

# DEMO COMPASS KIT

CAT# 80-50-W008



This is the perfect kit to bring magnetism to life for your students! A compass points north because all magnets have two poles, a north pole and a south pole, and the north pole of one magnet is attracted to the south pole of another magnet.

## PRIMARY DIVISION: GRADES 1-3

### Overall Expectation: STEM, Matter and Energy Focus

Explore structures and mechanisms, including the roles of materials in supporting structures and making devices work.

### Specific Expectation

Identify and describe the purpose of magnets and their properties.

### Activity

Students use the Magnetism Demo Kit to understand the basic properties of magnets. They experiment with different materials to see which are attracted to magnets and use a compass to observe how the needle always points north. They also learn about magnetic poles and how like poles repel each other while opposite poles attract.

## JUNIOR DIVISION: GRADES 4-6

### Overall Expectation: STEM, Matter and Energy Focus

Investigate the principles of forces, energy, and control in simple machines and structures.

### Specific Expectation

Explore the relationships between magnetic fields and forces.

### Activity

With the Magnetism Demo Kit, students investigate how magnetic fields interact. They use iron filings to visualize magnetic field lines and explore how the strength of the magnetic force changes with distance. They also learn how magnets can exert forces without direct contact and conduct experiments to understand magnetic attraction and repulsion.

## INTERMEDIATE DIVISION: GRADES 7-8

### Overall Expectation: STEM, Matter and Energy Focus

Investigate how technological problem-solving meets human needs and leads to innovation.

### Specific Expectation

Analyze the impact of magnetic forces in various applications.

### Activity

Students use the Magnetism Demo Kit to explore the role of magnetism in everyday technology. They investigate how magnets are used in devices like electric motors, generators, and magnetic levitation trains. They also conduct experiments to see how magnetic fields can induce electric currents.

and discuss the importance of magnetism in modern technology.

## **SECONDARY DIVISION: GRADES 9-12**

### **Overall Expectation: Physics Focus**

Apply principles of physics to understand the operation and efficiency of magnetic systems.

### **Specific Expectation**

Analyze the relationship between electricity and magnetism.

### **Activity**

Using the Magnetism Demo Kit, students delve into the principles of electromagnetism. They explore how electric currents create magnetic fields and how changing magnetic fields can induce electric currents. They conduct experiments with electromagnets, study Faraday's Law of Induction, and discuss the applications of electromagnetism in technologies like transformers and MRI machines.

## **CROSS-CURRICULAR CONNECTIONS**

### **Mathematics**

Students can calculate magnetic force and field strength using mathematical formulas.

### **Technology**

They explore the design and function of various magnetic devices and their applications.

### **Language Arts**

Students can write reports or presentations on the history of magnetism, its discovery, and its technological applications.

### **Summary**

By experimenting with the Magnetism Demo Kit, students engage in hands-on learning experiences that deepen their understanding of magnetic principles while meeting curriculum expectations. This project promotes critical thinking and curiosity in STEM disciplines, encouraging students to explore the fascinating world of magnetism and its applications in technology and everyday life.