



Topic: Metric System Length Conversion Worksheet

Summary: Students learn to use common metric system length SI prefixes and convert between those prefixes.

Time Length: 10 minutes

NGSS Standards: None

Materials:

- Pencils
- Handout

Procedures:

1. Teach students how to find the difference in zeros when converting prefixes. A simple way is for students to count the number of decimal places. Example, kilo has three decimal moves. Then teach the students to move the decimal from the left to right when going from a larger value to a smaller value and to move the decimal to the left when going from a smaller value to a larger value.

2. Students convert prefixes by answering questions 1 – 14. The data table can be used to help students with the conversions. Questions 1-2 have the correct arrows and numbers provided. Questions 3-4 have the placement of all of the numbers. Questions 5-9 have the placement of the initial numbers, but not the zeros. Questions 10-14 have no numbers provided in the work shown area.

Accommodations: Give students with a modification IEP questions 1-9 to complete as those questions provide visual prompts. Students with an IEP can take the handout home if they need extra time.

Editable DOCX File and Answer Key:

Available at www.ngsslifescience.com

Metric System Length Conversion Worksheet

Prefix	Symbol	Factor of Base Unit
kilometer	km	1,000
meter	m	1
centimeter	cm	.01
millimeter	mm	.001
micrometer	μm	.000001
nanometer	nm	.000000001

Convert a large value to a small value = move the decimal to right ! Convert a small value to a large value = move the decimal to left

To change SI prefixes is as simple as moving the decimal place. You are going to practice this by discovering how many decimals you need to move and then by drawing arrows under the lines to move the decimal point. Start with the measurement on the left side and convert it to the measurement, in bold, on the right side. Example:

$$1000 \text{ m} = \overset{1}{\text{---}} \overset{0}{\text{---}} \overset{0}{\text{---}} \overset{0}{\text{---}} \cdot = 1.000 \text{ kg or } 1 \text{ km}$$

$$1) \quad 10 \text{ m} = \overset{1}{\text{---}} \overset{0}{\text{---}} \overset{\cdot}{\text{---}} \overset{0}{\text{---}} \overset{0}{\text{---}} \overset{0}{\text{---}} = \text{---} \text{ mm}$$

$$2) \quad 1.2 \text{ m} = \overset{1}{\text{---}} \cdot \overset{2}{\text{---}} \overset{0}{\text{---}} \text{---} \text{---} = \text{---} \text{ cm}$$

$$3) \quad 20 \text{ m} = \text{---} \text{---} \overset{0}{\text{---}} \overset{2}{\text{---}} \overset{0}{\text{---}} \cdot = \text{---} \text{ km}$$

$$4) \quad 1 \text{ nm} = \text{---} \overset{0}{\text{---}} \overset{0}{\text{---}} \overset{1}{\text{---}} \cdot \overset{0}{\text{---}} = \text{---} \mu\text{m}$$

$$5) \quad 324 \text{ cm} = \overset{3}{\text{---}} \overset{2}{\text{---}} \overset{4}{\text{---}} \cdot \text{---} \text{---} = \text{---} \text{ mm}$$

$$6) \quad 10 \text{ mm} = \text{---} \text{---} \overset{1}{\text{---}} \overset{0}{\text{---}} \cdot \text{---} = \text{---} \text{ m}$$

$$7) \quad 4.7 \text{ m} = \overset{4}{\text{---}} \cdot \overset{7}{\text{---}} \text{---} \text{---} = \text{---} \text{ cm}$$

$$8) \quad 8 \text{ m} = \text{---} \text{---} \text{---} \overset{8}{\text{---}} \cdot \text{---} = \text{---} \text{ km}$$

$$9) \quad 1 \mu\text{m} = \overset{1}{\text{---}} \cdot \text{---} \text{---} \text{---} = \text{---} \text{ nm}$$

$$10) \quad 6 \text{ m} = \text{---} \text{---} \text{---} \text{---} \text{---} = \text{---} \text{ mm}$$

$$11) \quad 13 \text{ m} = \text{---} \text{---} \text{---} \text{---} \text{---} = \text{---} \text{ cm}$$

$$12) \quad 7 \text{ m} = \text{---} \text{---} \text{---} \text{---} \text{---} = \text{---} \text{ mm}$$

$$13) \quad 60 \text{ m} = \text{---} \text{---} \text{---} \text{---} \text{---} = \text{---} \text{ km}$$

$$14) \quad 9 \mu\text{m} = \text{---} \text{---} \text{---} \text{---} \text{---} = \text{---} \text{ cm}$$