Classes of Matter- Part II

Annotation
This inquiry based lab builds upon the ability to classify matter and asks the student to explain the experiments used to determine the chemical and physical properties of the sample, and determine if their data matches their classification. This lab can be remediated or extended by including more identifications of less obvious classification.

Hypothesis
Student directed inquiry will determine what experiments need to be performed to analyze and classify different substances.

Primary Learning Outcome
1. Students should be familiar with the methods of chemical and physical separation, and how to categorize the sample's properties
2. Students will use the inquiry lab to use the scientific method
3. Students will have to use an orderly and systematic method of thinking to accurately classify

Assessed GPS
SCSh1. Students will evaluate the importance of curiosity, honesty, openness, and skepticism in science.
SCSh2. Students will use standard safety practices for all classroom laboratory and field investigations.
SCSh3. Students will identify and investigate problems scientifically.
SCSh4. Students will use tools and instruments for observing, measuring, and manipulating scientific equipment and materials.
SCSh6. Students will communicate scientific investigations and information clearly.
SCSh8. Students will understand important features of the process of scientific inquiry.
    a. Scientific investigators control the conditions of their experiments in order to produce valuable data.
PS2. Students will explore the nature of matter, its classifications, and the system for naming types of matter.

Total Duration
60-90 minutes to conduct lab (varies with number of samples to identify and if student's reasoning is written on their paper or discussed in class)

Materials and Equipment
1. All can be brought from home. Just include a variety based on classification, color, particle size, phase of matter, etc.
2. To emphasize discussion of purity, bring a clear liquid. Most students will say it is pure, but only elements are pure.
3. Basic lab equipment should be available for chemical and physical identification.

Procedure:

1. Assign samples to each group.
2. Students are to conduct their tests and give the classification and reasoning, as per the handout.
3. Types of tests conducted will depend on what is discussed in class, but discussion should follow after lab to ensure that all students understand the application.

Lesson Materials Attached

Data sheet is attached.

Assessment

Student assessment of this lab will be based on correct identification of the samples and proper reasoning.

Extension

Students can also complete Classes of Matter- Part I as a complete review, and samples and tests of greater difficulty can be added. Students can work as individuals.

Remediation

Samples of more obvious classification and easier testing methods can be added.

NAME:

DATA PAGE FOR CLASSIFICATION OF MATTER

Number	Description	Classification	Reasons for Classification
1			
2			
3			
4			
5			
6			
7			

8			
9			
10			
11			
12			
13			
14			