

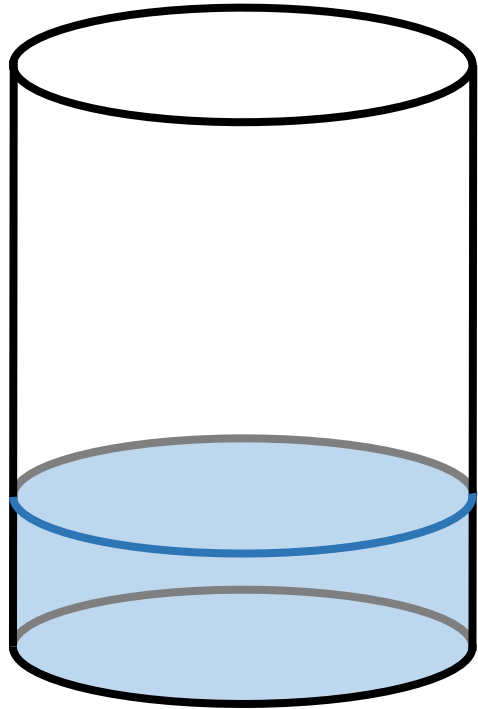
# Solutions

*(homogeneous mixtures)*

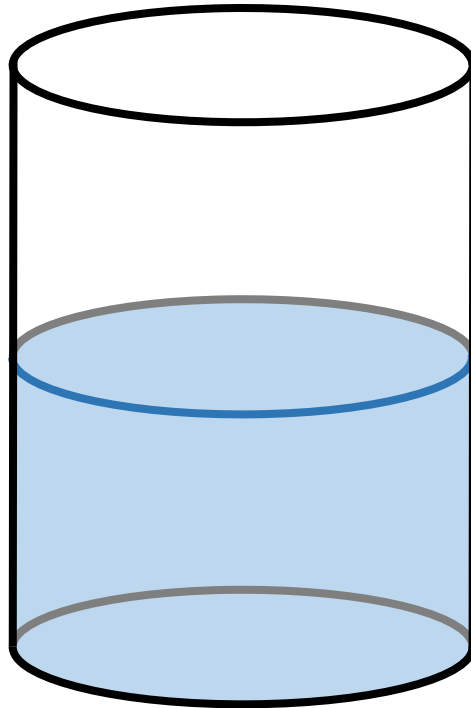
**Solution:** A solute dissolved in a solvent.

**Aqueous solution:** A solution with water as the solvent.

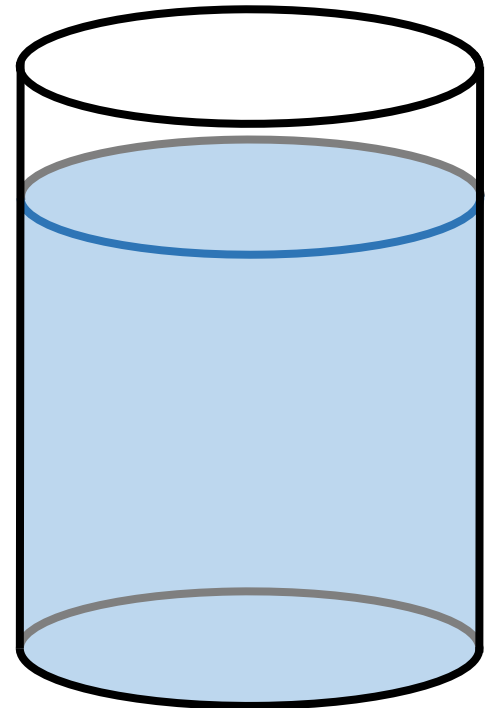
Consider 3 containers of water,



1 L

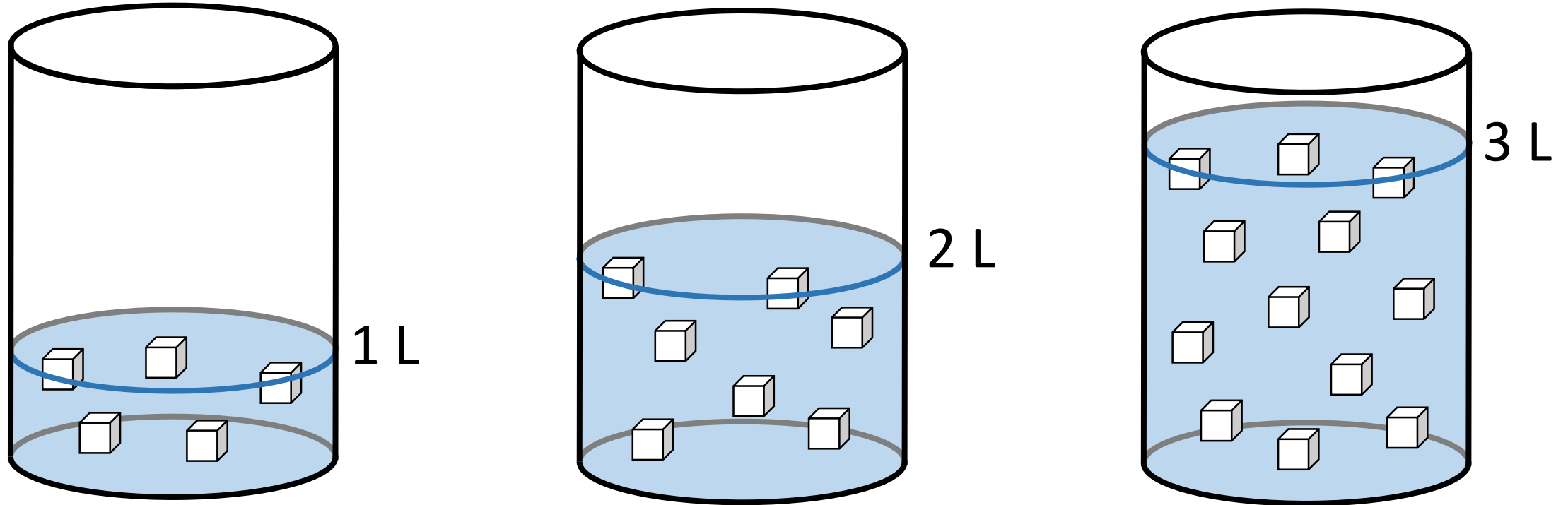


2 L



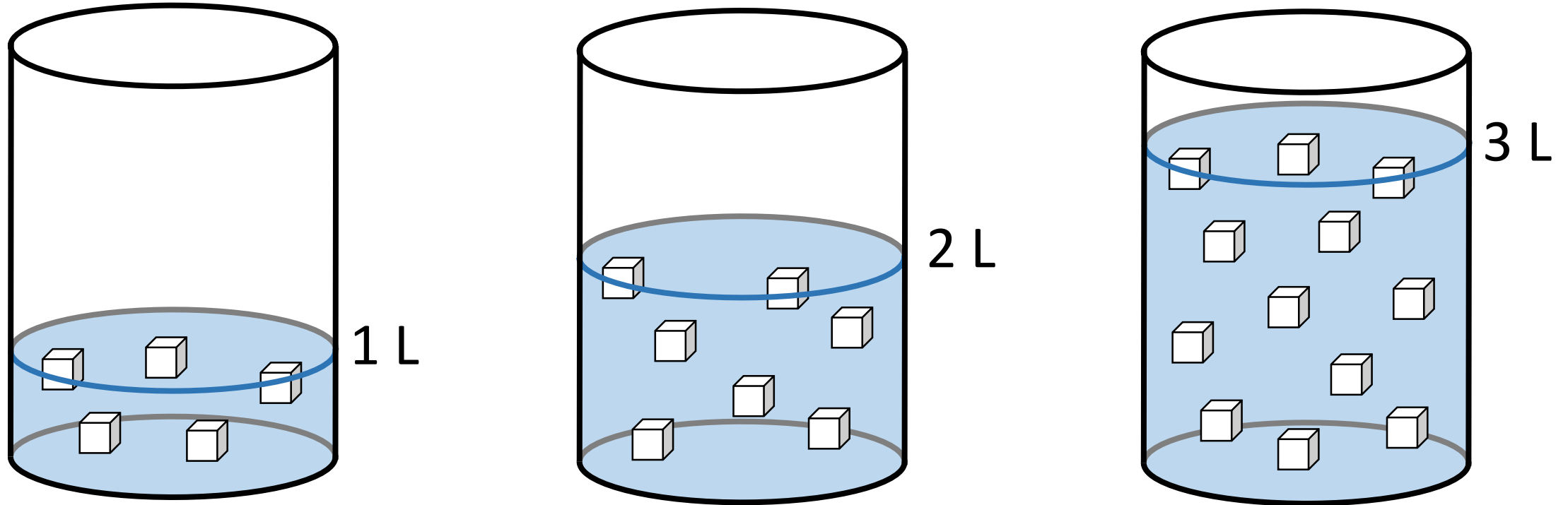
3 L

Consider 3 containers of water, each with cubes of sugar dissolved into them. Each cube represents an equal amount of sugar dissolved in the water.



The water from which container would taste the sweetest?

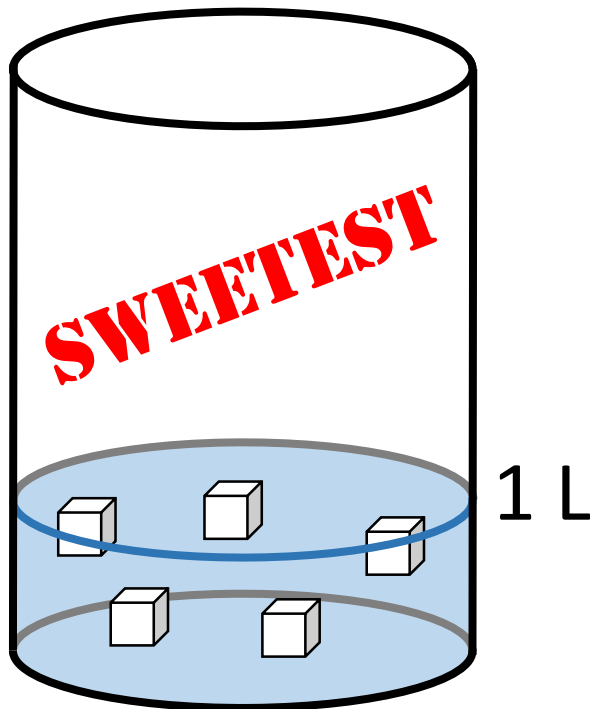
The water from which container would taste the least sweet?



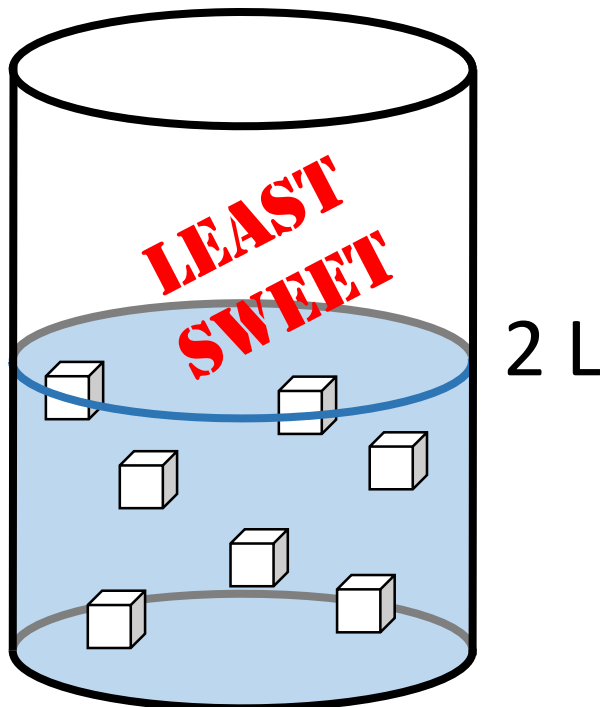
$$\frac{5 \text{ cube}}{1 \text{ L}} = 5 \text{ cube/L}$$

$$\frac{7 \text{ cube}}{2 \text{ L}} = 3.5 \text{ cube/L}$$

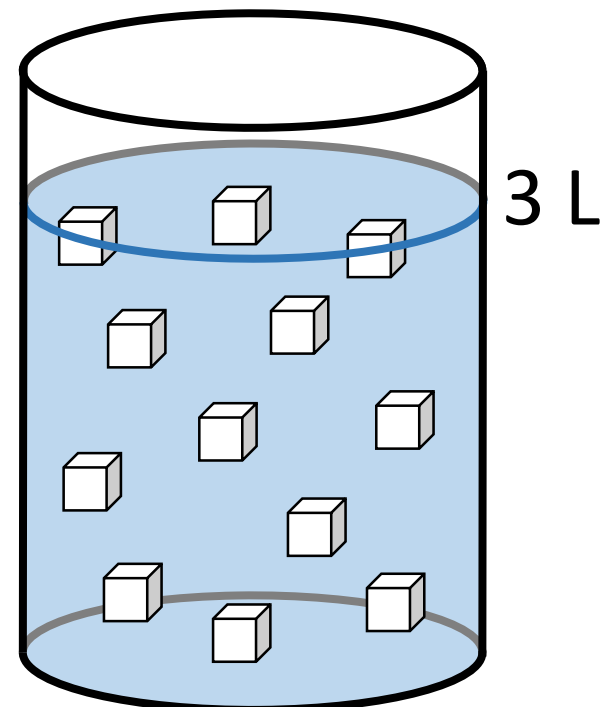
$$\frac{12 \text{ cube}}{3 \text{ L}} = 4 \text{ cube/L}$$



Highest  
Concentration  
of Sugar



Lowest  
Concentration  
of Sugar



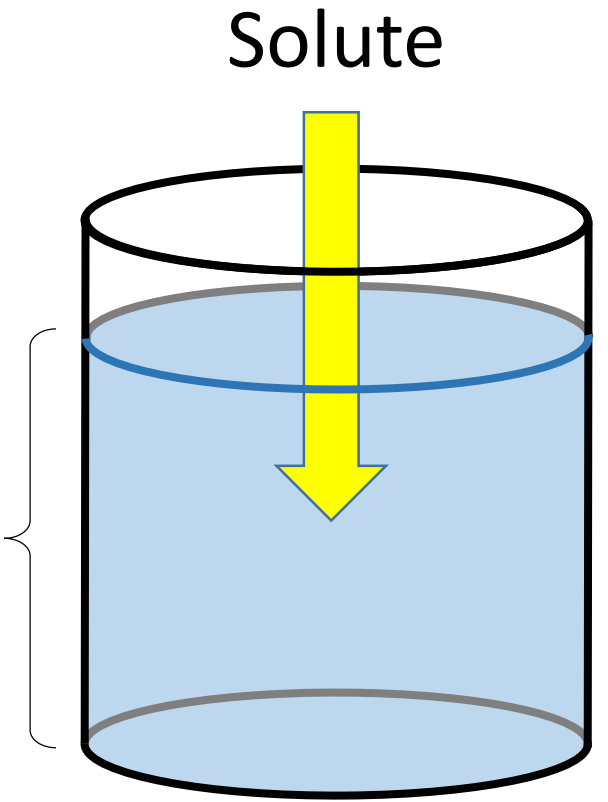
# Concentration of a Solution

A ratio of the amount of solute to the amount of solution.

$$\text{Concentration} = \frac{\text{amount of solute}}{\text{amount of solution}}$$

$$C = \frac{m}{V}$$

Solution



**Mass:** The amount of matter contained in an object.

Measured in grams (g) (also mg & kg)

( 1000 mg = 1 g )

( 1000 g = 1 kg )

( 1 mg = 0.001 g )

( 1 g = 0.001 kg )

**Volume:** The amount of space occupied by an object.

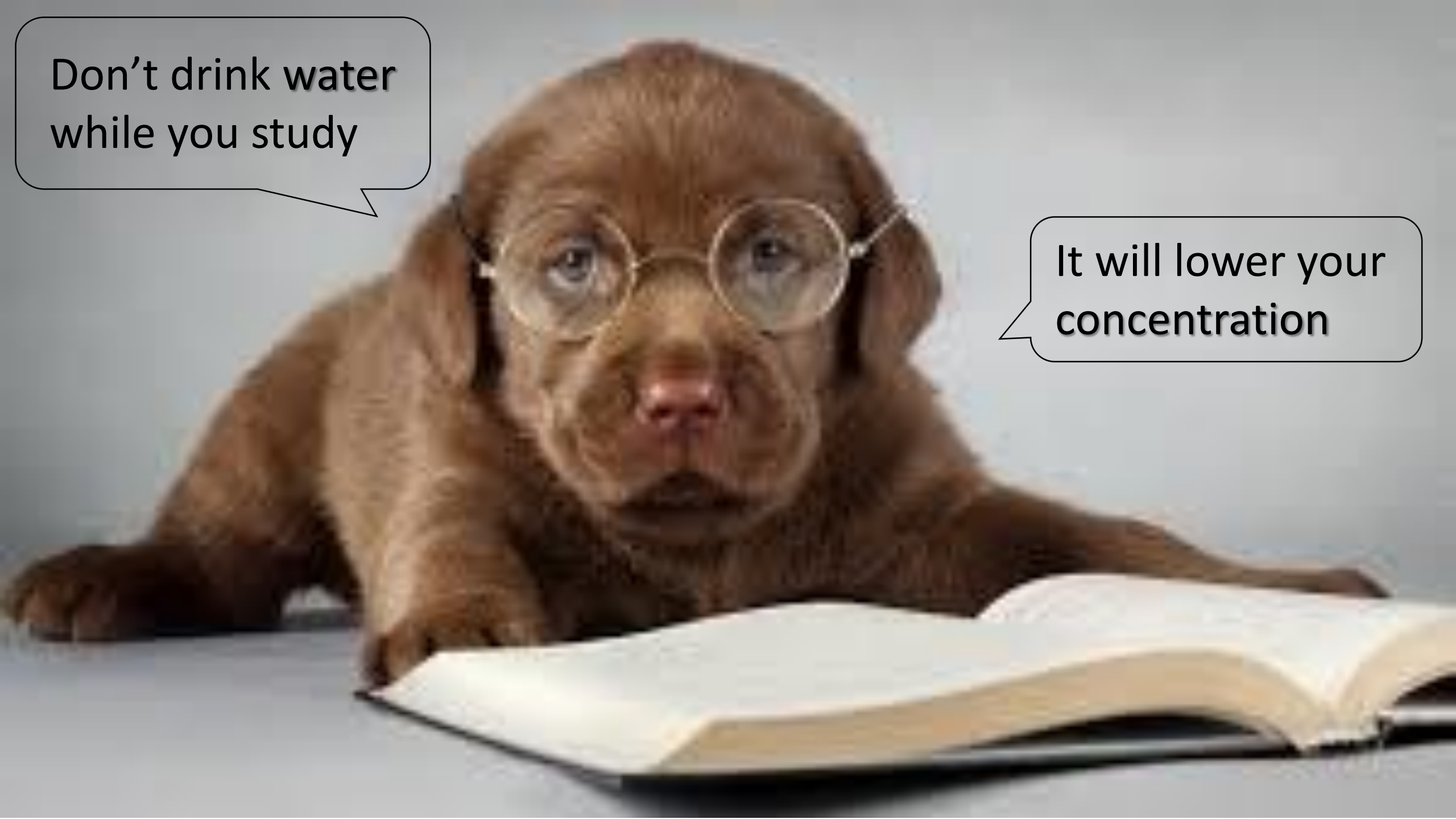
Measured in litres (L) (also mL) (also cm<sup>3</sup>)

( 1000 mL = 1 L )

( 1 mL = 0.001 L )

( 1 mL = 1 cm<sup>3</sup> )



A brown puppy is lying on a light-colored surface, looking directly at the camera. The puppy is wearing round, gold-rimmed glasses. In front of the puppy is an open book with white pages. The background is a plain, light-colored wall.

Don't drink water  
while you study

It will lower your  
concentration