

Pharmaceutical Scientist: Medication for Digestive Gas



Adventure Description:

In this adventure, students will think like a pharmaceutical scientist and perform tests with medication for digestive gas.

Activity

Step One: Background Information on Pharmaceutical Scientists and Digestive Gas (5 minutes)

- Explain to students that a pharmaceutical scientist creates medicine to help people with diseases or other issues, like digestive gas. Ask students if they know that some foods that they eat create gas in their stomach! This is the gas that we burp up after eating a huge meal.
- Explain to students that sometimes when their stomachs hurt, all it could take is a good burp to make them feel better! There's only one problem though: sometimes these gases form bubbles in the stomach that are really difficult to get out! Pharmaceutical scientists help people find medicines that help reduce the gas bubbles in their stomach! That way, they can burp the gas out.
- Tell students that simethicone is one medication that works to help people release this gas. Simethicone works by reducing the surface tension of the bubbles of gas inside of the stomach. Surface tension is the force that allows the molecules in a liquid to stick together and hold gas in a bubble form. For example, when you wash your hands, soap mixed with water has a high surface tension and the bubbles you see are little pockets of air contained surrounded by the soapy water.
- Explain to students that they will be testing simethicone tablets to see how well they reduce surface tension and allow gas to be released. To do this, they will be using soapy water to represent the liquid in their stomach. Then they will add simethicone tablets until bubbles no longer form when they blow air into the soapy water.

Step Two: Testing Simethicone Tablets (15-20 minutes)

- Explain to students that they will now test simethicone tablets in a soapy water mixture to simulate how simethicone removes gas bubbles in the stomach.
- Provide students with [Handout: Create a Stomach Solution](#). Walk through the steps as a class.
- Explain to students that the results for this test are "subjective". This means that there is not exact measurement for deciding how many bubbles are "a lot" of bubbles. Instead, observations are based on students' opinion of what they see. Because of this, students will repeat tests several times to decide how many tablets are necessary to stop bubbling completely.
- While students are working, ask them the following questions:
 - What does blowing air into the liquid represent? (The gas produced by foods in our stomach.)
 - Why do we want to be able to release the gas from the bubbles? (When gas stays trapped inside peoples stomachs, it hurts!)

Please contact Allison Bischoff, Director of Teacher Support, at allison@rozzylearningcompany.com or 314-272-2560 with questions.

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- Why is it important to do more than one trial for this kind of test? (The results are subjective, meaning that there is no exact measurement, so doing the test more than once will result in a more reliable answer.)

Step Three: Create a Logo for a New Medicine (10 minutes)

- Explain to students that they will now create a logo for a new medication that contains simethicone.
- Provide students with **Handout: Creating a Logo**. Walk through creating a company name and logo together as a class.
- Provide students with art supplies and have them create their logos.

Step Four: Discussion (5-10 minutes)

- Have students discuss their testing results and present their logos to the class.
- Have a concluding class discussion about how medications are created for different purposes, such as eliminating digestive gas.

Materials List

Provided online:

- Handout: Testing Tablets
- Handout: Creating a Logo

Not provided (Each group needs):

- 1 cup of water
- 5 drop of dish soap
- Simethicone tablets (like gas-x)
- Bowl and metal spoon for crushing tablets
- Spoon for stirring liquid
- A drinking straw

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