



Build Your Own Robot Activity

Materials: Lego bricks or any other building bricks, Partition wall (like a piece of cardboard)

Background Information: An algorithm refers to a set of step by step instructions for performing a task. A sequence refers to the order of steps in an algorithm. The objective of this game is to build a Lego figure (robot) correctly while only listening to the Programmer's verbal instructions.

STEM Career Connection: Software developers, for example, get to create and test new apps, websites, and computer programs to help businesses everywhere thrive.

Literature Connections: *Build It! Robots: Make Supercool Models with Your Favorite LEGO® Parts (Brick Books)* by Jennifer Kemmeter, *National Geographic Kids Everything Robotics: All the Photos, Facts, and Fun to Make You Race for Robots* by Jennifer Swanson

Challenge:

1. Gather materials.
2. Build a Lego figure using the Lego bricks.
3. Two kids sit opposite to each other on two ends of the desk. Place the partition wall or the cardboard piece in the middle of the desk. Give the completed Lego figure to one child (the Programmer) but make sure that the other child (the Computer) doesn't see it.
4. Give the desired pieces of Legos to the other child (the Computer)
5. The Programmer gives one instruction at a time to the Computer to build the robot.
6. The job of the Computer is to build the robot without seeing the model and only listening to the Programmer's instructions.
7. When the Programmer is finished giving instructions and the Computer is finished building, compare the robots.
8. If the Computer was unable to recreate the Lego robot with the given instructions, there was something wrong with the instructions and there is a need to go back and check them again and try to fix the error. This is a key concept of coding called **debugging**.



Source of Activity: <http://info.thinkfun.com/stem-education/6-unplugged-coding-activities-for-hour-of-code>