

DINOSAUR MYSTERIES

1. Observe the large and small dinosaurs at the entrance to Dinosaur Mysteries.

What are their names? *Giganotosaurus (large), Compsognathus (small)*

How are they similar? *Both are meat-eaters (therapods). While their size is very different, their teeth, claws and skeletal structure are very similar.*

2. Visit the back of the Dinosaur Mysteries Hall. Name two dinosaurs that have been found in Maryland.

Astrodon (large plant-eating dinosaur), Acrocanthosaurus (large meat-eating dinosaur)

NEWTON'S ALLEY

1. Experiment with all three of the Pulley Chairs. Why is one chair easier to lift than another?

The more pulleys you have in a system, the more work they will do for you. The easiest chair has three pulley systems, the middle chair has two and the most difficult only has one.

2. Is the tug of war a fair match? Why or why not?

It is not a fair match. One side pulls from the top while the other side pulls from the bottom. It is much easier to pull something down when pulling from the top. Winning the match from the bottom-pulling side is almost impossible.

YOU – THE INSIDE STORY

1. Why don't the nails at the Bed of Nails poke through your skin?

When you lay down, your weight is spread out across the whole bed, so when the nails (placed closely together) come up they are able to lift you. You are not really putting much pressure on the individual nails. If you were to step on a nail, your entire weight would push against the nail and injury to your foot would be likely.

2. Experiment with the grip strength interactive. List two ways you use your precision grip and two ways you use your power grip in daily life.

Precision grip:

- *Using a pencil to write*
- *Getting dressed with zippers, buttons, or snaps*
- *Holding utensils to eat*
- *Building a model with Legos*

Power grip:

- Opening a door
- Using a hammer
- Holding tennis racket or lacrosse stick
- Climbing on the monkey bars

SCIENCE AGLOW

1. Are X-Rays an example of low frequency or high frequency waves? What do we use them for?

X-Rays are an example of high frequency electromagnetic waves. X-Ray imaging is used in the medical field to see through soft materials like skin to take a picture of the dense bone underneath.

2. The curve of a mirror changes the reflection that we see. Does a concave mirror make things look taller or shorter than the real object?

Concave mirrors curve in, like the inside of a bowl. A concave mirror makes images appear stretched. This makes the reflected image look taller and thinner than the real object.

SCIENCE & MAIN

1. Which size gear makes it easier to start spinning the bike wheel?

The small gear is easier to spin because it needs less force to make one complete rotation. The big gear is harder to spin, but it spins the bike wheel faster for each gear rotation.

2. A sound wave is measured by its frequency and amplitude. If a sound gets louder, does the frequency or amplitude of the wave change?

The amplitude of a sound wave changes when the volume increases. Loud noises make tall waves and quiet noises makes small waves.

POWER UP

1. Experiment with the Light the Future hand crank. Which bulb was hardest to light? Why?

The incandescent bulb is hardest to light because you have to generate more energy to power it. The florescent bulb is easier to light than the incandescent bulb, and the LED is the easiest to light because it takes the least amount of energy to power it.

2. What does a distribution substation do to the electricity coming from a power plant?

It converts the electricity to a lower voltage so that it can be used in the houses.