

Electricity and Magnetism Web Quest

Name: _____

Begin by visiting

<http://micro.magnet.fsu.edu/electromag/java/faraday/>

1. In the space below explain what you observed.

2. What does the deflection of the compass indicate?

3. Define:

Electromagnetic _____

Induction: _____

<http://micro.magnet.fsu.edu/electromag/java/faraday2/>

Read about Faraday's Magnetic Field Induction Experiment then use the mouse to move the magnet inside the coil.

4. In the space below explain what you observed.

5. What is necessary to induce a current in a nearby circuit?

6. What does a galvanometer measure?

7. Analyze Faraday's Magnetic Field Induction Experiment and determine how it helped lead to the development of modern day power plants. Please include examples and at least one diagram.

Now go to:

http://www.energyeducation.tx.gov/energy/section_3/topics/where_does_electricity_come_from/c/inside_a_generator_animation.html

Watch the short animation on electric generators and answer the following questions.

8. What does an electric generator do?

9. Explain why the generator in the animation is considered an AC generator. Predict how an AC generator is different than a DC generator.

Now go to: <http://electronics.howstuffworks.com/motor.htm>

Watch the video (optional), read the page information then click "Next"

Read "Inside an Electric Motor" and complete the following.

10. What does a motor use to create motion?

11. Explain what causes rotational motion in an electric motor.

12. In the space below draw a diagram of an electric motor and label the 6 main parts.

Now go to: <http://www.andythelwell.com/blobz/>

Click “enter” and follow the directions on the web page. Note that there are 5 sections; each section has an information portion, an activity and a quiz. Please complete all three for each section.

Now go to: http://education.ilab.org/vocabhangman/magnets_03/2.html

Click on “Basic Magnetism (9)” which is about $\frac{1}{4}$ of the way down the page under Electricity and Magnetism heading. Complete the interactive hangman game. There are several questions so be sure to click “next question”.

After you complete the hangman activity, visit:

<http://micro.magnet.fsu.edu/electromag/java/transformer/index.html>

Read all the information on the page then answer the following questions.

13. Briefly explain what transformers are used for.

14. Compare and contrast a step up transformer and a step down transformer.

15. Now change the voltage and winding levels and closely observe the changes in the input/output voltage. In the space below, briefly summarize your observations.

Finally: Visit: <http://ippex.pppl.gov/interactive/electricity/>

Read the introduction then click on the right arrow.

Now read the information that follows and answer the questions below.

16. Define Electricity: _____

17. Briefly explain what static electricity is? _____

18. Now that you have explained static electricity, you are ready to try the balloon activity found on the site. Why does the balloon stick to the wall? _____

Continue to click on the right arrow.

19. Define Current electricity: _____

20. What does a common circuit consist of? _____

(HINT) It is a good idea to bookmark this website at home so you may use it as a reference for homework/studying

If you have finished early, you may visit <http://www.wonderville.ca/v1/home.html>

Click on energy street and design your own energy efficient city street.