

Name: _____ Teacher: _____

5.LS1.1 Needs of Plants

Formative Assessment Task: Materials and Energy for Plants

All living things need materials and energy to support life. The materials that are needed to build and repair organisms come from food. Organisms also need an energy source to perform functions such as growth, movement, and reproduction.

Animals get all the **materials** they need for growth and repair from the food they eat. The **energy** they need for life functions also comes in the form of stored energy from the food they eat.

Plants get most of their materials and energy in a different way. The **energy** plants need to grow and reproduce comes from sunlight. Since plants don't "eat," they get food by making it themselves, using energy from the sun. However, plants still need **materials** from their environment to make their own food. Plants obtain these materials from the atmosphere, hydrosphere, and geosphere.

Task 1

The picture below was taken in New Mexico in a hot, dry desert grassland.



1A. Provide a short description of the plants in the picture.

1B. What specific material(s) do you think these plants are getting from their environment that enables them to survive?

1C. What specific material(s) might be lacking in this environment that makes the plants appear less green and healthy than plants in other environments? Why do you think this?

Task 2

The picture below shows grass growing near a shade tree. Notice that the grass is growing around the tree, but it is not growing directly under the tree.



2A. The materials plants use to help them make their own food must be a physical type of matter. What specific types of materials (matter) are available to the grass in this system to help it grow?

2B. Even though these materials are available to the grass, there is still a lack of growth directly under the tree. What explanation(s) could you provide for this lack of growth?

Task 3

Below is a picture of a plant that is hydroponic, which means it is in a water **system** for growing plants. The plant is placed in a container of water with a small amount of liquid **nutrients** added. In the space below, draw a simple model of this system and show each part of the system that enables the plant to grow and stay healthy. Be sure to label all parts of the system. Indicate the sources from which the plant gets its energy and the materials it needs to make its own food so it can grow and repair itself.



Task 4

The picture on the right shows a plant growing out of a brick wall. This is an unusual place to see a plant growing. Generally, most plants are found growing in the ground.



4A. Based on what you already know about the needs of plants (given what you observed in the previous tasks), explain how the needs of the plant growing in the wall are being met, even though there is no soil in this environment.

4B. Plants make their own food by using materials they obtain from their environment. What are the two **most important** materials from the atmosphere, hydrosphere, and geosphere that plants need to make their own food? Support your answer with evidence from the examples you have seen in previous tasks.
**Remember that sunlight is not a material; it is a form of energy.*
