

Modeling Matter

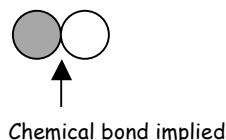
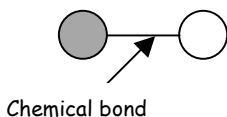
The principles of Chemistry can often feel very abstract because we are discussing behaviors that happen at the particle level, which can be difficult to visualize. To gain a better understanding of what is happening at this level, it is often easier if we use models of matter so that we have something to picture in our minds. This activity will give you practice interpreting and creating visual models of matter at the particle level.

Drawing Rules:

- Each element should be represented with a circle.
- Differentiate between different elements by labeling or shading them differently



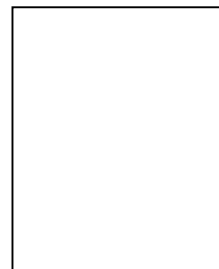
- If two more atoms are chemically bonded together, show this with a line connecting them to represent the bond, or draw them touching each other (which implies a chemical bond)



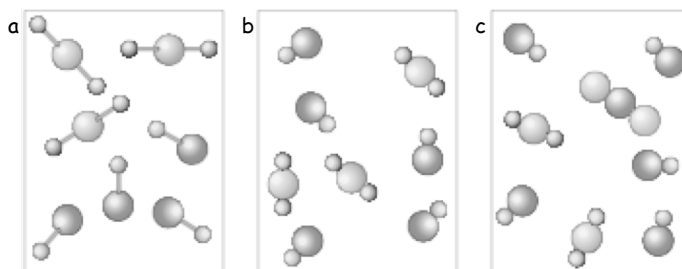
1. In the space below, draw a sample of oxygen gas. (Remember that oxygen is found in molecular form).



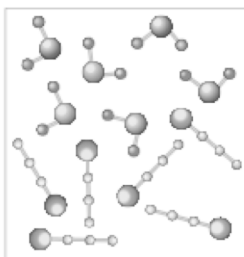
2. Draw a model of a homogenous mixture made up of two different gaseous elements, X and Y.



3. Examine the three pictures below. Which shows a homogenous mixture of two different gaseous compounds? The first gas is composed of molecules that contain two atoms of two different elements. The second gas contains molecules of three atoms of two different elements. Explain your reasoning.



4. What kind of matter does the following model represent? Explain your answer.

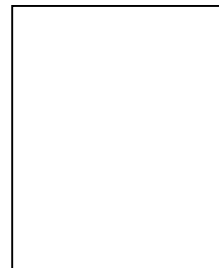


5. Draw a model of each of the following samples of matter.

a. A mixture of gaseous elements X and Z



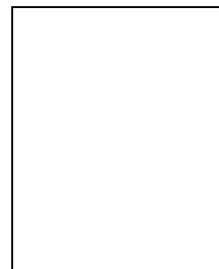
b. A two-atom compound of X and Z



c. A four-atom compound of X and Z



d. A solution composed of a solvent that is a two-atom compound composed of L and R, and a solute that is a compound composed of two atoms of D and one atom of T.



6. Compare each of your models from the previous answer with a classmate. How are your models similar? How are they different?

7. Iodine (I) is diatomic like Oxygen and Hydrogen. Solid Iodine is much more dense than gaseous Iodine. In the boxes below, draw a model of Iodine in each of these states that show the differences in density. What are the key features of your drawing?

