

ACTIVITY BOOKLET

PRIMARY MATHEMATICS

TEACHING MEASUREMENT: CAPACITY AND VOLUME

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A NOTE TO CAREGIVERS:

This activity booklet is designed to teach your young learners' math while still staying within the walls of your own home. The required materials for each activity are objects that you will likely have within your kitchen, including cups, bowls, containers, milk jugs, or anything that can hold several objects! Working with your child, we will explore a unit of primary mathematics. This unit will touch on two parts of measurement: capacity and volume. These activities are flexible to your schedule and can be made shorter or longer depending on your preference. The order that you conduct these activities should loosely follow the order they are currently in, as they are designed to build your child's knowledge as you work through them.

Most importantly, these activities are designed to be a fun, simple, and accessible way to continue your child's learning from home!

ACTIVITY # ONE

Activity One is a starting point for learning Capacity at home. During this activity, we will help our mathematicians build a better understanding of capacity and what it can look like within your own home. This activity should be the starting point for our learners. Here we will introduce new terms and ideas in a fun and interactive way!

**Required Materials:**

1. A few containers of different sizes.
2. Paper
3. Pencil
4. Optional: Water.

Key Terms for Understanding:

- Capacity: the maximum amount something can hold.
- Holds More
- Holds Less

Preparation for activity:

1. Collect a few containers that are different sizes. These can be cups, bowls, milk jugs or tuna cans.
2. Place these containers together in the area you are doing your activity.

Instructions:

1. With your containers set out, ask your learner what they notice?
 - a. Are the containers different sizes?
 - b. How are they different?
 - c. What do you notice?
2. Here, we can introduce students to the terms 'holds more' and 'holds less'
 - a. Chose two containers, ask your learner 'which one do you think holds more? Why' 'which one holds less?'
3. Continue this process with the rest of your containers.
4. When you have finished comparing your containers, you may provide your student with a piece of paper and a pencil.
 - a. Ask them if they can draw these containers in an order.
 - b. Alternatively, they can draw two containers and label which one holds more or holds less.
5. To take this a step further, you can fill your containers with water to test which one holds more or less.

ACTIVITY # TWO

This activity will build off of activity one to help students to continue learning about capacity. In this activity, learners will use what they know about capacity to compare and fill different containers. This activity is designed to continue student learning, using materials found within your home!



Required Materials:

1. A few containers of different sizes.
2. Paper
3. Pencil
4. Material to fill your containers:
 - a. Water, rice, blocks, coins, etc

Key Terms for Understanding:

- Capacity: the maximum amount something can hold.
- Holds More
- Holds Less

Preparation for Activity:

1. Collect a few containers that are different sizes. These can be cups, bowls, milk jugs or tuna cans.
2. Place these containers together in the area you are doing your activity.
3. Have a material of your choice ready to fill your containers.

Instructions:

1. Working with your learner, start to review what was done in the previous activity.
 - a. What do you remember from last time?
 - b. Are the containers different sizes?
 - c. How are they different?
 - d. What do you notice?
2. Choosing two of the containers, ask 'which one holds more/less?'
 - a. Here we are reintroducing our terms, reminding students of their prior knowledge.
3. When you have finished comparing your containers, you may begin filling the containers.
 - a. During this process, help students fill the container using a scoop of any size.
 - b. You can count out loud the scoops made to fill the container or keep track on a piece of paper.
4. When you are done filling the containers, work to create an order based on which one held more and which one held less.

ACTIVITY # THREE

This activity will continue our study of capacity and will encourage students to explore independently. Students will work to compare two cups, filling them to test their ideas. To fill these cups, students may use items like blocks, rice, or water. Students can record observations on a simple homemade template (attached below). Here, we will work towards a better understanding of capacity and encourage the use of prior knowledge and familiar terms.



Required Materials

- Two cups of different sizes
- Items to fill your cups with (water, blocks, rice, sand)
- Homemade template (print out or make your own!)

Key Terms for Understanding:

- Capacity: the maximum amount something can hold.
- Holds More
- Holds Less

Preparation for Activity:

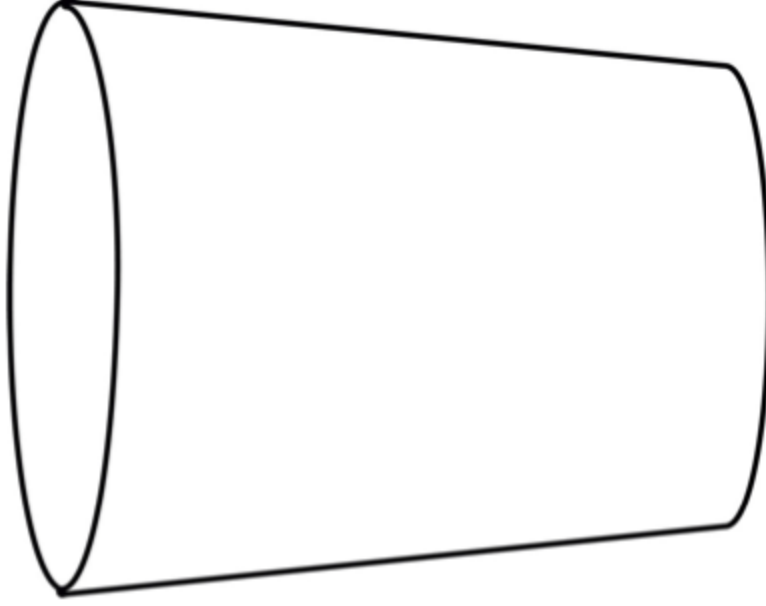
1. Collect two cups of different sizes.
2. Place the cups together in the area you are doing your activity.
3. Have a material of your choice ready to fill your cups.

Instructions:

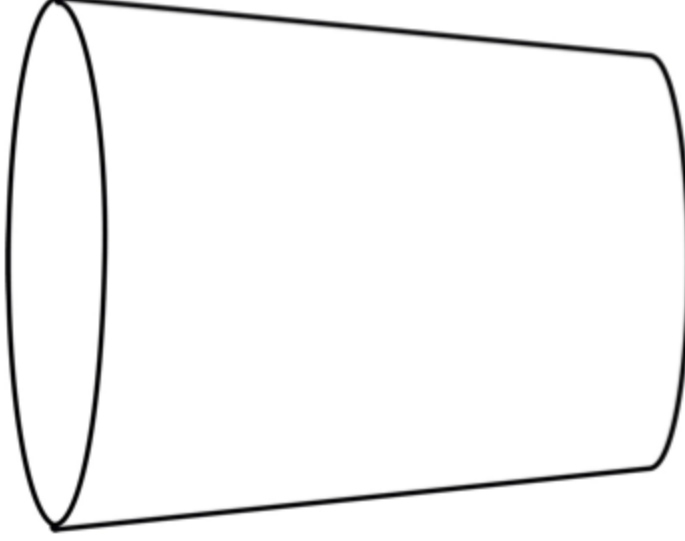
1. Begin this activity with the materials set up in your selected learning area
 - a. These materials are the two cups and items to fill them.
2. For this task you will ask a few prompting questions before allowing your learner to start.
 - a. What do you remember from last time?
 - b. Are the containers different sizes?
 - c. How are they different?
 - d. What do you notice?
3. Following these questions, instruct your learner to figure out which cup holds more/ less. Allow them to explore independently with the provided materials.
 - a. Observe the steps they are taking: Are they filling the cup? Are they counting?
4. When they are done filling the cups and have come to a conclusion, work with them to create illustration of what they noticed, reflecting on what they did.
 - a. Reflecting on the task will help your learner gain a better understanding of what they did and how they did it.

I can compare capacity!

Name _____



holds more



holds less

ACTIVITY # FOUR

Today's activity will work with materials in your own home to explore capacity with your young learner. To complete this task, you can take your learning outside, using materials such as sand, dirt or leaves to fill your different sized containers. Working with your learner, you will first make a guess at which containers you believe will hold more or less, keeping track on a piece of paper. As you work to fill and compare a number for different containers with materials found outside, take note of the number of items that actually fit in your cup. Here we will work to make predictions, test our predictions, and observe our results.



Required Materials:

- Containers of different sizes.
- Material to fill your containers with.
- Optional: sand, dirt, water, or leaves.

Key Terms for Understanding:

- Capacity: the maximum amount something can hold.
- Holds More
- Holds Less

Preparation for Activity:

1. Collect containers of different sizes.
2. Place the containers together in the area you are doing your activity (for this activity, you may choose to work outside).
 - a. Have a material of your choice ready to fill your cups (Optional: sand, dirt, water, or leaves).

Instructions:

1. This activity can be done in a variety of different ways. We will focus specifically on an outdoor option, but if this is not possible, inside is perfectly fine.
 - a. In this case, outside may refer to: your porch, your backyard, your walkway, or any safe area around your residence.
2. Begin this activity by setting out a few containers.
 - a. Work with your learner to make some initial guesses of which one holds more or less.
 - b. Place your containers in an order based off of your guesses.
3. When you have finished guessing, start to work with your learner to fill the containers with materials.
 - a. Dirt, water, sand, rocks, leaves.
 - b. Take note of the amounts in each container as you go.
4. When you are finished, place your container in order based on the amount that they held.
5. To conclude, have a conversation about the activity and let your learner explain to you what they did.

ACTIVITY # FIVE

For today's activity, students will put their capacity skills to the test. Learner will search their surroundings to look for two different containers. They will be given a reference point before they begin and will work to find a container that they believe holds more or holds less. During this capacity scavenger hunt, students will make mental comparisons, use words to describe capacity, and have fun. When their containers have been found, work with your learner to test which one holds more and which one holds less. This activity will conclude our section on capacity.



Required Materials

- A container for a reference point.
- A few different containers placed in your surroundings for students to find.
- Something to fill your found containers with.

Key Terms for Understanding:

- Capacity: the maximum amount something can hold.
- Holds More
- Holds Less

Preparation for Activity:

1. Collect containers for your reference point.
 - a. Chose a container that is approximately in the middle in terms of size.
2. Place containers of different sizes around your learning environment.

Instructions:

1. To begin this task, place a medium sized container in the middle of the room.
 - a. Ask your learner what they notice about the container and ask them to describe it.
2. Following this, you can begin the scavenger hunt.
3. Ask your learner to find two different containers around the room, one that holds more than the one in the middle, and one that holds less.
4. Give them time to search for these containers around the room.
5. When they are finished, you can test their observations by filling the containers.

Optional:

1. If you have other containers hidden around the room, you can continue this activity, asking your learner to look for and order the remaining objects.

ACTIVITY # SIX

This activity is an introduction to volume. Students have started to work with capacity, using terms such as holds more or holds less. In the activity, we will start to use 'bigger' and 'smaller' to describe the amount of liquid in a cup. Students will work to compare different amounts of liquid in containers using four cups of the same size. Here we will help students to compare their volumes, taking down observations if necessary. Students may wish to draw what they are seeing or talk about it with you as they are working. Through these observations, students will begin their journey into volume.



Required Materials:

- Four cups (bowls, dishes) of the same size
- Water
- Paper.
- Pencil.

Key Terms for Understanding:

- Volume: the amount (of liquid) something is holding.
- Bigger
- Smaller

Preparation for Activity:

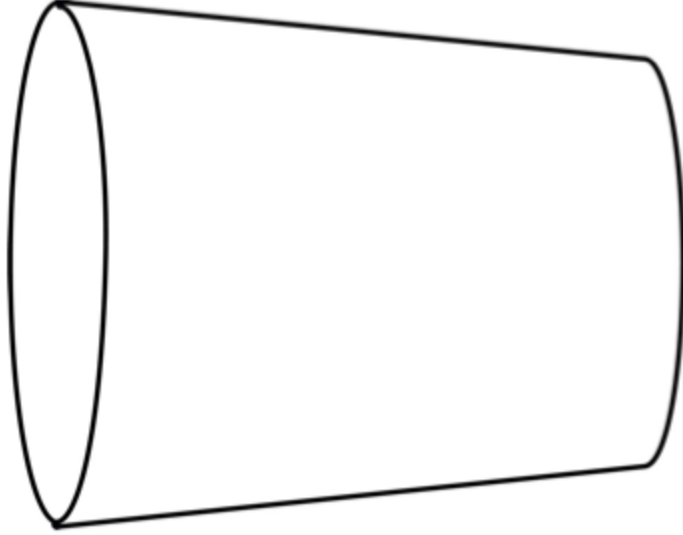
1. Collect four containers of the same size, placing them in the area you are doing the activity.
 - a. Fill these cups with different levels of water.
 - b. Place the cups in a random order.

Instructions:

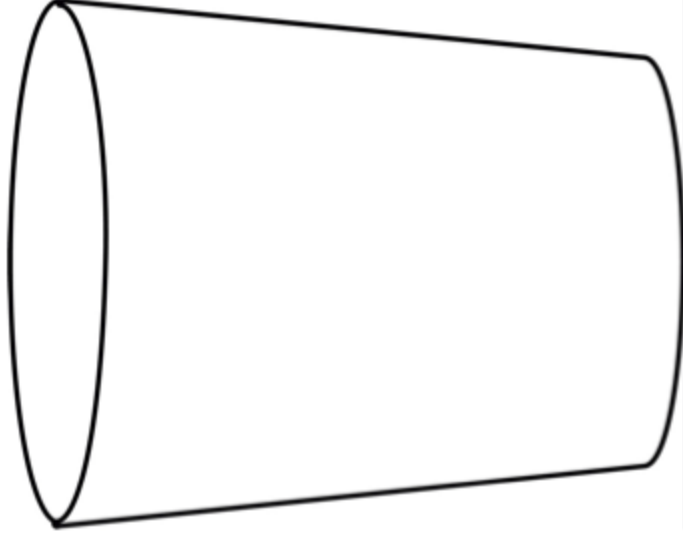
1. Begin this lesson by calling your learner over to the four prepared cups.
 - a. Ask them some questions about what they see:
 - b. What do you notice? What is different about the cups? What is the same?
 - c. Here we are drawing attention to the different volumes within the cups and the similar sizes of the containers.
2. Introduce the new describing terms by giving them examples.
 - a. Which one is bigger/smaller? (compare two cups)
3. When your learner has gained an understanding, ask them to choose the cup with the biggest volume and the one with the smallest volume.
4. When they have selected the biggest and smallest volume, work with them to create a drawing, recording what they notice.
 - a. This can look like a drawing of the two cups and the amount of liquid that was in both of them.
5. When they have finished drawing, talk with them about what they did, and how it was different from the previous activities.

Name _____

I can compare volume!



biggest



smallest

ACTIVITY # SEVEN

Using four to five containers of the same size, students will work to create an order based off of their volume. In the activity, learning instructors will prepare a group of cups with different volumes of water. Students will then work with their prior knowledge to arrange these cups from biggest to smallest volume. This can be repeated any number of times with different cups or volumes and will help students make comparisons while they are working. Students may work independently or with you to make these comparisons but should be encouraged to keep up their use of our terms 'bigger' and 'smaller'.



Required Materials:

- Four or five cups of the same size.
- Water.

Key Terms for Understanding:

- Volume: the amount (of liquid) something is holding.
- Bigger
- Smaller

Preparation for Activity:

1. Collect four containers of the same size, placing them in the area you are doing the activity.
 - a. Fill these cups with different levels of water.
 - b. Place the cups in a random order.

Instructions:

1. Begin this lesson by calling your learner over to the four- five prepared cups.
 - a. Like activity 6, ask them some questions about what they see:
 - b. What do you notice? What is different about the cups? What is the same?
2. Re-Introduce the terms to describe volume by giving them examples.
 - a. Which one is bigger/smaller? (compare two cups)
3. When your learner has gained an understanding, ask them to arrange these cups in an order from biggest volume to smallest volume.
 - a. As they are doing this, work with them using the terms 'bigger' and 'smaller'.
4. When they are have finished ordering the cups, talk with them about what they did, and how it was different from the previous activities.

ACTIVITY # EIGHT

Our final activity in the booklet will look to show our students the real-life applications of volume and capacity. In the activity, you will work with your learner to create a simple cookie recipe. There will be a recipe attached below, but this can be done with any recipe that works for your family's dietary needs or works with the materials you currently have available. While creating your recipe, work with your different ingredients to compare volume. If possible, use bowls of the same size to set out your ingredient and allow students to make some observations before adding them to the bowl. Figuring out the biggest volume will help them to make focused comparisons while improving their skills in the kitchen.



Required Materials:

- Bowls or dishes of the same size.
- 1 cup of white sugar
- 1 cup of butter
- 1 tsp of vanilla
- 2 eggs
- 2 ½ cups of flour
- 2 tsp of baking powder
- ½ tsp salt.
-

Key Terms for Understanding:

- Volume: the amount (of liquid) something is holding.
- Bigger
- Smaller

Preparation for Activity:

1. Collect your ingredients for your recipe.
 - a. Put these ingredients (if possible) in containers of the same size.
 - b. Place the containers in a random order.

Instructions:

1. Begin this activity by asking your learner to compare the different ingredients.
 - a. Which ingredient has the biggest volume? Smallest?
 - b. Continue this until you have gone through each ingredient.
 - c. If you don't have containers of the same size to hold your ingredients, you can do this activity using capacity.
2. From here, you can continue to make the cookies until the recipe is complete.
3. To conclude, talk with your learner about what they noticed, what they did, and if they can think of any other ways they can use volume and capacity.
 - a. Taking a bath (how much water is in the tub or how much can it hold?).
 - b. Getting a cup of water (what cup did they use, why? Does it hold more? How high did they fill it?).
 - c. Picking a bigger bowl to hold their snack (what bowl holds more grapes?).

SIMPLE SUGAR COOKIES



INGREDIENTS:

- 1 cup of white sugar
- 1 cup of butter
- 1 tsp of vanilla
- 2 eggs
- 2 ½ cups of flour
- 2 tsp of baking powder
- ½ tsp salt.

INSTRUCTIONS:

1. Mix sugar, butter and vanilla until mixture is creamy, about 2 minutes. Scrape down sides of bowl. Add eggs, mixing after each egg; mix thoroughly.
2. In a separate bowl combine flour, baking powder and salt. Beat the dry ingredients into the creamed mixture.
3. Roll out cookie dough to 1/4" (0.6 cm) onto a lightly floured board. For best results, do not roll cookie dough too thin. Use cookie cutters of your choice for a variety of different shapes and sizes. Place cookies on parchment lined cookie sheets.
4. Bake at 350°F (180°C) for 10 minutes or until the underside of cookies turn golden brown.

Recipe: <https://www.eggs.ca/recipes/old-fashioned-sugar-cookies>