



LESSON 27 Magnetism: Magnet, Magnet, Where are you?

Grade Level: 7-9

1. Grades 7-9

2. Overview Magnets were first mentioned in this series under non-contact forces. Although there are different shapes of magnets, their properties are generally the same. Apart from their behaviour with "ferrous" materials, they create magnetic fields of different patterns. In industries, magnets are utilised in the fabrication of some machines.

3. Purpose The purpose of this lesson is to bring into focus, the importance of magnets in science and technology. The simple rule guiding the attraction and repulsion of magnets are to be established through different activities.

4. Objectives Students will be able to:

- i. Distinguish between a magnet and any other metallic object
- ii. Identify the poles of a magnet
- iii. Establish the rules of attraction and repulsion in magnets
- iv. Discuss how magnets are used in industries.

5. Resources/materials

- Different shapes of magnets, iron filings.

6. Activities and Procedures The students would have handled magnets in their study of science. But start them off here with this poem:

*Magnet, magnet, where are you?
I have got some work for you.
Pick my pins, pick my blades
Pick anything that has some iron
But don't try to pick my books
For I know that you will fail.*

The students will be able to find out the things which a magnet can pick. Let them have fun with the different types of magnets.

Now, the students should be guided in doing more sophisticated activities with magnets. First, let them determine the poles of a bar magnet. Magnets are labelled North and South. These are called the poles of the magnet. A North pole is that end of a bar magnet, which when freely suspended, points to the North. Thus a North pole is often referred to as the North seeking pole. The students are already familiar with the cardinal points. The opposite end of the North pole is the South pole. Based on the poles of the magnets, the rules of attraction and repulsion in magnets could be established. Here a suitable Poem on Poles of a Magnet should be introduced. Like poles repel, unlike poles attract.

Magnetic force was mentioned in the Lesson on Forces at work [Lesson 17]. In this lesson, the teacher should guide the students in the series of activities with iron filings and magnets. Iron filings on a sheet of paper under which is a magnet will give rise to different arrangements of the iron filings. The term "magnetic fields" should here be introduced. The following magnetic fields should be investigated:

- The magnetic field of a single magnet
- The magnetic field between two attracting magnets
- The magnetic field between two repelling magnets.

The patterns so formed should be drawn by the students. The teacher should make available known patterns for comparison. The vivid distinction between the patterns should be discussed.

Magnets are used in many appliances and industrial machines. The teacher should guide the students to make a list of appliances in which magnets are used. These should include radios, clocks, refrigerators, motor cycles, cars, electric motor and generators. If it is possible, the magnet in a piece of appliance should be removed and shown to the students.

7. Tying it all together Simple magnets are very useful in our study of science. Because of their power to attract iron metals, magnets easily find use in experiments dealing with separation of iron from other substances. Big magnets are used in industries in the manufacture of appliances and industrial machines.

8. Assessment This lesson is activity packed. The teacher should assess the output of the students and class participation.

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10. References Ministry of Education and Culture (2000). **Step Ahead New Secondary Science Student's Book 2 Zimsci** Harare: Longman Zimbabwe (Pvt) Ltd.

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