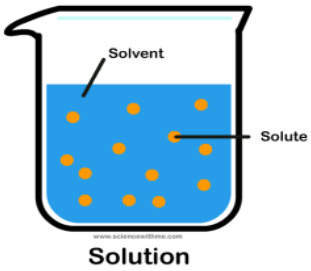
Solutions

Def:_____

_____

_____ + _____ = _____



Concentration: _____

_____

How can you make a drink more concentrated?

How can you make a drink more diluted?

Formula to solve for solution:

C=m/v C m v

Conversions: **1- to go from L to ml you must x 1 000** ex: 5 L = 5 000 ml 2.5 L = 2 500 mL
2- to go from mg to g you must ÷ 1 000 ex: 5 mg = 0.005 g 0.4 mg = 0.0004 g

Units used

When doing the math you are making the concentration proportional. How?

Procedure used in a lab to make a solution

1. _____
2. _____
3. _____
4. _____
5. _____

Solution problems

1. You have a 7 g/L and you want to use 150 g, what is the new solution?

2. You have a 15 g/200 mL solution, how much solute is needed if you use 450 mL?

3. Convert the following to percent concentration.

150 g/L	25 ppm	37 g/400 mL	14 mg/L

4. Convert the following to ppm.

12%	28 ppm	30 g/500 mL	24 mg/L

5. Convert 0.5 mg/L to ppm.

6. Determine the order of least to most concentrated for the following solutions.

a- 0.4 %	b- 10 g/L	c- 35 ppm	d- 15 mg/L

7. You have a 15 g/L solution; **explain the process** of making the solution in percent concentration.

8. What is the difference between 15% concentration and a 20% concentration?

9. If blue algae in a lake reach 7 ppm the water is considered dangerous to swim in and the lake must be closed. You test the water for the contaminant and find the algae is at 0.003 g/L. Is the water contaminated?

10. You have 2 types of soil. Soil A has a mercury concentration is 0.03 ppm and soil B has a concentration of 1.6 %. If the lethal concentration of mercury is 0.0005 g/L determine if either soil is contaminated.

11. You have 25 mg of a solute dissolved in 40 L of water. What is the concentration in ppm?

Past exam questions

1. A lake is considered polluted if the concentration of mercury exceeds 8 ppm. You take a sample of three different lakes to verify if any are polluted.

Results from samples taken from lakes

Lake	Mercury concentration
Lake 1	0.0005%
Lake 2	2.5 mg/L
Lake 3	0.085 g/L

Determine if any of the lakes have a lethal concentration of mercury.

2. Two lakes are being tested for different pollutants that can harm aquatic life. Below shows the pollutants with their lethal doses.

Lethal doses for pollutants

Pollutant 1	20 ppm
Pollutant 2	0.4 ppm
Pollutant 3	0.9 ppm

The table below shows the results of sample water taken from the four lakes and each pollutant.

	Pollutant 1	Pollutant 2	Pollutant 3
Lake 1	.015 g/L	0.006 %	18 mg/L
Lake 2	0.15 g/L	0.00003 %	1.6 mg/L

Determine if either lake has any pollutants in it.