

Bailey Education Group

2nd Grade MATH

Unit 12: Estimating and Comparing Lengths

Days in Unit: 10

Envision Math Alignment:

2.MD.3: Topic 15 – Lessons 2, 3, 4, 5, and 9

2.MD.4: Topic 15 – Lesson 8

Unit Summary:

In this unit students apply their multiple experiences with measurement to estimate lengths. This unit is near the end of the school year because students need repeated experience with measuring with standard units before they can effectively estimate lengths.

Focus Standards and *Specific Guidance for this Unit (*The MCCR Standard is listed along with specific guidance on what part of the standard to teach in this unit*)

Measurement and Data - 2.MD

A. Measure and estimate lengths in standard units.

2.MD.3. Estimate lengths using units of inches, feet, centimeters, and meters.

2.MD.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

LEARNING OUTCOMES:

- Estimate length measurements for inches, feet, centimeters, and meters
- Measure two objects and compare differences

LEARNING TARGETS:

- 2. MD.3.1 Identify different units of measurements (inches, centimeters, etc.)
- 2. MD.3.2 Give examples of objects that relate to the size of the unit. (inches, centimeters, feet, meters)
- 2. MD.3.3 Estimate lengths using units of inches, feet, centimeters, and meters.
- 2. MD.4.1 Select the appropriate tool to measure the length of as object.
- 2. MD.4.2 Correctly use the tool to measure the length of two objects.
- 2. MD.4.3 Compare the lengths of two objects in terms of standard length units.
- 2. MD.4.4 Find the difference of the two lengths in terms of standard length units.

Unit Vocabulary:

- | | | |
|-----------------------|--------------------|----------------|
| • Measure | • Feet | • Object |
| • Unit of measurement | • Yard | • Difference |
| • Estimate | • Centimeter | • Meter |
| • Length | • Appropriate Tool | • Inches |
| • Standard Unit | • Strategies | • Compare |
| | • Comparison | • Mental Ruler |

Essential Questions:

- What is the purpose of estimating lengths and when is it appropriate?
- What strategy can I use to estimate lengths of units and how can we tell if an estimate is reasonable?
- How would I select a tool to accurately measure two objects and then determine which one is longer or shorter?
- What is the best strategy for finding the difference in two or more lengths?

ONLINE INSTRUCTIONAL VIDEOS:

Measuring with standard units:

<https://www.youtube.com/watch?v=VzW2sdCe228>

Measurement of length:

<https://www.youtube.com/watch?v=WhKa8o7ws58>

Estimating length:

<https://www.youtube.com/watch?v=ki4ulxahYNE&t=67s>

Measurement Songs:

<https://www.youtube.com/watch?v=MMsQYjYIBEO>

<https://www.youtube.com/watch?v=P9sYvDCnl0g>

INTERACTIVE SMARTBOARD ACTIVITIES:

(Use to introduce lessons daily and/or for technology centers)

Note: The students can take turns answering the questions and the teacher can also allow the student to maneuver the mouse and actually host the game.

Appropriate Measuring Tool:

<https://www.ixl.com/math/grade-2/choose-the-appropriate-measuring-tool>

How Tall?

<http://pbskids.org/curiousgeorge/games/noflash.html>

2nd grade 2MD3 Measurement games:

<http://mrnussbaum.com/second-grade-measurement-and-data/>

http://www.internet4classrooms.com/common_core/estimate_lengths_using_units_inches_feet_measurement_data_second_2nd_grade_math_mathematics.htm

2nd grade 2MD4 Measurement games:

<http://mrnussbaum.com/second-grade-measurement-and-data/>

http://www.internet4classrooms.com/common_core/measure_determine_how_much_longer_one_measurement_data_second_2nd_grade_math_mathematics.htm

Measurement Tic Tac Toe:

<http://www.fuelthebrain.com/printables/measurement-tic-tac-toe/>

2nd grade Measurement games:

<http://www.abcya.com/measuring.htm>

WHOLE GROUP ACTIVITIES:

(Instructional strategies, guided practice, independent practice)

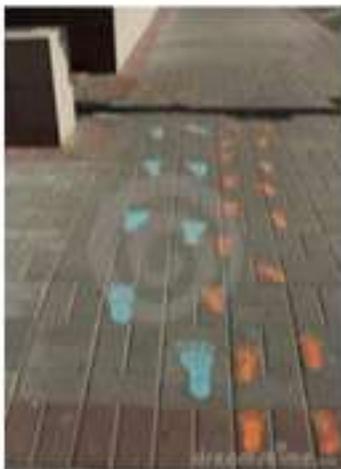
Footprints-

Materials Needed:

Footprint picture, student handout

<https://www.georgiastandards.org/Georgia-Standards/Frameworks/2nd-Math-Unit-3.pdf>

Individual or partner task:



In this task, students will be shown a picture of two sets of footprints. Each set of footprints travel the same distance, but are different lengths. The main purpose of this task is to get students to think about and discuss why it may take one person 5 steps to get somewhere and another person 10 steps. Once students can understand that different sized strides would take different amounts of steps, they can transition into comparing different units.

Notes: Students need multiple opportunities to measure using different units of measure. They should not be limited to measuring within the same standard unit. Students should have access to tools, both U.S. Customary and metric. The more students work with a specific unit of measure, the better they become at choosing the appropriate tool when measuring. Students measure the length of the same object using different tools (ruler with inches, ruler with centimeters, a yardstick, or meter stick). This will help students learn which tool is more appropriate for measuring a given object. They describe the relationship between the size of the measurement unit and the number of units needed to measure something. For instance, a student might say, "The longer the unit, the fewer I need." Multiple opportunities to explore provide the foundation for relating metric units to customary units, as well as relating within customary (inches to feet to yards) and within metric (centimeters to meters).

Example: A student measured the length of a desk in both feet and centimeters. She found that the desk was 3 feet long. She also found out that it was 36 inches long.

Note to Teachers: This standard is not asking for conversion between units. The purpose of the standard is to get students to recognize that it will take more of a smaller unit (centimeters) to measure a length than it will of a larger unit (inch).

Part 1 Directions: Show picture of footprints to students.

- Ask students what they noticed in the picture. The teacher records this information.
- Ask students what they wonder about and what questions they have about what they saw.

Students should share with each other first, and then the teacher records these questions (think-pair-share). The teacher may need to guide students so that the questions generated are math-related.

- Ask students to estimate answers to their questions (think-pair-share). Students will write their best estimate, then write two more estimates – one that is too low and one that is too high so that they establish a range in which the solution should occur.

Anticipated questions students may ask and wish to answer:

- How many big footprints are there?
- How many little footprints are there?
- How long is the big footprint?*
- How long is the little footprint? *
- Why are there more little footprints? *
- Why are there less big footprints? *

*Main question(s) to be investigated

Additional Information for Part 2:

- There are 10 blue (big) footprints
- There are 28 orange (little) footprints
- The little footprints are half the size of the big footprints.
- The big footprint is 10 inches long and 5 inches wide.
- The little footprint is 5 inches long and 2 1/2 inches wide.

Part 3 – Whole Group – Share solutions and strategies.

- Students to present their solutions and strategies and compare them.
- Reveal the solution.
- Lead discussion to compare these, asking questions such as:
- How reasonable was your estimate?
- Which strategy was most efficient?
- Can you think of another method that might have worked? ○ What might you do differently next time?

Math in Literature; *Measuring Marvels*-

Materials Needed:

Book – *Measuring Marvels*, and worksheet

https://www.scholastic.com/content/dam/teachers/lesson-plans/migrated-featured-files/bookfairs_currconnection_downloads_cc_millions_measure.pdf

Read the book and then use these questions to measure your students understanding of measurement from the book.

- What was first used to measure distance? Why did using a person's foot not work well for measuring distance?
- What was one of the first ways to measure weight? Why did stones create a problem when measuring the weight of an object?

Review with students different units of measurement and what they are each used to measure:

- Inches, feet, yards, miles — Used to measure distance
- Ounces, pounds, tons — Used to measure weight
- Fluid ounces, cups, pints, quarts, gallons — Used to measure volume
- Have students come up with items that could be measured with each of the different units of measure above.
- If your focus is the metric system, review the metric units of measurement:
Meter, millimeter, centimeter, decimeter — Used to measure distance
Liter, milliliter — Used to measure volume
Gram, milligram, kilogram — Used to measure weight
- Discuss with your students the importance of a common system of measurement within a culture. What are the benefits and drawbacks of a world-wide

About One Unit-

Materials Needed:

Pieces of rope 1 meter long for each student

Give students a model of a standard unit, and have them search for things that measure about the same as that one unit. For example, to develop familiarity with the meter, give students a piece of rope 1 meter long. Have them make lists of things that are about 1 meter. Keep separate lists for things that are a little less (or more) or twice as long (or half as long). Encourage students to find familiar items in their daily lives. In the case of lengths, be sure to include circular lengths. Later, students can try to predict if a given object is more than, less than, or close to 1 meter.

Note: you can repeat the activity with a yard or foot length

Model and Work Together-

Materials Needed:

Resource https://betterlesson.com/lesson/resource/2468043/proposed-question-docx?from=lessonsection_narrative

Practice:

The goal of this activity is to have students to look at the length of an object and estimate how long it is before actually measuring it. I ask them to look at their ruler to see how long an inch is before making and estimate. After that, I hold up a pencil. I ask student to guess how many inches it is. Some students guess with out considering the reasonableness of their answers. I measure the the pencil, and ask students to compare it to what they estimated to see if their given estimation was reasonable. I do this a couple of more times, just to make sure students have a good idea of how estimation works.

I post the following question on the board.

Question:

Marcy moved her desk 7 inches to the right on Monday. She moved her desk 5 more inches to the right on Wednesday.

I ask several volunteers to choose an object in the room that was about 7 or 5 inches. This allows them to keep estimating, even though, I am moving towards a more complex skill.

Which number line shows how many inches Marcy moved her desk in all?

Students response:

Together, Jake and Walter jumped 54 inches.

Find the number line that shows a move of 7 to the right. Only X and Z show a move of 7 to the right.

Now, find the number line that shows a move of 5 to the right. Only Z shows this move.

So, the number line labeled Z shows how many inches Marcy moved her desk in all. Then we discuss how to determine the length of the red line, first figure out the endpoint values. The left endpoint on the red line is 40. The right endpoint on the red line is 50.

Subtract the smaller number from the larger number to find the distance.

$$50 - 40 = 10$$

(Review in the same format until a level of understanding is reached before moving to the independent section.) Use the additional practice and explanation sheet to see additional problems. Additional Practice Length Problems.docx

Measurement Hunt-

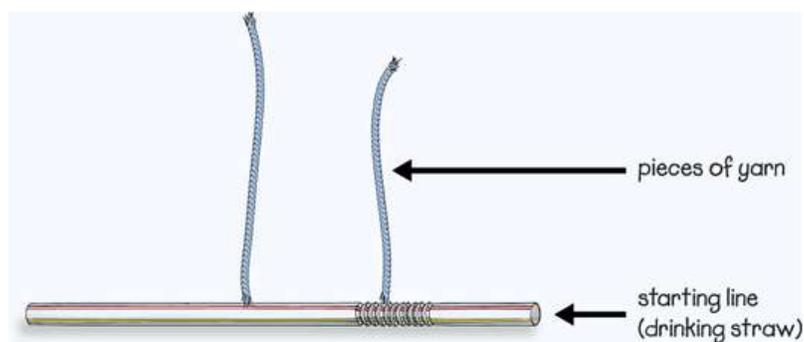
Materials Needed:

Pieces of yarn for each student of different lengths. Foot, inch, yard, etc.

Activity sheet: <http://illuminations.nctm.org/uploadedFiles/Content/Lessons/Resources/preK-2/MeasurementHunt-AS.pdf>

Go on an exciting measurement hunt around the classroom in search of items that are longer than, shorter than, and the same size as their piece of yarn. Pairs of students compare the length of their piece of yarn to objects around the classroom. They find and record at least one object that is longer than, one that is shorter than, and one that is the same size as their piece of yarn.

Begin the lesson by holding up 2 pieces of yarn of different lengths. Ask students to identify which one is longer. Once a student has chosen, ask him or her to prove it. This may be hard for students to explain. After the student (or several students) makes an attempt at proving the answer, show the entire class how to prove it. Tell the students that you brought your "starting line" (a drinking straw), which you will use to figure out which is longer. Explain that you must put one end of each piece of yarn at the starting line. Demonstrate by putting the starting line on the floor, and then putting one end of each piece of yarn at the starting line. Explain that this will give each piece of yarn "a fair chance at being the longest." The piece of yarn that extends past the other one is the longest.



Now hold up 2 pieces of yarn and ask students to identify which one is shorter than the other. When a student has chosen, ask him or her to prove it. This time have the student use the starting line to show which one is shorter.

Do the exercise a third time, now using 2 pieces of yarn that are the same size.

Repeat these comparisons using 1 piece of yarn and various objects around the room until you feel that students are comfortable comparing the length of the yarn to the object. For example, you may hold up the piece of yarn next to a garbage can and compare which is longer, and then hold the yarn next to the leg of a table and do the same thing.

To begin the main activity, tell students that they are going to get their own piece of yarn and their own starting line, because they are going on a measurement hunt. Show students the piece of yarn they will be getting, and explain that they will go around the room with a partner and find something that is longer than, shorter than, and the same size as their yarn. Students should work in pairs because at times they need more than 1 set of hands to measure different objects. Tell them that once they have used their starting line to find

something that is longer than, shorter than, and the same size as their piece of yarn, they will draw each object in the appropriate box on the Measurement Hunt Activity Sheet.

Select a student to help you model how to use the piece of yarn to measure an object while on the hunt. Begin by going around the room and holding the yarn next to different objects while your partner student holds the starting line. Make sure that the endpoint of the object and of the piece of yarn are touching the starting line. Have students state whether each item is longer than, shorter than, or the same size as the piece of yarn. Then model how to draw that object on the activity sheet.

Give each pair of students an activity sheet, a piece of yarn (every pair gets the same length of yarn), and a drinking straw for the starting line. Allow them to go around the classroom on their measurement hunt.

To end the lesson, have students go back to their desks with their partner. Then combine the pairs to form groups of 4, and have the 2 pairs share their activity sheet and talk about what they found on their hunt. As students are sharing, walk around the room and listen to what they are saying. If students need encouragement, ask questions such as these:

- How do you know that your yarn is shorter than, longer than, or the same length as a specific object that you measured? Explain.
- How can you tell if one object is longer than, shorter than, or the same length as another one? Explain your thinking.
- What did you learn about length by going on a measurement hunt?

After the pairs have shared what they learned, collect the activity sheets and randomly select a few to share with the entire class.

Rod Towers-

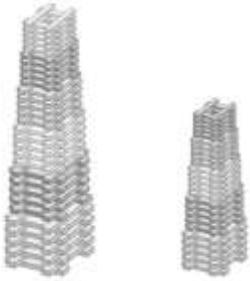
Materials Needed:

Cuisenaire rods, blocks or counting cubes (something they can build a tower with)

http://www.mathsolutions.com/documents/978-0-941355-79-7_L.pdf

- Prior to this lesson, provide a session for the children to explore the Cuisenaire rods or blocks. Once children are comfortably acquainted with the materials, ask them to describe what they notice. Discuss the variations among the materials and focus on similarities and differences to develop mathematical vocabulary.
- Begin *Rod Towers* by explaining that tall buildings in cities are called *skyscrapers*. Ask the children why that name might have become popular. Explain that tall buildings are found mostly in cities because people build upward when land is scarce. Ask the children to tell about tall buildings that they have seen. Ask them to describe some of the things that might be involved in constructing a tall building.
- Explain to the students that they are going to work with a partner to build a tower and then measure its height. Show the children how to position the Cuisenaire rods: beginning with the two longest rods and placing them parallel to one another, then stacking the next two in the opposite direction, and continuing upward, eventually decreasing in size as they go. Discuss the kind of cooperation it will take to work together to build a tower. Have several

children share ideas about fair teamwork. When the expectations have been established, describe the procedures for distributing the materials.



- Organize the class into partners. Let the children know how much work time they will have by using a timer or by establishing a stopping point on a clock in the room. Explain that when it is time to stop building, you will give a signal, and each pair will decide how to measure their tower. Show the children the variety of measurement tools that they may choose from.
- After the children have had a reasonable amount of time (about fifteen minutes) to build, stop the class and ask students to describe how tall their buildings are. Some of the children may use their bodies to make a direct comparison by standing next to the tower, holding their hands up to the top of the tower, and saying, "It's up to my stomach!" Ask the children if they think any of the towers are the same height and discuss ways that students might determine the answer without moving the towers.
- Next, have partners decide on a measuring tool, measure their tower, and then, when everyone is ready, report back to the class about the height of their structure. Most likely, you will hear comments like "This is how far our tower comes up on the meter stick," "Our tower was twenty-six cubes tall," and "Our tower was thirty-one blocks high." Discuss the various measurement methods the children used.
- Have children, either alone or in pairs, draw their tower and label it with its height. Save these illustrations so that the children can compare the heights from this lesson with those of towers they build in the future.

Extensions:

Have children build two towers of the same height out of different materials.

Have children create a tower and then build another that is twice the height or half the height of the original.

Challenge the children to build an inverted tower, with the smallest blocks on bottom.

Have children create drawings of tall buildings and describe their relative heights.

Estimation Measurements-

Materials Needed:

Resource <https://www.thoughtco.com/estimation-lesson-plan-2312855>

Rulers, meter sticks, chart paper

Preparation: Bring in differently sized shoes (you may borrow a shoe or two from a colleague for the purposes of this introduction if you wish!) and ask students which they think will fit your

foot. You can try them on for humor's sake, or tell them that they are going to be estimating in class today - whose shoe is whose? This introduction can also be done with any other article of clothing, obviously.

- Have students select 10 ordinary classroom or playground objects for the class to measure. Write these objects on the chart paper or on the board. Make sure to leave plenty of space after the name of each object, because you will be recording the information the students give you.
- Begin by modeling and thinking aloud how to estimate by using the ruler and meter stick. Choose one object and discuss with students - is this going to be longer than the ruler? Much longer? Would this be closer to two rulers? Or is it shorter? As you think aloud, have them suggest answers to your questions.
- Record your estimation, then have students check your answer. This is a good time to remind them about estimation, and how getting close to the exact answer is our goal. We do not need to be "right" every single time. What we want is an approximation, not the real answer. Estimation is something they'll be using in their daily lives (at the grocery store, etc.) so do highlight the importance of this skill to them.
- Have a student model an estimation of the second object. For this part of the lesson, choose a student who you think may be able to think aloud in a way similar to your modeling in the previous step. Lead them to describe how they got their answer to the class. After they have finished, write the estimate on the board and have another student or two check their answer for appropriateness.
- In pairs or small groups, students should finish estimating the chart of objects. Record their answers on chart paper.
- Discuss the estimates to see if they are appropriate. These don't need to be correct, they just need to make sense. (For example, 100 meters isn't an appropriate estimate for the length of their pencil.)
- Then have students measure their classroom objects and see how close they came to their estimates.
- In closing, discuss with the class when they might need to use estimation in their lives. Make sure to tell them when you make estimates in your personal and professional life.

Measuring Me:

Materials Needed:

p.48-50 https://learnzillion.com/lesson_plans/6984-find-the-difference-in-the-length-of-two-objects-using-addition#lesson

- Book - *Jim and the Beanstalk* by Raymond Briggs
- Ruler with centimeters on it
- Paper
- Black line master for measurements

Advance Preparation:

Students will need to have had multiple experiences of measuring things before starting this task. They may get frustrated easily if they have not had these multiple experiences. Students should be able to use benchmark measurements to help them estimate when measuring. If when students are measuring and it is not on the exact cm they should use the closest number.

Directions:

1. The teacher will start the lesson reading Jim and the Beanstalk. In this book Jim measures the giant's glasses, a wig, and false teeth for the giant. Have students brainstorm things we measure in the real world. Ask students what are some of the benchmarks of measurement that they use to help them with their estimates in measuring an object.
2. Students are going to estimate how many centimeters they think their face, nose, eyes, ears, mouth, (in width and length), hair and the distance from their nose to their ear, distance from their nose to eye, distance from their eye to forehead, distance from nose to mouth will equal when they measure. Teachers will need to teach the concept of length as how long an object or item is when measured, and width is how wide something is when measured. They will record this on the student black line master.
3. After students have estimated, they will get their paper and draw their estimates to make their face with their facial features. Some students may have a hard time drawing their face. They may draw lines with their rulers instead of making dots at the beginning of their measurement and at the end of the measurement and make their face into a square. Another issue that may arrive is that their eyes are off their face. This is ok because students get a kick out of what their faces look like with their estimates. Teacher monitors students to make sure they are using their cm ruler correctly. If a student is getting frustrated ask student questions that will help them get back on track. Such as, if I put my ruler here and not on this side will that help you measure the space accurately?
4. Students measure all of their facial features and write them on the student black line master. Students draw their face with their actual measurements.
5. Have students get into small groups and compare and discuss their estimate drawings and their actual drawings. Students should use vocabulary such as about, a little less than, a little more than etc...
6. Display student drawings side by side somewhere in the room.

Questions to Pose Before:

What are some items that we measure in everyday life?

Why is important to be able measure an item or object?

When would you use measurement estimation in real life?

What are some of the benchmark measurements do you to help your estimate when measuring?

During:

Does your nose length measure more or less than the width of your nose? (Use any of the other measurements to compare) Show me how you measure the length of your face? (Or any other facial parts you measured.)

After:

If you had to estimate your facial parts again what would you estimate differently? What other objects could we estimate and then draw?

Special Notes:

It is important to use measurement benchmarks such as, shoulder to finger tips is a yard, knuckle to knuckle is an inch, a fingertip is a centimeter. Always have students estimate a measurement prior to actually measuring the objects. Estimation helps students focus on the attribute being measured. When students estimate, they are curious to see how close their estimate is to the actual measurement. Use language that describes the estimate such as about, a little less than, a little more than. Estimating length helps students develop benchmarks for how long something is. This task may need to be completed over a 2 day period.

It's Lengthy:

Materials Needed:

p.51-54 https://learnzillion.com/lesson_plans/6984-find-the-difference-in-the-length-of-two-objects-using-addition#lesson

- Books (various sizes to measure)
- Measuring tapes with inch increments (rulers can be used if preferred)
- Twelve Snails and One Lizard by Susan Hightower
- Blackline Master, Math journals or blank paper for recording
- Measuring tapes or rulers should be collected
- Books need to be available

Copy the Blackline Master (p.54) if it is being used for recording

Advance Preparation:

Students need to know how to measure using a measuring tape (or ruler). This lesson should be taught after most students have an understanding of using a standard measurement tool.

Directions:

1. Read Twelve Snails and One Lizard to the whole class as a review of measuring in inches. Discuss the book with the class and give students measuring tapes as you talk about how to measure objects.
2. Ask students to put two books on their desk that are not the same length. They will be measuring the length of the book so make sure they understand the difference in the length and the width of the book.
3. In their math journal or on the blackline master, students will record the length of each book measured in inches. They will then write an equation to show which book is longer and how much longer it is than the other book. For example if one book is 8 inches long and one is 12 inches long they would write $12-8=4$ and record one book is 4 inches longer than the other.
4. Repeat this process with their arm and their partners arm by helping each other measure their arm and their partner's arm and then recording the difference in the length of the two arms using an equation.
5. Repeat by measuring your pencil and your partner's pencil. Since we are only using complete units, you may have to direct students to use the measurement closest to the unit. For example if the pencil is a little over 7 it would still be 7 but if it is closer to 8 then it would be recorded as 8.

6. It is very important that the teacher monitor partners as they measure to be sure they are being precise in their measurements. This is also a good time to be sure students can articulate how they found the difference in the measurement of the two objects. As the teacher monitors and has conversations with students it is a good time to clarify if students have made a connection between the number line and the tape measure.
7. Discuss with the class when you may need to measure two objects and compare them in the real world. Some examples would include if you are purchasing a desk and it has to be moved through a doorway then the desk would have to be measured and the doorway would have to be measured. The doorway would have to be longer than the desk. Students should be able to give other examples.

Questions to Pose Before:

How do we use a measuring tape?

What do we know about a measuring tape as a number line? What is important about where this number line begins?

During:

Which object is longer? How much longer? How do you know? How is the measurement tape like a number line?

How did you decide where to put the end of the measurement tape?

After:

Discuss the chart and ask when this would be useful?.

Have students write what they learned from this task in their math journal.

Can you draw a picture showing one of your measurement tasks? Be sure to include labels with your drawing.

Math in Literature: The Long and Short of it-

Materials Needed:

<http://www.mathsolutions.com/documents/LongandShort.pdf>

Math in Literature: Big and Little-

Materials Needed:

http://www.mathsolutions.com/documents/0-941355-61-6_L1.pdf

Comparing Measurements:

https://learnzillion.com/lesson_plans/6984-find-the-difference-in-the-length-of-two-objects-using-addition#lesson

Estimating Measurement Worksheets:

<http://www.commoncoresheets.com/SpecificLink.php?Path=Math/Measurement/Word%20Measurement%20Estimating>

Comparing measurements worksheets:

<http://www.commoncoresheets.com/SpecificLink.php?Path=Math/Measurement/Finding%20Difference%20in%20Two%20Lengths>

MINI LESSONS/CLOSURE ACTIVITIES

Guess the Unit-

Find examples of measurements of all types of newspapers, on signs, or in other everyday situations. Present the context and measures but without units. The task is to predict what units of measure were used. Have students discuss their choices.

Measurement Practice-

Students have been measuring using nonstandard units of measure. Begin by exploring the ruler (both centimeter and inch side). Ask the students how they are alike and how they are different. Put the students in pairs or groups and ask them to measure objects in the classroom. Record their object, estimate and measure on a sheet.

Give students opportunities to estimate the length of objects and then actually measure the objects. Give students a recording sheet and ask them to estimate and then measure objects in the classroom or at home. Ask students without using a ruler to draw a line segment about 5 inches. Then measure to the nearest inch. Talk about benchmarks. What do they use that is about an inch? The square tiles are about an inch and the width of a quarter is about an inch. Base ten blocks are good representations of centimeters. The side of the cube is a centimeter and the long or ten-block is equal to 10 cm.

Problem Solving-

What could we use a yard stick or meter stick to measure? Have students identify objects and explain why they selected those objects.

Ask the students to find objects in the classroom or home that measure about 6 inches or 10 centimeters. Explore inches then centimeters.

Have students web things that have a specific length. For example, the center of the web could be "5 inches." Students would have to find things (or brainstorm) things that are 5 inches and write them in their web. Kid Pix or other software could be used to complete the web. The internet could be used to gather images.

- What would you use a ruler to measure?
- What would you use a yard stick to measure?
- What in this room is longer than 1 foot but less than 2 feet?

Give students opportunities to first determine the most appropriate tool of measurement and then actually measure objects in real world settings.

Lesson Activity Based Closure

TTW use one of the activities provided to close out the lesson to make sure each student can talk about what they have learned today. It is important for the teacher to model a problem at the end of the lesson and let one students model the process to check for understanding.

Length Hunt-

Give pairs of students a strip of tagboard, a stick, a length of rope, or some other object with an obvious length dimension. The task on one day might be to find five things in the room that are shorter than, longer than, or about the same length as their object. They can draw pictures or write the names of the things they find.

By making the target length a standard unit (e.g., a meter stick or a 1-meter length of rope), the activity can be repeated to provide familiarity with important standard units.

Crooked Paths-

Make some crooked lines with yarn, tape or another material. Have students guess which path is longer. Then have students choose a measuring tool (i.e. ruler, yard stick, meter stick) and measure and record the paths. Then have students explain which path is longer and why. Students can also explain if the results surprised them or not.

40 Ways to Leave a Lesson-

<https://docs.google.com/file/d/0B-0npvl9xzTBMGs1SUUzeEN3RU0/edit>

SMALL GROUP/CENTER ACTIVITIES:

Sort by length-

Make a sorting-by-length station at which students sort objects as longer, shorter, or about the same as a specified object. It is easy to have several such stations in your room. The reference object can be changed occasionally to produce different sorts. A similar task is to put objects from shortest to longest

Estimating and Measuring-

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-3-centers-and-independent-practice>

Using Meters to Estimate-

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-3-centers-and-independent-practice>

Worm Measurements-

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-4-centers-and-independent-practice>

Using Cuisenaire Rods to Measure-

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-4-centers-and-independent-practice>

Wingspan Vs. Height-

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-4-centers-and-independent-practice>

Slide It-

<https://www.education.com/activity/article/let-it-slide/>

SUMMATIVE ASSESSMENT RESOURCES:

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-4-assessment-tasks>

<https://hcpss.instructure.com/courses/106/pages/2-dot-md-dot-a-3-assessment-tasks>

<http://standardstoolkit.k12.hi.us/common-core/mathematics/mathematics-assessments/mathematics-grade-2-assessments/>

https://www.orglib.com/2.nbt.4-worksheet-as-assessment-viewTestQuestions_0d1520c2bb_daac3f3d2154f46a5e76777e2dcbf35_226.html

<http://illuminations.nctm.org/Activity.aspx?id=3566>

FORMATIVE ASSESSMENT RESOURCES:

http://www.ehow.com/about_5419008_types-formative-assessment.html

<http://www.edutopia.org/resource/checking-understanding-download>

<http://wvde.state.wv.us/teach21/ExamplesofFormativeAssessment.html>

<http://www.sheppardsoftware.com/mathgames/placevalue/value.htm>

ADDITIONAL ONLINE RESOURCES (Bellwork):

Worksheets-

<http://www.k5learning.com/free-math-worksheets/second-grade-1>

<http://mathworksheetwizard.com/secondgrade-math.html>

<http://www.mathworksheets4kids.com/activities/2nd-grade.php>

<http://www.tlsbooks.com/secondgrademathworksheets.htm>

Skip counting printable poster for practice

<http://www.sparklebox.co.uk/3901-3910/sb3909.html#.Vbgu9SiyBsu>

Free printable number cards:

<http://www.activityvillage.co.uk/number-flash-cards-1-30>

Free printable ten frames:

<http://www.mathwire.com/templates/tenframemat.pdf>

Free printable dominoes:

<http://www.dltk-cards.com/dominos/>

Free printable spinners:

<http://cte.sfasu.edu/wp-content/uploads/2012/09/Templates-for-Spinners.pdf>

Free printable hundreds charts:

<https://www.superteacherworksheets.com/hundreds-chart.html>

Free printable coins and bills

<https://www.moneyinstructor.com/play.asp>

Virtual manipulatives can be found here:

<https://grade1commoncoremath.wikispaces.hcpss.org/file/view/Directions%20for%20Virtual%20Manipulatives%201.NBT.2.pdf/519489918/Directions%20for%20Virtual%20Manipulatives%201.NBT.2.pdf>

Practice for Math Fact Fluency Activities:

<http://www.interventioncentral.org/teacher-resources/math-work-sheet-generator>

http://www.abcya.com/math_facts_game.htm

<http://www.playkidsgames.com/games/mathfact/mathFact.htm>

<http://www.factmonster.com/math/flashcards.html>

<http://www.fun4thebrain.com/addition.html>

http://www.mathplayground.com/index_addition_subtraction.html

<http://www.math-drills.com/addition.shtml>

<http://mrshillsallstars.weebly.com/addition-without-regrouping.html>

<https://www.pinterest.com/janwray/double-digit-addition-subtraction/>

<http://www.theteachersguide.com/twodigitadditionworksheets.htm>

DIFFERENTIATING RESOURCES:

http://www.internet4classrooms.com/common_core

<http://www.k-5mathteachingresources.com>