Lesson Title	Physical and Chemical Changes
Length of Lesson	One (50 minute) class period
Created By	Rob Thornton, Will McBryde
Subject	General Science
Grade Level	8th grade
State Standards	8th: 1b, d (Inquiry); 2a (Physical Science)
DOK Level	DOK 3
DOK Application	Investigate, Hypothesize, Explain Phenomena in Terms of Concepts
National Standards	5-8: A (Inquiry); B (Physical Science)
Graduate Research Element	The atmosphere is comprised of chemical elements. It is important to understand chemistry basics to better understand the atmosphere.

Student Learning Goal:

MS 8th Grade:

(Inquiry) 1(b) Distinguish between qualitative and quantitative observations make inferences based on observations. (d) Analyze evidence that is used to form explanations and draw conclusions; 2 (a) Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the low of conservation of mass.

National Science Education Standards of Content 5-8:

(Inquiry - A) Abilities necessary to do scientific inquiry, Understandings about scientific inquiry; (Physical Science - B) Properties and changes of properties in matter

Materials Needed (supplies, hand-outs, resources):

Middle school textbook, dry-erase board, Examples to use…(i.e. bubble making liquid, rusty pipe, baking soda and vinegar, air freshener can (full), balloon, candle, matches)

Lesson Performance Task/Assessment:

This lesson is a review lesson about physical and chemical changes (compare/contrast). Students will observe demonstrations and will be asked questions if the demonstration exhibits chemical or physical changes. Students will also read aloud out of their textbook about physical and chemical changes. The teacher will select the students read. At the end of the chapter are a set of questions that the students will answer.

Lesson Relevance to Performance Task and Students:

The demonstrations will help the students visualize the concepts of physical and chemical changes. The concepts will be reinforced by having the students read aloud out of the textbook. In addition, students will answer questions out of the book and this will help evaluate the students' knowledge.

Anticipatory Set/Capture Interest:
The lesson's capture activities are the demonstrations that use various items to show physical and chemical changes. The items used in this lab are included in the materials section. (Please note the teacher should feel free to use any items that can demonstrate physical and chemical changes to the students)
Demonstrations:
bubble making liquid – physical
rusty pipe – chemical
baking soda and vinegar – chemical
air freshener can (full) – physical
balloon - physical
candle – both (wax melting is physical, heat from burning wick is chemical)
matches – chemical

Guided Practice:
The physical and chemical demonstrations will be guided.

Independent Practice:
Students reading selected portions of the textbook and answering of questions asked by the teacher. Or the questions could be read from the textbook.

Remediation and/or Enrichment:
Remediation- Individual IEP; Enrichment - Have students bring in an example of a physical change they have researched.

Check(s) for Understanding:
Observe students participation during demonstrations and reading. Ask students questions.

Closure:
Question 1: Give an example of a physical change?

Question 2: Give an example of a chemical change?

Possible Alternate Subject Integrations:
Math

Teacher Notes:
Definitions:
Physical Change – Any change that alters the appearance of something, but does not change its substance.

Chemical Change – A change in matter that produces a new substance.

Evidence for a chemical reaction:
-color change
-a solid or a gas created
-absorbs or releases energy
-a new smell created