

SAMPLE LESSON PLAN:

Title: Magnetic Attraction and Repulsion

Grade Level: Second Grade

MI Science objectives:

List of Materials (for each group)

- Two bar magnets with poles marked
- One bar magnet with poles unmarked
- Thread
- Compass

Objective: Students will successfully discover the poles of an unmarked magnet.

Procedure:

1. Divide students into small groups.
2. Give each group two bar magnets (both have poles marked) and a thread.
3. Exploration. Instruct students to tie the thread around the center of one magnet and hold the magnet up by the thread with the magnet balanced horizontally. Next, have them bring one end of the second bar magnet near the one suspended from the thread, then turn the second bar magnet around and bring the other end near. Students should try this several times, observing carefully and recording their observations.
4. Concept Introduction. Have students share their observations with the class and compare their findings. Help them notice that the behavior pattern of the magnets is always consistent. Introduce the terms attract and repel, being sure that students are aware that like poles repel each other and unlike poles attract each other.
5. Research. Have student's do further research by reading about the concept from their textbooks; encyclopedia, and available trade books about magnets, then share the information they find.
6. Be sure that in the process of research and discussion, the students notice that the magnet suspended from a thread behaves as a compass – that if

left alone and away from all magnetic materials, it will line up with the magnetic north and south poles of the earth. The end of the magnet that points north is called the North Pole and the end that points south is called the South Pole.

7. Concept Application. Give students an unmarked bar magnet and a bar magnet that has the poles marked. Instruct them to use the marked magnet to identify the poles of the unmarked magnet.

(The students will probably bring one end of the marked magnet near one end of the unmarked magnet and observe whether the two ends attract or repel each other. A second approach students might take is to suspend the unmarked bar magnet from thread and identify the poles by letting the magnet line itself up with the magnetic poles of the earth; then compare their results with the marked magnet. A third idea the students might try is to use the compass and identify the poles of the unmarked magnet by which end of the compass needle each end of the magnet attracts.)

8. Assessment: Give students an unmarked magnet and instruct them to identify the north and south poles. Students may decide what method to use, but they should be asked to explain what they did and why.