

**Directions:** Read the information below.

### What Candy Bars Are Made Of

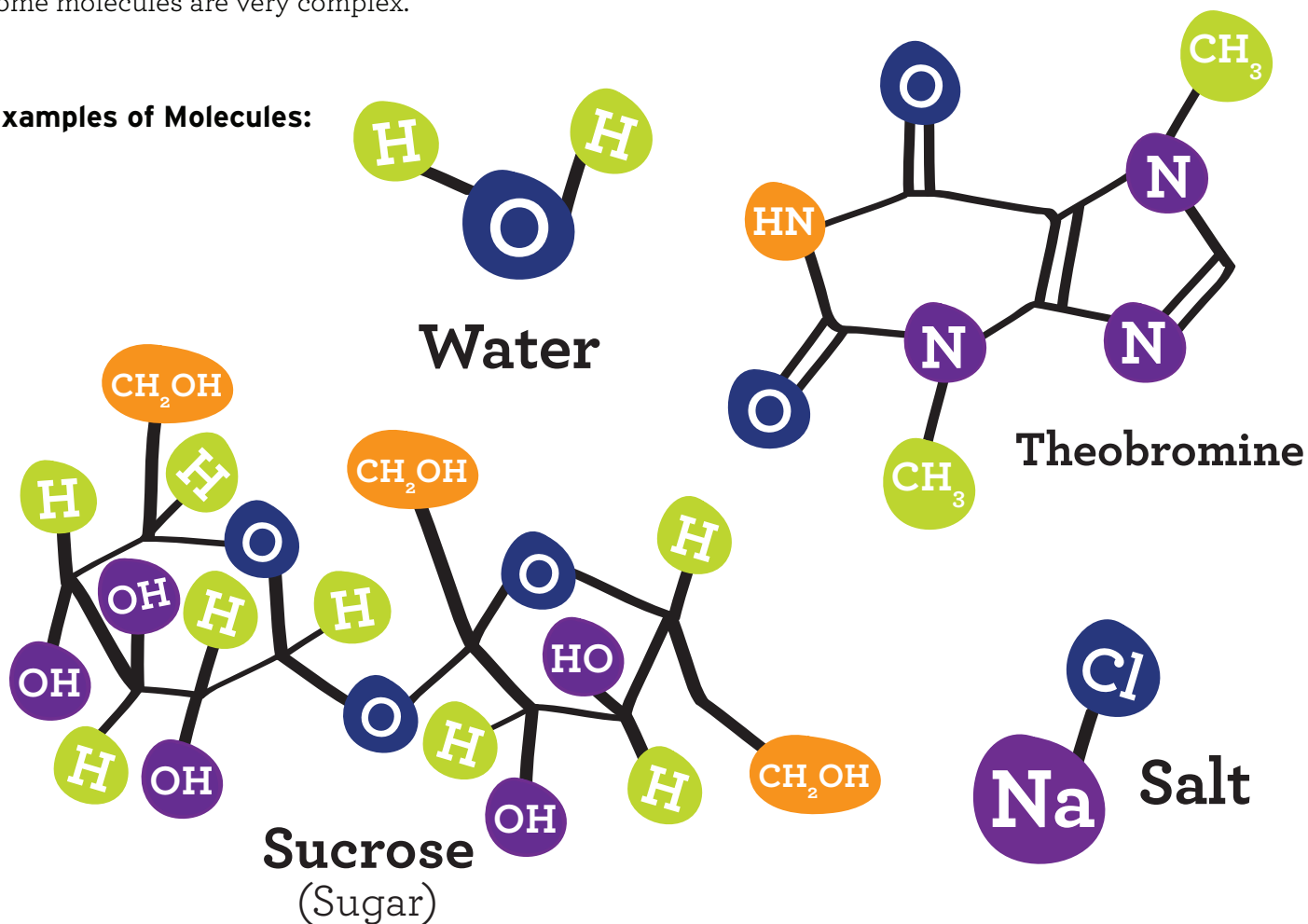
Imagine you're sitting down to enjoy your favorite chocolate bar. You're opening the wrapper and see the smooth, sweet snack within. But what is that chocolate bar made of? Sure, you could look at the ingredients label—but what are each of those ingredients made of? We could continue asking this until we get down to a final answer: atoms.

All substances are made up of atoms. Atoms combine together to form molecules. Molecules create the essence of all those ingredients that make your chocolate bar. Let's look at a common example. Water is often referred to as  $H_2O$ .  $H_2O$  means each molecule of water is made up of two Hydrogen atoms and one Oxygen atom. These atoms are too small to be seen with our eyes. Instead, we must use a transmission electron microscope. These specialized microscopes can magnify much farther than the human eye can see and costs scientist tens of thousands of dollars to purchase.

If we return to our chocolate bar example, we see the ingredients listed on the back. For example, salt is a simple molecule. It is made of sodium and chloride, one atom of each. The sodium atom and chloride atom join to create a molecule of salt. Other ingredients are present in chocolate bars, such as theobromine, a key ingredient in cocoa. This substance has an extended atomic structure, as seen below.

When a substance has molecules that are made up of all the same atoms, it is said to be a pure substance. Gold, for example, is a pure substance. Its atoms are only made of gold. In contrast to this, some molecules are very complex.

#### Examples of Molecules:



**Directions:** Answer the questions using the passage.

1. What is the difference between an atom and a molecule?

An atom is ...	A molecule is ...
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2. Describe how a “pure” substance is unique.

3. Ammonia is a chemical in the form of a gas that oftentimes stings our eyes and nose when we come into contact with it. You may know it from its presence in some hair dyes. The molecular makeup for ammonia is three Hydrogen atoms and one Nitrogen atom. Use the space below to cut and paste the molecules in a form you believe they could be laid out.

