OXBOW "I See, I Wonder" Teacher Notes

Chemical Reaction and Slime

Grade	Standard/Element
5	S5P1 – Obtain, evaluate, and communicate information to explain the differences between a physical change and a chemical change.
8	S8P1d – Construct an argument based on observational evidence to support the claim that when a change in a substance occurs, it can be classified as either chemical or physical.
Chemistry	SC3a - Use mathematics and computational thinking to balance chemical reactions (i.e., synthesis, decomposition, single replacement, double replacement, and combustion) and construct an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
Chemistry	SC3b - Plan and carry out an investigation to determine that a new chemical has been formed by identifying indicators of a chemical reaction (e.g., precipitate formation, gas evolution, color change, water production, and changes in energy to the system).

Main Ideas:

- Physical vs. Chemical Reaction

Misconceptions:

- When you mix 2 or more substances together a chemical change occurs.

What You Need to Know:

- A chemical change is any change that results in the formation of new chemical substances. At the molecular level, chemical change involves making or breaking the bonds between atoms.
- The "making" of slime is a chemical change.
- A physical change rearranges molecules but doesn't affect their internal structures.
- The signs that a chemical reaction may have taken place include:
    - Color change – if the change is not a result of paint, dye or dilution.
    - Formation of gas – bubbles are often an indicator
    - Temperature change – increase or decrease in temperature not caused by its surroundings.
    - Formation of a precipitate – when a solid is formed that has a different molecular makeup of either of the reactants in a solution.
    - Noise – fizzing, bubbling, explosions (e.g. fireworks)
    - Light Emission
    - Creating a new odor