Summer Science Enrichment

Rising 8th Graders

Note To The Students and Parents/Guardians

This enrichment guide consists of activities to extend the learning beyond the school year. Be sure to keep track of your experiences in a science journal.

Some practices that Rising 8th Grade students should understand include:

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Suggested Journal: Wide-Ruled or College-Ruled Composition Book
Use the questions below to create a science journal. The science journal will be used to record exploration ideas, data, labeled graphs, and persuasive/writings and stories from the summer calendar activities. Do them in order. **There are 15, and Homework Passes can be earned.**

1. **Why Science:** Write a scientific explanation describing why it is important for scientists to study our world.

2. **Thoughts of Numbers:** How do scientists use mathematics to explain the world around them?

3. **Math in Science!** In your journal, convert between the following units:
   - 600 millimeters = _____ meters
   - 0.35 liters = _________ millimeters
   - 1,050 grams = ________ kilograms

4. **Graphing:** In a class of 28 students, 12 students take the bus to school, 10 students walk, and 6 students ride their bicycles. Create a circle graph to display this data. Record your answer and circle graph in your journal.

5. **Research Questions:** Visit the website below to answer the two journal questions.
   https://www.usbg.gov/insects-garden
   - a. How can you identify insects from other animals?
   - b. How do different insects grow? Give at least two examples.

6. **Weigh the Impact**
   - a. Identify the Need: Why do people use pesticides?
   - b. Research: Using the Internet, research different insects affecting major crops in your state.
   - c. Choose one pest insect. Find out the methods used in controlling it. Are there alternatives to pesticides?
   - d. Research about animal diversity and the impact of pesticides on the environment.

7. **Decent Proposal:** A proposal to the governor of North Carolina for insect control in your state. Use your research and notes to explain how your method works.
8. **News Report:** Something strange has happened to the local pond. It is covered with green scum and dead fish are floating on the surface. Write a news report explaining to the public what has happened. Remember to use your journal. Draw and label a diagram of this pond for your report. Use the link provided to gain background information:


9. **Work Like a Scientist:** Observe two very different areas outdoors. Make a list of animals that you see in each area. Compare the list and describe the things that might affect the type of animals that will live in a particular area. Use a Venn Diagram or food web to support your description.


   a. Create a data table to display this information in a different format. Insert the data in numerical order listing the species with the most threatened number of animals first.
   b. Choose one group and research at least three specific animals on this list. Record three facts and a drawing for each in your journal along with the data chart.

11. **Water Cycle:** In your journal, answer the following questions about the Water Cycle in complete sentences. Include an illustration of the water cycle.

   a. Most of the water that evaporates on the earth comes from which source?
   b. What is the source of energy for the hydrologic or water cycle?
   c. How does the temperature impact the water cycle?

12. **Label It:** Create a product label in your journal for bottled drinking water, explaining to consumers why water is a precious resource.
13. **Who’s Dense?** Calculate the density of the following two samples of ocean water, each 1 liter in volume. Sample A has a mass of 1.01 kg; Sample B has a mass of 1.06 kg. Which sample would likely have the higher salinity? Explain your answer in your journal.

14. **Keeping it Clean**: According to a research study, the average shower uses 9.5 liters of water per minute. Use mathematics to answer the questions below. Be sure to show your work and include units in your responses.
   a. How much water is used in a seven-minute shower? In gallons?
   b. How much water would be saved per day if a person took a five-minute shower instead of an eight-minute shower and they always showered twice a day? In gallons?

15. **Conserving Water**: Saving water is more important than ever. Create a poster explaining why saving water is essential to the environment. Use items around your home to design your poster and take a picture of it to put in your journal. Share your findings with your family.