

Teacher Notes

Rationale

Mathematics investigations open students' minds to the possibility of multiple approaches, multiple outcomes and multiple solutions. When linked to the world in which they live, open-ended investigations can help students see the relevance of mathematics within their lives. They also provide wonderful opportunities for differentiation, enabling students to feel confident and successful as they engage with tasks at their own individual level.

Overview

This mathematics investigation requires students to apply their knowledge and understanding of measuring capacity using informal units to a real-world situation.

Objective

To measure and compare the capacity of a range of containers using an informal unit (a plastic cup).

Duration

Approximately one 60 minute lesson

Prior Learning

Before commencing the investigation, students should be familiar with the following concepts:

- capacity as a measure of which container 'holds more'
- the importance of using a consistent unit of measurement when making comparisons.

Differentiation: Supporting Students

Support less confident students in their learning by allowing them to conduct the investigation with the support of a more capable peer, or in a small group with teacher assistance.

Differentiation: Extending Students

Add an additional level of complexity to challenge more capable students. Encourage them to create a picture graph of a small sample of results from the investigation and present this data to the class.

Monitoring Student Understanding

Due to the open-ended nature of this investigation, students' responses will vary significantly. For this reason, no answer sheet has been provided. Teachers must therefore check that each student has completed the investigation according to the task requirements.





The Scenario

Your teacher has decided to welcome some new members to your class – some pet fish! Your teacher has bought a lovely new fish tank to house your finned friends, but it needs to be filled with water. You can access fresh water from the sink in your classroom, but it will need to be carried across the room to the bench where the fish tank will sit.

Your teacher is looking for the perfect container to use to fill up the new fish tank. The goal is to make the smallest number of trips from the sink to the fish tank. Also, the containers of water should not be too heavy as this might cause dangerous spills on the floor!

You and your classmates have been asked to bring in a container from home that could be used to transport water from the sink to the fish tank. Once everyone has measured the capacity of their containers, you must decide as a class which is the perfect container for your teacher to use.

The Procedure

1. Bring in a container from home that might be suitable for filling the fish tank.
2. Predict how many cups of water your container will hold.
3. Investigate the capacity of your container using the plastic cup.
4. Compare your results with your classmates.
5. As a class, decide which container will be the best for your teacher to use.

The Task

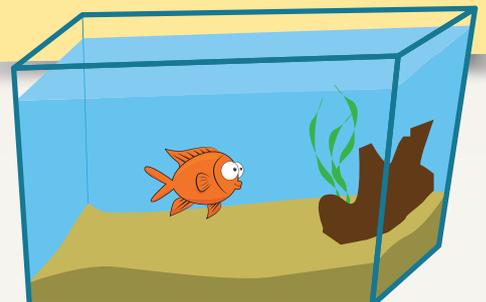
Bring in a container from home that could be used to fill the new fish tank with water.

Investigate the capacity of this container using a plastic cup.

As a class, decide which container would be best for your teacher to use.

The Materials

- a container (brought in from home)
- plastic cups
- water



Name _____

Date _____

Conducting the Investigation

Prediction

I have chosen to bring in a _____ container to fill up the fish tank because _____.

I predict that the capacity of my container will be _____ plastic cups of water.

Collecting Data

In the box below, draw and label a diagram of what you did during the investigation.

Recording Data

The capacity of the container that I chose is _____ plastic cups of water.

Conclusion

My prediction was correct / incorrect (circle one).

We decided that the best container to use belonged to _____.

This is because _____

_____.



Name _____

Date _____

Reflection

Shade the face to describe how you feel about how you worked during the investigation.

I listened to my teacher's instructions.			
I listened to the ideas of my classmates.			
I shared my ideas with my classmates.			
I tried to complete my work neatly.			
I tried to complete my work on time.			
I asked for my teacher's help when I needed it.			
I concentrated on the task I was doing.			
I did my best work on this task.			