

About this activity



In this activity you will investigate to find out which material makes the best coating for a medicine designed for dogs. Just like scientists in industry, you will try to keep your test fair by changing one thing in each test.

Kit List

- ✓ 2 chocolate buttons
- ✓ 50ml Vegetable oil
- ✓ Glass of water
- ✓ 5 Alka-Seltzer® tablets
- ✓ 4 clear plastic cups (or similar)
- ✓ Timer (watch or mobile device)
- ✓ Disposable gloves (optional)
- ✓ 1 teaspoon each of four of the following:

icing sugar	sugar syrup
honey	plain flour
maple syrup	sugar
cornflour	talc

Coated tablets are best prepared one day in advance to allow the coating to dry.

Time: 1 hour

Watch out!



- Do not eat any of the ingredients
- Do not use an ingredient if you have an allergy to it
- Take care to clean up any spillages

How to keep a dog happy and healthy:



The 5 welfare needs:

Health - Protection from pain and injury, and treatment if they become ill.

Behaviour - Ability to behave naturally e.g. play, run, dig.

Companionship - To live with or apart from other animals appropriate to the needs of the dog.

Diet - Nutrition appropriate for the dog's age and to maintain a healthy weight.

Environment - The right home with space to play, rest, exercise and explore.

Medicines

for

Pets

Important words to understand:



- carbon dioxide
- change
- coating
- dissolve
- fair test
- gas
- ingredients
- irreversible
- liquid
- medicine
- mixture
- solid

Not sure what they mean? You could use a dictionary to check (paper or online).



How can a coating help?

Dip one chocolate button in vegetable oil then coat it in sugar. Leave one un-coated. Hold both chocolate buttons tightly, one in each hand, and see which one melts first.

🕒 How long did the buttons take to melt?

🕒 Did the coating slow down the melting?



Pets' Paws Plc.

The Problem



Pets' Paws Plc. make medicines for pets and need your help with a problem they've found while trialling a new tablet to treat poorly dogs. No dogs were harmed in the tests as mock tablets and safe ingredients were used, but unfortunately, the mock tablets were fizzing in the dogs' mouths and dissolving before they got to their stomachs, meaning the dogs would not get the right amount of medicine to treat an illness.

Why did this happen?



Drop **one** of the uncoated Alka Seltzer® tablets into a glass of water to see what happens when the solid tablet comes into contact with the liquid water. You will see the tablet dissolve and change when it mixes with the water. The fizzing sound is a gas called carbon dioxide being made. This process is irreversible.

Pets' Paws Plc. would like you to carry out an investigation to find a good coating to put onto the tablet. You will test different materials to find a coating thick enough to slow down the dissolving until the tablet reaches a dog's stomach.

OUR METHOD

The day before your experiment – Choose four coatings you would like to test from the options given. Dip your **four** remaining Alka Seltzer® tablets in vegetable oil and then dip them in your chosen coatings aiming for an even layer. Leave them to dry overnight.

- Fill the clear plastic cups with water.
- Drop one of your coated Alka Seltzer® tablets into the water.
- Start your timer as soon as the tablet hits the water and stop it as soon as it starts to fizz.
- Record the time in a results table like the one below.
- Repeat this process for the other three coated tablets.



Which coating do you think will be the best?

Recording your Results - Here are some ways you could record your results

A results table like this one

Tablet Coating	Time to fizz (seconds)	Other observations
Sugar		
Flour		
Icing sugar		
Honey		



Photo Diary



Video Diary



Once you have completed your observations and recorded your results, it is time to advise the Pets' Paws Plc. scientists which material makes the best tablet coating.



THEY WILL WANT TO KNOW...

- How did you carry out your tests and make them fair?
- How did you test each tablet coating?
 - What are your results?
- Which tablet coating would you recommend?
 - Why do you think it was the best?
- Which tablet coating would you **not** recommend and why?

Write a short report or make a video to share your results with **Pets' Paws Plc.** Share it with us  [@ciecyork](https://twitter.com/ciecyork)

Did You Know?



Medicines for humans must go through several testing stages before they can be licensed for use. These stages include laboratory tests, computer modelling and testing on animals including humans. In the final stage, patients may be given a real or substitute medicine and doctors carefully analyse results to make sure it is having the desired effect.



Making medicines to treat sick animals is a difficult job! Finding the right ingredients can be a real challenge. Every animal is different and can react to ingredients we think of as safe. For example, chocolate, grapes, raisins and onions are some of our favourite foods but can cause stomach problems or even organ failure in our furry friends. Chocolate made especially for dogs has some ingredients removed to make it safe for them to eat.



TAKING IT FURTHER

Follow up activities:



- Find out more about the [welfare needs](#) of pets in this video.
- Create an owner's guide or a fact file for your favourite breed of dog.
- Think about a pet you have or would like to own and design a poster showing all the things they would need to keep them healthy and happy.
- Read through this [dog fact sheet](#) to find out more about these popular pets.

Things to think or talk about:



- Why does the tablet need a coating?
- What makes a good tablet coating?
- Do medicines for people also have coatings?
- Can you think of any other materials which would make a good coating? Why not test them out too!
- Have you ever had a pet who has needed medicine? Who did you go to, to get the medicine?
- It can be difficult to get an animal to take medicine, can you think of any ways to make it easier?