

Reactions with Rust

Summary

Students will design an experiment to see how iron rusts. They can either discourage or encourage rusting.

Time Frame

1 class periods of 60 minutes each

Group Size

Small Groups

Materials

- iron nails, pins, or powder
- a variety of chemicals (salt water, baking soda solution, oil)
- heat source
- glassware or plasticware
- tongs
- crucible or other heat resistant dish
- [student sheet](#)
(attached)

Student Prior Knowledge

Students should know that iron rusting is a chemical reaction involving the combination of iron with oxygen to form iron oxide or rust. The speed of chemical reactions can be altered.

Instructional Procedures

Explain to students that they will be investigating factors that affect the speed of iron rusting. If students are unfamiliar with experimental design, take the time to take about the purpose of a control, how a hypothesis is written and what data and procedures are.

The control for the experiment should be a nail in water in a plastic cup (rusting nails leave permanent marks on glassware) The students will be designing an experiment that they think will make the speed of rusting increase or decrease when compared to the control.

Students may be given the student sheet below or design their own.

Students need to be in groups of 2-4 and be given time to design their experiments. Have students write their hypothesis on the board as an "If....., then," statement. Ex. If we put the iron powder in water, then it will rust more quickly than the nail. Make sure all groups are doing a different experiment. Some will set their experiment up and leave it, others may be able to create rust in the class period.

Observations need to be recorded for the first day and then for subsequent days following the experiment. Take as many days as needed to get rust on most of the projects.

Have students present the results of their experiments to the class.

Assessment Plan

Scoring Guide

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1. Student participates in the activity.....10 pts
2. Students design and perform experiment.....20 pts

3. Students report on the results of their experiment.....5 pts
4. Lab write up is complete and accurate.....15 pts

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)