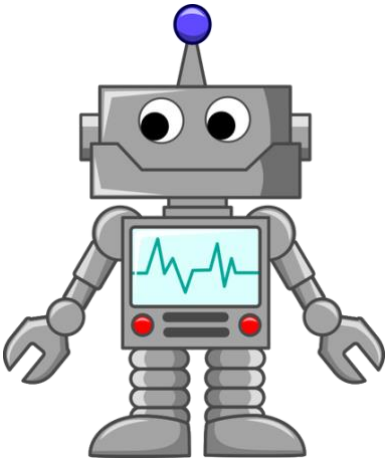
Age: 7+



R is for…Robotics

What is robotics? The science of technology that is associated with design, fabrication, and application of robots. Robots are machines that can carry out functions automatically. Robots are programmed to be intelligent and to perform complex movements by utilizing programming and sensors around the robot.

- Robots can be used in a variety of ways including in surgery, car manufacturing, and in space (ex. Mars rovers)

Activity: **Create an articulating hand**

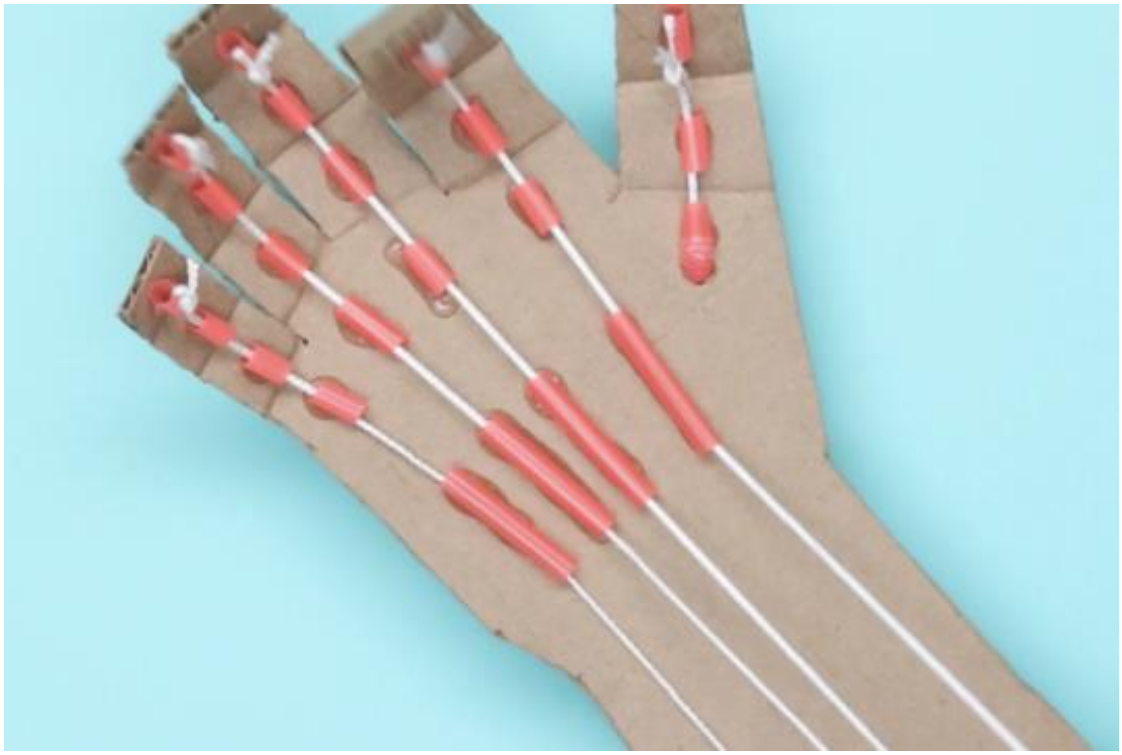
Material needed:

- Cardboard
- 5 Plastic straws
- String/yarn
- Super glue
- Scissors

Instructions:

- Trace your hand and wrist onto the cardboard, be sure to trace in each finger
- Cut out your hand and each finger, so that the fingers can move independently
- After your hand has been cut, add the joints in your finger by bending the cardboard at the 3 joints located at each finger. Each joint is about 2in apart
- Next, cut each straw into three sections; 1 piece should be the length of your palm, the other 2 pieces will be about 2 inches
- Super glue the 3 pieces x5 of straw to the cardboard hand (wait for the glue to completely dry)
- Next, measure the yarn from your wrist crease to your elbow and cut 5 pieces of yarn that size

- String a piece of yarn starting at the wrist crease end tying off at the end of the straw by the finger nail. Double knot the yarn so that it can't slip through the straw. Repeat 4x for each of the fingers
- Next, pull on the strings and see how each finger moves



Job Exploration:

- **Robotic engineer:** Robotics engineers plan, build, and maintain robots. These engineers plan how robots will use sensors for detecting things based on light or smell, and they design how these sensors will fit into the designs of the robots.
- **Prosthetic engineer**: Prosthetic engineers design and fabricate medical supportive devices and measure and fit patients for them. These devices include artificial limbs (arms, hands, legs, and feet), braces, and other medical or surgical devices.
- **Mechanical Engineer:** This type of engineer designs and builds complex products, machines, and systems. They also work with how things are made and how machines operate.

To learn more about this activity, please visit:
https://www.kaplanco.com/ii/diy-robot-hand