

Objective

By the end of this lesson, Gwen will have a solid understanding of Newton's Laws of Motion and be able to explain each law with real-life examples. She will also engage in fun activities that illustrate these laws in action.

Materials and Prep

- Paper and pencil for note-taking
- Ball (any size, like a tennis ball or basketball)
- String or yarn (if available)
- Measuring tape or ruler (if available)
- Open space for activities (like a backyard or park)

Before the lesson, ensure that Gwen understands basic concepts of motion, such as speed and direction. Prepare to discuss how these concepts relate to Newton's Laws.

Activities

• Ball Toss Experiment:

Gwen will toss a ball and observe how it moves. She will note how the ball accelerates and then stops. This will help her understand Newton's First Law of Motion, which states that an object in motion stays in motion unless acted upon by an outside force.

• String Pull Challenge:

Using string or yarn, Gwen will create a simple pulley system to lift a small weight (like a bag of rice). This activity will illustrate Newton's Second Law of Motion, which states that force equals mass times acceleration ($F=ma$).

• Obstacle Course Creation:

Gwen will design a mini obstacle course using household items. She will then run through it and discuss how friction and gravity affect her movement, connecting to Newton's Third Law of Motion: for every action, there is an equal and opposite reaction.

Talking Points

- "Newton's First Law tells us that things like to keep doing what they're doing. If a ball is rolling, it wants to keep rolling until something stops it."
- "When we talk about Newton's Second Law, remember that heavier things need more force to move. Think of it like pushing a friend on a swing – the heavier they are, the harder you have to push!"
- "Newton's Third Law is super cool because it explains why rockets can fly. When the rocket pushes down on the ground, the ground pushes back up with equal force, sending the rocket into the sky!"
- "Real-life examples are everywhere! Can you think of a time when you felt the effects of these laws? Maybe when you ride a bike or play sports?"
- "Understanding these laws helps us see how the world works. From cars driving on the road to planets orbiting the sun, Newton's Laws are at play!"