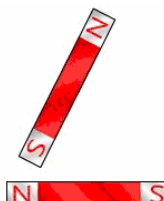




Sample Lesson Plan
The Big Bus Activity: Science - Magnets



Magnets

Title

Using *The Big Bus Science – Magnets* to simulate the properties and behaviour of magnets, investigating the reactions of every day materials.

Introduction

Step into the world of science. Science – Magnets contains two exciting logical thinking games helping children to understand the properties of magnets. Experimenting with a range of everyday materials, the children are challenged to predict magnetic behaviour as they construct a racetrack.

In this lesson

The children experiment with the on screen magnets and materials to learn about their properties. They complete a prepared table (supplied) to act as a reminder of what they have found out before going on to apply their knowledge as they use the properties of magnetic attraction and repulsion to line up bars to create the racetrack.

Age Range: 7 – 11 years

Lesson Plan

Learning objectives

Having completed this activity most children will have developed their ability to:

- Understand the forces of attraction and repulsion between magnets.
- Understand the forces of attraction between magnets and magnetic materials.
- Use the vocabulary related to understanding the forces of magnets
- Classify materials as magnetic or non – magnetic.
- Make and test predictions about the behaviour of magnets and a range of materials.

Technical preparation

Install *The Big Bus* CD-ROM on to the computer. After a short opening sequence select the button to visit either **Explorers' World** or **Bo Bear's World**. Open the Information Booklet index and scroll through the available activities. Select **Science - Magnets**.

Additional resources

Set of marked bar magnets, variety of materials for testing including iron, wood, plastic, copper and aluminium. (Optional)

Previous experience

If the children already have some practical experience with the use of magnets, this lesson is a motivating method of testing and reinforcing their knowledge. However, the program can be used alone to introduce this area of the curriculum.

Introducing the activity

Gather the children around a large computer monitor or interactive whiteboard.

Recap the **key terminology** the children will encounter in the activity. Discuss the terms attraction and repulsion, magnetic and non – magnetic. Direct the children's attention to the computer monitor or whiteboard then **select** Start the activity. Select the **Practise with magnets** activity.

Show the children the range of materials presented on the first screen, discussing what they already know about their properties. Move on to the activity, asking the children to predict what will happen each time they drop a magnet next to one of the bars on the grid. Evaluate what actually happens, encouraging them to use the terms relating to the magnetic properties of the materials involved.

Move on to the simple racetrack building game and work through it once with the children asking them to predict what will happen when the restraining bars are removed.

After the initial demonstration, and if more than one computer is available, the children could now break into working groups and undertake the activity for themselves. Give each group a copy of the **Properties of Magnets Table** supplied and instruct them to use the practice section of the activity to complete the table. When their table is complete and has been checked, allow them to move on to the simple racetrack activity and apply their knowledge in a practical way.

Allow the children about 15 minutes to complete the activity, and then gather them back together to discuss how they got on. Without their completed tables in front of them, test the children mentally on how different materials will react to magnets.

Classroom management

A single classroom computer running *The Big Bus*, using a large monitor or interactive whiteboard, is an effective whole class teaching resource. Introduce the activity to the whole class before pupils break into their groups.

If you have access to a computer suite this activity can be completed as a whole class lesson. If you have access to only one or two computers, pupils will need to complete the activity on a rotational basis.

Duration

Each group of children will require approximately 15 minutes of computer time. The teacher introduction and follow-up time will take approximately 15 minutes and 10 minutes respectively.

Differentiation

The harder level racetrack building activity requires the children to move more bars to create their grid.

Extending the activity

Challenge the children to complete the activity at both levels. Extend the **Properties of Magnets Table** by working with further materials in the classroom.

Curriculum Information

The National Curriculum in England for Science (KS2)

Sc1: 1b, 2a, 2b, 2c, 2d, 2e.

Sc3: 1.a.

Sc4: 2.a.

The Scotland 5-14 Guidelines for Environmental Studies

Science – Knowledge & Understanding – Energy & Forces: Level B.

The Northern Ireland Curriculum for Science and Technology (KS2)

Materials – Properties: a.

Physical Processes - Forces and Energy: c.

The National Curriculum in Wales for Science (KS2)

SC3: 1.1.

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