

## Pre- Practice MCAS

### **\*\*MCAS Hints\*\***

*(If you see any of these as an answer choice, choose it! Especially the underlined words!)*

**Heredity/Evolution:** Common ancestor, DNA, Bone structure, Survive & reproduce, Food

**Chemistry:** Compound, Carbon

1. Fill in the molecular formula column using the word bank below.

### Common Compounds to Know:

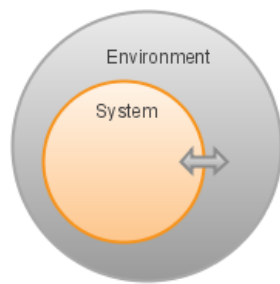
Name	Molecular Formula	Description
Water		Odorless, colorless substance that makes up oceans, rivers, streams & the fluids of living organisms; necessary for life
Salt		Crystalline mineral found in vast quantities in sea water; frequently used in food to intensify flavor
Ammonia		Colorless gas with a pungent (strong and terrible) smell; A by-product of animal waste, such as urine ( <i>it's why animal cages smell bad!</i> )
Carbon Dioxide		Colorless, odorless gas produced during combustion (burning) and respiration (breathing)
Glucose		Simple sugar that is used as an important energy source for many organisms; a component of many carbohydrates

**Word Bank:**    CO<sub>2</sub>    NaCl    C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>    NH<sub>3</sub>    H<sub>2</sub>O

2. A student is trying to make the perfect latte and is heating up milk on the stove. One pot contains 1 L of milk and the other pot contains 2 L of milk. The student heats each pot until it boils. Which of the following best describes how the substance boils?

- a) The milk in both pots boils at the same time.
- b) The milk in both pots boils at the same temperature.
- c) The 2L of milk gets hotter than the 1L of milk before boiling.
- d) The 2L of milk absorbs heat more quickly than the 1L of milk.

3. Using the diagram, explain the difference between an open system and a closed system.



Open System



Closed System

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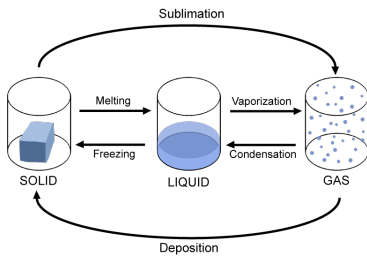
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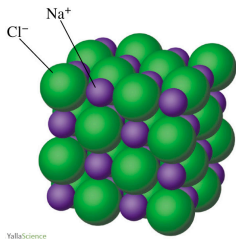
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4. What's the term used to describe a substance (such as water) changing between different states of matter, as shown below?



- a) Expansion
- b) Boiling point
- c) Phase change
- d) Pure substance

5. A compound (NaCl) is shown below. What's the smallest unit of this compound that still maintains the chemical characteristics of this compound?



- a) an element
- b) an atom
- c) a nucleus
- d) a molecule

6. Identify each substance as either a pure substance or a mixture:

Substance	Pure Substance or Mixture?
Salt water	
Plain water	
Helium	
Strawberry milk	
Carbon dioxide	
Air	

### 7. Cell Organelles

a) What 2 organelles do plant cells have that animal cells do NOT have?

1) \_\_\_\_\_ 2) \_\_\_\_\_

b) What organelle do plant & animal cells have that bacteria cells do NOT have? \_\_\_\_\_

c) What organelle surrounds all cells? \_\_\_\_\_

### 8. Look at the karyotype shown...

- a) What are these structures called? \_\_\_\_\_
- b) What molecule do they contain? \_\_\_\_\_
- c) What information do they contain? \_\_\_\_\_
- d) Why are there two of each? \_\_\_\_\_
- e) Why do the chromosomes of each pair look a little different? \_\_\_\_\_
- f) What is the sex of this particular baby? \_\_\_\_\_

