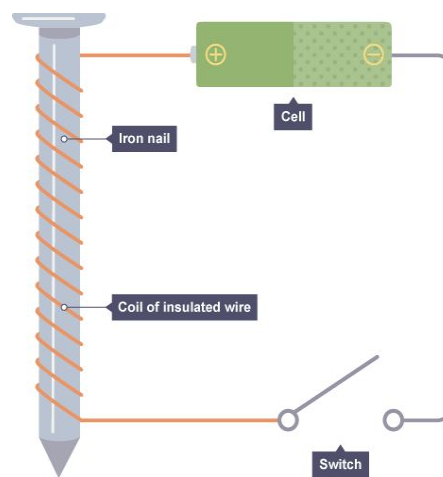


**Grade 7 - Science**  
**Student Study Pack**

Week	Topic	Lesson	Resources
Week 20	Physics	Electricity - Magnetism	Longman Physics pg 108



Watch this Youtube video: *How does an electromagnet work?*  
<https://www.youtube.com/watch?v=cxELqN7wjS0>

(\*If Longman Chemistry textbook is not available, use notes and booklets provided in class.)

*Circle the most correct answer.*

The diagram above shows:

- a) A parallel circuit
- b) An electromagnet
- c) A permanent magnet
- d) A closed circuit

**Online Application**

Type the following address for the *PHET Interactive Simulator* into your web browser:

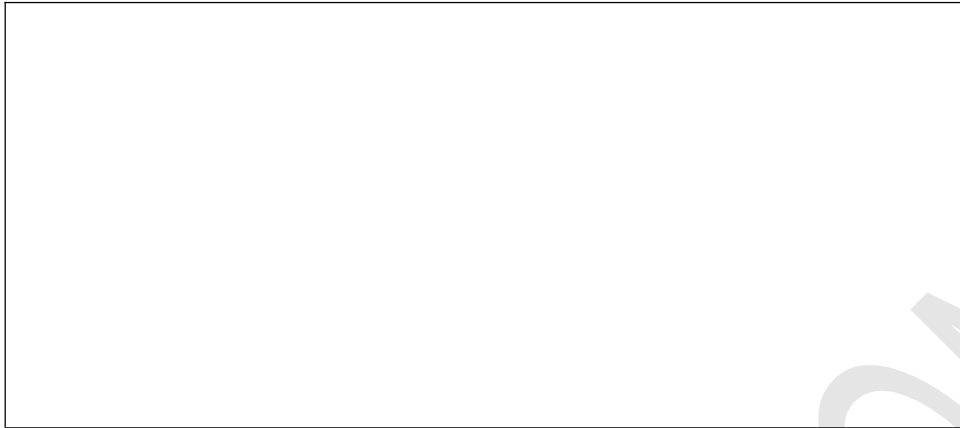
[https://phet.colorado.edu/sims/html/charges-and-fields/latest/charges-and-fields\\_en.html](https://phet.colorado.edu/sims/html/charges-and-fields/latest/charges-and-fields_en.html)

This simulator allows you to observe the effects of positive and negatively charged particles on the electric field. There is an electric field all around us, all the time since everything, from the core of the Earth to our neurons in our brains, gives off some type of charge.

The electric field is usually invisible, so this simulator uses arrows to illustrate what is created.

1. Using the PHET Simulator, add a positive and negative charge.

2. Click the “Electric Fields” tool and draw what you observe:



3. Use the voltmeter tool to measure voltage.
4. Add and move charges and observe the effects.
5. Read pages 141-142, then explain the effects of the tools.
6. Describe the effects observed:


7. Using Longman Physics book, define the following words:

- a. Magnetic Field: \_\_\_\_\_
- \_\_\_\_\_
- b. Conductor: \_\_\_\_\_
- \_\_\_\_\_
- c. Permanent magnet: \_\_\_\_\_
- \_\_\_\_\_

8. Circle the magnetic materials below.

Titanium

Nickel

Oxygen

Iron

Copper

Aluminum

Brass

Silver

Cobalt




## Electrical Safety Project

Is your home safe? Take a look around your home and check 'yes' or 'no' for each item below.

Tick the correct box.

Yes No

 <b>ELECTRIC OUTLETS ARE NOT OVERLOADED WITH PLUGS</b>	<input type="checkbox"/>	<input type="checkbox"/>	
 <b>ALL CORDS ARE IN GOOD CONDITION, NOT DAMAGED OR FRAYED</b>		<input type="checkbox"/>	<input type="checkbox"/>
 <b>ELECTRIC CORDS DO NOT RUN UNDER RUGS, FURNITURE LEGS OR NEAR HOT APPLIANCES</b>		<input type="checkbox"/>	<input type="checkbox"/>
 <b>ELECTRICAL APPLIANCES ARE NOT KEPT NEAR ANY LIQUIDS</b>		<input type="checkbox"/>	<input type="checkbox"/>
 <b>SAFETY CAPS ARE INSERTED INTO OUTLETS WHEN SMALL CHILDREN ARE AROUND</b>		<input type="checkbox"/>	<input type="checkbox"/>
 <b>SMALL APPLIANCES ARE TURNED OFF AND UNPLUGGED WHEN PEOPLE LEAVE HOME</b>		<input type="checkbox"/>	<input type="checkbox"/>

Always make sure that you are careful when handling and observing electrical equipment.

### Reading activity

Go to Longman Physics page 145 and read this paragraph out loud:

"How can electro-magnets be useful?"

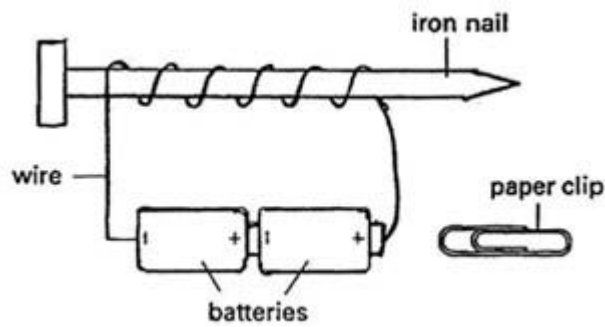
List three examples of electromagnets being used in the real world.

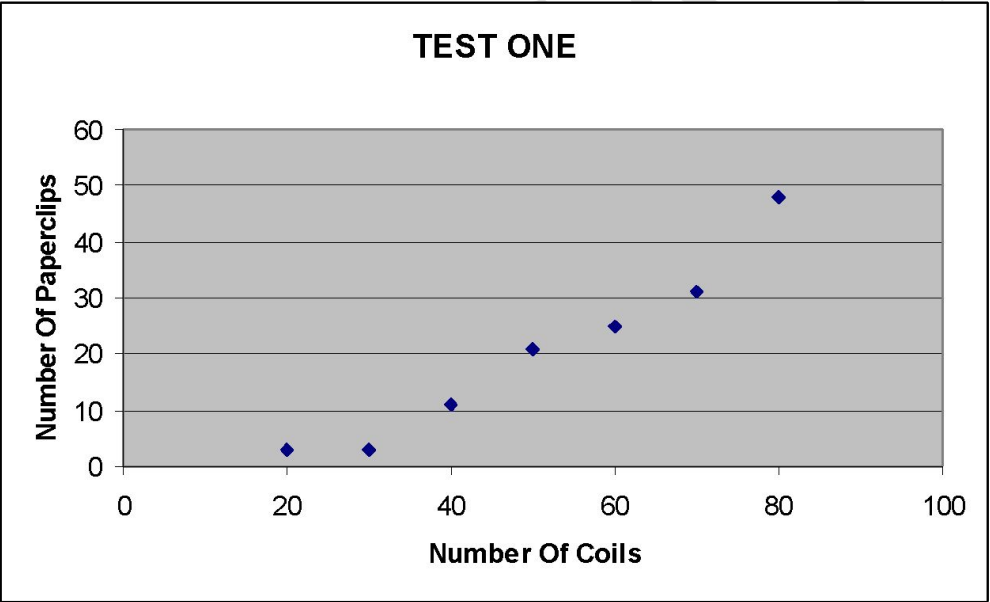
1.

2.

3.

Using the diagram below as an example, describe how a nail, copper wire and batteries can pick up paper clips.



Observe the chart above and answer the questions below.

What is represented in the x-axis?

Describe what happens to the number of paperclips being lifted as the number of coils increases.

Explain your answer in detail.
