Physical or Chemical Change???

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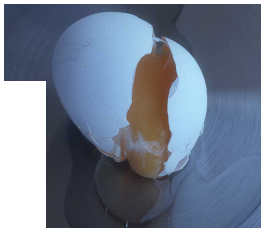
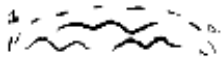
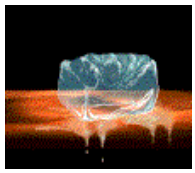


Classify each of the following as a chemical or physical change:

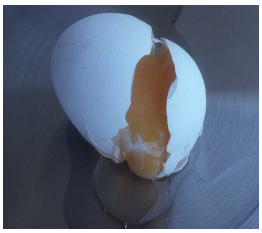


a) water freezes into ice
b) gasoline burns in a car
c) a match burns
d) light is given off
e) wax melts
f) rubbing alcohol evaporates
g) popping popcorn
h) cooking an egg
i) burning logs in a fire
j) sodium bicarbonate (baking soda) mixes with acetic acid (vinegar) and bubbles are formed.



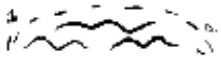
Physical or Chemical Change???

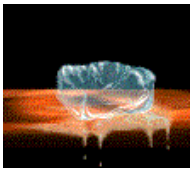
Answers



Classify each of the following as a chemical or a physical change:

a) water freezes into ice (physical)
b) gasoline burns in a car (chemical)
c) a match burns (chemical)
d) light is given off (chemical)
e) wax melts (physical)
f) rubbing alcohol evaporates (physical)
g) popping popcorn (chemical)
h) cooking an egg (chemical)
i) burning logs in a fire (chemical)
j) sodium bicarbonate (baking soda) mixes with acetic acid (vinegar) and bubbles are formed. (chemical)





Corrosion
Chemical Change

One of the chemical properties of metal is the tendency of a substance to undergo **corrosion**

Corrosion is the slow chemical change that occurs when metal reacts with oxygen from the air to form a new substance called an oxide.

A type of corrosion is **rusting**.

Read on pg 34 on your text and record
1. What substances are involved in rusting.
2. Why is it so damaging?

A1. iron, oxygen, water, salt, minerals
A2. damaging because it is porous and as it takes layers away new layers are exposed to oxygen

Preventing Corrosion

Three ways to prevent corrosion is to:

- Paint the surface of the metal
- Coat metal surface with oil
- Coat metal surface with other metals that will corrode easier

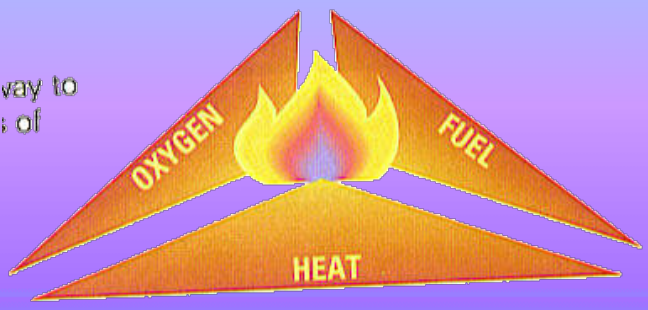
Combustion

- In combustion, a substance reacts readily with oxygen and releases energy.

- The energy released is observed as heat and light.

Combustion and Air Pollution

- The three components necessary for combustion to occur are:
- Oxygen
- Fuel
- Heat



If one of these three is missing, combustion cannot occur.

Quiz after March break...

Part A: Matching

- Physical and Chemical Properties definitions
  * Malleability, State, Hardness, Melting/Boiling point, Crystal form, Solubility, Viscosity, Density, Combustible, Reaction with acid* Alloy, Corrosive, fossil fuel

Part B: Classifying Chemical and Physical Properties

- Given the name state if it is physical or chemical
  Malleability, State, Hardness, Melting/Boiling point, Crystal form, Solubility, Viscosity, Density, Combustible, Reaction with acid*

Part C: Matching Safety Symbols

- WHMIS symbols
- Everyday symbols

Part D: Written work

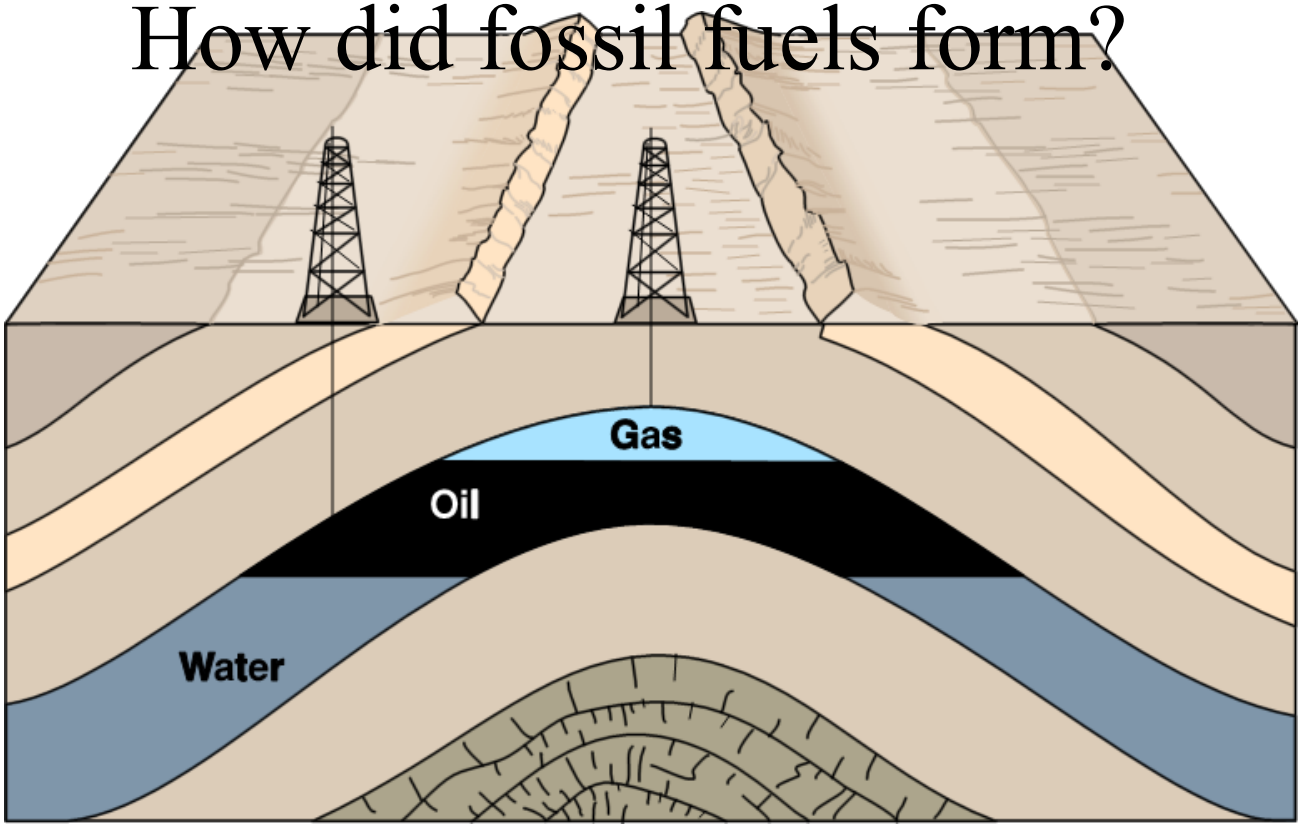
- What is WHMIS?
- 5 clues of a chemical change
- Three components of combustion

Fossil Fuels and Combustion

- Products such as coal, oil natural gas and gasoline are all referred to as fossil fuels.

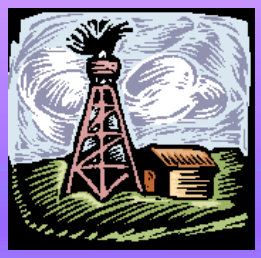
- Fossil fuels were formed from plants and animals that lived millions of years ago. When these organisms died, they did not decompose completely. They were buried by layers of sediment and their energy was “locked up”.

How did fossil fuels form?



Fossil Fuels

- When fossil fuels are burned their energy is released. The main products of the reaction are carbon dioxide and water vapor.



Fossil Fuels

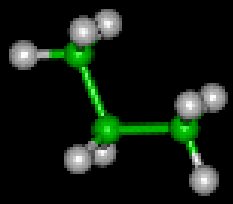
- The particles that make up fossil fuels are called hydrocarbons.
- Word Equation:

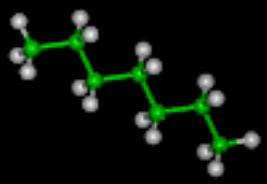
Hydrocarbon + Oxygen ⟶ Carbon Dioxide + Water

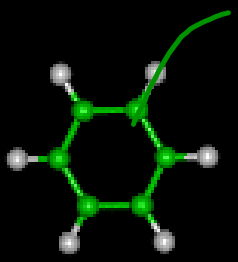
What do we mean by hydrocarbons?

hydrocarbons

They are the particles that make up fossil fuels. They are made up of carbon and hydrogen.







- Under the best of conditions, when combustion occurs the products are carbon dioxide and water.

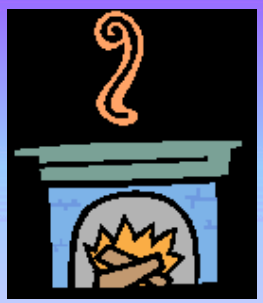
- However, if there is not enough oxygen, dangerous gases such as carbon monoxide can be formed instead.

Why should you never operate a gas or charcoal barbecue inside a building?

Less Oxygen means more Carbon monoxide, which is poisonous

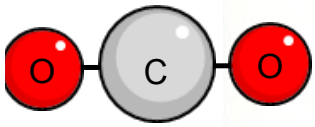
Combustion and Air Pollution

- When gasoline burns, carbon dioxide produced contributes to greenhouse gases, which may be causing global warming.



Describe the greenhouse effect?

Carbon Dioxide builds up and traps the heat.



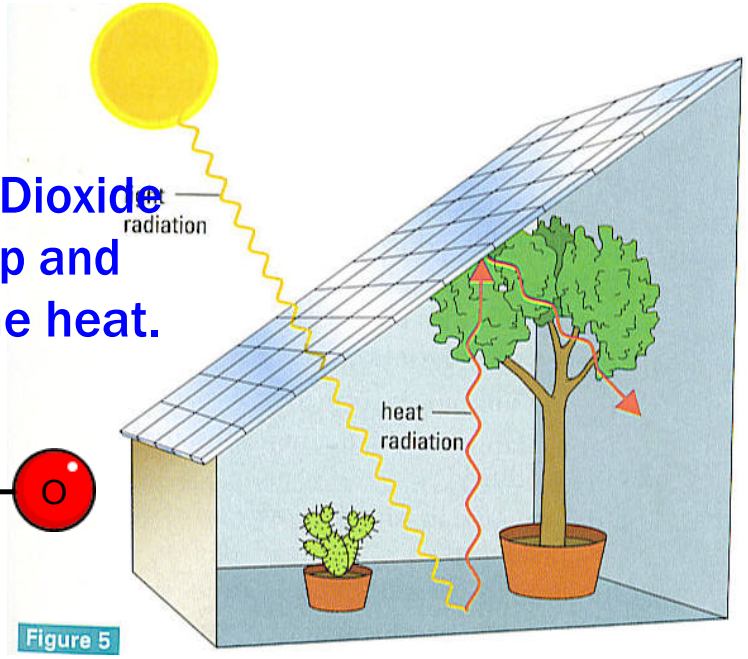


Figure 5

Answers 1, 2 a-f, page 30

- Chemical changes involve production of a new substance with new properties. No new substances are produced in physical changes.
- a) chemical b) physical c) chemical d) physical e) chemical f) chemical

I will be checking to see how much they have answered tomorrow

Page 19
Questions 1 and 3

Page 30
Question 1, 2, 3, 4

Read on pg 34 on your text and record
1. What substances are involved in rusting.
2. Why is it so damaging?

Page 35 Questions 1, 2
Page 39 Questions 1,2a,b,c, 3a,c,d,e

pg 19 #1

a) ability to be bent/shaped = malleability
b) steel blade scratching glass = hardness
c) alcohol boiling at 60^0C= boiling point
d) sugar appears to be made of tiny cubes = crystal form
e) nickel coin in shiny = lustre

Answers 1 a, b, c, d, e and 3 page 19

pg 19 #1

a) ability to be bent/shaped = malleability
b) steel blade scratching glass = hardness
c) alcohol boiling at 60^0C= boiling point
d) sugar appears to be made of tiny cubes = crystal form
e) nickel coin in shiny = lustre

3. A physical property is any characteristic of a substance that does not depend on the effect of other substances.

A chemical property is a characteristic behaviour of how a substance will interact with another substance.

Answers 1, 2 a-f, page 30

- Chemical changes involve production of a new substance with new properties. No new substances are produced in physical changes.
- a) chemical b) physical c) chemical d) physical e) chemical f) chemical

Page 34 Answers

A1. iron, oxygen, water, salt, minerals

A2. damaging because it is porous and as it takes layers away new layers are exposed to oxygen

Answers 1, 2 pg 35
1,2a,b,c, 3a,c,d,e pg 39

pg 35.

1. corrosion is the slow chemical change that occurs when a metal reacts with oxygen

2. An oxide is a new substance formed when a meta reacts with oxygen.

pg 39.

1. Combustion is the combination of fuel and oxygen to release heat and light.

2. a) The reacts formed when fossil fuels are burned are hydrocarbons and oxygen.
b) The two main products of combustion are carbon dioxide and water.
c) Other products are also formed because of there not being enough oxygen to complete the combustion one example is carbon monoxide.

3. a) If you close the valve on the propane tank you are eliminating the fuel
c) Pouring water on the fire you are eliminating heat
d) Pouring baking soda on a grease fire you are eliminating oxygen
e) Blowing on a flaming marshmellow you are eliminating heat.