



## **MGSE2.MD.1-4 Video Transcript**

**00:01**

**[Opening Music]**

**00:16**

This presentation will review the Georgia Standards of Excellence 2.MD.1 through 4 which focus on measuring and estimating lengths in standard units.

**00:26**

Before we dive into the standards, let look at the progression of measurement understanding.

**00:31**

Students begin to explore measurement in kindergarten. They focus on determining which object is shorter or longer without using specific measurement tools.

**00:42**

1<sup>st</sup> grade students then begin to measure items with non-standard units such as blocks, paperclips, hand spans, and feet.

**00:50**

They focus on using same-size units while measuring from end to end with no gaps or overlaps.

**00:58**

2<sup>nd</sup> grade students transition from using informal units to measuring to using standard units such as inches, centimeters, and feet.

**01:06**

As they use tools such as inch and centimeter tiles to find the length of objects, they begin to make connections to measuring with a ruler.

**01:15**

A ruler is like having the inch-tiles stuck together.

**01:19**

3<sup>rd</sup> grade students then use fraction understanding and measure to the nearest half and quarter of an inch.

**01:25**

As the progression shows, students should have ample opportunities to explore using concrete tools before transitioning to abstract models.

**01:35**

Now, let's take a closer look at the grade level expectations.

**01:39**

2.MD.1 focuses on selecting and using appropriate tools such as rulers, yardsticks and meter sticks, as well as measuring tapes.

**01:48**

As students explore and measure, they gain understanding of how to use each tool and can explain why that specific tool was chosen.

**01:57 (Video)**

**Teacher: What are you using to measure the door?**

**Student: A yardstick. Because, if I used a ruler, it would take too many rulers to measure this door.**

**02:10**

As students explore different tools, they then use different length units and measure the same item twice.

**02:17**

For example, they may measure a pencil with both inches and centimeters and be able to explain why it takes more centimeters than inches.

**02:25**

When introducing rulers in 2<sup>nd</sup> grade, it is important to use simplified rulers that only show inches and/or centimeters.

**02:33**

Simplified rulers can help students transition from using concrete items to a more abstract measuring tool.

**02:39**

After students conceptualize the size of each unit, they then estimate length.

**02:45**

Which then leads to students being able to determine how much longer one object is than another.

**02:51**

When finding the difference between two objects, students can either use a direct method,

**02:57**

where they line up each object and simply measure how much longer one is than the other or they can use an indirect method and find the difference by subtracting.

**03:07**

In the upcoming task, that can be found in the Georgia Frameworks, students make their own simplified ruler and measure a gummy worm before and after it is stretched.

**03:19 (Video)**

**Teacher:** Show me where you would start measuring your gummy worm.

**Student:** You start... right here.... Make sure it's on here. And then... you can put it.... So, this is three inches long, but if you stretch it, it's four.

**Student:** But... and if I eat some of it... this will be two inches.

**Teacher:** So, if we move your finger... Let's see... Ok. Perfect. It's two inches?

**Student:** Yes.

**Teacher:** What if you start... down here? At this part. How long would it be, now?

**Student:** Six inches.

**04:12**

When students begin using a ruler and comparing length, it is important to emphasize that a ruler measures the difference or distance between two points.

**04:21**

Although the end point is 7, the starting point is 2, therefore, the distance is 5.

**04:27**

This pencil has the same length regardless of where it is positioned on the ruler.

**04:32**

Focusing on the starting and end points as well as the distance between these points is the key to understanding measurement.

**04:40**

Students often see rulers with hash marks as counting numbers instead of the units or spaces between the marks.

**04:47**

Placing an item at different locations on a ruler can help solidify understanding.

**04:53**

In this next task, students were asked to predict which path would be the shortest.

**04:57**

After making a prediction, they used a variety of tools to help justify their reasoning.

**05:03**

Students soon discovered that some tools were better than others when trying to find the exact measurement of the different lines.

**05:10 (Video)**

**Student: I think that Path B will be the shortest... Path C will be the middle... and Path A will be the longest.**

**Teacher: Alright. And how are you going to test it?**

**Student: With [grabbing the string] this!**

**Student [Measures Path A after fumbling with ruler and string for a few seconds]**

**Student: This one [Path B] is... 21... So, that one is already longer than that one.**

**05:52**

**Student: This one [Path C] is 23. That one [Path B] was 21, and that one [Path A] was 26.**

**Teacher: 23, 21, and 26 what?**

**Student: Centimeters.**

**Teacher: So, what is the order of the path lengths?**

**Student: Path B is the shortest. Path C is the middle. And Path A is the longest.**

**06:17**

This next task uses inch tiles and centimeter cubes to estimate length and measure objects with different size units.

**06:26**

As the video shows, there are lots of opportunities to guide student reasoning and promote deeper understanding.

**06:32 (Video)**

**Teacher: The tile or the cube... Which one measures an inch?**

**Student: The tile.**

**Teacher: Ok. So, take a tile. Take one out. Now, that's one inch. You can just put it down right there.**

**06:42**

**Teacher: Now, let's see how many centimeter cubes will fit along the side of that square inch.**

**Teacher: What do you think?... You said about two?...**

**Student: Mm-hmm.**

**Teacher: Alright. Try it and see. [Student tries]**

**06:52**

**Teacher:** Ok. There's a little bit more space, so... Why don't you grab another one? How many more cubes do you think will fit in there?

**Student:** I say... not three... But, I would say only two.

**07:06**

**Teacher:** Ok. Two whole cubes and then what part of another cube?

**Student:** Half.

**Teacher:** Alright. So, what's your theory for how many centimeters are in one inch?

**Student:** Two and one-half.

**07:17**

**Teacher:** Ok. So, without counting, how many centimeters long do you think the "No, David" book is?

**Student:** I would say... 17.

**Teacher:** And why did you say 17?

**Student:** I said 17 'cause... if you double 7 inches... centimeters are usually... umm... on a standard ruler, centimeters... two and a half centimeters equal one inch. So, I know that there's 7 here. I can estimate... I can double 7 to 14, so it has to be more than 14 centimeters.

**07:56**

**Teacher:** Ok. Great. Let's count them and see how many there are.

**Student:** Ok. One, two three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen.

**08:11**

**Teacher:** 18 centimeters.

**Teacher:** Alright. And how about the playing card? Umm. How many centimeters long is it?

**Student:** 8 centimeters.

**08:20**

**Teacher:** So, how many inches do you predict it will be?

**Student:** I predict it'll be four... I predict that it will be three 'cause if you... if you x-out... umm... if you half eight... instead of doubling 'cause we're transferring centimeters into inches, not inches into centimeters.

**Student:** So, if you half this, you get four. If it was four it would be exactly half. But I say it would be about three.

**Teacher:** Ok. Let's test it out.

**08:50**

**Student:** [Shows three tiles along the side of the playing card]

**Teacher:** Alright. Good prediction. Write that in.

**Student:** Three inches.

**Teacher:** Alright. And then our last question is, “What do you notice when you look at this table and you look at the length of everything you measured in the square inch tiles versus when you measured them in the centimeter cubes?”

**Student:** Most of these...umm...are doub...are at least one away from double this... are at least... or mostly one or more away from the double... Mostly away... like more or less from the double...

**09:27**

**Teacher:** You’re saying that this number, right here [pointing to length in centimeters] is a little bit more than double that. Is that right?

**Student:** Exactly. Because  $2 + 2$  is 4 and 4 is close to 5.

**09:36:**

There are many engaging books about measurement that can be used in the classroom.

**09:40**

The story Measuring Penny is about a little girl who has a homework assignment to measure something in different ways.

**09:46**

She decides to measure her dog.

**09:49**

The story uses both standard and non-standard units to measure and compare different attributes of the dogs.

**09:55**

After reading the story students decided to measure the stuffed animals in the classroom.

**10:01**

They determined the tool and unit of measurement and then recorded their results.

**10:06**

Measurement activities are not only engaging but help promote fluency and number sense.

**10:13**

Activities and measurement tools can be incorporated throughout the year for hands-on fun and exploration.

**10:19 (Video)**

**Teacher:** What are you measuring?

**Student:** A pencil.

**Teacher:** A pencil.

**Student: Student: A pencil... yeah.**

**Teacher: And it is exactly....**

**Student: 7... inches... Yeah... 7 inches.**

**10:31**

For additional support and resources for 2.MD.1-4, please visit Unit 3 of the Georgia Frameworks.

**10:38**

**[Closing Music]**