

Title:	Wheel of Conversions: How to convert units
Grade and Subject:	9 <sup>th</sup> -12 <sup>th</sup> grades; GK-12 Elective Course
Number of Days for Completion of the Project:	1
Overarching Project Goals/Outcomes:	<p>Understanding how to convert units.</p> <p>This lesson plan is designed to be a fun and educational way of teaching the students how to convert any type of units. In teams, students play against other students and try to convert units (at different difficulties) for a variety of points. They will learn conversion factors and how to set up mathematical ratios in order to solve for the right units.</p> <p>Preceding the game, there will be a brief powerpoint reviewing the basics on how to convert. They will then use the information given in the slides as well as the conversion chart (handed at the beginning of the game) to help them win.</p>
Materials:	<ul style="list-style-type: none"> <li>• SmartBoard/Computer, worksheet, game (wheel), Powerpoint</li> </ul>
Introduction:	<ol style="list-style-type: none"> <li>1. Converting review as well as rules/how to play the game</li> <li>2. Powerpoint along with game</li> </ol>
Instruction/Direct Experience:	<ol style="list-style-type: none"> <li>1. Students will participate in game and discussion</li> <li>2. Students will interface with interactive powerpoint</li> </ol>
Independent Activities:	Independent participation in class game
Assessment:	Student's listening skills, math skills, interaction with fellow classmates, and overall participation.
Follow-up	An understanding of conversion is essential for the students' analysis of the tree data collected. They will understand how to convert units to make their data uniform and easier to analyze.

Name \_\_\_\_\_

Date \_\_\_\_\_

Grade \_\_\_\_\_

Age \_\_\_\_\_

Conversions
1 m = 100 cm
1 ft = 12 in
1 L = 1000 mL
1 ft = 30 cm
1 kg = 2.2 lbs
1 lb = 16 ounces

1) 10 m = \_\_\_\_\_ cm

2) 5 ft = \_\_\_\_\_ in

3) 6.7 mL = \_\_\_\_\_ L

4) 3 ft = \_\_\_\_\_ cm = \_\_\_\_\_ m

5) 7.3 kg = \_\_\_\_\_ lbs = \_\_\_\_\_ ounces

Name \_\_\_\_\_

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<b>Conversions</b>
1 m = 1000 mm
1 yd = 3 ft
1 L = 1000 mL
1 m = 100 cm
1 ft = 30 cm
1 kg = 2.2 lbs
1 lb = 16 ounces

1)  $17 \text{ m} = \text{_____ mm}$

2)  $6 \text{ ft} = \text{_____ yd}$

3)  $7.45 \text{ mL} = \text{_____ L}$

4)  $3 \text{ ft} = \text{_____ cm} = \text{_____ m}$

5)  $89.73 \text{ kg} = \text{_____ lbs} = \text{_____ ounces}$

Name \_\_\_\_\_

Date \_\_\_\_\_

Grade \_\_\_\_\_

Age \_\_\_\_\_

Conversions
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$1 \text{ cm} = 10 \text{ mm}$
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$$1 \text{ ft} = 12 \text{ in}$$

$$1 \text{ kg} = 1000 \text{ g}$$

$$1 \text{ ft} = 30 \text{ cm}$$

$$100 \text{ cm} = 1 \text{ m}$$

$$1 \text{ lb} = 0.45 \text{ kg}$$

$$1 \text{ kg} = 35.27 \text{ ounces}$$

$$1) 62 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$$

$$2) 67 \text{ ft} = \underline{\hspace{2cm}} \text{ in}$$

$$3) 8.43 \text{ kg} = \underline{\hspace{2cm}} \text{ g}$$

$$4) 67 \text{ ft} = \underline{\hspace{2cm}} \text{ cm} = \underline{\hspace{2cm}} \text{ m}$$

$$5) 22.1 \text{ lbs} = \underline{\hspace{2cm}} \text{ kg} = \underline{\hspace{2cm}} \text{ ounces}$$

200 conversions: (all English system)

1. 24 inches = 2 feet
2. 5 yards = 15 feet
3. 4 feet = 48 inches
4. 128 ounces = 8 pounds
5. 4 gallons = 16 quarts
6. 10 pounds = 160 ounces
7. 30 feet = 10 yards
8. 40 quarts = 10 gallons
9. 180 inches = 15
10. 9 yards = 27 feet

400 conversions: (all metric)

1. 500 millimeters = 50 centimeters
2. 3000 grams = 3 kilograms
3. 400 centimeters = 4 meters
4. 3 milligrams = .003 g
5. 17 grams = 1700 centigrams
6. 630 kilometers = 630,000,000 millimeters
7. 6 liters = 6000 milliliters
8. 700 centimeters = 7 meters
9. 57 centiliters = 0.57 liters
10. 6.754 meters = 6.754 kilometers

600 conversions: (a little more complicated ie. Decimals, funny numbers)

1. 50.1 centimeters = 0.501 meters
2. 67.032 grams = 6703.2 centigrams
3. 6.32 milliliters = 0.00632 liters
4. 7.8096 meters = 7809.6 millimeters
5. 0.6775 kilograms = 677.5 grams
6. 6.5 milligrams = 0.000065 kilograms
7. 72.7 milliliters = 7.27 centigrams
8. 67.80924 kilometers = 6780924 centimeters
9. 0.7427 grams = 742.7 milligrams
10. 67.382 liters = 6738.2 centiliters

800: (between English to metric or metric to English)

1. 1 inch = 2.54 centimeters
2. 1 pound = 0.45359237 kilograms
3. 1 foot = 30.48 centimeters
4. 3 liters = 101.4420681 US fluid ounces
5. 4.5 kilograms = 9.92080179 pounds
6. 6.4 miles = 10.2998016 kilometers
7. 67 grams = 2.363355454 ounces
8. 53 US fluid ounces = 1567.39709 milliliters
9. 17 kilometers = 10.56331023 miles

$$10. 16 \text{ ounces} = 453.5923699 \text{ grams}$$

1000: (two conversions)

1. 6 inches = 0.5 feet = 15.24 centimeters
2. 4 feet = 121.92 centimeter = 1.2192 meters
3. 10 quarts = 2.5 US gallons = 9.46352945 liters
4. 7 pounds = 3.17514659 kilograms = 3175146.59 milligrams
5. 73 miles = 117.482112 kilometers = 117482.112 meters
6. 37 yards = 111 feet = 33.8328 meters
7. 94 US fluid ounces = 2779.91182 milliliters = 2.77991182 liters
8. 82 kilometers = 50.95243758 miles = 269028.8704 feet
9. 67 liters = 17.69952753 gallons = 70.79811011 US quarts
10. 78 kilograms = 171.9605644 pounds = 2751.36903 ounces

<http://metricconversioncharts.org/>

1 mil	0.001 inch	0.0254 millimeter
1 inch	1,000 mils	2.54 centimeters
12 inches	1 foot	0.3048 meter
3 feet	1 yard	0.9144 meter
5.5 yards or 16.5 feet	1 rod (or pole or perch)	5.029 meters
1 mile	5,280 feet	1.6094 kilometers
40 rods	1 furlong	201.168 meters
8 furlongs	1 mile	1.6094 kilometers
3 miles	1 league	4.83 kilometers
	1 millimeter	0.03937 inch
10 millimeters	1 centimeter	0.3937 inch
10 centimeters	1 decimeter	3.937 inches
10 decimeters	1 meter	39.37 inches or 3.2808 feet
10 meters	1 decameter	393.7 inches or 32.8083 feet
10 decameters	1 hectometer	328.083 feet
10 hectometers	1 kilometer	0.621 mile or 3,280.83 feet
10 kilometers	1 myriameter	6.21 miles