Unplugged
## Hour of Code: Computer Drawing Project

Suggested Time: 1 hour

Materials: A pencil and notebook paper.

Overview

Students draw a picture, and take turns giving either their partner or the entire class very specific steps to recreate their drawing. They can't look at the person or people they're giving instructions to, and no one is allowed to ask questions.

This teaches students how they're going to be giving instructions to their computer with computer programming. The computer can't ask questions and will follow instructions step by step, and the final result may not be what you expect in the end.

If there's time at the end, students can recreate the activity with a short scavenger hunt. They choose a point in the classroom and write down instructions to get another person or group of people to that point.
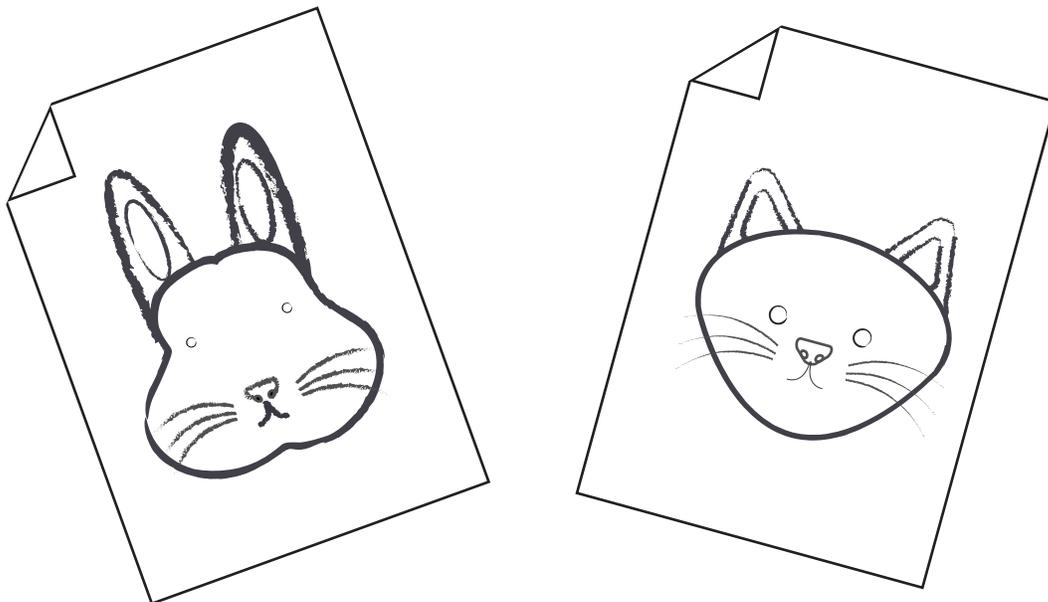
Discussion

Talk with the class about what would happen if people followed instructions exactly. What would happen?

For example, what would happen if I pointed at a closed door and said "walk through that door?" (The person would walk into the closed door.)

Computers work by following lists of instructions, and they do exactly what the instructions say—even if they don't make sense!

Project

Version 1 - Using the image provided (for younger participants)

Select a student to be the 'programmer.' She chooses a drawing on the next page, and describes it to the rest of the class, the 'computers.'

The catch is that she can only use words that the 'computers' would understand. For example, she can say 'line', but she can't say 'whisker' or 'tail'.

The programmer faces away from the computers, and gives the computers instructions one at time to recreate their drawing. The computers can't talk to each other or ask any questions.

At the end, the class shares what they've created with the 'programmer's' instructions.

Choose one of the images below to describe to the computers!

1.

2.

3.

Version 2 - Drawing their own pictures (ages 8+)

To start, have each of the students draw their own drawing. Don't allow them to show it to anyone.

Once everyone is done, separate them into pairs or have one student come to the front of the class. The student describing their drawing is the 'programmer,' the ones copying it based on instructions are the 'computers.'

The programmer faces away from the computers, and gives the computers instructions one at time to recreate their drawing. The computers can't talk to each other or ask any questions.

At the end, the computers show what they've created, and another student can take the role of programmer.

Review
This exercise gets students to start thinking like programmers. How can I write a list of specific instructions in order to make something a computer do something I want? Just like the computers in this exercise, computers can't ask questions for clarity.

Extra Time
If there's extra time after the drawing exercise, students can recreate the activity with a scavenger hunt.

A group of programmers write down instructions to get to somewhere specific in the classroom space. They should use if statements (if wall == hit, turn left), and specific instructions (walk 3 steps) to get to a specific location. Then instructions are given to computers, and they try to follow them. No talking between groups is allowed.