

Objectives

The primary objective of Unit 3 is help children begin to:

- Identify measurable attributes of objects, such as length and weight
- Describe measurable attributes using correct vocabulary (big, small, short, tall, empty, full, light, heavy)

Teachers are also urged to revisit Unit 1 and Unit 2 content (small group activities and learning centers) to continue to build children's competence in the "number core" (rote counting, 1:1 correspondence, cardinality, and recognizing written numerals). "Everyday Math" activities, as described in Units 1 &2, are also always recommended.

What's Required? When?

- **All of the experiences noted in this guide are required** for Pre-Kindergarten students, with pacing at teachers' discretion. This means that all experiences listed must be offered, but teachers should determine the timing (when to introduce and how long to spend). We understand that the busy holiday season can affect attendance and routines.
- It is expected that teachers also consistently:
 - **Incorporate math talk into daily classroom routines.**
 - [What is Math Talk?](#) (5 minute video)
 - [Promoting Math Talk](#) (3 minutes)
 - **Include a Math fluency activity as part of your circle time routine.** This can be as simple as counting how many friends are present today or introducing a counting song. Suggestions include:
 - I Can Count to 10 (Lyrics and Song Sample)
<http://www.songsforteaching.com/marharman/musicwithmar-icancountto10.php>
 - Counting with My Friends (Lyrics and Song Sample)
<http://www.songsforteaching.com/math/earlynumberscounting/countingwithmyfriends.htm>
- Note that materials are suggested but are easily substituted for available classroom items.

How Do I Differentiate or Supplement?

- You will find a page of Seasonal Supplemental Activities in this guide; these activities are optional.
- If you are interested in supplementing the math curriculum with additional learning centers, or need suggestions for how to differentiate instruction for varied abilities, the Preschool Math Guide is an excellent resource for you.
- The activities in the Preschool Math Guide are age-appropriate for PK students too and can be used to reinforce individual skill development (practice for emerging learners), to add variety to a topic (diversity for varied interest levels), or to assess growing competence (observe children's mastery levels).

Pre-K Math - Unit 3 - Supplemental Centers for December

Pom-pom Patterning

Vary colors to coordinate with additional holidays



Gingerbread Man Bingo

Click [here](#) for additional instruction on this activity.



Cube Measuring

Use unifix cubes to measure assorted holiday photos/drawings/toys/candy canes. Choose and prepare what you would like children to measure based on their interests.



Gingerbread Man Measuring

Measure the gingerbread man using paper peppermints or candy canes then have children compare these measurements to their own height.



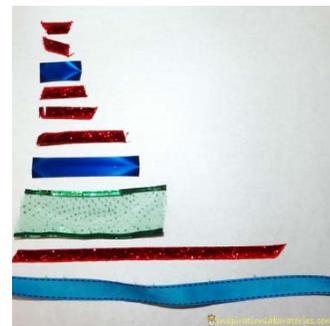
Tree Decorating

Create an invitation to play by preparing several paper trees, stars (each with a different number), and buttons. Children will choose a star, place it on the tree top, then count out and place the coordinating number of buttons.



Arranging Lengths of Ribbon

Encourage children to arrange lengths of ribbon by size. It may also be fun to build a Christmas tree shape by centering them. Consider making this a multi-day project: For example, Day 1 could be cutting lengths of ribbon to a certain size (cut a ribbon as long as this line of unifix cubes). Day 2 could be sorting and arranging by length.



UNDERSTANDING LENGTH

- **All activities are required, but can be paced at teacher’s discretion, based on children’s abilities and needs.**
- **Repeat activities as needed, to build children’s growing competence.**

1. CONCEPT INTRODUCTION:

Working with a SMALL GROUP, say, “Close your eyes and think about a time when you looked up toward the sky and saw something that was tall. What did you see that was tall?” Draw some of the students’ responses on the chart paper labeled “Tall”. Show pictures of some other tall things, discuss, and tape them to the tall chart. Next, say, “Look around the room and find short things.” Ask, “What did you find that was short?” Draw some of the students’ responses on the short chart. Show pictures of some other short things, discuss, and tape them to the short chart. Make two towers of blocks, one short and one tall. Say, “Look at these two buildings. What word can you use to tell about this one? How about this one?” Guide students to use their new tall and short vocabulary. Finally, give each pair of children 6–8 blocks. Encourage them to work together to build a tall building and a short building. Invite those who finish quickly to tell how many blocks were used to make each building.

2. At the BLOCK CENTER, invite children to build tall buildings. Provide people or animal figurines to place around the buildings to encourage the use of the word short. By placing the people and animals next to the buildings, the students are preparing for comparison of length in the next lessons.
3. Place several paper strips and yarn of different lengths at the ART CENTER. Invite students to use scissors to cut the strips and yarn to show longer, taller, and shorter. Students can also simply compare the strips and yarn to each other.
4. During CIRCLE TIME, place a water bottle on the floor. Tell students that you will name different objects and ask students to stand up if the object named is taller than the bottle, and sit down if it is shorter than the bottle (e.g., “tree,” students stand up; “crayon,” students sit down.) As students stand or sit, have them say the phrase—taller than or shorter than. (Note: Standing and sitting helps reinforce the concepts of tall and short as students make a kinesthetic connection through body movement.)
5. Working with a SMALL GROUP at the table, give each student a small ball of playdough and crayon. Say, “Put your crayon on the table. Roll your clay into a skinny snake that is longer than your crayon.” Encourage students to use longer than to talk about their snakes, e.g., “My snake is longer than my crayon.” Next, say, “Roll your clay into a ball again. This time, make a fat snake that is shorter than your crayon.” Encourage students to use shorter than to talk about their snakes, e.g., “My snake is shorter than my crayon.” Finally, repeat for “about the same length as”. Extend this activity by inviting children to use iPads to capture photos of their snakes; add these photos to assessment portfolios and/or attach to daily reports with an explanation of the objectives.
6. Encourage children to explore the concepts of height and length by creating a center where children measure themselves and their friends with blocks. Be sure to provide a clipboard and writing tools to document “I am ____ blocks tall”; encourage children to use tablets to document their work with photos, too.

UNDERSTANDING WEIGHT

- **All activities are required, but can be paced at teacher's discretion, based on children's abilities and needs.**
 - **Repeat activities as needed, to build children's growing competence.**
1. **CONCEPT INTRODUCTION:** *Prepare a box or bag full of several heavy and light items, including things that are big but light (a big piece of foam or an empty shoe box). Also include things that are small but heavy (a bag of marbles or a small bottle of water). You will also need two hula hoops for sorting.*
Working with a SMALL GROUP, pull a brick, phone book, or other very heavy item out of the box of heavy and light things. Say, "When I pick this (item) up, it feels heavy (playfully exaggerating how heavy it is by lowering arms to the ground). I am going to put it in this hula hoop to make a group of heavy things." Call on a student to pick another item from the box. Use parallel talk to guide students to identify the object, describe it as heavy or light, and sort it into the correct group. Repeat until all the items have been identified as heavy or light and have been sorted. Say, "We made a group of heavy things (pointing to the group), and a group of light things (pointing to the group). Heavy and light tell us about their weight."
 2. Working with a SMALL GROUP, show students a large empty gift box and say, "Look at this enormous gift! What do you think is inside?" After a few guesses, ask students if they think the gift is heavy (most will). Pass the box around and ask if it is heavy or light. Then, ask students to talk about how such a big gift could be so light. (It's empty!) Say, "Hmm...I wonder if the gift will get heavier if we add more things to it?" Add some small toys and discuss. Then say, "What will happen if I remove some toys?" (The gift will be lighter!) Repeat the process with a small gift that is quite heavy, first asking students to think about whether it is heavy or light, then passing it around. Guide students to the realization that size does not determine weight.
 3. Create a MATH CENTER that includes the balance scale and a variety of objects that children can weigh. Invite students to explore the items, comparing different objects. This will give students an opportunity to feel and compare all of the objects using their new vocabulary. "It's your turn to practice weighing objects on the balance scale and to decide which objects are heavier than, lighter than, or about the same weight as each other." Extend this experience by having children use an iPad to create a video of their observations, "The rock is heavier than the feather." Children who are ready for a challenge can also make predictions prior to weighing the objects. Guide the conversation to debrief – were their predictions accurate?
 4. Incorporate MUSIC & MOVEMENT using dancing scarves, to help children internalize the concepts. "Let's use these scarves to act out heavy and light. Use your imagination! The scarves can be anything you want them to be! Butterfly wings, a feather, a leaf. Or they can be a giant rock or a huge watermelon." Encourage students to be dramatic. "Roll the scarf into a ball and pretend it's a rock as you stagger under the weight of it; throw it to a partner who pretends it's really heavy when she catches it."
 5. Explore the concept of measurement in general by creating a MEASURING CENTER where children use books as their unit of measure. Examples include: Comparing books to determine which is heavier, Sorting books by size, Stacking books to be "as tall as ____", Lining up books to be "as long as ____"