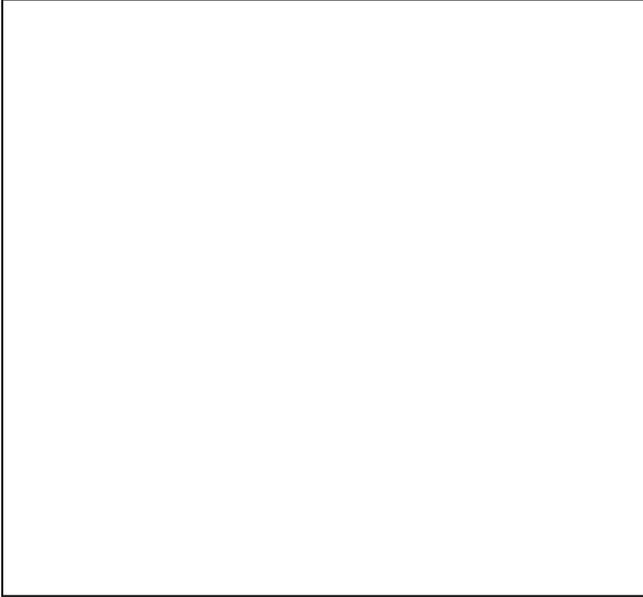


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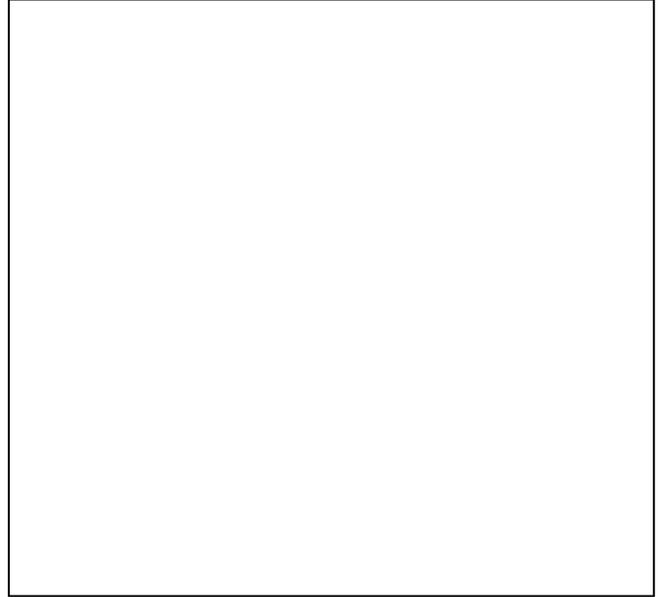
Amazing Structures (Follow-up to Leaf Me Aloe!)

- 1) Imagine that you could cut an *aloe vera* leaf in two. What do you think the inside would look like? If you could cut a cactus in two, what do you think the inside would look like? Draw your pictures in the two boxes below.

Inside of Aloe vera plant.



Inside of cactus plant.



- 2) Look at the sections of the two plants. How do they feel and look? Fill out the following table.

	Cactus plant	Aloe vera plant
Describe the texture of the plant skin.		
Why do you think the plant was able to hold the amount of moisture (water) it held?		
Describe the skins of each plant. Is the skin thick, thin, rounded, or flat?		
Compare your drawings of the plant insides with the actual plant insides. What is similar? What is different?		

3) Lightly spray one side of the wax paper with a little water. After getting water on the paper, shake the paper a little to see what the water does.

What does the water do when it hits the paper? _____

What does the water do when you shake the wax paper? Does it stay in one place? _____

Does the paper absorb any of the water? _____

Does any of the water come through the paper to the other side? _____

What does the wax paper have in common with the two plants? What part of the plants is like the wax paper?

Most desert plants, like aloe vera and cactus plants, have this wax paper part. Desert plants get very little rain and receive very hot sunlight that quickly evaporates water that is above the ground. Why do you think desert plants have this wax paper part? _____

4) There are two sponges on your table and two tubs of water.

- Dip the narrow end of one sponge in one tub and the wide end of another sponge in the other tub.
- Wait 15 seconds.
- After 15 seconds, take both sponges out of the tubs.
- Wring out all of the water in one sponge into one cup.
- Wring out all of the water in the other sponge into the other cup.

Did the narrow-dipped sponge or the wide-dipped sponge absorb more water? _____

In the desert, there is very little water. When it rains, the water sinks into the ground but stays very close to the surface. If roots needed to absorb as much water as possible, would it be better to be shallow (close to the surface) and wide or deep and narrow? _____

Draw what you think the roots of cactus plants in the desert look like. Are they shallow and wide or deep and narrow?

Cactus		Desert surface (the ground)
Draw the roots down here. Make sure that they connect to the cactus.		

5) Plants use sugar as food, just like we do.

- All plants need to make sugar is sunlight, water, and carbon dioxide.
- Cactus and aloe vera plants absorb water through their **roots**.
- Cactus and aloe vera plants get sunlight and carbon dioxide through their **leaves**.
- In order for the carbon dioxide to get into the leaves, the leaves must have little holes on their surface; these holes are called **stomata**.
- Unfortunately, when the sun is hot, water will evaporate out of these holes.
- Since there is very little water in the desert, this is very bad for the plants that need the water in order to make their food.
- Cactus and aloe vera plants can close their stomata holes to prevent water from being lost.
- When the stomata holes are closed, the plant cannot take in any carbon dioxide.

How do you think cactus and aloe vera plants get carbon dioxide without losing all of their water? (hint: is there any sunlight at night?) _____
