

Title

Egg Drop

Activity Overview

Description:

Campers will observe the effects of kinetic and potential energy as they attempt to protect an egg from breaking when dropped from a large height.

Topic Area(s):

Engineering

Grade Level:

P-6

Duration:

1 hour

Learning Outcomes:

- Learn about Potential and Kinetic energy
- Understand the engineering design process and apply it in a hands-on activity
- Learn about how engineering principles relate to real life situations

Hook

Can you drop an egg without it breaking?

Background Information

- **Potential Energy:** the energy stored in a body or in a system due to its position
- **Kinetic Energy:** the energy which it possesses due to its motion
- An egg will have potential energy when you hold it up in the air and that energy is converted to kinetic when you let it go as it falls to the earth. Build a device that can transfer the kinetic energy into it instead of an egg keeping it safe so it does not break.

Materials

Per participant or group (though this can be adapted to what is on hand):

- Popsicle sticks (10)
- Elastic bands (2)
- Pipe cleaners (10)
- Duct tape (1 m)
- Cardstock Paper (1 sheet)
- Tissue paper (1 sheet)

- Straws (5)
- Styrofoam cup (1)
- 1 egg
- Cotton balls (5)

Safety Considerations

No throwing eggs!

Procedure

1. Split participants into groups of 3-4 if necessary.
2. Give the groups 10 minutes to plan their protective device. Split the materials evenly amongst groups. If they break their egg before the egg drop test, they are eliminated from the challenge!
3. Make a protective device for the egg to sit in/on so that it won't break when you drop it off a ledge. Give the campers 20-30 minutes to build their device.
4. Test it out! Start by dropping the device off the top of a table. Then, if any of the eggs last past the first round, drop the device from an even higher height! The egg that lasts the longest wins!

Wrap-Up/Debrief

- If campers were able to build an egg protector again what would they do differently? What would they do the same?
- Understand Potential and Kinetic energy concepts
- What real life applications does this have?

Additional Resources