

# Math 6 - Act. 26: Exploring Scale

## Summary

In this activity, each student will map the same data on several graphs and then write about how the different graphs change the appearance of the data.

## Main Core Tie

Mathematics Grade 6

[Strand: STATISTICS AND PROBABILITY \(6.SP\) Standard 6.SP.5](#)

## Materials

- Worksheets
- Pencils
- Crayons

## Background for Teachers

The scale and spread of the graph can make the same data appear differently. If the scale on the y-axis is measured in smaller increments, the graph will appear taller. This makes small differences appear greater. If there is more spread on the x-axis, the line graph will appear to cover more time, and small differences will be harder to detect in a bar graph. In this experiment, each student will map the same data on several graphs. The student will write about how the different graphs change the appearance of the data. They will determine if the changing scale communicates the information differently. The activity will also ask the students to use higher order thinking skills to evaluate their graphs.

## Intended Learning Outcomes

6. Represent mathematical situations.

## Instructional Procedures

### Invitations to Learn

To begin the lesson, each student in the learning pair will have a tally graph. The students will be given three minutes to conclude as much information from the graph as they can. They will be encouraged to write their conclusions down so they can remember their conclusions to communicate later during the sharing time. When the thinking time is up, the learning pairs will take turns communicating their conclusions to their learning partner (see Interpreting Tally Graphs worksheet).

### Instructional Procedures

Graphs can impart a lot of information. However, sometimes the way the graph is constructed influences our interpretation of the data. Do this experiment in graphing to find out some of the tricks you may encounter in the newspaper or from the government.

- Use learning pairs.

- Introduce invitation to learn problem.

- Pass out the first graphing experience.

- Let pairs work on graphs and discuss how the graph could be interpreted.

- Let each pair share the results of their thinking with another pair.

### Curriculum Integration

On newspaper day, have groups collect the graphs in the newspaper and describe how these graphs could be altered to influence how people interpret the information on the graph.

## Extensions

### Possible Extensions/Adaptations

Give students data, and have them determine the best type of graph and the best scale to show the information. Their graph could be done on large paper and used as wall decorations in the room. Let each group explain their thinking to the class before posting the graph.

### Homework & Family Connections

Challenge the students to search their newspapers and magazines at home and bring in an example of a graph. Create a bulletin board to display the graphs. Students could also write their conclusions from a particular graph you supplied in their journals.

## Assessment Plan

Give students an altered graph and have them explain in words how the graph could be improved to show the information more correctly and honestly.

## Authors

[Utah LessonPlans](#)