



Robotics

Brief Description: If you had a robot what would you want it to do? Did you realize there are robots all around you? In this session you will be exploring and learning about robot arms and also about the many uses of robots.

Grade Level: K-2

Materials List:

National 4-H Youth Archived Science Day Experiment—EcoBot Challenge
<http://www.4-h.org/4-h-national-youth-science-day/past-experiments-archives/>

Anticipatory Set- (Robotic Song)

Laptop, projector, screen, YouTube video- http://www.youtube.com/watch?v=_0EpYPSrjCE

Robot Arms

Cardboard strips 11" by 1.25", ½ inch wire coat hanger, paperclips, playdough

EcoBot Challenge (Kits may be available at your local Extension Office to rent or borrow)

Toothbrush, 10mm pager vibrating motor, 3 cm and 1 cm foam mounting double sided tape, LR44

1.5 volt button cell watch battery, control area mat, rice, pop flats

If I had a robot...

Toilet paper rolls, aluminum foil, pipe cleaners, pony beads, color coding labels, glue stick

Book Suggestions:

Oh No! How My Science Project Destroyed the World by Mac Barnett

The Three Little Aliens and the Big Bad Robot by Margaret McNamara



Time Needed: 1 hour

Nebraska 4-H Learner Outcome:

Youth will develop positive interests and attitudes about science and science related careers.

Youth will develop science skills and abilities.

Lesson:

Anticipatory Set: Robotic Song

http://www.youtube.com/watch?v=_0EpYPSrjCE

- This is a great activity that is sure to get youth up and moving like a robot.

Activities:

- 1) Read *Oh No! How My Science Project Destroyed the World* and/or *The Three Little Aliens and the Big Bad Robot* 15 minutes

- 2) Robotic Arms 15 minutes
-<http://ijuan12.squidoo.com/space-exploration-lesson-plan>

- During this activity youth will be learning about simple machines. They will be challenged to pick up items using the robot arm they created. All materials should be prepared for the youth to easily assemble their robot arm or you may want to pre-assemble them depending on time.
To make this experiment even more challenging, have astronaut gloves (large gloves) available for the youth to maneuver their simple machines.

- 3) EcoBot Challenge 20 minutes
-<http://www.4-h.org/4-h-national-youth-science-day/past-experiments-archives/>

- Discuss why we have robots and show the constructed EcoBot and how it works. Let groups observe how autonomous robots works in pop flats.
- Explain how Baily Beach had a toxic spill its danger to fish and animal life. Give each group a work mat and rice. If they have time they can use other materials to set up a control area. Let the robot “sweep” Bailey Beach.

- 4) If I Had a Robot. . . 10 minutes

- Youth will create a simple robot model out of a toilet paper roll. They will then use this robot as their inspiration to write “If I had a robot...” story to be done independently at another time. (If you will see the same youth during another session, it would be fun to have them read their creative writing pieces.)

Reflection:

Think-Pair-Share: Think of an example of robot that takes the place of a human activity. Pair up with a friend and share.

Wrap-Up:

Share examples of 4-H Robotics projects from your county.

Extension:

Be a Robot Movement Break

<http://yourtherapysource.com/freerobot.html>

Edible Robots



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