

Author: Rana Dajani

5ST
GRADE

3.0



SCRATCH PACK

CODING PROJECTS



Creative Coding Book for Kids

Lesson 01 Introduction to Scratch

Students get introduced to the Scratch App interface and terminology. Students get introduced to different coding blocks in different categories.

Lesson 02 Board Games

This lesson will teach students how to use lists to store coordinates of different positions that a character can go to.

Lesson 03 Paint Trails

This lesson will teach students how to create stamps using the pen extension as well as how to create clones and differentiate between clones and stamps.

Lesson 04 Tricky Cups

This lesson will teach students to create clones that will follow the same program given to the original or main character.

Lesson 05 Where's Waldo

This lesson will teach students to give clones an ID number so that a certain clone from many can be specifically programmed separately from the others.

Lesson 06 Apples Basket

This lesson will teach students to create clones that can interact with other characters.

Lesson 07 Snake Game

This lesson will teach students to create clones of the main character as the character is moving so that it looks like the character is leaving a trail behind it.

Lesson 08 Motion Pixels

This lesson will teach students to create clones of that can be used as sensors that detect motion along with the video sensing blocks.

Lesson 09 Hangman

This lesson will allow students to practice creating clones, stamps, lists and pen blocks.

Lesson 10 Rolling Background

This lesson will teach students to create a clone of the original character and make this clone create another clone to follow it.

Lesson 11 Gravity Pull

This lesson will teach students to create a variable specifically for a certain character which can't be used by other characters. Also, to create a custom block that can take inputs.

Lesson 12 Switching Platforms

This lesson will allow students to practice creating custom blocks that can take their own inputs and using specific variables to the characters.

Lesson 13 3D Simulation

This lesson will teach students to create a 3D simulation that give a depth of field perception.

Lesson 14 Make an Advertisement (Open Project)

This lesson will have students create a whole project from scratch.

Lesson 15 Music Application (Open Project)

This lesson will have students create a whole project from scratch.

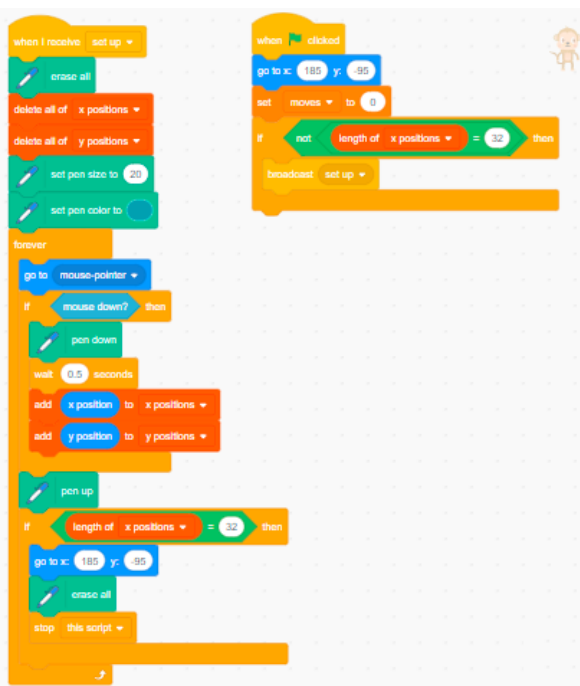
Lesson 2 – Board Games

This lesson will teach students how to use lists to store coordinates of different positions that a character can go to.

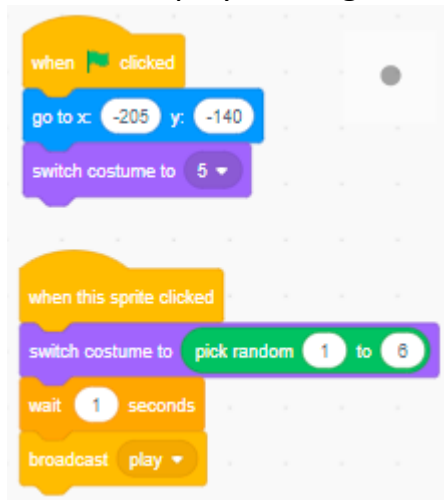
The **pen** extension blocks are used to help draw marks of every position to be saved.

This project can have multiple characters that the students should program:

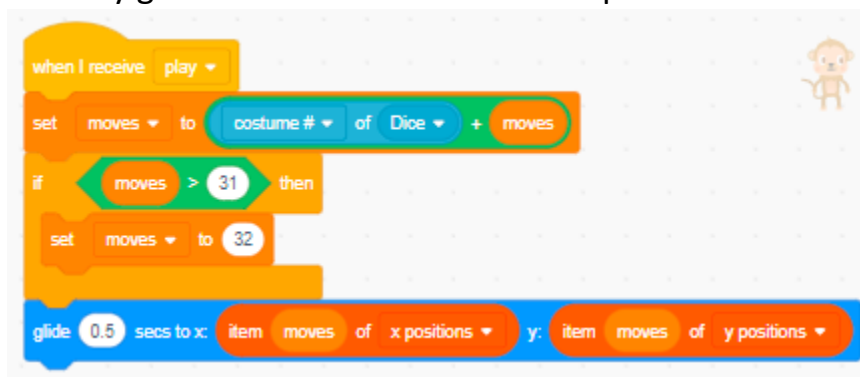
- At the start of the program the monkey character first checks if a list variable has 32 items or not (this is so the board games positions need only be setup once the very first time). If not, then the monkey character is used as a pen that goes to the mouse pointer and draws a mark every time the mouse is down (pressed). And that coordinated of the monkey at that position are saved into the 2 lists (x and y lists). Finally, if 32 coordinates are added to the lists then the monkey is placed at the start position on the board and all the marks are erased.



- The dice character is setup to change to a random costume if clicked and to send out a play message.



- When monkey receives the play message, then the variable moves is used to save the dice number and add it to any pervious moves. Then the monkey goes to the coordinates of the position from the lists.



The moves variable is set to 0 at the start of the program and the lists variables are deleted to be reset at the start of the program.

The extra challenge: the students can continue the board games rules. Continue your programming to check if the player lands on a ladder block it will move up it to the top of ladder block or if it lands on a snake tail end block it will move down to the head block.

