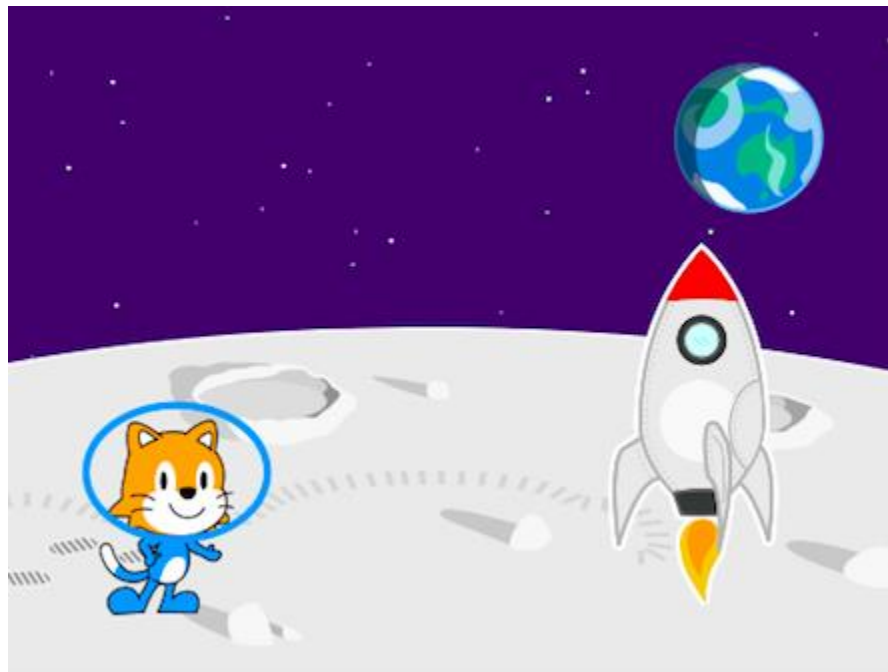


# Moonhack 2017 – Scratch Jnr Project



## Introduction

In order for astronauts to prepare for space travel, they need to understand what effect gravity has on the way they move. Did you know you can jump six times higher on The Moon than you can on Earth? This is because gravity on The Moon is much weaker than it is here on Earth.

Create a simulator that demonstrates how on The Moon you can jump six times higher than you can on Earth!

In this activity, we are going to simulate the difference between jumping on The Moon compared to jumping on Earth.

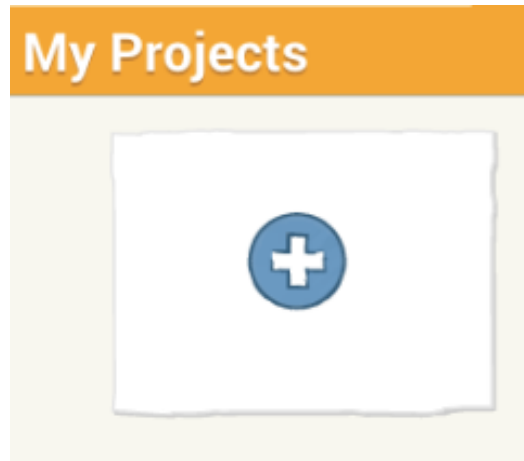
Is this your first time using Scratch Jr? [This video](#) can help get you started.

## Step 1: Getting Started

Let's start by creating a new project:

### Activity Checklist

- Open the Scratch Jr. App
- On the Home Screen, click the plus sign to create a new project.



## Step 2: Setting the Stages

Let's create a background for Scratchy the Cat on Earth and the Moon.

### Activity Checklist

- Find a new background by clicking on the "backgrounds" button above the stage.



- Select any background that is on this planet.

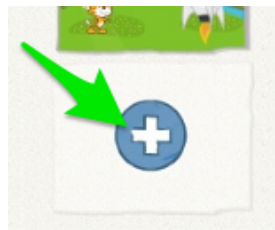
Let's add a spaceship to the stage so we know Scratchy is ready to go to the moon.

- ❑ *Touch the plus sign on the left side of the screen and select the rocket from the list of sprites so you can place it on the stage.*

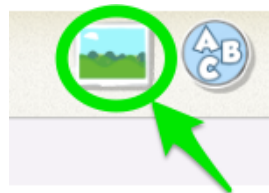


*Now that we have the Earth stage set, let's set the stage for The Moon.*

- ❑ *Touch the plus sign on the right side of the screen to add a second stage.*



- ❑ *Click the background button and select a Moon backdrop from the menu.*



- ❑ *Be sure to add a rocket sprite on this stage too.*



### Step 3: Spacesuit Scratchy

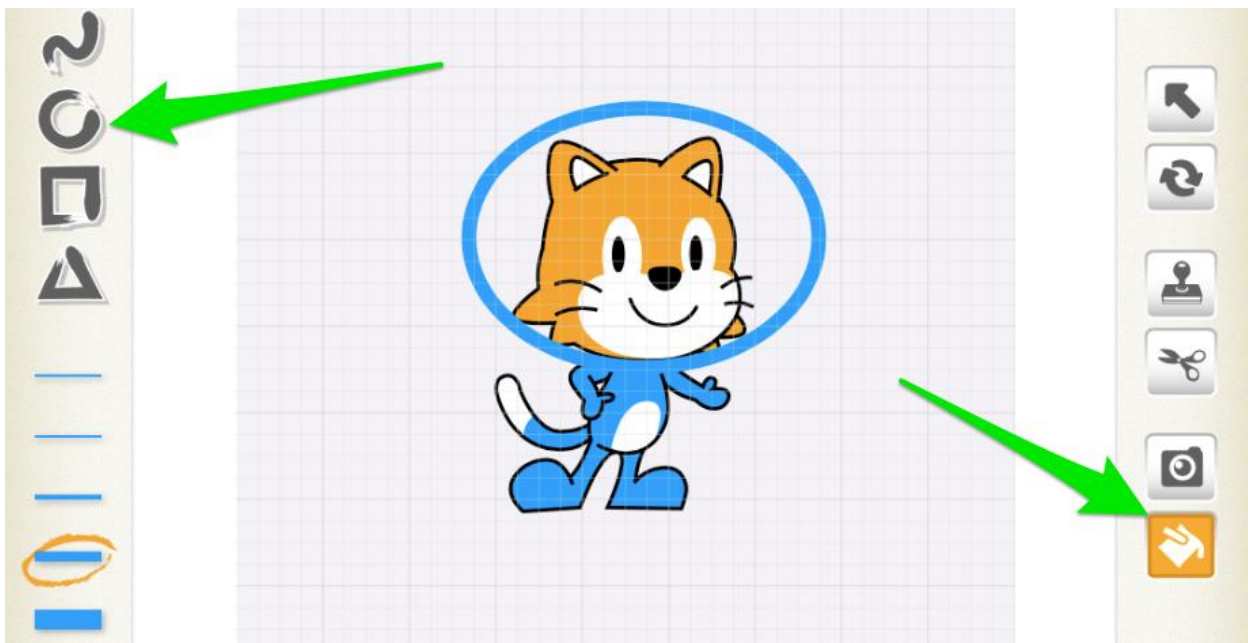
Let's design a spacesuit for Scratchy to wear on The Moon

#### Activity Checklist

- ❑ To get started, click the paintbrush icon next to the Cat icon on the left of the screen.



- ❑ From the editor menu, use the circle and the paint bucket tool to make it look like Scratchy the Cat is wearing a spacesuit. Use any color spacesuit you want!

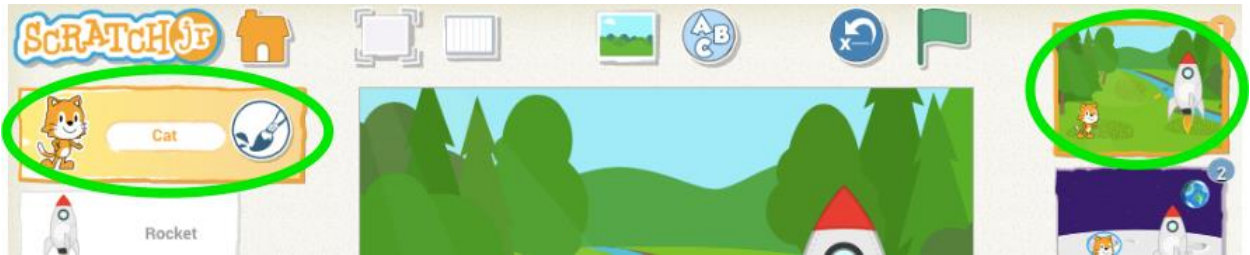


### Step 4: Earth Jump

Let's create a scene for Scratchy the Cat to Jump on Earth. We are going to use code blocks to make this scene.

## Activity Checklist

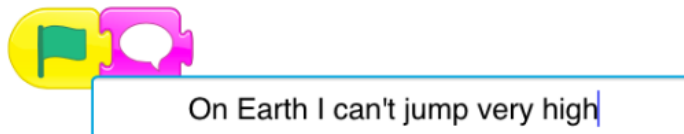
- To get started, make sure you have the Earth background and the Cat sprite selected.



- Now, select the yellow block and move the "green flag" into the script area.



- Next, we are going to use a purple block to have Scratchy the Cat say "On Earth I can't jump very high"



- Then we are going to use a blue jump block to make Scratchy jump on the stage. Make sure the jump block is set to "2"



## Step 5: Moon Jump

Now that Scratchy the Cat can jump on Earth let's write code to have him jump on the moon.

### Activity Checklist

- To get started, make sure you have the Moon background and the Cat sprite selected.



- Add a yellow "green flag block" like we did in the last scene.



- Next, we are going to add two purple blocks. The content of each block is below.



On The Moon I can jump much higher



On the

This is because The Moon has less gravity

- Now, we are going to use a blue jump block again. This time we need to set the jump to "12" so Scratchy the Cat jumps much higher.

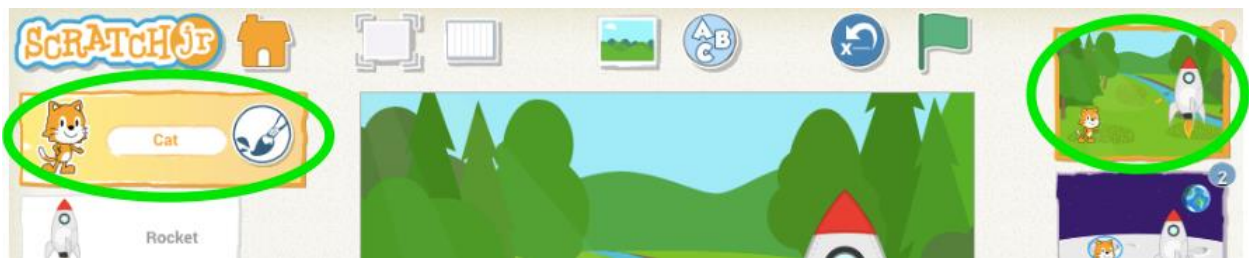


## Step 6: Lift-off!

To complete this project we are going to have Scratchy the Cat travel from Earth to The Moon

### Activity Checklist

- To get get started, make sure you have the Earth background and the Cat sprite selected.



- Add a red block at the end of your script like the one below. This will change the background after Scratchy jumps on Earth



- Finally, go back into your Moon Background and add a red block like the one below. This will end our animation



## Congratulations!!!!

You have completed the Moonhack Scratch Jr. project for 2017! Celebrate by jumping up and down yourself. Make sure they are Earth jumps though :)

## Challenge: Speed

*Scratchy moves at the same speed on Earth and The Moon. Can you make his jump slower on The Moon to make the program more realistic?*

## Challenge: Adding a sound

*Can you make a sound every time Scratchy jumps off the ground?*

## Challenge: Movement

*Can you write code that has Scratchy the Cat move over to the spaceship and take off?*

**Save Your Project**