Summer Science Enrichment Packet

Rising 6th Graders

Prince George’s County Public Schools
Division of Academics
Department of Curriculum and Instruction

Rising 6th Grade Science Summer Enrichment Packet
Note to The Students and Parents/Guardians

This calendar consists of daily activities to extend the learning beyond the school year. Be sure to keep track of your experiences in a science journal. (Suggested Journal: Wide-Ruled or College-Ruled Composition Book)

Some practices that Rising 6th 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
Activities (Weeks: 1-4, Monday - Friday) This month you will focus on energy in an ecosystem.

<table>
<thead>
<tr>
<th>Days 1 and 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review/Research Question: What is an ecosystem?</td>
<td>Think about what you learned in 5th grade about how plants get their food. In your journal, describe how this is different from how animals get their food.</td>
<td>Draw a model (a food chain) to show how animals get their energy from the sun. In the diagram, use arrows to show the flow of energy. For example, use an arrow to point from grass to a rabbit to show the direction that energy flows.</td>
<td>Write a scientific explanation describing how life on Earth would change if the sun were suddenly blocked out for 20 years. Remember that scientific explanations should be written in paragraph form.</td>
</tr>
<tr>
<td>Draw a picture of an ecosystem. Be sure to include: Producers, consumers, decomposers, and a water source.</td>
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**Day 6**
Think about the role of “decomposers.” Explain how they are very important in an ecosystem. Describe what would happen if decomposers were missing from an ecosystem.

**Day 7**
Think about the nonliving parts of an ecosystem. Make a chart listing the parts in one column and the role the part has in the second column. See the sample below.

<table>
<thead>
<tr>
<th>Nonliving Parts of an Ecosystem</th>
<th>Role of the Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>provides the carbon dioxide (for plants) and oxygen (for animals)</td>
</tr>
</tbody>
</table>

**Day 8 and 9**
Make a three-column chart on some of the living parts of a forest ecosystem. List the living parts in column one, the role the living part in column two, and whether it is a producer, consumer, or decomposer in column three. Be sure to include at least one example from each of the three categories of organisms. See the sample below.

<table>
<thead>
<tr>
<th>Living Parts of a Forest Ecosystem</th>
<th>Role of the Living Part</th>
<th>Producer, Consumer, or Decomposer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oak tree</td>
<td>Provides shelter for animals, food for squirrels</td>
<td>producer</td>
</tr>
</tbody>
</table>

**Day 10**
Think about what you have discovered about ecosystems. In your journal, write your responses to the following:
- Explain how a food web and a food chain are different.
- Explain how producers, consumers and decomposed depend on each other in an ecosystem.

**Day 11**
Use the information below to create a data table showing the number of animals observed by a scientist in a particular ecosystem in a one-hour period. Be sure to give the table a title. In the table, create columns for Day 1, Day 2, Day 3, and a column for the average. Data for Days 2 and 3 and the average will be added later. Day 1: 5 squirrels, 10 birds, 1 frog, 2 turtles, 1 rabbit, and 6 spiders.

**Day 12 and 13**
On the second day, the scientist observed the following number of animals in the same ecosystem: four squirrels, six birds, two frogs, zero turtles, two rabbits, and two spiders.

On the third day, the scientist observed three squirrels, seven birds, three frogs, one turtle, three rabbits, and three spiders.

Calculate the average number of each animal for all three days and insert the information into the data table.

**Day 14**
Create a bar graph to display the average number of each animal from the data table. Be sure to label the -x and -y axis and add a title to the graph.

**Day 15**
In your journal, answer the question below and provide an explanation for your reasoning on selecting that answer choice.

In an ecosystem, birds depend on insects to survive. If someone spreads pesticide to control the insect population, which of the following is most likely to happen?

a) The bird population will increase.
b) The bird population will decrease.
c) The bird population will decrease, then increase.
d) The bird population will increase, then decrease.
<table>
<thead>
<tr>
<th>Days 16 and 17</th>
<th>Day 18</th>
<th>Days 19 and 20</th>
</tr>
</thead>
</table>
| Read the [Coral Ecosystems](#) reading passage and answer the following questions:  
1. How do the ocean’s fish populations depend on the coral reef?  
2. What nickname is given to the coral reefs?  
3. How do people benefit from coral reefs?  | Think about images you have seen of a beach or experiences that you have had on your own visits to a beach or lake. Have you seen any things that did not belong? Describe what you have seen and what humans can do to improve our water ecosystems. | Imagine that you have been hired as an exhibit designer for a new museum. You have been asked to design a forest ecosystem exhibit. Draw and label a plan/design for the exhibit. |
Activities (Weeks: 5-6, Monday – Friday) This month you will focus on the work of scientists and engineering and Earth’s place in the universe and our impact on Earth.

<table>
<thead>
<tr>
<th>Day 21</th>
<th>Day 22</th>
<th>Day 23</th>
<th>Days 24 and 25</th>
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</thead>
<tbody>
<tr>
<td>Think about what you already know about what kinds of things scientists and engineers have helped us learn about space. Create a list of things that we have discovered about space.</td>
<td>Describe how the sky looks in the daytime versus how the sky looks at night. Explain what causes this difference.</td>
<td>View the data table below. Would you expect the number of days for Saturn to be higher or lower than the number of days for Jupiter? Explain your answer.</td>
<td>Research popular constellations like the Big Dipper or Orion. Place about ten random dots (or stars) on a page and make your own constellation. Write a creative short story about the new constellation.</td>
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<tr>
<td><strong>Day 24 and 25</strong></td>
<td><strong>Day 23</strong></td>
<td><strong>Day 22</strong></td>
<td><strong>Day 21</strong></td>
</tr>
<tr>
<td><strong>Planet</strong></td>
<td><strong>Number of Days to Orbit the Sun (in Earth days)</strong></td>
<td><strong>Day 23</strong> View the data table below. Would you expect the number of days for Saturn to be higher or lower than the number of days for Jupiter? Explain your answer.</td>
<td><strong>Day 21</strong> Think about what you already know about what kinds of things scientists and engineers have helped us learn about space. Create a list of things that we have discovered about space.</td>
</tr>
<tr>
<td>Mercury</td>
<td>88</td>
<td><strong>Mercury</strong></td>
<td><strong>Mercury</strong></td>
</tr>
<tr>
<td>Venus</td>
<td>225</td>
<td><strong>Venus</strong></td>
<td><strong>Venus</strong></td>
</tr>
<tr>
<td>Earth</td>
<td>365</td>
<td><strong>Earth</strong></td>
<td><strong>Earth</strong></td>
</tr>
<tr>
<td>Mars</td>
<td>687</td>
<td><strong>Mars</strong></td>
<td><strong>Mars</strong></td>
</tr>
<tr>
<td>Jupiter</td>
<td>4,333</td>
<td><strong>Jupiter</strong></td>
<td><strong>Jupiter</strong></td>
</tr>
<tr>
<td>Saturn</td>
<td>?</td>
<td><strong>Saturn</strong></td>
<td><strong>Saturn</strong></td>
</tr>
<tr>
<td>Uranus</td>
<td>30,687</td>
<td><strong>Uranus</strong></td>
<td><strong>Uranus</strong></td>
</tr>
<tr>
<td>Neptune</td>
<td>60,190</td>
<td><strong>Neptune</strong></td>
<td><strong>Neptune</strong></td>
</tr>
</tbody>
</table>

**Day 26**
Draw and label a diagram of the **water cycle** using the following labels:
- Precipitation
- Evaporation
- Runoff
- Condensation
- Groundwater

**Day 27**
Precipitation comes in various forms.
Name some of the types of precipitation. Please explain why it exists as different types.

**Day 28**
Sometimes rain and runoff cause litter to end up in rivers and lakes. We can prevent litter and trash from ending up in our waterways by recycling and putting trash where it belongs. Most areas now have recycling programs. Think about how recycling works where you live. Make a list of things that you can do to help.

**Day 29 and 30**
Write a 1-minute public service announcement explaining how important it is to maintain a healthy planet for our survival.