



# GROW DINOSAURS

A WVU Extension Service STEMCARE Lesson

## Audience:

Grades K-5

## Time:

45 to 55 minutes (divided over multiple days)

10 minutes to read "Did a Dinosaur Drink This Water?"; 10 to 15 minutes daily for three days to dry, trace and measure the length and height of the dinosaur; 15 minutes on final day for teacher to share the science behind Grow Dinosaurs. Students graph results and discuss the rate of change over time.

## Materials:

Grow Dinosaur (expandable polymer water toy); paper; graph paper; pencil; ruler; cup of water; book for reading aloud: "Did a Dinosaur Drink This Water?" by Robert E. Wells

## Vocabulary:

Polymer, hydrophobic, hydrophilic

## Goal:

*Understand how to record and interpret observations over time.*

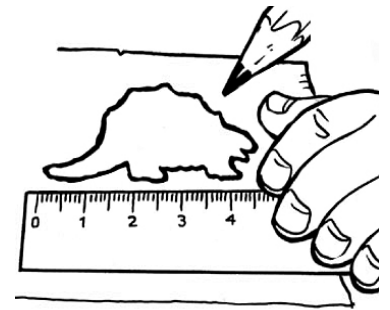
## Introductory Activity

Read "Did a Dinosaur Drink This Water?"

## Core Learning Activity: The Science Behind Grow Dinosaurs

**Day 0:** Place the dinosaur on paper, hold it down and trace around it closely with a pencil. Measure the length and height of your dinosaur tracing and record your results in the spot marked "Day 0." Place the dinosaur in a cup of water and let it sit overnight.

**Days 1 to 3:** Each day, take out your dinosaur, dry it and trace as before. Measure the length and height of your tracing and record your results for Day 1 through Day 3. Each day, refill the cup with fresh water and place the dinosaur in the cup to sit overnight.



After three days, your dinosaur will be fully grown. Calculate the area of your dinosaur on each day by multiplying length by height. Graph your results and track the rate of growth on graph paper with the area on the Y scale and the day on the X scale.

## Results

Day 0: \_\_\_\_\_ Day 2: \_\_\_\_\_

Day 1: \_\_\_\_\_ Day 3: \_\_\_\_\_

## What's Going on Here?

This dinosaur is made from two special polymers. A polymer is simply a very long chain of repeating molecules.

One of the polymers is a hydrophilic (water-loving) hydrogel. This super-absorbent polymer is responsible for the

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water-absorbing action that causes the dinosaur to grow. The other polymer is hydrophobic (water-fearing). This polymer does not absorb water but helps to keep the original shape of the creature while it swells up with water.

Will the dinosaur shrink? Yes! Just leave the dinosaur out without water and allow the moisture inside to evaporate. It might take a week or more.

*THINK ABOUT IT:*

Can you think of a good use of this polymer material other than a dinosaur toy?

## Resources

"Grow Beast Dinosaur." Educational Innovations Grow Beast Dinosaur, 2015. [http://cdn.teachersource.com/downloads/lesson\\_pdf/GB-1.pdf](http://cdn.teachersource.com/downloads/lesson_pdf/GB-1.pdf).

Wells, Robert E. "Did a Dinosaur Drink This Water?" Chicago, IL: Albert Whitman & Company, 2006.

## West Virginia Next Generation Standards

### General Science

- S.2.GS.1 – Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. NGSS 2-PS1-1
- S.2.GS.2 – Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. NGSS 2-PS1-2

### Mathematical Habits of Mind

- MHM1 – Make sense of problems and persevere in solving them.
- MHM6 – Attend to precision.



**WVU STEMCARE Grow Dinosaurs Demonstration Video:**  
<https://youtu.be/ZSqQDpo1j5Q>

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