the sentence)

ANSWER BANK Line Graphs Pie Graphs Bar Graphs

3. _____ are used to show relationships between items in a group.
4. _____ are used to show how a part of something relates to the whole.
5. _____ are used to show continuing data.

TRUE OR FALSE QUESTIONS

6. TRUE FALSE Tally marks are effective in recording data as it happens.
7. TRUE FALSE In class we sometimes create things manually rather than on the computer so that we can better understand the underlying process.
8. TRUE FALSE Numbers on the value axis are placed in between the tick marks.

ADDITIONAL QUESTIONS

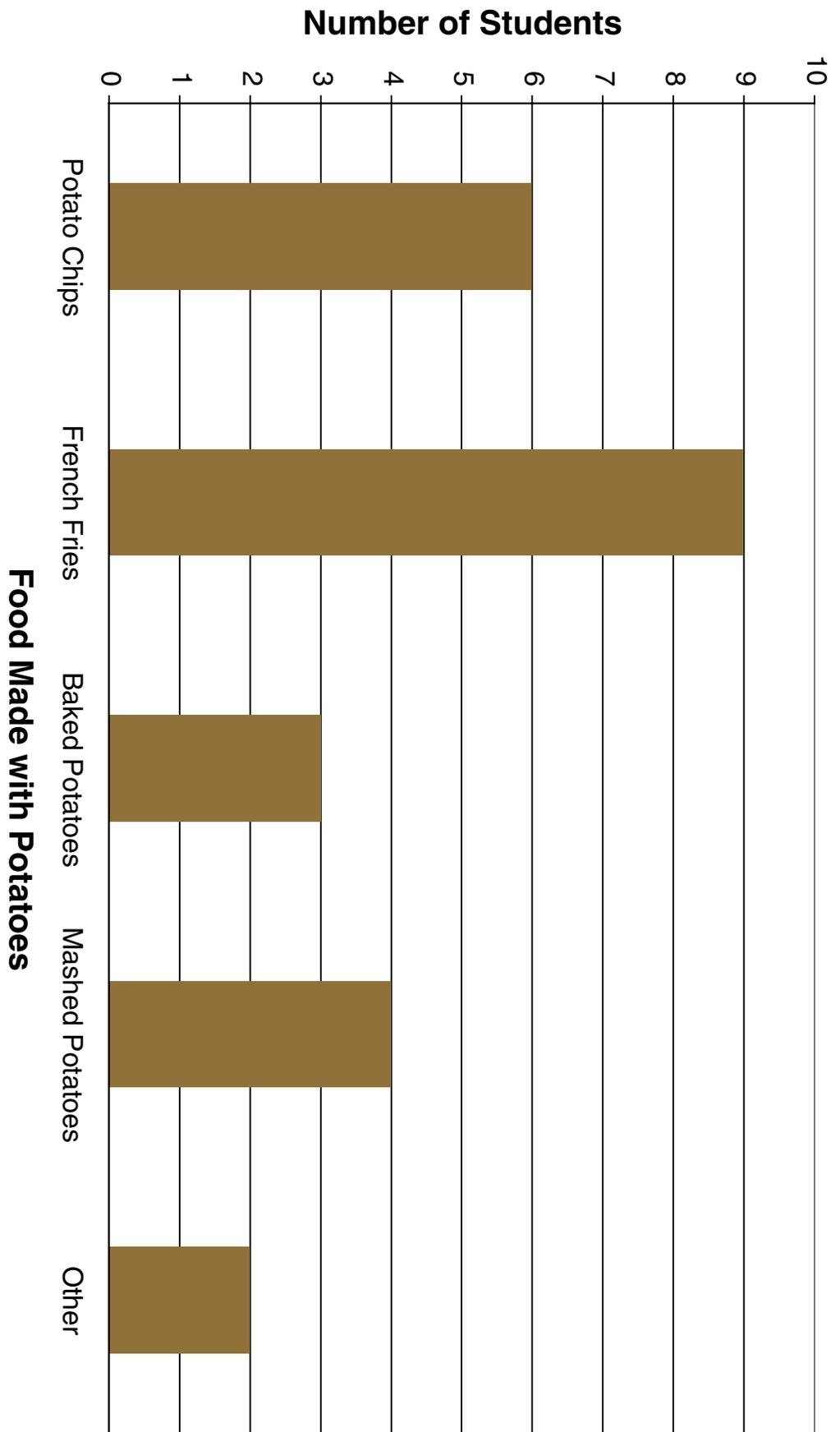
9. Write "X" next to the X axis and "Y" next to the Y axis on the graph axis lines below.



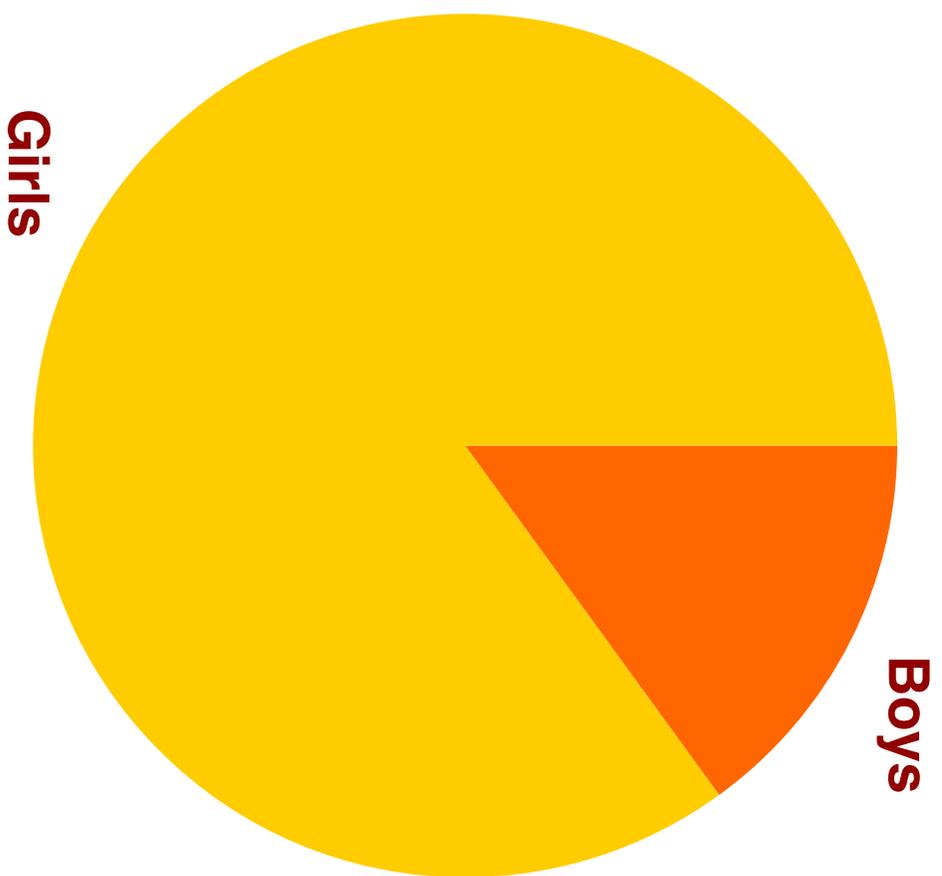
10. Write your definition of a graph.

11. Plot the data on the board in a bar graph on the provided graph paper. Include labels and title.

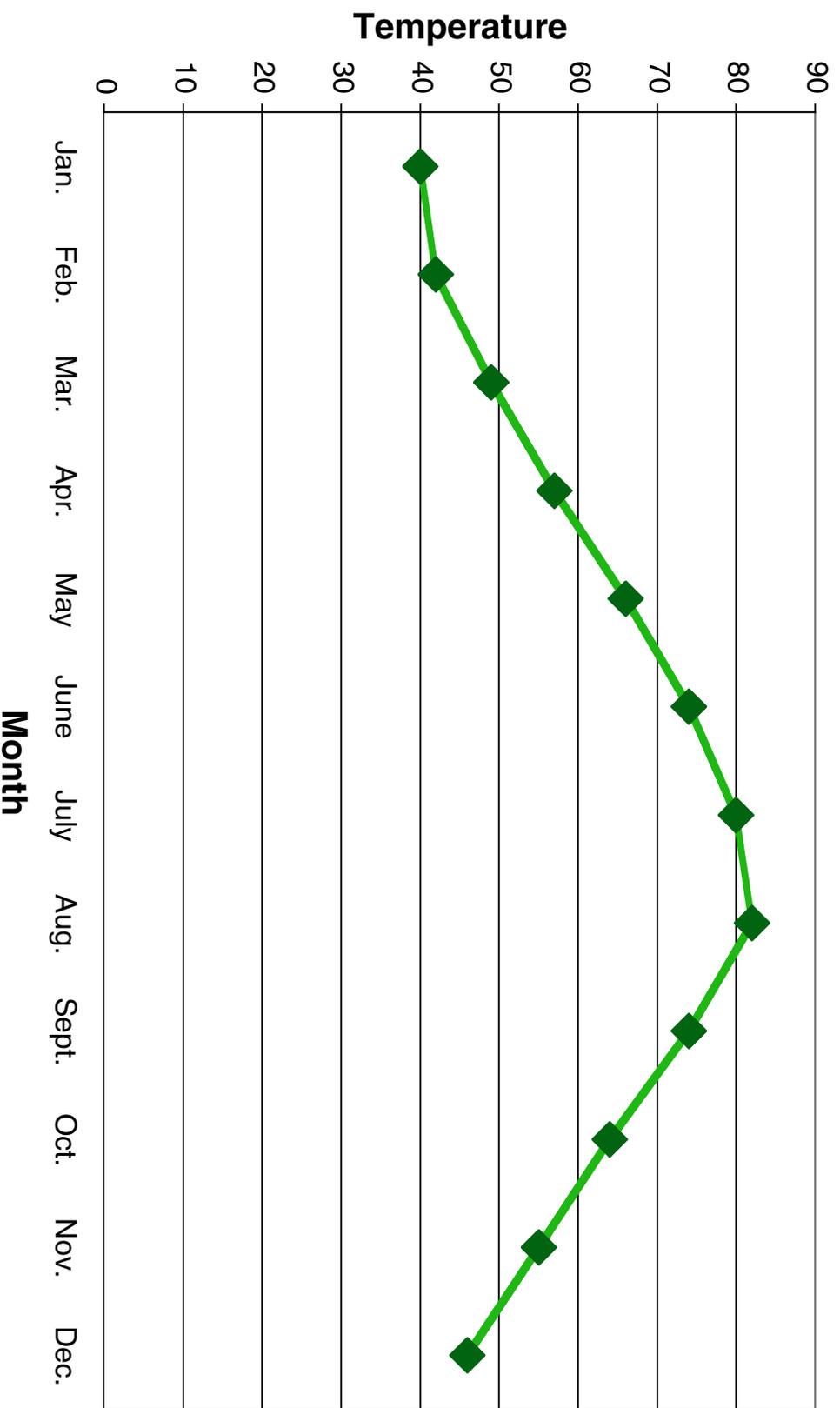
Favorite Foods Made with Potatoes



Gender Make-Up of Class 4WM



New Jersey Average High Temperatures



Color Distribution of Skittles Candies

