ACTIVITY AT HOME

PINK PALACE MUSEUM

Engineering

SWINGING PENDULUMS

Build a pendulum and explore the Laws of Motion.

Materials

String

Washers, or other weights that can be tied to a string

Tape

Scissors

Paper

Pencil

Timer

Procedure

- Cut 2 lengths of string. One should be 1 foot long, the other 2 feet long.
- Tie 5 metal washers to one end of each string. If you don't have washers, make sure whatever weights you use are the same for each string. You have now made two pendulums.
- Find a place to suspend your two pendulums. Tape the strings to the end of a table or door frame. They should have enough room to swing back and forth freely without bumping into anything.
- Pull each pendulum back to the same point and release it. Record how many times the pendulum swung back and forth before it stopped swinging. You can record each swing as a "period."
- How many periods did you record before each pendulum stopped swinging? Try changing up the experiment by starting the pendulum at different angles, or adding more or less weight to each pendulum. Repeat the experiment multiple times, writing down your observations each time.

Results

The length of the string affects the period of the pendulum, while starting angle and mass do not.

Why?

Newton's 1st Law of Motion states that objects in motion stay in motion, and an object at rest stays at rest unless acted upon by an outside force. In the case of the pendulum, it will remain at rest until you "act upon it" by pulling it back and releasing it. After that, the pendulum will keep moving until it is stopped by outside forces. In this case, the outside force of air friction will eventually slow the pendulum.

This activity was adapted from scientificamerican.com

Visit our Cultural History Gallery and look for tools that early settlers in West Tennessee used to build houses, prepare food, make clothing and entertain themselves.