Conductors vs. Insulators

Summary

This lesson plan allows students to explore the differences between conductors and insulators using the scientific method.

Additional Core Ties

English Language Arts Grade 5 Writing Standard 7

Time Frame

1 class periods of 60 minutes each

Group Size

Large Groups

Materials

Various conductors and insulators (fabrics, metals, paper, paperclips, mouse pad, plastics, etc.) Pencil Science Journal Web sites (listed below)

Student Prior Knowledge

Students should have a basic understanding of the terms "conductor" and "insulator."

Intended Learning Outcomes

1. Use Science Process and Thinking Skills

a. Observe simple objects and patterns and report their observations.

Intended Learning Outcome - Linked to Standards:

Students will be able to observe objects and determine if they are conductors or insulators based on material, and then report their observations through a group poster.

Instructional Procedures

Introduction

Tell students they will be using the scientific method to determine what materials are conductors and insulators.

Question: What materials are conductors and insulators?

Research: Use web sites listed above and other informational texts/sources to build student knowledge of conductors and insulators.

Hypothesis: Students should form their hypothesis about which materials are conductors and which materials are insulators (If something is made of _______ then it is a conductor/insulator). Experiment: Have students individually conduct a short research project by creating a T-Chart with the two columns labeled "conductors" and "insulators." Give the students 5-10 minutes to roam the classroom/school building making a list of materials they encounter. Results: T-chart

Conclusion (Assessment): Teacher should conduct a class discussion to check for students'

understanding of conductors and insulators.

Finally, students will create a poster with a group sharing their knowledge of the properties of materials which carry the flow of electricity. Students will then share their posters with their classmates and analyze their results. Poster requirements include: definitions for conductor and insulator, and include three visual examples of each.

Strategies for Diverse Learners

During the experiment, students may be paired with another student if needed for better understanding or interpretation.

Extensions

While students are presenting their posters, high-ability learners can create a Venn Diagram to compare and contrast the similarities and differences among the groups' conclusion posters. Next steps: After building a simple circuit, test various objects students listed in their T-chart

Assessment Plan

Teacher can assess student understanding as students create their T-charts, but will also be assessing student understanding through posters and presentation.

3	2	1
Clearly defined conductors and	Unclear definitions or only one of	No ovidence of definition
insulators	the terms defined	No evidence of definition
3 examples with pictures	2 examples with pictures	1 example or picture

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