

Monthly 4-H Club Activity Idea

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Pumpkin Chunkin'

Objective: To explore principles of physics and engineering.

Age Range: All ages.

Hands-on Activity: Create a simple catapult and launch objects of different masses.

Life Skills: HEAD = decision-making, learning to learn;
HANDS = self-motivation;
HEALTH = self-discipline.

Introduction

Physics is the branch of science that studies how matter and energy interact. It is a fun, action-packed component of STEM (science, technology, engineering, and mathematics) that can also be intimidating for both youth and adults due to its vocabulary, theoretical laws, and use of mathematical equations. By focusing on the action and making observations, physics becomes more applicable and confidence in physics can be developed. Pumpkin chunkin' (Figure 1) explores principles of gravity, motion, mass, potential and kinetic energy! Observe the launches of different objects (equivalent and different masses/shapes/sizes).

Alternatively, older youth can be challenged to use the Engineering Design Process (Figure 2) to design, construct, and test a catapult using the materials provided. Ask purposeful questions during the STEM activity to enhance learning, deepen the thought process, and spark interest. Have youth discuss why they made certain decisions, what other questions they have, and what additional ideas/factors they would like to test. Physics does not have to be boring, mysterious, or intimidating. It is the basic playbook of the universe that describes how everything in our everyday world interacts. Have fun exploring!



Figure 1. Simple catapult can be used for pumpkin chunkin'.

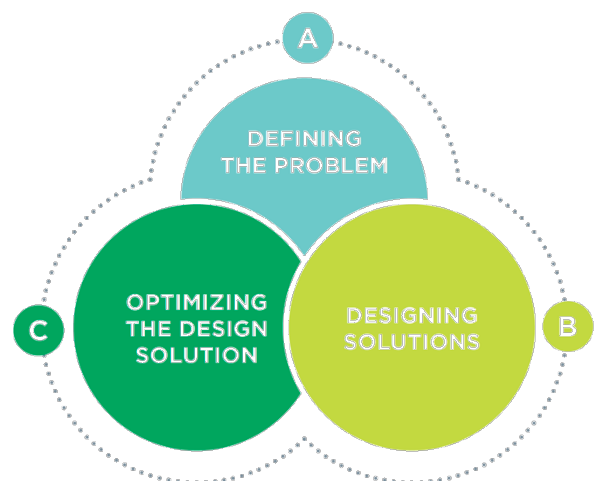


Figure 2. The Engineering Design Process. Image credit: National 4-H Council

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Activity Materials

- Plastic spoon
- 5-10 craft sticks (regular or jumbo)
- 3 rubber bands
- Pumpkin mellows, pom poms, or other objects to launch

Activity Instructions

1. Assemble the catapult.
2. Place an object to launch in the cradle of the spoon.
3. Pull the spoon down with the tip of a finger while holding the base of the catapult in place. (This creates potential energy.)
4. Make sure there are no objects or people within the potential flight path of the catapult.
5. Release the pressure on the spoon to launch the object. (This is kinetic energy.)
6. Determine how far and/or high the object traveled.
7. Repeat the trial with the same and various other objects.
8. Discuss your observations.

Reflection

1. What did you observe about different objects that you launched?
2. What do you think about this activity? Name something that was fun about this activity.
3. Share a time when you had to modify your design or your approach to launching an item.

Conclusion

Creating environments for kids to try, fail, and try again is important to their development. Resiliency and critical thinking skills are both enhanced through the use of engineering design challenges. Being flexible and adaptable with materials and objectives also enhances creativity and affinity for STEM activities. Have fun!!!



Figure 3. Materials for creating and testing a simple catapult.



Figure 4. Stack craft sticks, place a rubber band around one end to secure, and slide remaining craft stick into place.



Figure 5. Secure remaining side of base with rubber band and attach the spoon with the last rubber band.

Additional Resources:

National 4-H Council. 2020. 4-H at Home: Hands-on Activities for Kids. <https://4-h.org/about/4-h-at-home/>

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