Scientific experiment essay sample

Abstract: We conducted several experiments using the Scientific Method. We made observations, recorded them and used our observations to propose a hypothesis. The experiments included chemical and physical reactions dealing with torn news paper, appearance of rock salt crystals, the appearance of sand, oil and water on plastic, and making iodine in water and mineral oil. We found that all these included four physical changes and two chemical changes. This was important in determining the substance or mixture that dealt with physical and chemical properties as well as homogeneous and heterogeneous mixtures. Purpose/Hypothesis: The purpose of this experiment was to record observations concerning chemical and physical changes using common household materials. We also practiced using the scientific method, which including making observations, hypotheses, and conclusions based on data. Procedures: We experimented with: newspaper, rock salt, sand, oil, water, and several chemicals. We did the following: * Newspaper- We tore the paper vertically and then horizontally and observed the edges with a hand lens to determine if there was a difference in the type of tear.

* Rock salt-We examined the salt before and after crushing it with a blunt object, then what the shards looked like in water. * Sand-We observed the sand with a small hand lens while it was dry then while it was wet adding several drops of water. * Oil and Water-We studied the difference between mineral oil and water using a hand lens. * Making iodine in water- We added one drop of potassium iodide and sodium hypochlorite (bleach) then mixed the two together producing iodine. * Making iodine in oil-We added two drops of mineral oil, one drop of water on the mineral oil, then added one drop of

potassium iodide and sodium hypochlorite. Producing Iodine. Results: In class we conducted four experiments on the physical change and two experiments on the chemical changes. We used both heterogeneous and homogeneous materials. The results of our experiments appear in Table 1. Discussion:

* When we tear the newspaper horizontally, we observed more fibers; this indicated to us that more fibers had been laid down vertically when the paper was made (Table 1). * When we crushed the rock salt crystals, we observed more tiny shards of rock salt rather than bigger pieces. We then noticed how they became more defined in water before dissolving into a clear mixture. * We observed the appearance of different pieces of sand grains and then analyzed the results while we put the sand in water. This showed the sand grains more clearly and more defined, as in their shapes and sizes. * When we added a drop of oil on the reaction surface, we observed defined smooth edges. When the drop of water was on the reaction surface, we observed more rough edges. * When we dropped the potassium iodide and the sodium hypochlorite they were both clear before mixing. We observed the chemicals after mixing and it turned to a yellow color with small red dots. This indicated that there was a chemical reaction after mixing the two chemicals.

* When we added water to the oil then we added potassium iodide and sodium hypochlorite, the result was a gold center of iodine. This indicated that there was a chemical reaction but the oil had an effect on the iodine that was made. Conclusions: With this experiment there were several different ideas brought about. We learned the differences of physical and chemical changes and characteristics. We also learned how to observe if a

chemical reaction occurred by color change, formation of a solid, and formation of a gas. With the bonus questions, we learned the newspaper, rock salt, sand and the oil and water on plastic was an example of physical change. The iodine in water and oil was an exampleof chemical change.

Table 1. Results of Scientific Method Experiment, Environmental Science class, Thomas University, 8 October 2012.| Procedure| Observation|
a) Torn paper | Vertical tear: Few fibers, rigid, not smoothHorizontal Tear: More fibers, all directions, rigid, not smooth| b) Appearance of rock salt crystals | Before crushing: Solid, some parts clear, rough abnormal shapeAfter crushing: smaller, still rough rigid pieces. Sharper shiny shards. Wet: Dull looking shards of crystal. Floating then dissolving| c) Appearance of sand | Dry: Tan, orange, brown, tiny, solid. All different shapes and sizes. Wet: Shows grains more clearly and individually. Floating| d) Oil and water on plastic | Oil: More clear, defined smooth edgesWater: rougher edges, surface tension| e) Making iodine in water: potassium iodide (KI), and sodium hypochlorite (bleach, NaClO).| Both chemicals were clear before mixing. After mixing turned to a yellow color. Small red dots in the middle and stained the plastic. Smooth, round mixture.| f) Making iodine in oil: mineral oil, water, potassium iodide, and sodium hypochlorite. (iodine)| Initially: Gold Center of iodineAfter 5 min.: the iodine separated into two halves, with a clear center.|

Drawing of what you see for step 7:

The drop to the right and the left are the colors of the potassium iodide and sodium hypochlorite. They were both clear. After mixing them together they

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