

Exploring Measurement



During the unit, students question and discover many measurement concepts and misconceptions. Students explore the concept of measurement during a unit on measuring and comparing the “size” of different pumpkins (or other objects).

**This unit can be completed with other objects that will allow you to explore the concept of circumference such as: various size/types of water bottles, balls, potatoes, etc.

You will need at least 4 different sizes of the object to work through this unit.

Day 1: Exploring Attributes

Discuss the attributes of a pumpkin (or other object) using the sense of sight.

Create anchor charts/measurement posters - use the following questions to develop understanding/exploration of these measurement concepts:

- What is *big*?
- How do we know if something is *big*?
- How can we compare the size of something if we don't have another object in sight to compare?
- What does it mean to *measure*?
- How can we measure the size?
- Is there more than 1 way to measure an objects size?
- What tools can we use to measure?
- How can we measure a round object with a straight, flat ruler?
- What part of the pumpkin (object) do we measure?
- Where do we start and stop measuring?

Day 2: Exploring Measurement of Size and Concept of Comparing Size

Students work in groups to develop a plan for measuring the size of 4 pumpkins (objects) in order to compare the sizes and to determine which pumpkin (object) is the “biggest.”

Create anchor charts/measurement posters - use the following questions to develop understanding/exploration of these measurement concepts:

- How do we measure size?
- How do we measure size without moving object to place in order?
- What does *biggest* mean?
- If we are comparing objects, do we measure all of the objects the same?
- If we measure the objects in different ways, can we determine which object is the biggest?
- Is it possible for 2 different pumpkins (objects) to be the biggest?

Day 3: Exploring Measurement of Height

After comparing the previous day’s anchor charts/measurement posters, help students determine that in order to know which pumpkin (object) is the “biggest,” all of the pumpkins must be measured the same.

Students worked in groups to measure the height of all 4 pumpkins (objects).

Create anchor charts/measurement posters - use the following questions to develop understanding/exploration of these measurement concepts:

- How do we measure *height*?
- How do we compare heights of different objects?
- What is the best way to compare similar measurements?
- How can we “line-up” our measurements?
- Do measurements have to start from the same place in order to compare?
- Why are some measurements for the same pumpkin (object) different?
- What mistakes could have been made while measuring?
- If different groups measured the height of the same pumpkin (object), do their measurements have to be the same? Why?

Day 4: Exploring Accuracy of Measurement

After comparing the previous day's anchor charts/measurement posters, help students determine that the each group's measurement of heights for each pumpkin (object) should have been the same.

Students worked together as a class to fix mistakes in the previous day's measurements.

Create anchor charts/measurement posters - use the following questions to develop understanding/exploration of these measurement concepts:

- Where do we start and stop measuring?
- Where is the tallest part of the pumpkin (object)?
- If the tape hangs below the pumpkin's (object's) bottom, what are we measuring?
- Why shouldn't we measure past the bottom of the pumpkin (object)?
- What should we do if our measurement is too big?
- How can we check our measurement?
- How do we accurately measure the height of something?

Day 5: Accurately Measuring the Circumference

Students work in groups to accurately measure the circumference of 4 different pumpkins (objects).

Students develop a plan for how to measure the circumference, check their measurement, and compare the circumference of each pumpkin (objects).

Create anchor charts/measurement posters - use the following questions to develop understanding/exploration of these measurement concepts:

- What is *circumference*?
- How do we measure circumference?
- Where do we start and stop measuring?
- How do we check to see if we measured accurately?
- What can we do if our measurement is too little?
- What can we do if our measurement is too big?
- How can we compare our measurements?