

TITLE OF LESSON

Physical Science Unit 1 Lesson 36 – Lab 6: Single Displacement

*Nature of Matter: How do tribes attain understanding of chemical reactions?*

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TIME ESTIMATE FOR THIS LESSON

One class period

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ALIGNMENT WITH STANDARDS

California – Sciences: Chem, Chemical Bonds 2; Conservation of Matter and Stoichiometry 3; Investigation and Experimentation 1

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MATERIALS

**Lab 6: Single Displacement** – Student Page

**Lab 6 Key** – Teacher Page

pen or pencil

calculator (optional)

each lab group will need:

Nine 50mL beakers, 30 mL of 0.1M  $\text{Al}_2(\text{SO}_4)_3$ , 30 mL of 0.1M of  $\text{CuSO}_4$ , 30 mL of 0.1M  $\text{ZnSO}_4$ , 3 grams of Al powder, 3 grams of Cu powder, 3 grams of Zn powder

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LESSON OBJECTIVES

- To assess single displacement
  - To create a hypothesis
  - To do an experiment
  - To analyze results to form a conclusion
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FOCUS AND MOTIVATE STUDENTS

- 1) Homework Check – Collect homework. Pass back graded assignments and have students place them in their binders.
  - 2) [Agenda](#) – Have students copy the agenda you have posted.
  - 3) [Group Read Around](#) – Have students read *Kirinyaga* Journal for Chapter 8 in groups. Have the students choose the best journal from each group to be read to the class by the author. Then collect them.
  - 4) Silent Reading – Pass out **Lab 6: Single Displacement**. Ask students to break into lab groups and read the lab procedure silently.
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ACTIVITIES – INDIVIDUAL AND GROUP

1. Lab Protocol – Remind students that working in the lab is serious. Review safety precautions. Remind students that although they will not be working with any dangerous chemicals, they should follow proper protocol. The students in each lab group must work together as a team.
2. Hypothesis – Ask students to break into lab groups, assign group roles (see *Group Roles* below), and formulate a question and an hypothesis about how to identify elements by density. Give them five minutes to come up with their agreed upon question and hypothesis. At the end of five minutes, call time.
3. Questions Lab 6 – Hand out copies of **Lab 6: Single Displacement**. Ask students to write in their agreed upon question and hypothesis in the appropriate place on their handout. In their lab groups, have students read the procedure out loud. Ask students if there are any questions. Explain to students that they must finish all steps of Lab 3 before the end of the period, as they will need the ideas from the process to write up their lab report tonight. They should all agree upon the information they write down on the **Lab 6** handout and understand why

they get the answers they do because they will have to transfer that information into an individual essay this evening. Make sure all students write down all the information on their own handout!

4. **Lab 6** – Have the Materials Manager collect the materials necessary for the lab today. Ask students to perform the experiment by following the procedure in **Lab 6: Single Displacement**. (You can play music to help students focus and remember not to talk loudly, which would disrupt other groups.) Students should work in their lab groups to collect and record their data.
  5. **Clean Up** – Make sure to allow 10 minutes for students to clean up before the period is over.
  6. **How to Write Up a Lab Report** – Have the students take out the handout, **How to Write Up a Lab Report** (or pass copies out, if you have not already done so.) Review with students the steps listed in the handout. In essence, their Lab 6 handout is the outline for the Lab Report. All they have to do is use their notes from the lab to go home and write it up in paragraph form. If everyone took good notes, agreed upon the answers, and made sure they understood all of the steps, students should have no difficulty writing the report in essay form tonight. Ask if there are any questions. Field them. You may want to give students a few minutes to talk to their group members to make sure they understood the lab and can write intelligently about what they learned in their lab report.
  7. **Binders** – Remind students that their completed lab will be stored in the LAB section of the binder after they write Lab Report 6. That means they should be prepared to turn in the lab and the lab report tomorrow morning when they walk in the door. Explain that they will be in the computer lab tomorrow to create a table for the results of their lab. Tonight, they should decide how they will organize the information in their table, what font sizes and colors they wish to use, what headings they will use, what title they will give their table, how many columns and rows are most appropriate, etc. They should come with a mock layout that shows all of the information for their table. (You may wish to hand out the Student Page, **Word Table Requirements: Lab Report**, so that students can be sure to include all of the information listed in their table.)
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#### HOMEWORK

- 1) Write the first draft of Lab Report 6, following the instructions in **How to Write Up a Lab Report** and create a hand drawn table of their results.
  - 2) Remind students to go directly to the computer lab for class tomorrow.
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#### GROUP ROLES

Recorder – All students will be acting as recorders today.

Facilitator – You are responsible for making sure your group stays focused and completes the lab.

Manager – You are responsible for making sure that your group has all the necessary materials.

Timekeeper – You are responsible for making sure your group finishes the lab before the end of class period.

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#### DOCUMENTATION FOR PORTFOLIO

Lab Report 2

Test 1: Matter

Lab Report 3

Class Periodic Table

Lab Report 4

Test 2: Atoms and Periodicity

Lab Report 5

Test 3: Compounds

