

MAKING PREDICTIONS ABOUT INVISIBLE FORCES

Lesson Summary:

Students make a hypothesis, perform an experiment to test the hypothesis, and collect data. Students observe the changes in strength of a magnetic field due to interference by different materials.

Objectives:

The student will:

- test a hypothesis based on the accumulation of data and observation;
- obtain control data;
- record data;
- average test results;
- identify the kinds of material that affect a magnetic field, and to what extent; and
- determine that some material hinder the passage of a magnetic field.

GLEs Addressed:

Science

- [5] SA1.2 The student demonstrates an understanding of the processes of science by using quantitative and qualitative observations to create inferences and predictions.
- [6] SA1.2 The student demonstrates an understanding of the processes of science by collaborating to design and conduct simple repeatable investigations.
- [7] SA1.2 The student demonstrates an understanding of the processes of science by collaborating to design and conduct simple repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings.
- [8] SA1.2 The student demonstrates an understanding of the processes of science by collaborating to design and conduct repeatable investigations, in order to record, analyze (i.e., range, mean, media, mode), interpret data and present findings.
- [7] SB1.1 The student demonstrates an understanding of the structure and properties of matter by using physical properties (e.g., density, boiling point, freezing point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures).
- [8] SB1.1 The student demonstrates an understanding of the structure and properties of matter by using physical and chemical properties (i.e., density, boiling point, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures).
- [10] SB4.2 The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by explaining that different kinds of materials respond to electric and magnetic forces (i.e., conductors, insulators, magnetic, and non-magnetic materials).

Math

- [6] S&P-3 The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; drawing or justifying conclusions) by using mean, median, mode, or range (M6.2.3).
- [7] S&P-3 The student demonstrates an ability to analyze data (comparing, explaining, interpreting, evaluating; drawing or justifying conclusions) by determining mean, median, mode, or range (M6.3.3).
- [7] PS-5 The student demonstrates the ability to apply mathematical skills and processes across the content strands by using real-world contexts such as science, humanities, peers, and community (M10.3.1 & M10.3.2).
- [8] PS-5 The student demonstrates the ability to apply mathematical skills and processes across the content strands by using real-world contexts such as science, humanities, peers, community, and careers (M10.3.1 & M10.4.2).

Search Terms:

predictions, hypothesis, data, magnet, magnetic field

