

Lego Coding

Estimated Time: 45 minutes

SUMMARY

Use any LEGO set to tie in concepts of code design and pique student's interest, creativity, and use computational thinking.

Each child has five minutes to create a figure for a video game. This character can be unique to each child. After creating their character, pass out the code block list. If you have children who are visually impaired, shape can be used instead of color. Each block has an action or task associated with it. Give the children 5 minutes to create a program that their character can execute. After creating the program, children can demonstrate to their parent or caregiver. If time, have them exchange codes and try someone else's program on their character.

WHAT YOU'LL LEARN

- **Code** - language we use to tell computers what to do
- **Algorithm** - a set of instructions that combine to create a task
- **Task** - an action such as "fly," "run," or "engage blaster"
- **Program** - the process of instructing a computer to do a task, or the total action taken as a result of the code.

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| <p>Materials Used</p> <ul style="list-style-type: none"> ● LEGO variety of shapes and colors (Duplo Blocks can also be used) ● Coding sheet ● White paper or LEGO baseplate | <p>Resources Used</p> <ul style="list-style-type: none"> ● Scratch https://scratch.mit.edu/projects/editor/?tutorial=getStarted ● Hour of Code: https://hourofcode.com/us/learn |
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WHAT TO DO

Your character has to be coded to perform actions in our video game. Here is a list of code blocks and their corresponding color. The number of bumps on the block indicates the number of times the action occurs. For example, pink means turn right 90 degrees. If you are using a block that has two bumps, your character will turn right 90 degrees twice. The exception is the Stop (or Red) which only happens once per brick. On your own, make a simple one-line code by lining up the blocks. Once you are finished, trade your code set with another person at your table so their character can execute your code.

For younger children, offer fewer block choices. For older students, offer a "special skill" block color. This is an algorithm, a set of instructions that are specific for a task. An example might be "dance the Happy Dance."

Suggested code Legos:

Purple - jump

Pink - turn right 90 degrees

Orange - turn left 90 degrees

Yellow - turn 180

Green - go forward

Red - stop

Black - special skill

White - special skill

For visually impaired students:

Square - jump

Rectangle - turn right 90 degrees

Hexagon - turn left 90 degrees

Wedge- go forward

Thin rectangle - stop

Special shape (leaves, wheels)- special skills