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U.S. CUSTOMARY AND METRIC CONVERSIONS

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Performance Standard 7A.D

Make conversions within and between U. S. customary measurements and metric measurements to solve problems using a conversion chart accordingly:
- *Mathematical knowledge*: know how to use a conversion chart to make conversions within and between U. S. customary measurements and metric measurements,
- *Strategic knowledge*: use appropriate strategies to make the conversions, and
- *Explanation*: explain completely and clearly what was done and why it was done.

Procedures

1. ***In order measure and compare quantities using appropriate units, instruments, and methods (7A)***, students should experience sufficient learning opportunities to develop the following:
   - Convert U.S. customary measurements into larger or smaller units with the help of conversion charts.
2. Provide each student a copy of the "Customary and Metric Conversions" recording sheet and the rubric. Have student review and discuss the task to be completed and how the rubric will be used to evaluate it.
3. Explain to the students that they will be using conversion charts in problem solving situations. Inform the students that a calculator may be used to calculate conversions from metric to U.S, customary or visa versa. The assessment consists of two parts:
   - (Items 1 – 3): convert 20 miles to yards, feet and inches, show work and provide a complete explanation and justification for it.
   - (Items 4 – 9): convert U. S. customary measurement to metric measurement and vice versa, show work and provide a complete explanation and justification for it.
4. Answer key:
   - (1) $20 \times (5280 \div 3) = 35{,}200$ yards   OR $20 \times 1760 = 35{,}200$ yards
   - (2) $20 \times 5280 = 105{,}600$ feet
   - (3) $20 \times (12 \times 5280) = 1{,}267{,}200$ inches
   - (4) $20 \times 1.609 = 32.18$ kilometers
   - (5) $20 \times .621 = 12.42$ miles
   - (6) $20 \times (1000 \times 1.609) = 32{,}180$ meters
   - (7) $20 \times 1.094 = 21.88$ yards
   - (8) $20 \times (3 \times 1.094) = 65.64$ feet
   - (9) $20 \times .3048 = 6.096$ meters
5. Evaluate each student's work using the rubric as follows and use the guide on the rubric to determine the performance level.
   - 4 = all conversions were correct; strategies to make conversions were complete and correct; explanations/justifications were complete and clear.
   - 3 = conversions included minor calculation or recording errors, but not both; strategies to make conversions were nearly complete and correct; explanations/justifications mostly complete and clear.
   - 2 = conversions included minor calculation and recording errors; some strategies to make conversions were partially complete; explanations/justifications partially complete but unclear.
   - 1 = conversions included major calculation and recording errors; strategies to make conversions were mostly incomplete and unclear; explanations/justifications were mostly incomplete and unclear.
   - 0 = task was not attempted.

Examples of Student Work not available

Resources
- Copies of the "Customary and Metric Conversions" recording sheet
- Calculator for each student
- Mathematics Rubric

Time Requirements
- One class period

NAME _____ DATE _____

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Directions: You may use a conversion chart and a calculator to compute the conversions and show all of your work. Explain what you did and why you did it on the back of this sheet.

1 kilometer = 0.621 mile	1 mile = 1.609 kilometers or 5,280 feet
1 kilometer = 1000 meters	1 meter = 1.094 yards
1 meter = 3.282 feet	1 foot = 0.3048 meter

1. How many yards are there in 20 miles?

2. How many feet are there in 20 miles?

3. How many inches are there in 20 miles?

4. How many kilometers are there in 20 miles?

5. How many miles are there in 20 kilometers?

6. How many meters are in 20 miles?

7. How many yards are in 20 meters?

8. How many feet are in 20 meters

9. How many meters are in 20 feet?