

Mucilage: it sounds funny, but its snot

Guiding question: What are the benefits of “chia gel” for plants and people?

Objectives:

1. Children should explore dry and moist chia seeds.
2. Children should understand what a mucilaginous seed is, and brainstorm benefits/uses of the “chia gel” for plants and people.

Materials:

1. Chia seeds
2. Small paper cup or bowl for each child
3. Disposable spoon for each child
4. Pipettes (optional)
5. Water
6. Sponges (each sponge can be cut into 3 strips. Number of sponges will depend on the number of kids expected. Could also use cotton balls)
7. Hand lenses and/or microscope with screen

Personnel: 1 – 2 people needed per time slot

Actions	Guiding questions
<ol style="list-style-type: none"> 1. Child should put a spoonful of chia seeds in a disposable cup or bowl. 	<p><i>What do these look like?</i></p> <p><i>What do you think would happen if you wet the seeds?</i></p>
<ol style="list-style-type: none"> 2. Child should stir 2-3 teaspoons of water into the bowl (or squirt in with a pipette). <ol style="list-style-type: none"> 2a. Seeds should start to gel 2b. While waiting, child can look at the chia seed under a hand lens or a microscope 2c. As the seed is gelling, child can look at the seed under the microscope again 	<p><i>What do the seeds look like now?</i></p> <p><i>How are they changing?</i></p> <p><i>How do they look under the microscope?</i></p> <p><i>How do you think this works?</i></p> <ul style="list-style-type: none"> - <i>Note: the chia seed coat can absorb 12x its weight in water!</i>
<ol style="list-style-type: none"> 3. Tell the child that chia seeds are <i>mucilaginous</i> (ask them what they think that word means?... it sounds like mucus and it looks like snot 😊) - though people often call it “chia gel.” 	<p><i>How could this gel be important for the seeds? (some examples)</i></p> <ul style="list-style-type: none"> - <i>Helps the seed germinate by keeping it moist</i> - <i>Helps the seed adhere to soil surface</i> - <i>Protect seed so bacteria and pathogens can't enter</i> <p><i>How could this gel be useful for humans?</i></p> <ul style="list-style-type: none"> - <i>People use it to make drinks and desserts and add it to smoothies</i>

	- (but maybe many other potential uses)
<p>4. To make a “chia sponge” the child can spread the rest of the chia gel on the top and sides of a sponge.</p> <p>- Optional: children can cut shapes out of the sponge to make “chia pets” and/or stick googly eyes into the sponge (but the eyes should be put on before the chia gel!)</p> <p>-</p>	<p><i>What happens as you spread the chia gel on the sponge?</i></p> <p><i>What if you turn the sponge over?</i></p> <p><i>How do you think this could help the plant?</i></p>
<p>5. Instruct the child to bring the sponge home, and put it in the sun. They should keep the seeds moist. The chia should sprout in a couple days. It might be a good idea to have some pre-sprouted from a few days before.</p>	
<p>6. Tell child: Scientists at the botanic garden study seed traits (like their shape, and size, and whether they are mucilaginous) and their germination. We try to figure out whether traits of the seeds will impact how quickly they germinate! What do you think?</p>	<p><i>How do you think this project relates to science that happens at the Chicago Botanic Garden?</i></p> <p><i>Knowing what you know (and have seen), what would you want to try next?</i></p>
<p>Optional: We had discussed creating a “giant chia pet” out of a terra cotta sculpture, or using panty hose. Another option could be to build a structure out of sponges (like a house) and have children add their extra chia gel to the house as they leave.</p>	

Questions? Contact:

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