

$$1 \text{ k} _ = 1000 _ \quad : \quad 1 _ = 100 \text{ c} _ = 1000 \text{ m} _ = 1,000,000 \mu _$$

1. Write '# word' on left, 'new word' on right	2. Plan a "Word Path"	3. Make a conversion bar for each word change in your path	4. Put 'new words' on same side, 'old words' on opposite side of conversion bar.	5. Put numbers on conversion bars so the top and bottom are actually EQUAL	6. Multiply top numbers and divide by bottom numbers to get NUMERICAL ANSWER
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**DO YOUR WORK ON A SEPARATE PAPER
SHOW ALL CONVERSION BARS AND WORDS (UNITS)**

Level 1 Conversions: 1 Step (Do 3)

1. Convert: 87 feet to yards. (29 yd)
2. Convert: 456 cm to m (4.56 m)
3. Convert: 1.76 km to m (1760 m)
4. Convert: 56.7 mm to cm (5.67 cm)
5. Convert: 142 inches to feet (11.8 ft)

Level 2 Conversions: 2 Steps (Do 3)

6. Convert: 0.500 km to cm (50,000 cm)
7. Convert: 134,000,000 mm to km (134 km)
8. Convert: 87,000,000 inches to miles (1373 miles)
9. Convert: 3.50 days to minutes (5040 minutes)
10. Convert: 2.68 years to days (978 days)

Level 3 Conversions: 2 or More Steps, Numerator and Denominator (Do 3)

11. Convert: $45 \frac{\text{m}}{\text{min}}$ to $\frac{\text{cm}}{\text{sec}}$ (75 cm/sec)
12. Convert: $12 \frac{\text{km}}{\text{hr}}$ to $\frac{\text{m}}{\text{min}}$ (200 m/min)
13. Convert: $356 \frac{\text{m}}{\text{hr}}$ to $\frac{\text{cm}}{\text{sec}}$ (296 cm/sec)
14. Convert: $25 \frac{\text{m}}{\text{sec}}$ to $\frac{\text{km}}{\text{hr}}$ (90 km/hr)
15. Convert: $45 \frac{\text{mi}}{\text{hr}}$ to $\frac{\text{ft}}{\text{sec}}$ (66 ft/sec)

Chemistry Conversions!!!!!!!

$$\text{DENSITY: Level 1 Conversions} \quad \text{Density} = \frac{\text{mass (g)}}{\text{volume (mL)}}$$

16. The density of Lead is 11.3 g/ml (11.3 g = 1 mL). What is the volume of 212 grams of lead? (18.8 mL)
17. The density of Copper is 7.87 g/mL (7.87 g = 1 mL). What is the mass of 35 mL of copper? (275 g)
18. You have 25 mL of lead (D = 11.3 g/mL). What is the mass of your sample? (283 mL)
19. You have 58 mL of copper (D = 7.87 g/mL). What is the mass of your sample? (456 g)
20. The density of gold is 19.3 g/mL (19.3 g = 1 mL). What is the volume of a 1000 gram sample? (51.8 mL)

DENSITY: Level 2 conversions (seem like Level 3 at times).

21. Gold currently has a price of \$27,400 per kilogram (1 kg = \$27,400). What volume of gold can you buy with \$5000? (9.43 mL)
22. What would be the cost of 250 mL of gold? (\$132,200)
23. You find a 20. mL nugget of pure gold. How much is it worth (\$) (\$10,500)
24. A bar of gold in Fort Knox has an approximate volume of 640 mL. What is the current value of one of these bars? (\$338,000)
25. You want to hide \$500 from your family so you buy \$500 of gold. What is the volume of the gold you purchased? (0.946 mL)

$$\text{CHEMISTRY: Level 1 conversions (1 step)} \quad \frac{\text{MOLE}}{\text{1 mole}} = \frac{\text{MASS}}{\text{molecular mass (grams)}} = \frac{\text{VOLUME GAS}}{\text{22.4 L STP}}$$

Examples: a) What is the volume (Liters) of 16.5 grams of H₂ gas?

b) What is the mass (grams) of 3.50 moles of water (H₂O)?

26. What is the mass (grams) of 2.50 moles of Aluminum (Al)? (67.45 g)
27. What is the mass (grams) of 1.50 moles of Oxygen (O₂)? (48 g)
28. What is the volume of 4.00 moles of Carbon Dioxide gas at STP? (176 L)
29. What is the number of moles in 58.6 grams of sodium (Na)? (255 moles)
30. What is the mass of 14.0 L of Xenon gas at STP? (82.1 g)
31. What is the number of moles in 85.0 grams of water (H₂O)? (4.72 moles)
32. What is the mass (grams) of 158 Liters of nitrogen gas (N₂) at STP? (198 g)
33. What is the volume at STP of 75.0 grams of water vapor (H₂O)? (96.96 L)
34. You have 89.5 moles of gas 'X'. What is the volume of the gas at STP? (2005 L)
35. What is the volume at STP of 14.3 grams of hydrogen gas (H₂) at STP? (158.6 L)