Strand: **8.1**	Standard: **8.1.2**	Episode 1	**Big Idea**: The properties of a material determines its uses.

Title: Phenomenon: Properties of a Substance	**Time**: ~30 minutes	CCCs: Structure and Function	Practices: **Obtaining, evaluating, and communicating information.**

Episode Snapshot

For the phenomenon students will be provide with with two grainy substances that they will observe them identify properties of them and ask questions.

DO NOT tell them what these substances are as they are going to investigate them.

The substances are: instant snow polymer and magic sand. These substances can be obtained from Educational Innovations (teachersource.com). The magic sand comes in multiple colors. Color doesn't matter. The instant snow polymer is a hydrophilic substance that is considered water loving because of the substance being polar. The magic sand is a substance that is hydrophobic, a substance said to be water hating because of the non-polar nature of the substance.

Materials: Set out each of these substances in a small flat container like a larger petri dish. Put approximately 30cc of magic sand in one petri dish and 20cc of snow polymer in the other petri dish. Put a small beaker of water next to the petri dish. It works well to use a 100mL beaker with 80 mL of water in each. Include a pipette for the water. Give them bowls as well. The magic sand can be reused. Just pour off the water and pat it with tissue or paper towel. The snow polymer will need to be put in a bucket or another container once it has been mixed with the water. Over time, as the water evaporate, it will return back to a grainy substance if you want to save it and show the students later. This will take a couple of weeks. It shows that this was not a chemical reaction.

Gather

Have the students gather information about the substances.Tell them to experiment with the water and each substance. TELL THEM NOT TO MIX THE TWO SANDY SUBSTANCES.

Explain to the students that they are limited to their own senses to observe these materials first. (EXPLAIN THAT THEY ARE NOT ALLOWED TO USE THEIR SENSE OF TASTE). Have them fill in observations. Then allow them to use the water to further examine their substances. As they are **obtaining and evaluating information** about the substances, they need to describe their findings and list questions that they have.

Reason

Finally, they need to list possible functions of each substance. What products would these substances be useful for?

Communicate

Student **communicate** one of their ideas with the class at the end of the activity.

Assessment: The assessment will be the form they fill out about these substances. They should have detailed observations that describe their properties. The best part of the assessment will be where they determine the uses for the materials.	**Materials, resources, handouts, etc:** Reflection Sheet for Engage Activity ● magic sand ● instant snow polymer ● petri dishes ● beakers of water ● disposable bowls ● pipettes. You can purchase the snow polymer and magic sand from educational innovations.(teachersource.com). The magic sand is re-useable.