Lesson Title	Reaction Types
Length of Lesson	1 day (90 minutes)
Created By	Hannah Box
Subject	Chemistry
Grade Level	10th
State Standards	Chemistry 3c
DOK Level	DOK 2
DOK Application	Compare, distinguish, interpret, make observations, classify
National Standards	9-12: B: Physical Science
Graduate Research Element	This lesson serves as an introduction to predicting products, which while basic is used throughout the field of chemistry. Chemists use what we know about elements and compounds and how they react to predict our products.

Student Learning Goal:

Students have been learning different reaction types so students will perform a single and double replacement reaction.

State Standards:

3c. Classify chemical reactions by type. (DOK 2)
• Single displacement, double displacement, synthesis (combination), decomposition, disproportionation, combustion, or precipitation.
• Products (given reactants) or reactants (given products) for each reaction type
• Solubility rules for precipitation reactions and the activity series for single and double displacement reactions

National Standards: 9-12: B:

A large number of important reactions involve the transfer of either electrons (oxidation/reduction reactions) or hydrogen ions (acid/base reactions) between reacting ions, molecule, or atoms. In other reactions, chemical bonds are broken by heat or light to form very reactive radicals with electrons ready to form new bonds. Radical reactions control many processes such as the presence of ozone and greenhouse gases in the atmosphere, burning and processing of fossil fuels, the formation of polymers, and explosions.

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

Test tubes, goggles, graduated cylinder, watch glass, matches, aluminum chloride solution,

ammonium hydroxide solution, hydrochloric acid, copper sulfate solution, sodium hydroxide solution, zinc squares, wood splints,

Lesson Performance Task/Assessment:

Students will apply their knowledge of reaction types to the laboratory by performing a single and double displacement reaction.

Lesson Relevance to Performance Task and Students:

The lab that the students complete will provide them with hands on experience with reaction types.

Anticipatory Set/Capture Interest:

Watch several youtube videos of more dangerous single and double replacement reactions.

Guided Practice:

Have a general review of terms and reaction types

Independent Practice:

Students will follow the directions laid out in the attached worksheet to perform a single and double replacement reaction.

Remediation and/or Enrichment:

Remediation: Individual IEP.

Enrichment: Add a second double and single replacement reaction for the students to complete.

Check(s) for Understanding:

How do you know chemical changes occurred in each reaction?

How would you compare a single replacement reaction to a double replacement reaction?

Have students complete the questions on the worksheet. This questions range from post lab to predicting products and will gauge where the student is with these concepts.

If time allows, have students relate the reaction types to popular dances (changing partners

- square dancing)

Closure:

Once students have completed the worksheet there will be a group discussion held to talk about what was observed.

Possible Alternate Subject Integrations:

Physical Science: Same concept but without the extra balancing and naming questions at the end.

Teacher Notes:

1 mL= 20 drops