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## UNITS OF LENGTH: CUSTOMARY & METRIC (4<sup>TH</sup> GRADE)

### TEACHER GUIDE

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**Objective:** The student will be able to use their knowledge of the standardized mathematics exam chart and their multiplication/division skills to successfully convert units of length within the customary and metric systems.

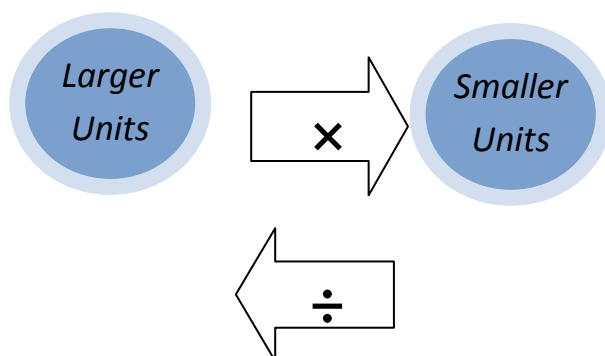
**TEKS: 4.11(A):** The student is expected to estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units of SI (metric) and customary.

**4.11(B):** Perform simple conversions between different units of length, between different units of capacity, and between different units of weight within the customary measurement system.

To have students complete this lesson, students will need to become familiar with the 4<sup>th</sup> grade standardized mathematics exam chart. The mathematics chart should include useful mathematics information, as well as, a metric and customary ruler to help solve problems.

#### How to convert from one unit to another:

- In order to convert a smaller unit to a larger unit, divide the number of smaller units there are in one of the larger units.
- In order to convert a larger unit to a smaller unit, multiply the number of smaller units there are in one of the larger units.



The above method requires the students to know about the customary and metric units. They must know which units are larger than others. For example, a foot is larger than an inch. The description of the customary and metric units of length

must be discussed thoroughly in order for students to successfully solve conversion problems.

### **Example #1:**

**A marine biologist wants to measure the length of a whale that arrived at the beach. What is the best unit of measure to use - inch, foot, yard, or mile?**

First, students need to think about the length of each unit.

- An **inch** is about the length of a small paper clip, and therefore would be too small.
- A **foot** is about the length of a sheet of notebook paper and is also too small.
- A **yard** is about the width of a door, and is the best unit.
- A **mile** is used to measure long distances, such as the distance between two towns, and is way too big.

Of the given choices, the yard is the best unit of measure for measuring the length of the whale.

### **Example #2:**

**The trainers at The Texas State Aquarium want to decorate the dolphin tank with red, white, and blue streamers for July 4<sup>th</sup>. They will need 21 feet of streamers, but the store only sells them in packages of 4 yards per string. How many packages will they need to buy to have enough streamers?**

First, students need to convert feet to yards. Using the mathematics chart, students need to compare feet and yards.

- 1 yard = 3 feet
- A foot is smaller than a yard. To convert a smaller unit to a larger unit, division will be performed.
- To convert 21 feet to yards, students will divide 21 feet by the number of feet in one yard.
- $21 \text{ feet} \div 3 \text{ feet} = 7 \text{ yards}$

Since the packages contain 4 yards of streamers, the trainers should buy at least 2 packages and have a total of 8 yards of streamers.

Name \_\_\_\_\_

Date \_\_\_\_\_

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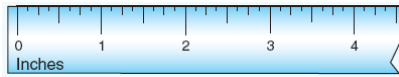
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**UNITS OF LENGTH: CUSTOMARY & METRIC (4<sup>TH</sup> GRADE)**

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**Customary Units**



**Inch (in)** - about the length of small paper clip

**Foot (ft)** - about the length of sheet of notebook paper

**Yard (yd)** - about the width of a door

**Mile (mi)** - 4 laps around a track

**Metric Units**



**Millimeter (mm)** - about the thickness of a dime

**Centimeter (cm)** - about the width of a fingernail

**Meter (m)** - about the width of a door

**Kilometer (km)** - about 5 city blocks

**Choose the appropriate unit that you would use to measure each of the following. Record the appropriate unit on the chart below.**

- 1] Length of an eel
- 2] Length of a swimming pool
- 3] Length of a tadpole
- 4] Length of a river

<b>Customary</b>	<b>Metric</b>

Use the information from the mathematics chart to help convert units of measure for the following problems.



Did you know that the American Alligator is the largest reptile in North America? The average size for an adult female is about 8 feet, and the average size for a male is about 11 feet. After the alligator reaches a length of 4 feet long, it is considered safe from predators (except for humans and occasionally other alligators).

5] How many inches in length is a female alligator?

6] How many inches in length is a male alligator?

**Sharks** - When most of us think of sharks, we think of a big scary creature that can eat us with their large, sharp teeth! Sharks come in all different sizes and shapes. The biggest shark is the whale shark (up to 50 feet long) and the smallest shark would fit into the palm of your palm (about 8 inches long).

7] About how many yards in length is a whale shark?

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UNITS OF LENGTH: CUSTOMARY & METRIC (5<sup>TH</sup> GRADE)

ANSWER KEY

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- 1] Length of an eel
- 2] Length of a swimming pool
- 3] Length of a tadpole
- 4] Length of a river
  
- 5] 96 inches
- 6] 132 inches
- 7] About 16 yards

<b>Customary</b>	<b>Metric</b>
<i>Feet</i>	<i>Meters</i>
<i>Feet</i>	<i>Meters</i>
<i>Inches</i>	<i>Millimeters</i>
<i>Miles</i>	<i>Kilometers</i>