Trail Guide Mag-Lev Test Bed A: 4.4 Electromagnetic Energy

THE FORCES IN MOTION GALLERY

Mag-Lev Test Bed

Check out the magnetic filings section of the exhibit

1. Why are the iron filings attracted to the magnets?

2. How can you tell which magnets are strongest?

Turn and talk with a partner about your thoughts about the strongest set-up. Use your science notebook to diagram what you saw and record your thinking.

Teacher notes:

Iron is a material that is attracted to magnets. The stronger the magnets, the more iron filings will be attracted. Since the attraction force of a magnet is stronger at the poles, more iron filings will be attracted at the poles.

The strength of a permanent magnet does not just depend on size. It also depends on other factors such as what the magnet is made of, and how well it has been magnetized. Most of the magnets in the exhibit are made of the same type of material. Because the only difference between them is size, the larger they are the stronger they are.

Trail Guide Mag-lev Test Bed B: 4.4 Electromagnetic Energy

THE FORCES IN MOTION GALLERY

Mag-Lev Test Bed

Which color car makes it down the track the fastest?

Why do you think it won?

Write your reasoning in your science notebook. Discuss it with a partner.

Teacher Note:

By purposefully placing magnets to modify the push (repel) and pull (attract) of the poles we can control the motion of objects. Have the students be aware of the ability to control the push and pull effects

Trail Guide Earth Observatory: 4.4 Electromagnetic Energy

THE PLANET EARTH GALLERY

Earth Observatory

Benjamin Franklin flew a kite during a thunderstorm. What did he show in his very dangerous investigation that we can see here?

Discuss with a partner.

Teacher Note:

Discuss with the class the idea of conductors. Reinforce the understanding of the dangers involved with an “electrical storm”, which we know as thunder and lightening. Also review with them exactly what conductors do when we are discussing the creation of a circuit. Reinforce that this was a very dangerous experiment that should not be attempted.

Trail Guide Geologic Connecticut: 4.4 Electromagnetic Energy

THE PLANET EARTH GALLERY

Geologic Connecticut

As you examine and sort the rock samples from Connecticut, be thinking about what each rock is made of.

1. How could the use of a magnet help us determine what minerals are in the rocks?

2. What would we observe happening between the rock and the magnet?

Teacher notes:

Iron, nickel, or cobalt contained in rocks is magnetic.

Trail Guide River of Yesterday: 4.4 Electromagnetic Energy

THE RIVER OF LIFE GALLERY

The River of Yesterday

As you explore the history of the CT River, notice the pollution that has occurred.

1. How do you think we could use magnets and electromagnets to remove some of the items thrown in the river?

2. What types of items might be easily removed with magnets and electromagnets?

Teacher notes:

Magnets attract metal objects made of iron,nickel, and cobalt. Therefore, the magnets and electromagnets would pull items out of the river made of these materials.
Some items that might be removed are: tire wheels (not aluminum), refrigerators, stoves, bicycles, tools, just to name a few. Some of these items would need to be lifted with large electromagnets.

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Trail Guide Mag-lev Test Bed B: 4.4 Electromagnetic Energy

THE FORCES IN MOTION GALLERY

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Trail Guide Earth Observatory: 4.4 Electromagnetic Energy

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Trail Guide Geologic Connecticut: 4.4 Electromagnetic Energy

THE PLANET EARTH GALLERY

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Trail Guide River of Yesterday: 4.4 Electromagnetic Energy

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