

Classifying Chemical Reactions

In this activity, students can recognize the similarities for each type of chemical reaction, and how one type of reaction differs from another reaction.

Chemistry 11/Science 10

Curriculum Connections:

BC Chemistry 11 (2006)

D1 - explain chemical reactions in terms of the rearrangement of the atoms as bonds are broken and new bonds are formed

BC Science 10 (2008)

C4 - analyse chemical reactions, including reference to conservation of mass and rate of reaction

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Author: Victor Pong
Originally shared as part of a BCScTA Idea Exchange

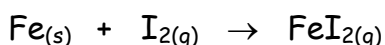
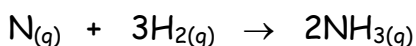
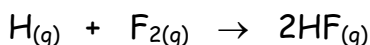
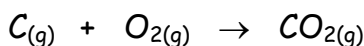
Concept Attainment - classifying chemical reactions

Rationale:

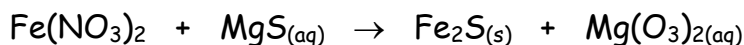
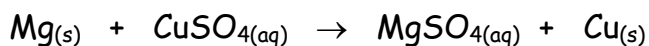
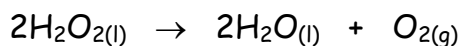
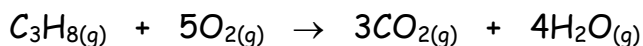
Students generally have difficulty recognizing the different types of chemical reactions (synthesis, decomposition, single replacement, double replacement, neutralization and combustion). Each type of reaction has a general form, for example: synthesis reactions usually involve two elements combining to form one compound; combustion reactions involve oxygen gas as a reactant etc. One way to alleviate the confusion is to do a concept attainment activity. Hopefully through the activity, students can recognize the similarities for each type of reaction, and how one type of reaction differs from another reaction. Students can work in small groups on a specific reaction, reach a consensus as to what is happening in the reaction and then share their answers with the rest of the class.

CLASSIFYING CHEMICAL REACTIONS: SYNTHESIS

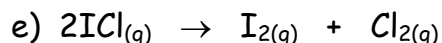
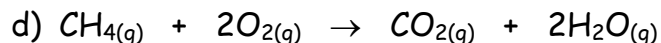
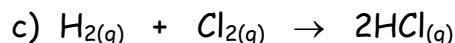
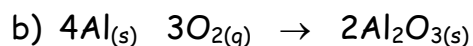
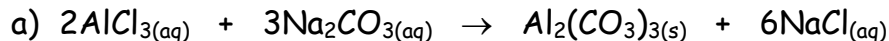
The following are examples of **synthesis**:



The following are NOT examples of **synthesis**:



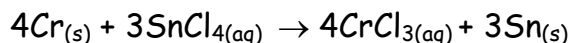
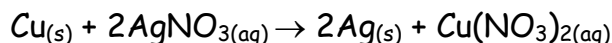
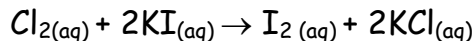
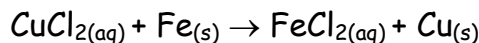
Which of the following are examples of **synthesis**?



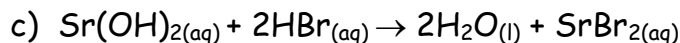
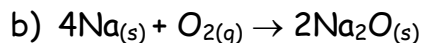
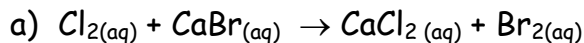
In your own words, give a definition of synthesis. Begin with "Synthesis is a chemical reaction in which..."

CLASSIFYING CHEMICAL REACTIONS: SINGLE REPLACEMENT

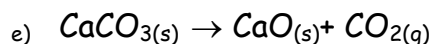
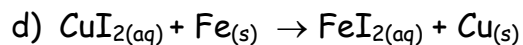
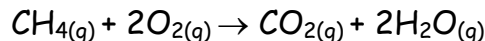
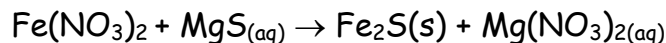
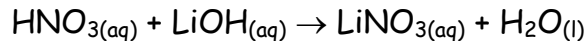
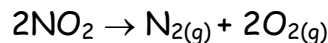
The following are examples of **single replacement**:



Which of the following are examples of **single replacement**?



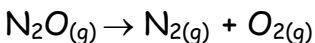
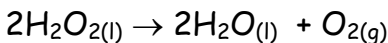
The following are NOT examples of **single replacement**:



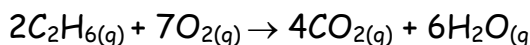
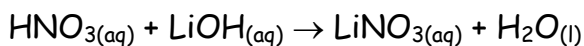
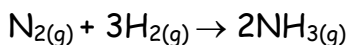
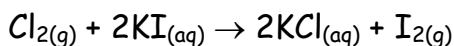
In your own words, give a definition of a single replacement. Begin with "Single replacement a chemical reaction in which..."

CLASSIFYING CHEMICAL REACTIONS: DECOMPOSITION

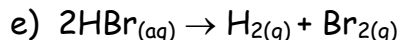
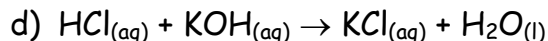
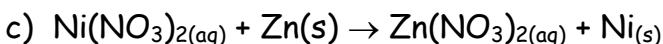
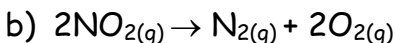
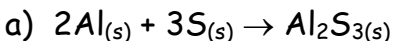
The following are examples of **decomposition**:



The following are NOT examples of **decomposition**:



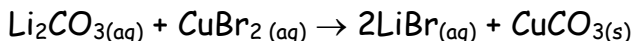
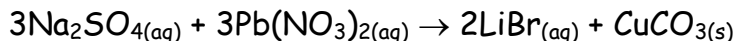
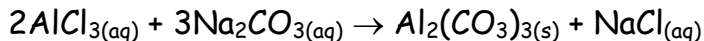
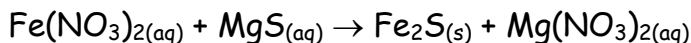
Which of the following are examples of **decomposition**?



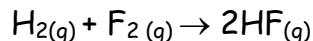
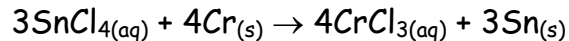
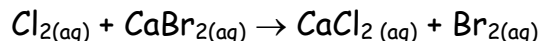
In your own words, give a definition of decomposition. Begin with "Decomposition is a chemical reaction in which.."

CLASSIFYING CHEMICAL REACTIONS: DOUBLE REPLACEMENT

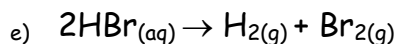
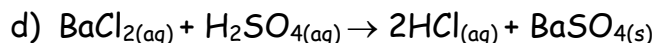
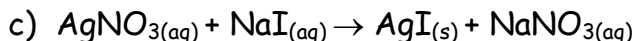
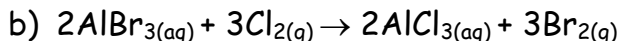
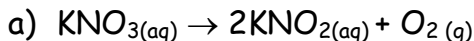
The following are examples of **double replacement**:



The following are NOT examples of **double replacement**:



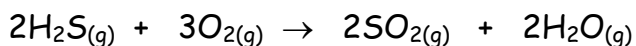
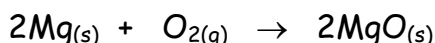
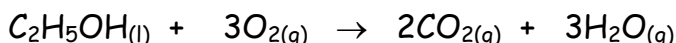
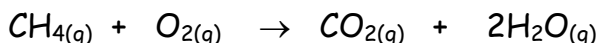
Which of the following are examples of **double replacement**?



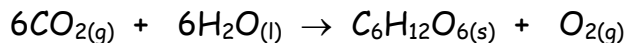
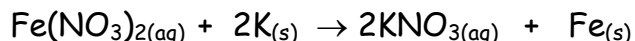
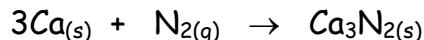
In your own words, give a definition of double replacement. Begin with "Double replacement is a chemical reaction in which..."

CLASSIFYING CHEMICAL REACTIONS: COMBUSTION

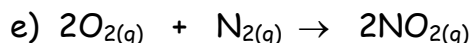
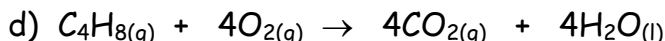
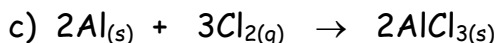
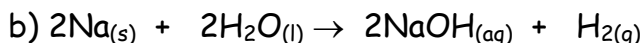
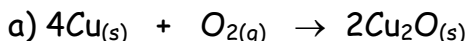
The following are examples of **combustion**:



The following are NOT examples of **combustion**:



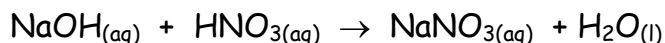
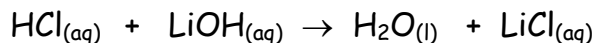
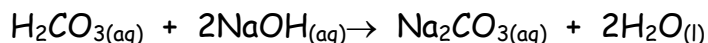
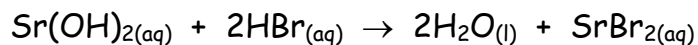
Which of the following are examples of **combustion**?



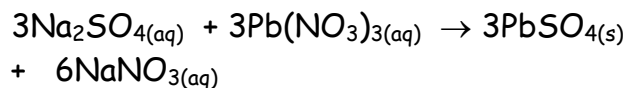
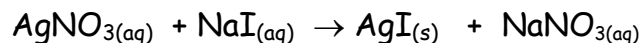
In your own words, give a definition of combustion. Begin with "Combustion is a chemical reaction in which..."

CLASSIFYING CHEMICAL REACTIONS: NEUTRALIZATION

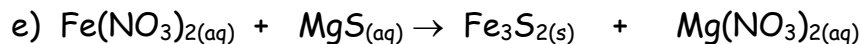
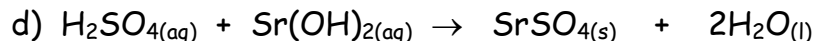
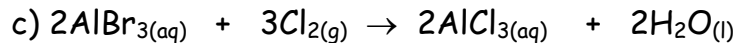
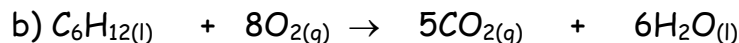
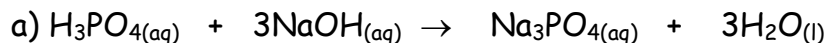
The following are examples of **neutralization**:



The following are NOT examples of **neutralization**:



Which of the following are examples of **neutralization**?



In your own words, give a definition of neutralization. Begin with "Neutralization is a chemical reaction in which..."