

# Mathematics Lesson: Jumping Contest

Grade 4 Quarter 4 *Using Place Value to Understand Metric Measurement: Lesson 4*

## State Standard(s)

**NC.4.MD.1** Know the relative sizes of measurement units. Solve problems involving metric measurement.

- Measure to solve problems involving metric units: centimeter, meter, gram, kilogram, liter, milliliter.
- Add, subtract, multiply, and divide to solve one-step word problems involving whole-number measurements of length, mass, and capacity that are given in metric units.

**NC.4.MD. 2** Use multiplicative reasoning to convert metric meters from a larger unit to a smaller unit using place value understanding, two-column tables, and length models.

## Student Outcome(s)

Students will be able to measure and solve problems using metric units (centimeter and meter).

## Math Language

Metric system, meter, centimeter, length, measure

## Standards for Mathematical Practice

**Standard 1:** Make sense of problems and persevere in solving them

**Standard 2:** Reason abstractly and quantitatively

**Standard 4:** Model with mathematics

**Standard 7:** Look for and make use of structure

## Materials

- Meter sticks
- Taped start lines for jumping contest
- Sticky Notes
- Chart paper
- Blackline Master: “*Jumping Contest*”
- Teacher Only, “*Measurement Discussion Questions*”

## 4C Integration

**Collaboration:** Students work in pairs to complete measuring activities

**Communication:** Students use math talk to communicate ideas during the math lessons and activities

**Critical Thinking:** Students will reflect on how the metric measurement system

## Homework

Blackline Master, “*Jumping Contest Homework*”

## Mathematics Lesson Jumping Contest

### Launch

*Teacher Note: Prior to the lesson, hang Teacher Only: “Measurement Discussion Questions” around the room.*

1. Review how students have measured various items over the last two days.
2. Using Teacher Only, “*Measurement Discussion Questions*”, have students find a partner and review how they measured the length of items. Listen for...
  - *Student use of vocabulary*
  - *Awareness of relationship between units*
3. Gather students in the meeting area and watch some or all of the video:  
<https://www.youtube.com/watch?v=KNcTwYvUfb4>
  - *Notice and Wonder about the measurement system.*
  - *How do they measure the length of the jump? What does the measurement chart look like? (ruler, number line).*
  - *How was a standard system of measurement used in the jumping contest?*
  - *Teacher Note: long jump distance is measured from the starting line to the first impression in the sand (Britannica, 2019).*
4. Tell students that today they will participate in their own jumping contest.

**Lesson Continued on Next Page**

**Source: Teacher Created**

**Mathematics Lesson**  
**Jumping Contest**  
**Continued**

**Explore: Measuring in Meters and Centimeters**

*Teacher Note: Prior to the lesson mark off several starting points for students to jump from.*

1. Place students into small groups or pairs and distribute Blackline Master, “Jumping Contest”.
2. Show students how to stand and jump from the starting line taped on the floor. Students should jump from the starting point. Once they land, have a partner to mark the spot with a sticky note.
3. Prior to measuring, students should estimate the length of their standing long jump.
4. Students can work in teams to measure the actual length using meters. They will collect this data in their own conversion table. As time permits have each student complete 2-3 jumps.
5. Once they measure the distance in meters students should then convert the measurement to centimeters. (*ex: each meter is equal to 100 cm so 3 meters would be equal to 300 cm*).

*Teacher Note: Students can use ½ meter as a benchmark if needed.*

6. Allow students to work for 15-20 minutes. As they work, circulate throughout the room and watch for common misconceptions:
  - *Students do not measure from the starting point*
  - *Students leave space between units as they measure*
  - *Students use vocabulary incorrectly when explaining how they measured*
7. While circulating, pre-select 2-3 students to highlight during the “discuss” part of the lesson.
8. As students work on the tasks, ask students to explain
  - *How they estimated the length? (ex: I looked at the length and it looked like a foot)*
  - *How did they measure the length of the jump in meters?*
  - *How did students convert the measurement from meters to centimeters?*
9. At the end of the explore session have each student highlight their longest length.
10. Students should use the number line at the bottom of the recording sheet to illustrate the length of their jump. *Model as needed. Tell students just like with the Olympic jumpers, 0 represents the starting point. Students should graph to the nearest whole meter.*

*Teacher Note: Depending on time this part of Explore is Optional: To further build an understanding of the length model do the following:*

11. Students write the length of their longest jump in meters on a sticky note. As a whole class use a number line and create a class graph of the data. Ask students if there is a connection between the process of measuring and the number line

**Discuss**

1. Bring the class back together and have students share what they noticed as they measured length today.
2. Use the following questions to structure the discussion
  - *Have students discuss that it takes multiples of ten to move between meters and centimeters*
  - *What connection can you make between the ruler and the number line? How are they length models?*
3. Encourage Math Talk by asking the following questions:
  - *Can anyone repeat what \_\_\_ said?*
  - *Can anyone add on to what \_\_\_ said?*
  - *Do you agree/disagree with what \_\_\_ said?*

**Source: Teacher Created**

**Reference: <https://www.britannica.com/sports/long-jump>**

## Measurement Discussion Questions

**What is measurement?**

**How can you describe length?**

**What are some tools for measuring length?**

**How do you decide on an appropriate unit?**

**How does using a different unit change the measurement?**

**Which unit of length would you use to measure smaller objects like crayons?**

**Which unit of length would you use to measure longer objects like football field?**

**How do you use estimation when measuring length?**

Name : \_\_\_\_\_

# Jumping Contest



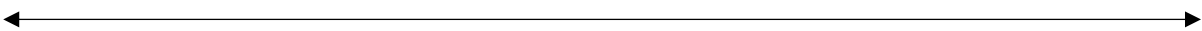
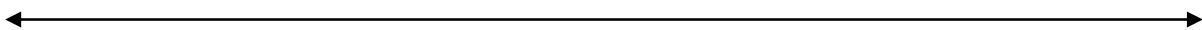
Estimate and record the length of each of your jumps in meters. Convert the distance to centimeters.

Jump Number	Estimate of Length	Length in Meters	Length in Centimeters
1			
2			
3			
4			

1. What pattern did you use to convert your jumps to centimeters?

\_\_\_\_\_

2. Use the number lines below to graph your longest jump in meters and centimeters. Make sure to label your units.



Name : \_\_\_\_\_

## Jumping Contest Homework



George recorded his jumping data below. Help him finish his chart.

Jump Number	Length in Meters	Length in Centimeters
1	2 meters	
2	1 meter	100 cm
3	3 meters	

1. What pattern did you use to convert your jumps to centimeters?

\_\_\_\_\_

2. Use the number lines below to graph the longest jump in meters and centimeters. Make sure to label your units.

