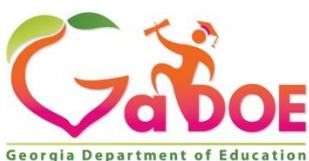


# Learning Menu Strategy for Science During School Closures

## **Sample Learning Menu Strategies for K-12 Science**

Consider providing home learning activities that include options that depend on low or no technology that focus on students' interests and the world around them. Learning menu activities are provided as options for ways for students to continue learning at home with their families and peers.



**March 27, 2020**



**Sample Elementary Learning Menu.** This elementary learning menu includes options for family-supported science learning for younger learners at home.

PreK- Kindergarten	Grades 1-3	Grades 4-5
<p>Observe the day and night sky and draw what you see.</p>	<p>Describe what the weather looks and feels like for several days in a row (e.g., sunny, cloudy, windy, rainy, snowy, stormy). You can develop a chart using symbols for the weather.</p>	<p>Observe the sun, moon and stars over multiple days (in a calendar or journal with descriptions and drawings). Describe the differences in their appearance or location from day to day or week to week.</p>
<p>Draw and describe what the day and night sky look like for several days in a row. Do you see any patterns?</p>	<p>If you can go outside safely at different times of the day, stand in the same spot and notice where the sun is and what your shadow looks like. Is it long or short? Where is it in relationship to the sun and your body? Inside try using a light source like a flashlight to create shadows of objects. What do you notice?</p>	<p>What plants and animals live in your area? Draw a picture. Can they be found all over Georgia? Why do you think some organisms can thrive in one habitat and not another? Share your ideas with a friend or family member.</p>
<p>Kick a ball and explore ideas about how a harder kick makes the ball go farther. Experiment with letting it roll on different surfaces and seeing what happens when it collides with other objects.</p>	<p>Experiment with sound. In your kitchen, find a cooking pot and gently tap it with a spoon (wooden, metal, plastic). Place your hand on the pot as you tap it. What do you feel?</p>	<p>When you're riding in a car, wonder about why the windows on one side of the car facing the sun are warmer than the other car windows. When you get home, draw a model to explain it.</p>
<p>Walk around your yard or a safe area, look out your window or in books and magazines and name the animals you see. Describe the ways baby animals and parents look alike and different.</p>	<p>Go outside after a windy or rainy day. Describe what changes you see or what is different. Discuss how the wind or water might have caused these changes.</p>	<p>Using a flashlight, shine light towards a mirror. Describe how it is reflected by the mirror? Try different angles.</p>
<p>Take sensory scavenger hunts. Find 6 objects that have a similar property: are X color, that are X shape, that are hard, soft, that are made of X materials etc.</p>	<p>If you have a magnet on your refrigerator, investigate to see what objects are attracted to the magnet. What do they have in common? Use care when experimenting with magnets.</p>	<p>Cook a meal together and discuss how sometimes when you mix two substances together, something new forms, or whether you can change something back to its raw form after you have cooked it.</p>
<p>Place different objects in a container filled with water. Discuss what happens to the objects. Why do you think some of the objects float and other objects sink?</p>	<p>Take a small sample of soil from the outside or from an indoor planting. What color is it? How does it feel? Write down your observations.</p>	<p>Be an energy sleuth! Document all of the objects in your home and the evidence you have that they are using electricity. Consider whether they are using energy when not in use. Make a family plan to conserve energy.</p>



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PreK- Kindergarten	Grades 1-3	Grades 4-5
<p>Work with your family to sort items (recycling, button jar, etc.) into categories based upon their properties. Are they made from metal, plastic, wood?</p>	<p>Toss a ball outside, or in an open space inside, and discuss how to make it go shorter and farther distances. What can you do to make it change direction?</p>	<p>Notice the clouds you see in the sky. Try drawing them. Clouds are classified by their shape and height above the ground. If you have access to technology, research to see what type of cloud you observed.</p>
<p>Watch the changes that a seed goes through by placing a seed in a plastic baggie with a wet paper towel covering one side. Place the baggie in a windowsill in a way that you can see the seed and take notes of the changes you observe.</p>	<p>Find a rock and observe it carefully. Write a story to describe where the rock came from and what made it look the way it does.</p>	<p>With your family, experiment with turning liquid (water) into solid (ice) and then liquid water into gas (water vapor).</p>
<p>Find an interesting object and observe it carefully. See if you can notice details that someone else can't. Can you describe it so well that someone can figure out what it is, even if they don't see it?</p>	<p>Can you make a specific kind of shadow puppet (that is a particular size and shape)? How did you do that?</p>	<p>Try to figure out how much water you use in a day by using kitchen measuring devices to collect water when you wash your hands and brush your teeth. Estimate how much water it takes to flush the toilet, wash clothes, wash dishes. Make a family plan to conserve water.</p>
<p>See if you can find an animal either outside or even living in your own home. Watch it carefully. Where does it go? What is it doing? Why is it doing what it is doing--is it looking for food, or water or a safe place?</p>	<p>Make a list of light sources you can find in your house. How are these light sources used? Write about a light source in your house and how it helps you and your family.</p>	<p>Place a small metal object on top of a piece of paper, a paper plate, a piece of cardboard, etc. Place a refrigerator magnet underneath the paper/plate/cardboard and try to move the object. Use care when experimenting with magnets.</p>



**Sample Secondary Learning Menu.** This secondary learning menu includes ideas for older learners who may be more self-directed in their learning.

Middle School (Grades 6–8)	High School (Grades 9–12)
<p>What kind of container would keep your coffee the hottest for the longest period of time? What about ice water the coldest? Conduct an investigation to study the characteristics/properties of the containers used to keep substances hotter or cooler using different kinds of containers in your home. Draw a model to explain your thinking.</p>	<p>Find some common tools used around your house (e.g. scissors, clothespin, spatula/flipper, chisel, pencil, chopsticks) and make a two-column list with information on how the device is used and characteristics of each tool. Conduct an investigation to study how the device affects the relationships between forces (i.e. input and output forces).</p>
<p>Discuss why the grass might turn brown during drier months and why grass needs to be mowed after it has rained for several days.</p>	<p>Keep an on-going list of things you wonder about and want to investigate. Is all pollen yellow? Who do moths fly toward the lightbulb at night? Why does aging fruit become brown? If you have access to the internet, books, etc. you could do some research. In some cases, you can set up observations and record your data. Ask your friends and family if they have any knowledge around the topics you are interested in.</p>
<p>How could you invent something that would make life easier for people? What would you invent and why? Design your invention, describing how it would work.</p>	<p>Consider an important event in history that you find interesting or meaningful. In what ways did technology, or another area of science play a role in this event? Think about the event as a system: how did science and engineering contribute to the event? How did the event change the path for science and/or engineering?</p>
<p>Create a new world! What would the environment be like? What does that mean for the kinds of plants and animals that could live, grow, reproduce, and thrive? What kinds of challenges would they face? How would they be similar to and different from what happens in our world, and why? Would we be able to live there? What kinds of phenomena would we wonder about in this new world? Design your world, and then tell a story set in your new world, focused on solving a problem someone would encounter. Test out different scenarios/thought-experiments in your world, updating the design as you go. [A simpler version of this would be: imagine one thing changed about our world--for example, weather patterns.]</p>	
<p>Identify a problem in your local community that you would like to solve. Interview family members to see how the problem affects them and what ideas they have for solving it. Try to think about other perspectives, how do some people see the problem differently? Brainstorm possible solutions to the problem and share them with others. Write up a synthesis of your process and prepare a presentation of your solution. Consider multiple audiences and how you might present your ideas differently.</p>	
<p>Document your impact on the environment--water use, energy use, food consumption, and waste/trash--for several days. Develop a model to explain how your use of resources affects the environment. Identify ways to reduce your impact on the environment and use your model to explain to someone else how your changes will affect the environment.</p>	
<p>Make a scientific illustration. Select a favorite natural object and practice drawing it with as many details as possible from different angles. As you draw, think about all of the parts and how they work together. What would happen if any of the details were changed?</p>	



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