

Kindergarten

Curriculum-Embedded STEM Experience

Self-Guided Tour



NEWTON'S ALLEY

When you arrive at the Maryland Science Center, take some time to explore the Newton's Alley exhibit on Level One. This area is full of interactive exhibits that will have your students exploring force, motion, gravity, and more.



FIND THE GRAVITY'S RAINBOW EXHIBIT.

Read the procedure aloud to your students and try the experiment as described.

Take it further!

Move the cups in the bins to a new position halfway between the green and orange arrows and try the experiment again. Encourage your students to adjust the ramp angle until the balls have just enough force to fall into the cups.



FIND THE NEWTON'S CRADLE EXHIBIT.

Hold the center ball steady with one hand. Pull back one ball from the end and let it go. Have your students observe what happens to the other balls. Based on what they just saw, encourage your students to guess what will happen if you pull two balls back, then try the experiment again.

Take it further!

Pull back one ball just a little bit and let go. Then pull back one ball as far as you can and let go. Ask your students to describe how the movement changes.



FIND THE MARBLE ACCELERATOR EXHIBIT.

Read the procedure aloud to your students and try the experiment as described.

Take it further!

Spin the sphere again and ask your students to brainstorm ways to change the direction the marble is moving. Once they have an idea, encourage them to give it a try.



FIND THE TUG OF WAR EXHIBIT.

Divide your students evenly and have them stand on either side of the lever. Everyone should grasp the rope with both hands, plant both feet firmly on the ground and start pulling. Discuss whether or not the tug of war is a fair match.

Take it further!

The rope is much higher on one side, which increases the amount of force that students on that side can apply. Encourage the two groups change places or to try different combinations on both sides and observe what happens.

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SCIENCE AND MAIN

Experiment with more physics phenomena in the Science and Main exhibit on Level Two. Your students will take what they've learned in Newton's Alley and apply it as they explore how force and motion play a role in our everyday lives.



FIND THE CHAOS CAFÉ - FOOD FIGHT.

In this section of the exhibit, students will experiment with a catapult. Catapults use stored energy to launch objects through the air. Read the procedure out loud to your students. Encourage students to modify the catapult and see how the ball's launch changes.



FIND THE DEPARTMENT OF PUBLIC WORKS - KEEP IT MOVING.

In this section of the exhibit, we focus on how engineers work to move things like water, sewage, and utilities through a city. Encourage your students to use the materials provided to move a ball from one place to another. Remember, problems such as these have many solutions!

- Build a system/ramp that makes the ball move slowly
- Build a ramp that makes the ball move quickly
- Build a ramp that make the ball turn a corner
- Try one of the challenges on the orange board



FIND THE DROP TOWER.

In this section of the exhibit, students explore what happens when a dropped ball collides with a surface on the ground. Adjust the large wheel so the wood surface is facing up. Press the button to drop the ball and have your students observe what happens to the ball. How does the ball's motion change? Next, spin the wheel to select another surface (carpet or foam). Again, drop the ball and have your students observe what happens. When the ball collides with the new surface, does it bounce the same way?

Let's science



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