



Texas School for the Blind and Visually Impaired

Instructional Resources Library

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Super Science Session 1

Age(s) / Grade Level(s): Elementary

Subject(s): Science

Length of time: 45 – 60 minutes

TEKS or IEP Goals

112.16.2 The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:

- (A) describe, plan, and implement simple experimental investigations testing one variable.
- (B) ask well defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology.
- (C) collect and record information using detailed observations and accurate measuring.
- (D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.
- (E) demonstrate that repeated investigations may increase the reliability of results.
- (F) communicate valid conclusions in both written and verbal forms; and

112.16.6 The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

- (A) explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.

Objectives

Students will

- Increase knowledge related to various forms of energy
- Increase knowledge related to the structure of an atom
- Increase ability to follow the scientific method

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Materials/Accommodations Needed (consider students who are Emergent Bilingual)

- Paper plates
- Round stickers with + and -
- Round stickers with nothing labeled
- Balloons
- Tissue paper squares
- Salt
- Pepper

Lesson/Activity Sequence

1. Students will introduce themselves--name, grade, favorite thing ever done/studied in science.
2. Play would you rather: be an animal (like a platypus or be) who can sense electric charges to find food or be an animal (like an electric eel or stargazer fish) that uses electrical charges to catch its prey?
3. Tell students: Scientists ask questions, gather data, and make conclusions. Scientists make lots of mistakes and they use those to learn from and try again.
4. Review scientific method and associated vocabulary using explicit instruction model:
 - a. Inquiry or question
 - b. Hypothesis
 - c. Procedure
 - d. Data
 - e. Conclusion
5. Review science safety. Ask students what some important science safety rules are.
6. Tell students we will be using these rules during all our investigations this week.
7. Ask students: What are different forms of energy? (thermal, mechanical, electrical, chemical, light, and sound, nuclear).
8. Have them give examples of the different forms.
9. Explain that they will be doing experiments related to the different forms of energy each day during this class.
10. Tell students today we will be focusing on electrical energy. Ask students to say what they already know about electrical energy. Tell them we are going to test electrical energy. Make sure students have materials ready (see below). Follow the procedure.

Procedure 1

1. Place the tissue paper squares on the table.
2. Blow up the balloon and tie it.
3. Rub the balloon on your pants or shirt.
4. Hold the balloon about two inches above the tissue paper squares.

Ask students what they think happened. Ask them if they have an idea of how far away, they could hold the balloon to make the paper squares move.

Tell them we are going to do another experiment. Have them gather the needed materials. They will need one of the paper plates, the salt, pepper, and the balloon from the first investigation.

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Procedure 2

1. Students fold a paper plate in half.
2. measure 1 Tbsp of salt onto one side of the plate and 1 Tbsp of pepper on the other side.
3. Make predictions about what will happen if you “charge” the balloon and hold it over the salt or pepper? What do you think will move first?
4. “Charge” the balloon by rubbing on pants or shirt.
5. Hold balloon over the plate.

Ask students to explain their observations. What do they think is happening?

Introduce the words atoms, nucleus, proton, neutrons, electrons.

Explain that protons are positively charged and electrons are negatively charged. Opposite Most atoms have an equal number of electrons and protons, giving a “neutral” or no charge. When there is an imbalance of electrons or protons, it causes the atoms to have either a positive or negative charge. Opposite charges attract each other. When the electrons transfer from one atom to another, this is electricity.

Explain that students are going to make a model of an atom. They will use the other paper plate in their box and the circle stickers. First, they will create a nucleus with protons (stickers with plus signs) and neutrons (stickers with no label). They will put the stickers in the middle of the plate in a circular shape. Sticker can overlap some. They will place the electrons (stickers with minus signs) on the outer edge of the plate.

How Will I Assess Student Progress?

Student answers questions and put stickers on model.

General Notes/Comments/Reflections After Lesson

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Next Steps/Lesson

- Super Science Session 2