

Photo Description



A child in a red shirt jumps high into the air over an orange cone, with their legs bent and arms outstretched for balance. In the background, other children and adults watch the activity take place in an outdoor school setting. This image shows how our bodies can move through space when we apply force to push off the ground.

Scientific Phenomena

Anchoring Phenomenon: A person jumping over an obstacle and landing safely

This happens because the child pushes down hard against the ground with their legs (applying force), which makes their body move upward into the air. Gravity then pulls them back down toward Earth. The child's muscles create the force needed to overcome gravity temporarily. The jumping motion demonstrates how force causes changes in motion—the child goes from standing still to moving upward very quickly, then slows down and comes back down. This is a perfect example of Newton's First Law: objects in motion stay in motion (and objects at rest stay at rest) unless a force acts on them.

Core Science Concepts

- * **Force:** A push or pull that makes things move, stop, or change direction. In this photo, the child's leg muscles push down on the ground, creating an upward force.
- * **Motion:** A change in position or location. The child moves from the ground upward into the air and then back down again.
- * **Gravity:** An invisible force that pulls objects toward Earth. It's what brings the jumping child back down to the ground.
- * **Balance and Control:** Using body awareness to stay steady while moving. The child's outstretched arms help maintain balance in the air.

Pedagogical Tip:

Kindergarteners learn best through direct, physical experience. Rather than only showing this image, have children actually jump, hop, and skip themselves. Let them feel the force they create with their own legs and experience gravity pulling them back down. This embodied learning is far more powerful than passive observation for this age group.

UDL Suggestions:

Multiple Means of Representation: Some children may benefit from slow-motion video of jumping to see the motion more clearly. Use visual supports like picture cards showing the sequence: "push legs down !" jump up !" come back down."

Multiple Means of Action/Expression: Allow children to demonstrate their understanding through movement (jumping, hopping) rather than requiring verbal or written responses. Children with mobility challenges can participate by predicting motions or directing others' movements.

Discussion Questions

1. What made the child's body go up into the air? (Bloom's: Understand | DOK: 1)
2. Why did the child come back down to the ground after jumping? (Bloom's: Explain | DOK: 2)
3. If the child pushed down harder with their legs, what do you think would happen to their jump? (Bloom's: Predict | DOK: 2)
4. What forces are working on the child's body right now—the push from the legs and the pull from Earth? (Bloom's: Analyze | DOK: 3)

Extension Activities

1. Jumping Contest: Set up a safe indoor or outdoor space with low obstacles (foam blocks, tape lines, or cones). Have children practice jumping over obstacles at different heights. Encourage them to notice how they feel their leg muscles pushing and how gravity brings them back down. Discuss: "What helped you jump higher?"
2. Force and Motion Exploration Station: Create stations where children can push and pull different objects (balls, blocks, toy cars). Have them observe which pushes and pulls make things move far, fast, or slow. Connect this to their jumping experience: "Your legs pushed to make your body move, just like you push to move these toys!"
3. Jump Like Animals: Have children imitate how different animals jump or move (bunnies hop, frogs leap, kangaroos bound, birds fly up). Discuss the different forces and motions each animal uses. This builds vocabulary and deepens understanding of force and motion through imaginative play.

NGSS Connections

Performance Expectation (K-PS2-1): Plan and conduct an investigation to provide evidence that vibrations make sound and that various materials can be used to change the volume of sound.

Disciplinary Core Ideas:

- K-PS2.A Objects can move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
- K-PS2.B Things push or pull on other things when they come into contact. Pushes and pulls can make things move.

Crosscutting Concepts:

- Cause and Effect Pushes or pulls can change how objects move or whether they are moving.

Science Vocabulary

- * Force: A push or pull that makes something move or stop.
- * Jump: To push your body up into the air with your legs.
- * Gravity: An invisible force that pulls things down toward Earth.
- * Motion: The act of moving from one place to another.
- * Balance: Keeping your body steady so you don't fall over.

External Resources

Children's Books:

- Jump, Kangaroo, Jump! by Stuart J. Murphy (explores jumping and motion through story)
- Move! by Robin Page & Steve Jenkins (introduces basic concepts of motion and force)
- The Reason for a Flower by Ruth Heller (includes gentle exploration of how living things move)

YouTube Videos:

- "Gravity for Kids" by Crash Course Kids – A simple, engaging introduction to gravity and why things fall down. https://www.youtube.com/watch?v=J-G5JQCR_8E
- "Push and Pull Forces for Kids" by Kids Academy – Interactive video showing real-life examples of pushes and pulls, including jumping. https://www.youtube.com/watch?v=JV9Dgt_MJDA