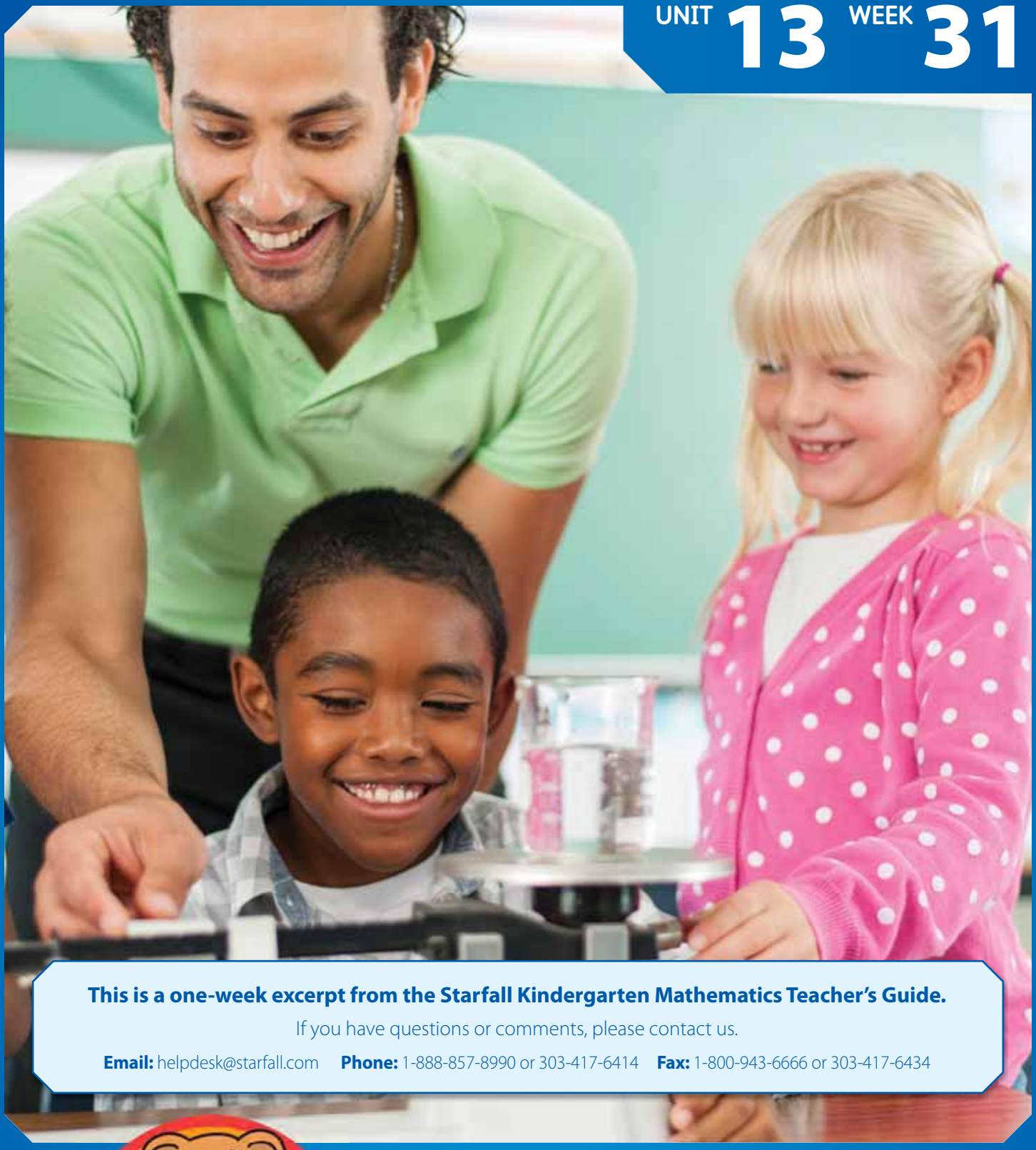
UNIT 13 WEEK 31



This is a one-week excerpt from the Starfall Kindergarten Mathematics Teacher's Guide.

If you have questions or comments, please contact us.

Email: helpdesk@starfall.com **Phone:** 1-888-857-8990 or 303-417-6414 **Fax:** 1-800-943-6666 or 303-417-6434

Starfall Kindergarten MATHEMATICS

Measurement

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Measurement

Week 31

UNIT 13

WEEK 31

Week 31 Summary

This week the children will be introduced to a variety of thermometers and learn the purpose for each. They will discover the various things that can be measured with thermometers. The children will review which people use specific measurement tools.

The children will also:

- Differentiate and make connections between hot and cold temperatures
- Classify items as hot or cold
- Review more than and less than
- Relate changes in a thermometer to changes in temperature

Preparation

DAY 1

How hot or cold is it?

Prepare a sentence strip that reads: How hot or cold is it?

You will need a cup of ice and a cup of room temperature to warm water.

DAY 2

Today you will use a Classroom ten-frame, red and blue magnets and a circle magnet. You will also use a large thermometer image, Four Seasons Cards, and Thermometer Picture Cards.

DAY 3

Prepare word cards: Body Temperature, Outdoor Temperature and Food Temperature. You will also need a dot magnet, a bag or a basket, a large thermometer and Temperature Scene Cards.

DAY 4

Prepare the following set of Measurement Sentence Strips:

- How tall or long is it?
- How much does it weigh?
- How much will it hold?
- What time is it?
- How hot or cold is it? (from **Day 1**)

DAY 5

Rather than creating the traditional Learning Centers for **Day 5**, refer to the list of activities and centers you may incorporate to review the Measurement Unit.

Suggested Learning Center Materials:

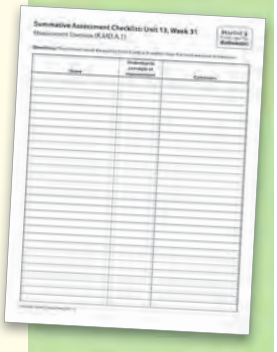
Length/Height — yarn, index cards, pencils, scissors, tape

Capacity — containers of different materials such as rice, pasta, beans, a funnel, empty tubs, containers of various sizes

Weight — a variety of weighing tools (pan balance and scales), items to weigh, cubes, collection of classroom objects, Word Cards: heavier and lighter

Measurement Overview — "A Walk in the Park" game board, Measuring Tools Cards, game spinner with numbers, playing pieces

Prepare a copy of the Summative Assessment Checklist for Unit 13, Week 31.



Summative Assessment
Unit 13 - Week 30

UNIT 13

WEEK 31

	DAY 1	DAY 2
Daily Routines	• Calendar • Weather • Number Line • Place Value • Hundreds Chart	
Magic Math Moment	Counting by fives	How many make ten?
Math Concepts	Introduce *Thermometers* Measure temperature How hot or cold? Classify items as hot or cold Tools that measure temperature	Determine the number needed to total ten Review *Thermometers* Temperature in different seasons Reading a thermometer
Formative / Summative Assessment	Classify objects as hot or cold	Discuss Temperature Picture Cards/sequence coldest to hottest
Workbooks & Media	Workbook p. 43 	

DAY 3	DAY 4	DAY 5
• Calendar • Weather • Number Line	• Place Value • Hundreds Chart	
Thermometer "I Spy"	More than/less than riddles	Learning Centers 1 Measurement Center/Activity Ideas
Uses of thermometers Kinds of thermometers (food, candy, body temperature)	Solve more than and less than story problems Measurement review Match measuring tools to people who use them	2 Length/Height – Measure each other, order shortest to longest, order by hair length
Temperature Scene Picture Cards (Identify Scene and Changes in Temperature, and Categorize)	Groups determine measuring tool needed and explain why	3 Capacity – Predict capacity of a variety of containers
		4 Weight – Weigh objects on different scales and compare, categorize items as heavier and lighter
		5 Summative Assessment: Overview of measurement – explain how measuring tools are used

Magic Math Moment

Counting By Fives

Materials
- ☐ Pointer

Say: **Today let's count by fives. What strategy can we use to help us?** (Volunteers respond.) **Right, we can use the Number Line to help us count by fives.** Begin at negative 5 and use a pointer to indicate the numbers on the Number Line as you and the children count by fives to 50.

Counting & Cardinality

CC.4 - Count to 100 by twos and by fi ves.

Measurement & Data

B.3 - Classify, count, and sort objects.

MD.4b - Identify a thermometer and its use.

Thermometers

Essential Question: *How do you identify a thermometer and its use?*

Materials
- ☐ Sentence strip: *How hot or cold is it?*
- ☐ *Thermometers* by Stephen Schutz
- ☐ Measuring Tools Cards
- ☐ Pocket chart
- ☐ Cup of ice
- ☐ Cup of room temperature to warm water
- ☐ *Backpack Bear's Math Workbook #2,* page 43
- ☐ Scissors, glue, pencils, crayons
- ☐ Thermometers Picture Cards

1 Introduce *Thermometers*

Say: **We have learned to measure how tall or long things are, how much things weigh, and how much things will hold. Today let's learn ways to measure how cold or hot things are.**

Read the sentence strip: *How hot or cold is it?* and place it in a pocket chart.

How hot or cold is it?

Indicate *Thermometers* by Stephen Schutz. Explain that this book is a nonfiction, or true, book that teaches about a tool used to measure temperature. The tool is called a thermometer.

Read *Thermometers*. Pause to discuss pages 22 and 23 to explain how thermometers work.

Explain: **A thermometer is a measuring tool used to measure temperature. There is a special liquid inside a thermometer. When it is hotter outside, the liquid in the thermometer goes up. When it is cooler, the liquid goes down.**

Ask: **What can we measure using a thermometer?** (Volunteers respond.) **Right, we can measure the air around us, we can measure our body temperatures when we are sick, and we can measure the oven when we cook.**

Indicate each Measuring Tools Card and discuss their uses.

2 Hot and Cold

Introduce a cup of ice and a cup of warm water.

Ask: **Which cup is colder, or has a lower temperature?** Provide an opportunity for the children to feel the difference in the temperatures of the cups.

Draw 2 columns on the whiteboard and label one column "hot" and the other column "cold."

Ask: **Does chicken noodle soup belong in the hot column or the cold column? To which column does ice cream belong?**

Volunteers suggest additional items to add to the list. Suggestions include: hot chocolate, French fries, yogurt, and pizza.

3 Categorizing Picture Cards

Display the Thermometer Picture Cards in a pocket chart. Discuss how each tool measures temperature. Remove the Picture Cards and mix them together with the other Measuring Tools Cards.

Display all of the Measuring Tools Cards and Thermometer Picture Cards face down in a pocket chart.

Say: **Let's play a game. Here are pictures of all the tools we use to measure. Let's see if we can find the pictures of the tools that measure temperature.**

A volunteer reveals a Picture Card. The class gives a thumbs-up if it can be used to measure temperature, or a thumbs-down if it can't. The volunteer chooses the next volunteer and play continues until all of the Picture Cards have been revealed.

Optional: Use all of the Thermometer Picture Cards and as many or as few of the other Measuring Tools Cards as you would like. It is not necessary to use all of the Measuring Tools Cards.

Formative Assessment

Classify Hot or Cold

Distribute *Backpack Bear's Math Workbook #2* and instruct the children to turn to page 43. The children will cut out the pictures of objects and glue them in the appropriate columns.

When they have finished, discuss which objects they classified as hot and which ones they classified as cold.

Magic Math Moment

How Many to Make Ten?

Materials
- ☐ Classroom ten-frame
- ☐ Red and blue magnets

Display a Classroom ten-frame on a whiteboard with 6 red magnets on it.

Ask: **How many blue magnets should we add in order to have a total of 10?** (Volunteers respond.) **Right, 4. Let's try it to see if we are correct.** Choose a volunteer to add blue magnets as the class counts. Another volunteer writes the equation that represents the ten-frame (6+4=10).

Remove the magnets and place 3 red magnets in the ten-frame.

Ask: **How many blue magnets should we add in order to have a total of 10?** Volunteers respond. Choose a volunteer to add blue magnets as the class counts. Another volunteer writes the equation that represents the ten-frame (3+7=10).

Repeat with other combinations of 10.

Counting & Cardinality

B.4a - Say number names in order, pairing each object with one number.

Operations & Algebraic Thinking

A.3 - Decompose numbers less than 11.

Measurement & Data

MD.4b - Identify a thermometer and its use.

Temperature and Seasons

Materials
- ☐ *Thermometers* by Steven Schutz
- ☐ Four large Seasons Picture Cards
- ☐ Large thermometer
- ☐ Circle magnet
- ☐ Thermometer Picture Cards

1 Review *Thermometers*

Review *Thermometers* by having the children identify each time they see a thermometer as you page through the book. Discuss the type of temperature each thermometer measures; air temperature, body temperature, food temperature, etc.

Say: **One kind of thermometer in this book measures air temperature. Air temperature doesn't stay the same all the time. It changes, and that's what causes the four seasons.**

2 Temperatures in Different Seasons

Display the Season Picture Cards on a whiteboard. As you ask the following questions, write the children's responses under the corresponding Picture Card.

Ask:

- **What does the temperature feel like in the fall?**
- **What kind of clothes might you wear in the fall?**

Repeat for winter, spring, and summer.

3 Reading a Thermometer

Indicate the large thermometer displayed on a whiteboard.

Say: **When it gets warmer the temperature goes up.** Illustrate this by moving the magnet to the top of the thermometer.

Say: **When it gets colder the temperature goes down.** Illustrate this by moving the magnet to the bottom of the thermometer.

Say: **Temperature changes during different times of day, too. Would the temperature be higher at lunchtime or bedtime? Why?**

Formative Assessment

What's the Temperature?

Divide the class into groups of 3. Distribute a Thermometer Picture Card to each group. Explain that each Picture Card has a scene and a thermometer displaying the temperature. The groups discuss what is happening in the pictures and what the temperatures are.

Give a signal to end the discussion. Each group:

- Presents its Picture Card to the class and explains what is happening.
- Reports the temperature.
- Moves the magnet to the corresponding temperature on the thermometer.

Collect the Thermometer Picture Cards as each group presents.

Line up the Thermometer Picture Cards in random order in a pocket chart. The children help sequence the cards from coldest to hottest.

Magic Math Moment

Thermometer "I Spy"

Materials
- ☐ Large thermometer

Indicate the large thermometer. Say: **Let's play thermometer "I Spy." Ready? I spy 40.** A volunteer points to the 40 on either side of the thermometer.

Repeat for several other numbers including negative 10 and negative 20.

Counting & Cardinality

CC.1 - Identify numerals out of sequence.

Measurement & Data

MD.4b - Identify a thermometer and its use.

Using Thermometers

Materials
- ☐ *Thermometers* by Stephen Schutz
- ☐ Temperature Scene Cards
- ☐ Bag or basket
- ☐ Large thermometer
- ☐ Dot magnet
- ☐ Pocket chart
- ☐ Word Cards: *Body Temperature, Outdoor Temperature, Food Temperature*

1 Uses of Thermometers

Say: **When we cook certain foods like ham or turkey, we need a cooking thermometer to tell when the food is cooked, or hot enough and safe to eat. What are some foods we need to cook to a hot temperature before we eat them?**

Refer to *Thermometers* page 19.

Choose a volunteer to move the dot magnet on the large thermometer to show what the thermometer would read for hot foods.

Say: **We use thermometers when we make candy, too. Most candy starts out as liquid and cools to a temperature that determines how solid the candy will be when it is done.** Give examples. (chocolate bars, caramels, fudge, hard candy)

Continue: **A thermometer also tells how cold things are. Many foods need to be kept cold in order to be safe to eat. That is why we keep foods in the refrigerator and freezer. What are some of those foods?**

2 Finding the Temperature

Choose a volunteer to move the dot on the thermometer to represent the thermometer reading for cold foods and then for frozen foods.

Ask: **What would happen to the temperature of ice cream if we did not keep it in the freezer?** A volunteer moves the dot on the thermometer.

Continue: **How do you think the ice cream would look if that happened? Right, it would melt!**

Refer to *Thermometers* page 15. Ask: **Can you think of a time when you have seen a thermometer like these?**

Explain: **This kind of thermometer can tell how hot or cold your body is. When you go to the doctor, the nurse might take your temperature. Or when you are sick, a grown up can take your temperature. When your temperature is over 98.6 it means that you have a fever and you might be sick.**

Display the large thermometer on the whiteboard.

Formative Assessment

Temperature Scenes

Say: **Let's play a game.**

Place the Temperature Scene Cards (iceberg, desert, 2 people at window, 2 boys in water, boy in boat) in a bag or basket.

Select volunteers to choose Temperature Scene Cards. The volunteers:

- Identify the scene and decide approximately what temperature it might be.
- Move the dot magnet up or down the thermometer to correspond to the change in temperature.

Note: ALL of the Temperature Scene Cards will be used for this activity.

Place the Word Cards: *Body Temperature, Outdoor Temperature,* and *Food Temperature* in the pocket chart, creating column headings.

Indicate each Temperature Scene Card individually. Volunteers place the cards in the correct columns and explain their choices.

Magic Math Moment

More Than/Less Than Riddles

Materials
- ☐ None

Say: **Listen to these riddles then raise your hand if you know the answer.** Select a volunteer to answer each riddle and the class confirms. Volunteers may draw pictures on the whiteboard to solve the problems or check their answers.

- **A friend had 5 apples. She lost one apple on her way home. How many is 1 apple less than 5 apples?**
- **It's Ben's birthday and he got 7 presents. Then a friend came and gave Ben one more present. How many is one more present than 7 presents?**
- **Jill had 10 cans of food. She gave one of the cans of food away. What is one can less than 10 cans of food?**
- **Backpack Bear put 8 pennies in his honey jar. His mom gave him one more penny to add to his honey jar. What is one more penny than 8 pennies?**

Operations & Algebraic Thinking

A.2 - Solve word problems with addition and subtraction within 10.

Measurement & Data

A.1 - Describe measurable attributes of objects.

MD.1 - Identify and use time measurement tools.

MD.4b - Identify a thermometer and its use.

Measurement Review

Materials
- ☐ Pocket chart
- ☐ Measuring Tools Cards
- ☐ People Who Measure Cards
- ☐ Measurement Sentence Strips

Essential Question: *How can we use measurement to describe and compare objects?*

1 Review People Who Measure

Say: **We have learned about tools we use to measure. Today let's talk about the people who use those tools.**

Display the People Who Measure Cards in a pocket chart.

Say: **These people must know how to measure to do their jobs. Look closely at the pictures. We see…**

- **Someone who sews and makes clothes**
- **A construction worker building something**
- **A man weighing a box to get it ready to mail**
- **A doctor weighing a baby**
- **A man packing things inside a box**
- **A coach timing some runners**
- **A little girl waking up for school**
- **A mom taking her children's temperatures**

- **A meteorologist telling us what kind of weather we will have**
- **A dad cooking with his children**

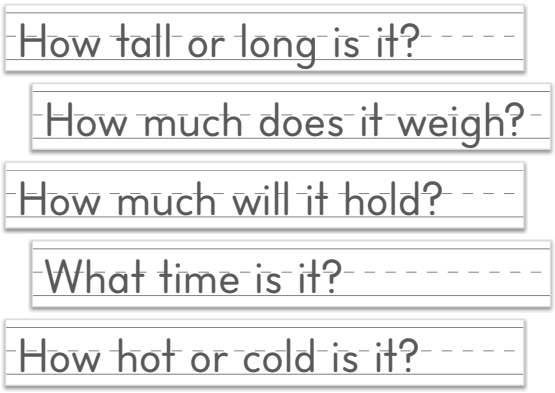
Continue: **I wonder which measuring tools these people need to do their jobs?**
Discuss which measuring tool each person would use.

2 Sentence Strip Activity

Display the 5 Measurement Sentence Strips.

Ask: **Do the people need to know…**

- **how tall or long something is?**
- **how much something weighs?**
- **how much something will hold?**
- **what time it is?**
- **how cold or hot something is?**



Formative Assessment

Which Measuring Tool?

Divide the class into 10 groups and distribute a People Who Measure Card to each group. The children discuss what is happening in the picture. They tell which measuring tools might be needed and explain why.

Gather the children together around the pocket chart.

Randomly place all the Measuring Tools Cards in the pocket chart.

Each group explains its Picture Card to the class. They choose the Measuring Tools Card that depicts the tools the person might use.

Learning Centers

Measurement & Data

A.1 - Describe measurable attributes of objects.

MD.1 - Identify and use time measurement tools.

1 Measurement Center Activity Ideas

Materials
- ☐ Computers navigated to *Starfall.com*

Rather than creating the traditional learning centers for **Day 5**, you will find a list of activities and centers you may incorporate to review the Measurement Unit.

2 Length/Height

Materials
- ☐ Yarn
- ☐ Index card
- ☐ Pencil
- ☐ Scissors
- ☐ Tape

- The children measure each other from head to toe using yarn as the nonstandard form of measurement. They label index cards with their partner's names. The children use tape to attach the index cards to the pieces of yarn.

  When the children have completed this activity, lay out the yarn pieces side-by-side on the floor. The children help order them from shortest to longest.

  If possible, hang the yarn pieces from the ceiling or display them on a bulletin board.

- Discuss the children's hair length. Select several volunteers to stand in the front of the classroom. Another volunteer arranges the children in order from the shortest hair to the longest hair. If two children have the same hair length, they stand together. Repeat as time allows.

3 Capacity

Materials
- ☐ Containers of different materials (rice, pasta, beans, etc.)
- ☐ Funnel
- ☐ Empty tubs
- ☐ Containers of different sizes
- ☐ Sticky notes

Note: Consider setting up several different centers using a variety of containers.

The children make predictions about how many containers of a chosen material will fill a specific container. They write their predictions on sticky notes. The children work together to fill the container then compare the actual number of containers of materials to their predictions.

The children experiment, pouring and measuring different items using a variety of containers.

4 Weight

- The children weigh different items in a variety of ways. For example, if you have a food scale or bathroom scale, the children choose an item to weigh. They weigh it on the food scale or bathroom scale and record the number. They weigh the same item on a balance scale using cubes, and compare the two numbers.
- The children lay out the Word Cards heavier and lighter. They choose two items to hold in their hands then determine which item is heavier or lighter and place it under the correct heading. Encourage the children to take several items from one column and weigh them again to see which of the 2 heavier items is the heaviest.

Materials

- ☐ Different weighing tools such as a pan balance and scales
- ☐ Items to weigh
- ☐ Cubes
- ☐ Collection of classrooms items
- ☐ Word Cards: heavier, lighter

5 Overview of All Measurement

Place all of the Measuring Tools Cards face down in a deck. The first child spins, but before he or she can move his or her playing piece, the player reveals a card and tells how that measuring tool is used to measure. (Example: That would measure how much something weighs.)

Observe the children and record your observations on the Summative Assessment Checklist for Unit 13, Week 31.

Materials

- ☐ "A Walk in the Park" Game Board
- ☐ Measuring Tools Cards
- ☐ Spinner with numbers
- ☐ Playing pieces
- ☐ Summative Assessment Checklist for Unit 13, Week 31