

West Side Science Club – Event #31 – “Drafting/Building Robots”

Original Presentation

Date: 31 May 2014
Time: 10 am to 12 pm
Site: West Side Science Club

Big Questions

- These questions are meant to frame the day’s event and might be written on the chalkboard
 - (1) What do you want your robot to do?
 - (2) What materials can you use to achieve these functions?

Concepts

- Concepts to cover from the “Work of CCI Solar” Mind Map: Engineering- Devices: design, cost-effectiveness; Electricity- current, voltage, series/parallel; Energy- batteries, fuels, solar

Lesson Plan

Student Objectives

- Think about the design process and how it has stages
- Develop a plan for building the robot- which materials and design will you use for each part? What gets built first?
- Think about recycling and renewable resources. What materials can be reused and/or repurposed?

Schedule/Agenda

- Draft and build robots! (1 hr 50 min)
- Clean up (10 min)

Materials

- Leftover supplies from a previous year’s robot building activity
- Various motors, switches and electronics from Radio Shack
- Various art and building supplies from Michael’s

Safety

- Be careful of burns using the glue gun
- Have a mentor assist with the soldering iron

Review of Previous Event: Beetlebots

- Recall the activity: Building Beetlebots

Facilitation Questions

- What materials did you use to build the beetlebot?
- Can you copy that design or pieces of the design for your new robot?
- Any techniques you learned that can be used in making a new robot?

Activity: Building Robots

Procedure

1. Come up with a Robot you want to build
2. Draft a design of the robot
3. Start building!

Facilitation Questions and Concepts

- What types of motion or functionalities do you want your robot to have?
- How might you achieve that functionality with a basic motor that has been modified or attached to other parts?

Check for Understanding

- Is the design realistic given the materials and resources (and physics)?

Wrap Up: Event #32 Preparation

- Think about the materials you still need to gather and make a list for the ReDiscover Center