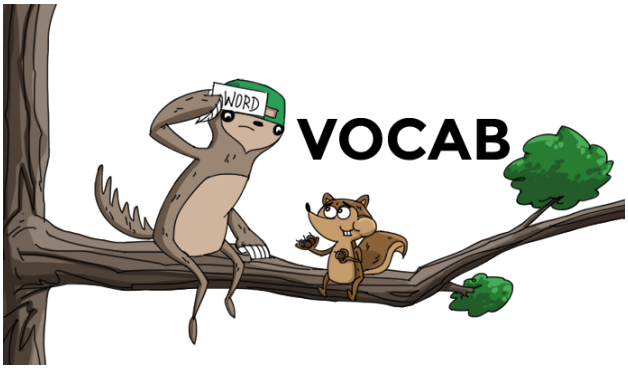
# Atoms & Molecules Lesson 1: "The Solve"

## Student Handout

### I. Vocabulary Warmup




1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**.
2. Write the definitions on the back of the cards. Then, match the vocabulary word with the correct picture on the "Atoms & Molecules Mind Map." When you're ready to glue, raise your hand so you can check your Mind Map with your teacher.
3. Fold along the dotted line on each vocabulary card to create a flap. Put glue **ONLY** on the hinge of your vocabulary cards ( the word should be on top). **You should be able to open the flap to see the definition and the picture underneath.**
4. Discuss with your group:
    a. What is a molecule made up of?
    b. Based on how many protons and electrons hydrogen has, what relationship can you predict between protons and electrons?

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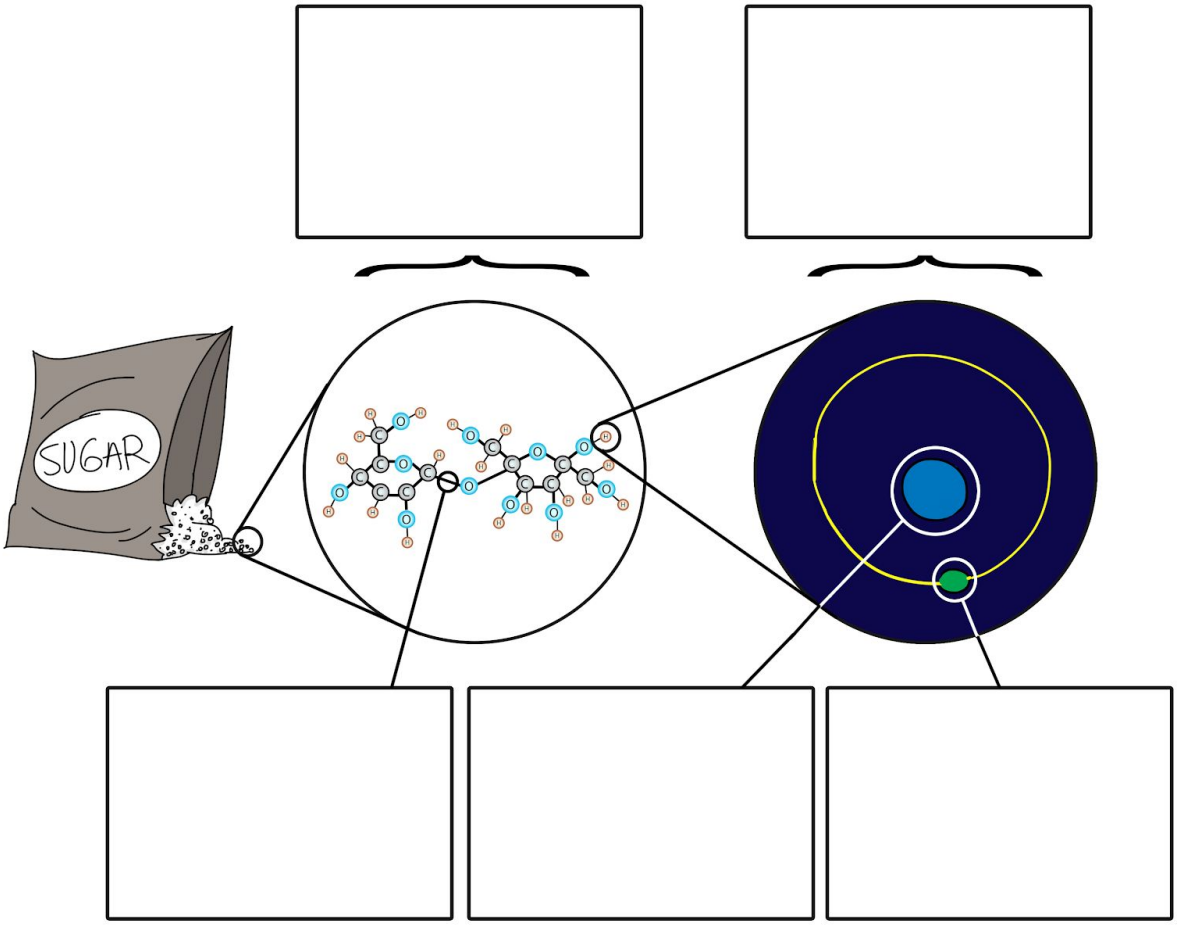
**Atoms and Molecules Vocabulary**

- Proton: a very small particle in the nucleus of an atom with a positive charge
- Neutron: a very small particle in the nucleus of an atom with no charge
- Electron: a very small particle that travels around the nucleus of an atom with a negative charge
- Atom: the smallest particle of an element that can exist alone or in combination
- Molecule: a group of two or more atoms bonded together
- Bond (covalent): a connection formed between atoms by sharing one or more electrons

**Atoms and Molecules Mind Map:**



**Atoms and Molecules Vocabulary Cards:**

| | | |
|---|---|---|
| Molecule | Proton | Atom |
| Electron | Bond | |

## II. Watch Mosa Mack.

Either on your own, in a small group or as a class (your teacher will let you know), watch Mosa Mack's episode on Atoms & Molecules. Then, fill out the questions below with a time code to show where you found your answer.

**Name: _____** **Date: _____**

**Episode Questions**

1. How do Mosa and her crew first figure out that something is wrong with the sugar on the creme brulee?

2. When Mosa and her team use the quantum microscope to look at a grain of sugar, what do they find out everything in the world is made up of?

3. What makes all atoms different? In other words, what makes hydrogen, hydrogen?

4. How is Mosa able to guess that Carbon has 6 electrons and Oxygen has 8 electrons?

5. What is a single molecule of sugar called? What is it made up of?

6. What happens when Billy torches the sugar? What is the brown stuff that results?

7. Oxygen was made up of atoms that shared electrons. How is sodium-chloride different?

8. Help Mosa solve the mystery. What is different about the "suspicious" sugar? What is the reason behind Chef Crystal's terrible creme brulee?

## III. Exit Ticket: Check for Understanding

Complete the exit ticket below *or* you can take the quiz online!

**Name: _____** **Date: _____**

1. What is the smallest indivisible unit that everything in the world is made up of?
    a. Molecules
    b. Atoms
    c. Electrons
    d. Protons

2. If a neutral Sodium has 11 protons, how many electrons does it have?
    a. 22
    b. 1
    c. 11
    d. 10

3. The hydrogen atom refers to itself as part of a "team." What is the chemical name of the team he is referring to?
    a. Sodium-Chloride
    b. Carbon
    c. Oxygen
    d. Sucrose

4. A molecule is made up of one or more atoms connected by _____.
    a. Bonds
    b. Chemicals
    c. Other atoms
    d. String

5. What is different about a molecule of sucrose and a molecule of sodium chloride? Choose all that apply.
    a. They are made up of different kinds of atoms.
    b. They are not different.
    c. Sodium chloride has extra atoms.
    d. They bond in different ways; sucrose involves sharing electrons while sodium chloride involves stealing electrons.