

Brave Robots

Objective: To design a robot that could do a dangerous job in place of a human.

Grade Level: 5-8
Subject(s): Science, Technology
Prep Time: < 10 minutes
Duration: 50 minutes
Materials Category: Classroom

National Education Standards	
Science	6a, 6b, 7e
Mathematics	
Technology (ISTE)	
Technology (ITEA)	1a, 1c, 6a, 6b, 9b, 10b
Geography	

Materials:

- Colored pencils, markers, construction paper, plain paper, etc.
- Student Sheets
- Scissors (optional)
- Glue (optional)

Related Links:

NASA Robotics Technology Safely Strips Ships Of Loose Chips
http://nctn.hq.nasa.gov/spotlight/articles/article_138.htm

NASA Scientific Technical Information—Robotic Waterjet Systems
<http://www.sti.nasa.gov/tto/spinoff1996/33.html>

Supporting NASAexplores Article(s):

Robot Scrub-A-Dub
http://nasaexplores.com/show2_article.php?id=03-009



Brave Robots

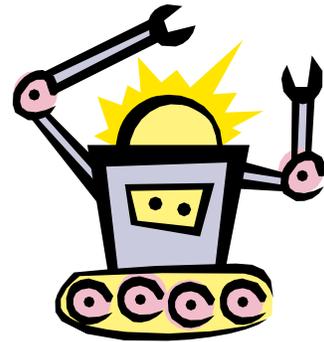
Teacher Sheet(s)

Pre-lesson Instructions

- This activity can be completed individually or in pairs.
- A variety of art supplies should be available for the students to draw or create models of their robots.

Background Information

Robots can play a big role in science fiction movies. They can be workers, guards, or even companions. In many cases, they resemble humans and often think and act like them. Today, robots are becoming more prevalent, but their appearance is quite different from the robots we're used to seeing in movies. They look far from human, and have very specialized jobs. One of the most important jobs that today's robots can have is to replace a person in a dangerous situation. By taking a person's place, the person is taken out of danger and the robot does the dirty work.



This lesson will allow the students to design a robot that will perform a dangerous job that presently has to be done by a person.

Guidelines

1. Read the NASAexplores 5-8 article, "Robot Scrub-A-Dub."
2. Discuss why NASA decided to use robots to clean the rocket boosters.
3. Ask the class to describe different robots they have seen in movies. Write characteristics on the board.
4. Compare these characteristics to the robot NASA is using.
5. Hand out the Student Sheets. Allow students to pair up, if desired.
6. Go over the directions with the class. Answer any questions the students may have.
7. Allow time for the class to design their own robots. Make art supplies available.

Discussion / Wrap-up

- Have each student or group present its robot to the class.
- Discuss the different roles that robots may play in our future.



Extensions

- Research different types of robots that are being used today.
- Make a Venn Diagram comparing movie robots to actual robots.

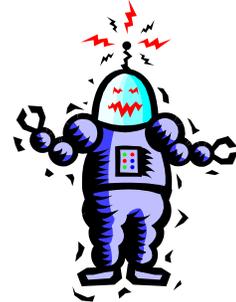


Brave Robots

Student Sheet(s)

Materials

- Various art supplies (colored pencils, markers, etc.)
- Your imagination!



Procedure

Your mission is to design a robot. Your robot will do a dangerous job that is presently done people. Follow the directions below.

1. Think of a dangerous job. It could be a firefighter, deep-sea diver, spy, etc.
2. Draw a sketch of a robot that could do the dangerous job. Be sure to make your robot specialized. And remember, it doesn't have to look like a person.
3. Be sure you can answer the following questions about your robot.
 - a. What is the robot made out of?
 - b. How is the robot specialized for its job?
 - c. How is the robot controlled?
 - d. How much does the robot cost? Is it reasonable?
 - e. Where does the robot get its power?
4. Using your art supplies, draw or create a model of your robot. Be detailed. If you draw your robot, be sure to label all important parts.

