General Information

Lesson Parts & Duration

Total Duration: 1 hour

- Measurements Around the Room: Using Whole, Half, and Quarter Inches

Subject(s)

- Measurement & Data: Whole Inches, Half Inches, Quarter Inches, Making Predictions, and Gathering Data (3.MD.B.4)

Objectives

- Students will gather and record measurement data using whole, half, and quarter inches.

Materials

- blank paper
- ruler –or- use printable "Student Ruler" (page 7)
- box of crayons
- objects to be measured around the room
- pencil
- document camera or whiteboard
- **Optional:** printable "Break Up Your Day" brain/movement break ideas (page 8)

Instructional Setting

- Students should be seated with or near another student for partner work.

Throughout this lesson, you will find:

- ***Scripted Text*** indicates things that need to be said directly. Bullets starting with a **"T"** followed by *italicized type* indicate scripted text
- **Clarifiers** within scripted text are in orange
- **Teacher Directions** indicate things you should be doing
- **Side notes** provide helpful hints, ELL strategies, differentiation and information
- **Break Up Your Day** (Brain/Movement Breaks) are in green boxes (at the end)

Remember!

Quality over quantity. All components do not have to be accomplished; lessons may be ended at any time and resumed later.

Instructional Plan: 40 minutes

Make sure students have either a ruler or a copy of the printable "Student Ruler" (page 19) before you begin.

Pass out 1 piece of paper to each student before beginning.

Introduction

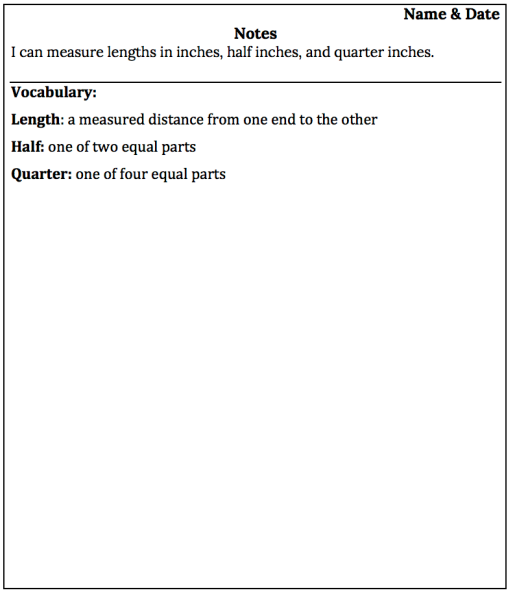
- ***T*** *Today we will be marking off on rulers to show measurements to the nearest inch, half inch, and quarter inch!*
- ***T*** *Measuring down to a quarter inch allows us to get the most accurate measurement.*
- ***T*** *Accurate measurements help us as we collect data and information as mathematicians.*
- ***T*** *Can anyone think of a situation where it would be really important to measure correctly?*
- ***T*** *Turn and tell a partner sitting near you a time that it would be very important to measure correctly.*

Provide about a minute for students to share with a partner. Monitor to ensure students are on task.

- ***T*** *Who would like to share the situation you and your partner discussed?* **Call on several students.**

Setting up the Paper

- ***T*** *Write your name and date in the top right hand corner of your paper.* See example & model so students can follow.
- ***T*** *On the top center of your paper, title it "Notes."*
- ***T*** *Underneath your title write our learning target, "I can create a ruler to measure lengths in inches, half inches, and quarter inches."*
- ***T*** *Below this statement, write "Vocabulary".*
- ***T*** *The first vocabulary word we need to know is "length."*
- ***T*** *Who thinks they might know what the word "length" means and can create a definition for the word "length"?*
- ***T*** *Turn and tell a partner sitting next to or near you how you would define the word "length."*


Name & Date

Notes

I can measure lengths in inches, half inches, and quarter inches.

Vocabulary:

Length: a measured distance from one end to the other

Half: one of two equal parts

Quarter: one of four equal parts

Provide about 30 seconds for students to share with a partner. Monitor to ensure students are on task.

- ***T*** *Now that you all have had the chance to try to define "length," who would like to share their definition with the class?* **Call on a few students to share their definitions.**
- ***T*** *It sounds like many of you have a very similar definition to mine.*
- ***T*** *Let's define "length" in our "Notes" as: "a measured distance from one end to another."*
- ***T*** *The next vocabulary word we need to know is "half."*
- ***T*** *Who thinks they might know what the word "half" means and can create a definition for the word "half"?*
- ***T*** *Turn and tell a partner sitting next to or near you how you would define the word "half."*

Provide about 30 seconds for students to share with a partner. Monitor to ensure students are on task.

- ***T*** *Now that you all have had the chance to try to define "half," who would like to share their definition with the class?* **Call on a few students to share their definitions.**
- ***T*** *These are some great definitions.*
- ***T*** *Let's all define this in our "Notes" also.*
- ***T*** *"A half is one of two equal parts."*

- ***T*** *So, we now know what the word half means; what does "halves" mean?* **Call on several students to answer.** **Answer: Halves means more than one half.**
- ***T*** *The word "halves" is the plural form of half.*
- ***T*** *Plural means that I have more than one of something.*
- ***T*** *So, if I told you I had 2 halves, that would really mean I had 1 whole, because 1 half plus 1 half would equal 1 whole.*
- ***T*** *Our last vocabulary word is "quarter."*
- ***T*** *Who thinks they might know what the word "quarter" means and can create a definition for the word "quarter?"*
- ***T*** *Turn and tell a partner sitting next to or near you how you would define the word "quarter."*

Name & Date

Notes

I can measure lengths in inches, half inches, and quarter inches.

Vocabulary:

Length: a measured distance from one end to the other

Half: one of two equal parts

Quarter: one of four equal parts

Examples:

Halves

Quarters

Provide about 30 seconds for students to share with a partner. **Monitor to ensure students are on task.**

- ***T*** *Now that you have all had the chance to try to define "quarter," who would like to share their definition with the class?* **Call on a few students to share their definitions.**
- ***T*** *Again, many of you came up with some great definitions!*
- ***T*** *Let's define this in our "Notes" now.*
- ***T*** *A quarter is one of four parts.*
- ***T*** *You can think of this like money, how many quarters do I need to make 1 dollar.* **Call on students.** **Answer: 4 quarters**
- ***T*** *How many quarters do I have, if I have 3 out of 4 parts?* **Call on students.** **Answer: 3 quarters**
- ***T*** *How many quarters are in one full inch?*
- ***T*** *Discuss with a partner near you.*

Provide about 30 seconds for students to share with a partner. **Monitor to ensure students are on task.**

- ***T*** *Who can tell me how many quarters would be in 1 whole inch?* **Call on several students to answer.** **Answer 4 quarters makes one whole inch**
- ***T*** *Below the definition of "Quarter" in your "notes" we are going to create our own ruler which measures in whole inches, half inches, and quarter inches.*
- ***T*** *The last thing we are going to do is create illustrations below our definitions to help us to understand halves and quarters.*
- ***T*** *I am going to give you a couple of minutes to draw a picture to show halves and another picture to show quarters.*

Provide couple minutes for students to make their drawings. **Monitor to ensure students are on task.**

- ***T*** *Well today we will be measuring objects around the room!*
- ***T*** *Let's start by making some predictions about the length of a box of crayons.*
- ***T*** *Turn and tell the person next to or near you what you think the length of this box of crayons is.*

Provide 15-30 seconds for students to discuss their predictions. **Monitor to ensure conversations are on topic.**

- ***T*** *Now, let's all share our predictions for the length of a box of crayons.* **Call on students to share predictions.**
- ***T*** *Those were all some great predictions.*
- ***T*** *Who is curious about what the exact measurement of the length of a box of crayons is?*
- ***T*** *Ok, let's measure and see whose prediction was the closest!*

Use either a ruler or a copy of the printable "Student Ruler" to demonstrate how to measure the length of a box of crayons. Make sure to demonstrate in a way that all students can see the exact measurement.

- ***T*** *Please watch as I measure this box of crayons.*
- ***T*** *Watch very carefully, this first step is the most important to getting an accurate measurement.*
- ***T*** *Notice on the ruler that the 0 doesn't start at the very beginning of the ruler.* This is not true of the student printable rulers. If using a printable ruler reference that this is typically true of rulers they would find.
- ***T*** *Instead, I need to make sure to line up the object with the 0-tick mark on the ruler.* Model this for students to see the "0" lined up with the bottom of the object.
- ***T*** *We call all of the lines on our ruler tick marks.*
- ***T*** *Once I have lined up my object with the 0, I now need to be sure that I keep my ruler straight and make sure that I do not move the 0 from the bottom of the object.*
- ***T*** *Let's now look and see the length of this box of crayons.*
- ***T*** *Who can tell me what the nearest quarter inch reads on the ruler?* **Call on a student to read the measurement.** Answer may vary based on the box of crayons you are using. Possible answer: $4\frac{1}{2}$ inches.

Pass out 1 piece of blank paper to each student or have students use the back side of their notes.

Setting up the Paper

- ***T*** *In a few minutes, you will be able to get up and measure some different objects around our classroom.*
- ***T*** *But first, we need to set up our paper to record our measurement data.*
- ***T*** *Please, write your name and date in the top right hand corner of your paper.* See example & model so students can follow.
- ***T*** *Give me a "thumbs up" when you have finished this step.*
- ***T*** *Then below that we will write the title, "Measurements around the Room."* See example & model so students can follow.
- ***T*** *Give me a "thumbs up" when you have finished this step.*
- ***T*** *Next, let's write our learning target, this is what we will be doing during this lesson.*
- ***T*** *Our target for today is: "I can gather and record measurement data using whole, half, and quarter inches."* See example & model so students can follow.

Name & Date

Measurements around the Room

I can gather and record measurement data using whole, half, and quarter inches.

Object	Prediction	Measurement to Nearest Quarter Inch
Example: Box of crayons		$4\frac{1}{2}$ inches

- ***T*** *Give me a "thumbs up" when you have finished this step.*
- ***T*** *The last thing we will do is draw a table to record the objects we are measuring, our predictions of the length of these objects, and the exact measurement to the nearest quarter inch.* See example & model so students can follow.
- ***T*** *The table will have three columns.*
- ***T*** *Please draw three columns now.* See example & model so students can follow.
- ***T*** *At the top of the first column write "Object." At the top of the next column, write "Prediction" and for the last column write "measurement to the nearest quarter inch."* See example & model so students can follow.
- ***T*** *Give me a "thumbs up" once you have finished this step.*
- ***T*** *Since we have already measured a box of crayons, let's fill that data into our table as an example.* See example & model so students can follow.
- ***T*** *Give me a "thumbs up" when you have finished this step.*

T *For prediction, please write down what your initial prediction was before we measured.*
T *Give me another "thumbs up" when you've finished that step.*

Independent Work

Note:
Pair struggling students with a partner.

T *Now is when you're going to go around the room and measure objects!*
T *I want you to measure objects that are all less than six inches.*
T *You are to measure between 6-10 objects.*
T *Don't go OVER ten objects!*
T *Before you measure each object, write down the name of the object and a measurement prediction.*
T *Just like what we did with the box of crayons.*
T *Remember you cannot predict something once you know the actual measurement; so, don't forget to make a prediction first!*
T *Be sure to pick objects that have a straight edge.*
T *When you're done measuring 10 objects, you may help other students.*
T *Who can repeat the instructions back to me?* Call on a student to clarify. Measure 6-10 objects that are 6 inches or less. Do not measure more than 10 objects. Write the name of the object and then make a prediction. Last, use your ruler to make an exact measurement to the nearest quarter inch.

When students understand instructions, send them off for about 15 minutes to measure objects. Walk around and make sure they are measuring correctly, or suggest objects for them to measure.

Double check their measurements for accuracy. Students who finish early can help other students.

After students have completed their task, call them back to their seats.

Name & Date

Measurements around the Room

I can gather and record measurement data using whole, half, and quarter inches.

Object	Prediction	Measurement to Nearest Quarter Inch
Example: Box of crayons		$4\frac{1}{2}$ inches

1. The **smallest** object I measured is _____ at _____ inches.
2. The **longest** object I measured is _____ at _____ inches.
3. I measured _____ objects 3 inches or less and _____objects greater than 3 inches, but less than 6 inches.

Analyzing Findings

T *We're going to analyze some of our findings under our three-column chart.*
T *You can use the back side of the paper if need be.*
T *We will number each question as we do it.*
T *First, we're going to identify our smallest object.*
T *Let's hear some of your answers!*

Circulate during the sharing portion. Help those who struggle with writing.

T *Turn and tell your neighbor the SMALLEST object you measured.*
T *On your paper, write down "#1. The smallest object I measured is _____ at _____ inches."* See example & model so students can follow.
T *Give me a thumbs up once you've written that sentence.*
T *Now turn and tell your neighbor the LONGEST object you measured.*
T *On your paper write down "#2: The longest object I measured is _____ at _____ inches."* See example & model so students can follow.

Circulate during the sharing portion. Help those who struggle with writing.

T *Give me a thumbs up when you've written that sentence.*

- ***T*** *Next, we're going to write down our most common measurement and our least common measurement.*
- ***T*** *Tell your partner which measurement came up the most in your findings and which measurement came up the least.*
- ***T*** *If it was a tie, be sure to mention that to your partner.*

Give time for students to briefly discuss. Monitor and provide assistance as needed.

- ***T*** *Now, how many of your objects were 3 inches or less?* Call on students to share. Answers may vary.
- ***T*** *How many of your objects were 3 or more?* Call on students to share. Answers may vary.
- ***T*** *Let's write that in a sentence.* Model as you explain for students to see.
- ***T*** *"_____ objects were 3 inches or less and _____ objects were greater than 3 inches, but less than 6 inches."* See example & model so students can follow.
- ***T*** *Now turn and tell your neighbor which object measured the most different from your prediction!*
- ***T*** *Who can raise their hand and share their answer?* Call on students to share. Answers may vary.
- ***T*** *You guys have done a great job measuring objects around the room!*
- ***T*** *Go ahead and pass your papers to me!*
- ***T*** *Make sure you have written your name on your paper!*

Name & Date

Measurements around the Room

I can gather and record measurement data using whole, half, and quarter inches.

Object	Prediction	Measurement to Nearest Quarter Inch
Example: Box of crayons		$4\frac{1}{2}$ inches

1. The **smallest** object I measured is _____ at _____ inches.
2. The **longest** object I measured is _____ at _____ inches.
3. I measured _____ objects 3 inches or less and _____objects greater than 3 inches, but less than 6 inches.

Collect students' papers and leave them for when their teacher returns.

Make sure to "Break Up Your Day!"

Now is a great time to take a break and get students re-energized.
See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 8)

Printable Student Rulers

Make sure to "Break Up Your Day!"

These can be used in the middle of a lesson or at the end of your lesson.

Here are a few engaging movement and brain break ideas to get your students moving and ready to refocus!

Break Up Your Day: Ball Toss Counting!

- Have students stand in a circle.
- You need a ball or small object to toss like a stuffed animal.
- Teacher stands in the middle of the circle.
- Students count by 1s starting from 1 to 120.
- As everyone counts together, the teacher tosses the ball to a student and the student tosses the ball back to the teacher.
- The teacher will only toss the ball to students who are actively counting and engaged. This will help students stay on task and count out-loud.
- To make it harder, the teacher can say "Stop!" at any number.
- Say a new number and the students have to count on from that number.
- If you stopped at 45, the teacher can say a new number like 54 and students have to pick up from there and say 55.

Break Up Your Day: Body Stretches!

10 minutes
FORMATION: Standing at desks

- Have students begin the day with a series of simple activities lasting 30 seconds or more: jumping jacks, knee lifts, flap arms like a bird, hopping, scissors (feet apart then cross in front, feet apart then cross in back)…
- Follow each activity with a basic stretching movement:
- Reach for the sky runner's stretch
- Butterfly stretch (sit with bottom of feet together)
- Knee to chest, rotate ankles, scratch your back

Hold stretches for 10 - 30 seconds. Repeat a different simple activity followed by a new basic stretch as many times as desired.

Break Up Your Day: The Wiggles!

- Let's get our wiggles out before we continue!
- Stand up and shake out your arms (4-5 seconds to shake) Remember! No one should get hurt! …now FREEZE!
- Now shake the wiggles out of your right leg…FREEZE!
- Now shake the wiggles out of your left leg…FREEZE!
- Now shake all the wiggles out of your whole body….FREEZE!