

# Session 1 workshop version - volume

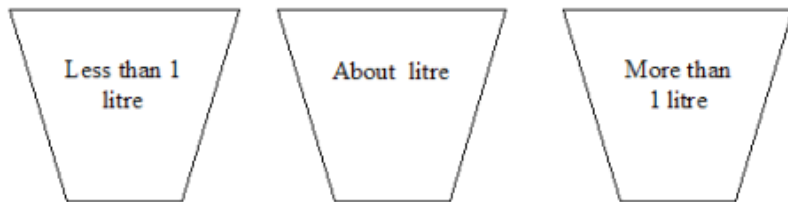
*Bottles and containers of various sizes and shapes.*

1. Select 5 or 6 containers of various sizes and shapes.
2. Which one has the least space in it. How did you make your choice?
3. We are going to order the containers from smallest to biggest. How might we do this?  
Record ideas on the sheet of paper.
4. Order the containers from smallest to biggest.
5. Take a photo of your paper and ordered containers and post in the folder.

# Session 2 workshop version

The following activities are to provide experiences to compare volumes of different objects and to create a benchmark of what a container that holds a litre looks like.

1. Have a look at the 1 litre container and get the 'feel' of a litre.
2. On the large sheet of paper are three "buckets".



3. From the provided items, take turns in your group to select an item and place it in the most appropriate bucket. Before each item is placed in the bucket it would be a good idea to pass the object around the group to compare the size of each object.
4. Take a photo and place in the folder.

# Session 3 workshop version

1. Take a plastic bag and put one litre of something in it (I suggest you use water).
2. Compare the bags to the benchmarks rather than measuring at this stage.
3. Measure the volume of water in each bag and discuss why they are not all exactly one litre.
4. How many millilitres are there in one litre?
  - What does milli stand for?
  - How many millilitres is 2.5 litres?
  - How many litres in 1500 millilitres?
5. Take a photo and place in the folder - write on paper the actual volume of the bags
6. Empty your bags once finished.

# Other volume ideas

1. Think about other volume benchmarks that you use in everyday life - list these down on the paper and record the volume that you use them for.
2. Using paper or card cut out five 10x10 squares and tape them together to make an open box.
  - a. What is the volume of the box in cubic centimetres?
  - b. How does this compare to 1 litre?
3. Using the paper or card to make a box that is  $\frac{1}{4}$  of a litre.
  - a. What dimensions might the box have?
  - b. What is the volume in cubic centimetres?

# Getting started workshop version - mass

Get the bags that your group brought to the workshop.

Who has the heaviest bag to carry to the workshop and who carries the lightest bag to the workshop?

1. How are we going to go about ordering these bags from the lightest to the heaviest bag to answer our question?
2. Note suggested solution strategies then trial strategies to establish an effective way to order the bags by weight.
3. Order your bags from least to most heavy.
4. Take a photograph and post in the folder.

# Exploring workshop version

The following activities provide experiences to compare weights of different objects and to create a benchmark of what a kilogram feels like.

1. Lift and hold the 1 kg weight to get the ‘feel’ of a kilogram.
2. On the large sheet of paper are three “buckets”.



3. From the provided items, take turns in your group to select an item and place it in the most appropriate bucket. Before each item is placed in the bucket it would be a good idea to pass the object around the group for everyone to feel the mass of each object.
4. Take a photo and place in the folder.

# Session 3 workshop version

1. Take a plastic bag and put one kilogram of something in it (I have provided sand).
2. Compare them to the benchmarks rather than weighing at this stage.
3. Weigh the bags and discuss why they are not all exactly one kilogram.
4. How many grams are there in one kilogram?
  - a. *What does kilo stand for?*
  - b. *How many kilograms is 2000g?*
  - c. *How many grams in 1.5 kg?*

Take a photo and place in the folder - write on paper the actual weights of the bags.

Empty your bags back into the bucket once finished.

# Session 4 workshop version

1. Take the 1kg benchmark container. This will be used to measure various other items around the room.
2. Group members take turns to be blindfolded. In one hand they hold the benchmark and in the other hand they are given another item. The task is to estimate the mass of the mystery item by comparing its mass with the benchmark item.  
The blindfolded individual verbally announces their estimate and a recorder records the estimation. The non-blindfolded individuals can also estimate the mass of the mystery object.
3. After each estimate use scales to measure the item's mass. The comparison can then be made between the actual mass and the estimated mass.  
The process can be repeated for each group member.
4. This could be turned into a game in that the individuals who estimate within 100 grams earn themselves a point. The first group member to earn four points is the winner.