

## Activity 30: Concentration Units

### *Learning Objectives*

*Determine the concentration of a solution in the units molarity, percent composition, parts per million, and parts per billion*

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**Estimated Completion Time**

45 Minutes

### **Instructor Information**

These questions require unit conversions and cancellation of correct units. It is useful in questions like 6 and 7 to point out that the solution can be determined using a ratio since health professions students are taught this manipulation in their classes. The ratio solution is shown in question 6. Students should also be able to explain how they would prepare solutions versus merely arriving at a numerical answer.

### **ANSWERS TO QUESTIONS**

1. 3.0M
2. 0.653M
3. 45.0 g
4. 1.25% (m/v)
5. 1240 ppm
6.  $\frac{5.0 \text{ g}}{100 \text{ mL}} = \frac{x}{750 \text{ mL}} = 37.5 \text{ g} = 38 \text{ g (2 sig figs)}$
7. Add 9.0 g of NaCl to enough water to make 1.00L.
8. 0.24% (m/v)

### Activity 30: Skill Development

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1. 0.107 M; 107mM
2. 0.02 mole; 1.5 g KCl
3. 0.13 mole
4. 0.5% (m/v)
5. 10.% (v/v)
6. 9.09% (g/g)
7. 0.117 g insulin
8. 4.5 g NaCl
9. 5 ppm; 5000 ppb
10. 0.11% (m/v)