

Kindergarten

SCIENCE ZONE

FIELD TRIPS

Theme: Scientific Method
Topic: Sink or Float

DESCRIPTION: Students will explore the concepts of buoyancy, density, surface tension, and absorbency as they conduct hands-on experiments to determine objects that sink and float. Students will apply the scientific method and critical thinking skills to come up with their results.

OBJECTIVES:

- Students will practice using the scientific method to explore the buoyancy of different objects.
- Students will be able to identify objects that float.
- Students will be able to explain that objects float because they are less dense than water.

**NGSS STANDARDS:
ENGINEERING: K**

- K-2-ETS1-3

Theme: Physical Science
Topic: Friction

DESCRIPTION: The force of friction acts on all objects on Earth, but some surfaces have lower friction than others. This introductory lesson on forces and motion will help students develop an understanding of friction and what causes it. Students will experiment with different materials to create surfaces on ramps that have more and less friction.

OBJECTIVES:

- Students will be able to identify properties of materials that create low and high friction on marbles after participating in a hands-on activity that has them testing materials on a ramp.

**NGSS STANDARDS:
PHYSICAL SCIENCE: K**

- K-PS2-1
- K-PS2-2

Theme: Earth Science
Topic: Clouds

DESCRIPTION: Weather changes all the time and can sometimes take us by surprise. Clouds play a huge roll in telling us what changes may be coming. This lesson introduces students to different types of clouds and how we can use them to tell what the weather may be like.

OBJECTIVES:

- Students will be exposed to types of clouds that are present during specific types of weather.
- Students will demonstrate an understanding of different types of clouds by observing and identifying the clouds present on the current day.

**NGSS STANDARDS:
EARTH SCIENCE: K**

- K-ESS2-1

**WY Science STANDARDS:
EARTH SCIENCE: K**

- K-ESS2-1

Kindergarten

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Theme: Physical Science & Engineering
Topic: Squishy Circuits

DESCRIPTION: In this exciting hands-on activity, students will compare the properties of two similar play doughs to determine a difference. Students will test the doughs using a simple circuit experiment to identify which dough is an insulator and which is a conductor.

OBJECTIVES:

- Students will use the scientific method to test materials to determine which helps carry electricity.
- Students will be able to explain the difference between a conductor and insulator after completing simple circuits using special play dough.

NGSS STANDARDS:

ENGINEERING: K

- NGSS K-2-ETS1
- NGSS K-2-ETS1-2

Theme: Nature of Science
Topic: Problem Solving & Absorbency

DESCRIPTION: Through hands-on investigations, students will explore the properties of materials that make them absorb or repel water. Students will then apply this knowledge to the creation of a design to protect a very absorbent stuffed animal from getting wet when submerged in water.

OBJECTIVES:

- Students will use observation from hands-on experiments, to help describe absorption and repellency.
- Students will use test data to assist with designing, building, and comparing structures that help repel water from an absorbent surface.

NGSS STANDARDS:

ENGINEERING: K

- K-2-ETS1-1
- K-2-ETS1-3

WY Science STANDARDS:

ENGINEERING: K

- K-2-ETS1-1
- K-2-ETS1-3

Theme: Engineering
Topic: Tool Ingenuity

DESCRIPTION: This lesson shows the students the importance of working together as well as making use of what you have. Students will work in teams to create a device with a specific purpose. They will test their devices to experience the rewards of accomplishing a task with other.

OBJECTIVES:

- Students will identify a problem and its engineering constraints and then use teamwork to come up with a creative solution.
- Through group discussion, students will demonstrate an understanding of the importance of teamwork and communication in order to successfully complete a task.

NGSS & WY Science STANDARDS:

ENGINEERING: K

- K-2-ETS1-1
 - *ETS1.A: Defining and Delimiting Engineering Problems*

Kindergarten

SCIENCE ZONE

FIELD TRIPS

Theme: Life Science
Topic: Fish

DESCRIPTION: This lesson introduces students to the unique animal adaptations of fish like gills and swim bladders. Students will also discuss some of the reasons why fish are so important to humans and Earth's ecosystems and participate in an activity to understand how pollution affects fish.

OBJECTIVES:

- After completing hands-on activities, students will be able to identify two key fish adaptations, gills and swim bladders, and describe how they help fish survive.
- Students will be able to discuss the effects of pollution on fish to understand how that affects humans.

NGSS & WY Science Standards:

LIFE SCIENCE: K

- K-LS1-1

EARTH SCIENCE: K

- ESS3.1

Theme: Earth Science
Topic: Soil

DESCRIPTION: This lesson shows students the importance of soil for the maintenance of healthy ecosystems. Students will experiment with finding out what their soil is made of and how different soils can affect their community.

OBJECTIVES:

- Students will use observations to analyze and describe what soil is made of and hypothesize its importance in ecosystems.
- Students will investigate materials used in natural and human-made water filtration and the role humans play in cleaning drinking water.

NGSS & WY Science Standards:

EARTH SCIENCE: K

- ESS2-1
- ESS2-2

Theme: Life Science
Topic: Plant Fibers

DESCRIPTION: Plants are beneficial for humans, not only for the food that we eat but also for the things we make out of them. One of the useful materials we get from plants are fibers. This lesson on fibers introduces students through hands-on exploration to the many varieties of plant fibers we use in paper and clothing. This lesson also emphasizes to students how to be observant and communicate to others.

OBJECTIVES:

- After making observations, students will be able to describe the appearance of plant fiber, its function in plants, and how humans use it.
- Students will practice observation & communication skills when identifying and discussing plant fibers.

NGSS & WY Science Standards:

LIFE SCIENCE: K

- K-LS1-1

ENGINEERING: K

- K-2-ETS1-2

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SCIENCE ZONE

FIELD TRIPS

Theme: Physical Science
Topic: Chemical Reactions

DESCRIPTION: Dive into the basics of chemistry. Students observe and experiment with different experiments to learn the difference between physical and chemical reactions.

OBJECTIVES:

- Students will demonstrate an understanding of chemical versus physical reactions by identifying reactions from different experiments.
- Students will demonstrate an understanding of chemical reactions by describing what reactions show that an experiment results in a chemical reaction.

NGSS & WY Science Standards:

ENGINEERING: K

- K-2-ETS1-1

Theme: Earth Science
Topic: Weather & Pressure

DESCRIPTION: Weather is a complicated phenomenon, but a lot of our weather is related to air pressure. This introductory lesson to air pressure will help students understand what air pressure is and how high and low pressure relate to our daily weather.

OBJECTIVES:

- Students will be exposed to the idea of air pressure and its role in creating weather.
- Students will understand the role of temperature with relation to air pressure after observing a demonstration.

NGSS & WY Science Standards:

PHYSICAL SCIENCE: K

- K-PS2-1

EARTH SCIENCE: K

- K-ESS2-1
- K-ESS3-2