

The Thirsty Dinosaur

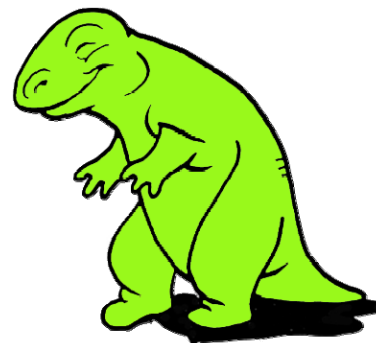
At-Home Instructions

Question to investigate

How big will your dinosaur get?

Gather the following items

- Growing dinosaur
- Small zip-closing plastic bag
- Tablespoon or medicine cup for measuring
- Metric ruler
- Water
- Plate or tray



Procedure

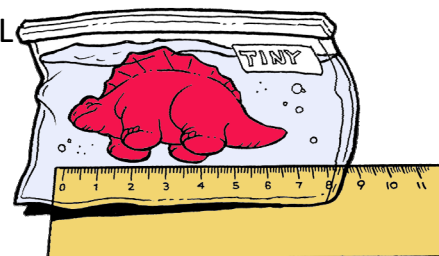
1. Measure your dinosaur.

- Use a metric ruler to measure your dinosaur from nose-to-tail or head-to-toes in mm.
- Record this length in the dinosaur growth chart.

Dinosaur Growth Chart	
Before soaking in water	
After soaking in water for 1 day	
After soaking in water for 2 days	

2. Add water and wait.

- Place your dinosaur back in the small zip-closing plastic bag.
- Use a tablespoon or small medicine cup to add 90 mL of water to the zip-closing plastic bag. Hint: One tablespoon = 15 mL.
- Remove as much air as you can and carefully seal the bag.
- Lay the bag flat on a plate or tray in case the bag leaks.
- Leave your dinosaur in the bag for one full day.



3. Change the water, measure, and wait.

- After soaking for one day, empty the water from the bag into the sink.
- Then add 90 mL of fresh water and carefully reseal the bag.
- Use a metric ruler to measure your dinosaur the same way you did before, nose-to-tail or head-to-toes.
- Record this length in the dinosaur growth chart.
- Wait one more day for your dinosaur to reach its maximum size.

4. Measure and try your own experiment.

- Use a metric ruler to measure your dinosaur the same way you did before.

Record this length in the dinosaur growth chart



- Try one of the following ideas or design your own experiment.

Would the dinosaur get bigger or smaller...

- if you take it out of the water?
- if you add salt to the soak water?
- if it spent a day in the freezer?

What is the growing dinosaur made of?

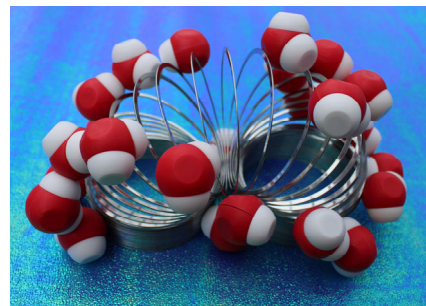
This dinosaur is made of cellulose, much like a kitchen sponge. A polymer called polyacrylamide is embedded in the sponge. Polyacrylamide is like sodium polyacrylate, which is the powder inside disposable baby diapers, and the product instant snow.

Are there any safety concerns with the growing dinosaur?

The growing dinosaur is an ideal environment for mold and bacteria to grow. Wash your hands before and after touching your growing dinosaur. If you plan to keep the dinosaur after experimenting, allow it to air dry thoroughly or keep it sealed in a bag in the refrigerator. Dispose of it immediately with the household trash if black spots or other signs of mold appear or if the dinosaur begins to smell foul.

Why is this dinosaur so good at absorbing water?

Polyacrylamide is a super absorbent polymer, meaning that it has many areas where water molecules can crowd around it. One way to think about super absorbent polymers is to imagine a slinky. The magnetic water molecules in this photo stick to the metal slinky. As more and more water molecules stick to the slinky, the coils spread apart, exposing even more places where water molecules can get close. As the polyacrylamide stretches, so does the cellulose. All this stretching makes the dinosaur get bigger.



Do other growing pets that soak in water work the same way?

Yes! The super absorbent polymer embedded in cellulose may be slightly different, but the main idea is the same. Some growing pets come inside a shell, like a baby bird or reptile in an egg. Holes in the shell allow water to enter. As the creature absorbs water and stretches, it pushes on the delicate eggshell from the inside until it breaks it open.