# Playground Physics: Hang in There!

*Playing with pendulums and swings can help preschool children find out more about gravity and motion. Emphasize safety: An adult should stay close by to make sure children use the pendulum safely. Remove all pendulums, especially the cords, from the playground when you are not supervising their use. Children must not swing on a pendulum or wrap the cord around any part of their bodies.*

## Make a pendulum—or two.

- Make a "bob" by putting a beanbag or other weight inside a mesh bag or clean sock. Tie the bob to a cord and hang it from a playground structure so it swings freely close to the ground. Tell the children, "This is a pendulum. You can try different ways to make it work."
- After a while, ask questions such as, "Did you notice what happened when Davy released the bob with the cord stretched tight? What happened when Tess threw the bob?" "What can make the pendulum stop moving?" List their observations for later discussion.
- When the pendulum is at rest, invite some children to measure how far the bob is above the ground. Then invite a child to hold the bob and step back until the cord stretches tight. Then ask them to measure again: "Now how far is the bob above the ground?"
- Invite the children to imitate the motion of the bob by moving their hands through the air.
- Let a child release the bob while others count or use a timer to see how long the bob stays in motion.
- Replace the bob with a funnel or a plastic milk jug with a ¼-inch diameter hole in the bottom. Plug the hole with a cork. Lay an old sheet or a board directly under the bob. One child can fill the milk jug bob with sand. Ask, "When we take the cork out and let the bob swing, what do you think might happen?" Let them try it, then revisit their predictions.
- Set out plastic bowling pins so children can take turns aiming the pendulum bob to knock the pins over. Or put a foam ball in a mesh bag and hang it so it is about waist-high to most of the children. They can play catch by swinging it to each other.
- If your playground has swings, invite children to observe the swings while they play. In what ways are the swings like pendulum bobs? In what ways are they different?

## Talk about pendulums.

- Introduce the idea that gravity is an invisible "natural force." It has the power to make hanging things come to rest instead of swinging back and forth forever. That's why it takes effort to make something swing for a long time.
- Ask, "How would you describe a pendulum to a person who has never seen one?"

Any opinions, findings, conclusions, or recommendations expressed in this tip sheet are those of the author(s) and do not necessarily reflect the views of the Illinois Department of Early Childhood (IDEC).

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