ARTIFICAL AI INTELLIGENCE!

Unplugged Human Robots

Background

This activity explores the concept of algorithms - step-by-step instructions that computers and robots use to complete tasks. Similar to how AI systems rely on algorithms, the "human robots" in this activity must follow precise instructions without improvising. Understanding how to give and follow clear instructions is an important skill for both humans and AI. As AI becomes more advanced, the ability to communicate instructions clearly will be crucial for humans to effectively interact with and control AI systems. This connection to the algorithmic nature of AI helps set the stage for the "Human Robots" activity, where participants will practice the fundamental skills of instruction-giving and instruction-following that underpin AI development.

What to Do

In this activity, the youth will take turns playing the roles of "robot" and "programmer". The "programmer" will give step-by-step instructions for the "robot" to complete a simple task, like walking to the door or picking up an object. The "robot" must follow the instructions exactly as given, without improvising. The activity allows participants to practice communicating clear, detailed instructions and precisely following them - skills that are fundamental to how AI systems operate.

LESSON: INTRODUCING THE ACTIVITY

Let's get our robot brains ready to activate! In this super fun "Human Robots" activity, you'll each take turns being the robot and the programmer. The programmer will give you step-by-step instructions, and you've got to follow them exactly like a real robot. Let's see how well you can take orders and become the ultimate cyborg!

LESSON: EXPLAINING THE CHALLENGE/ACTIVITY

This activity helps you practice giving clear, detailed instructions and following them precisely - just like how real robots and AI systems work! Let's see how well you can communicate and follow orders.

IOWA STATE UNIVERSITY
Extension and Outreach

Step 1: Pair Up

Have the Clover Kids pair up, with one acting as the "robot" and the other as the "programmer".

Step 2: Give Instructions

The "programmer" gives clear, step-by-step instructions for the "robot" to complete a simple task, such as walking to the door or picking up an object.

Step 3: Follow the Instructions

The "robot" must follow the instructions exactly as given, without improvising.

Step 4: Switch Roles

After completing the task, the partners should switch roles and repeat the activity.

LESSON: FACILITATOR NOTES:

- Encourage participants to be creative and have fun with their robot personas and instructions.
- Monitor the activity to ensure instructions are being followed correctly. Provide clarification if needed.
- Emphasize the importance of clear communication and active listening.
- Allow time for discussion and reflection after the activity.
- Consider incorporating extensions like obstacle courses or problem-solving challenges.
- Be prepared to model the activity if participants need an example.

Digging Deeper

- Have the "robots" complete more complex tasks, such as making a simple craft or navigating an obstacle course.

Expand and Explore

- Incorporate math or science concepts by having the "robots" follow instructions to solve a problem.
- Create a class "robotics" competition where teams program their "robots" to complete a challenge.

Talk it Over

SHARE

- How did it feel to be the "robot" following instructions? What was challenging about it?
- What strategies did you use as the "programmer" to give clear, detailed instructions?
- Where else in your life might you need to give or follow instructions carefully?

PROCESS

Reflect on the connections between the "Human Robots" activity and how AI systems work. Discuss:

- Why is it important for both humans and AI to be able to give and follow precise instructions?
- What skills did you develop through this activity that could be useful for working with or creating AI in the future?
- How might the process of breaking down a task into steps be applied to solving other problems?

GENERALIZE

Explore how the instruction-giving and instruction-following skills practiced in this activity could be applied more broadly:

- What other areas of life require clear communication and attention to detail?
- How might these skills help you be a better leader, teammate, or problem-solver?
- What real-world examples can you think of that are similar to the "Human Robots" scenario?

APPLY

Consider ways you could build upon what you learned from this activity:

- How might you challenge yourself to give even clearer instructions or follow them more precisely?
- Are there any tasks or projects you could apply these skills to in your daily life or 4-H activities?
- What other opportunities might you have to explore the connections between human and AI capabilities?

Career Connection

The following career area(s) connect to this activity:

Computer Programmer:
- Designs and develops software applications by breaking down tasks into detailed, step-by-step instructions for computers to execute.
- Requires strong skills in problem-solving, communication, and attention to detail - all of which are practiced in the "Human Robots" activity.

Robotics Engineer:
- Works on the design, development, and programming of robots and autonomous systems.
- Relies on the ability to provide precise instructions and algorithms for robots to follow, like the "programmer" role.

User Experience (UX) Designer:
- Focuses on creating intuitive, user-friendly interfaces and experiences.
- Needs to consider how to provide clear, step-by-step guidance, as practiced in the "Human Robots" activity.

Project Manager:
- Coordinates teams to complete complex projects by breaking down tasks and communicating detailed instructions.
- The instruction-giving and instruction-following skills developed here are valuable for effective project management.

Teacher/Instructor:
- Must be able to deliver clear explanations and guide students through learning activities step-by-step.
- The "Human Robots" activity helps develop pedagogical skills in this area.

Learning More

Introduce Robots and Coding:
- Bring in a simple robot or coding toy and have the kids take turns programming it.
- Discuss how the robot is following step-by-step instructions, like the activity.

Computer Science Unplugged:
- Do "unplugged" computer science activities that teach coding concepts without computers.
- For example, have the kids create algorithms to make a peanut butter and jelly sandwich.

Guest Speaker:
- Invite a computer programmer, robotics engineer, or other relevant professional to speak about their work.
- Emphasize how their job involves giving clear instructions to computers and robots.

Field Trip:
- Organize a field trip to a local robotics lab, coding club, or technology company.
- Allow the kids to see real-world applications of the skills practiced in the activity.

Extension Projects:
- Challenge the kids to design their own simple "robot" obstacles courses.
- Have them write out detailed instructions for a partner to follow through the course.