

Unit 2, Lesson 6: Time to Move!

Lesson Intro: Character Movement and Loops

Theme of the Day
Now that we have a home for our animal lets get our Sprites moving around in their habitats. Today students will be learning how to make their animals move in scratch and how to create a loop.

Learning objectives	Concepts (Social & Cross Curriculum)
<ul style="list-style-type: none">● Create a loop in scratch● Learn what a conditional block does and how to use it	<ul style="list-style-type: none">● Function● Coding● Procedure

Vocabulary	Guiding Questions
<ul style="list-style-type: none">● "If, then" Blocks● Conditional● Bounce● Loops● Habitat● Sprite	<ul style="list-style-type: none">● How do "if, then" blocks work and how do they connect to humans?● How do loops work and where do we see them?●

Resources
<ul style="list-style-type: none">● Computers● Scratch Program● Loops There it is Directions Sheet● Loops! Handout● Space Bucks

Lesson Procedure:

Camp Fire (15 min)

Don't Forget: Have Loops There it is directions sheet, create space for all students in the class to spread out throughout the room. You don't need to move furniture.

Mini-lesson: Explain the game "Loops there it is!" In this game, students will be practicing with loops and conditionals by following the code below. Explain to students that they will be following a code just like their Sprites follow codes in Scratch.

In this code, students will be moving 10 steps forward, for as long as possible (aka "forever") unless the conditions below occur.

Students will also learn a new block/concept, a conditional. That means, IF something happens to your Sprite, or if they touch something specific, THEN the Sprite will do something else.

In this game, IF you bump into an object, THEN you have to do 10 jumping jacks and then turn around 180 degrees and walk 10 steps again until they bump into something or someone else. There is another conditional in this game for added fun. IF you bump into another person THEN you shake their hand, say "I'm sorry cowboy/ cowgirl" do 10 jumping jacks and then turn around 180 degrees and walk 10 steps again.

Practice this with students if they are unsure after watching the video. Have the Loops There it is Directions Sheet displayed in class to remind students of directions.

So when students bump into an object or person they must perform their conditional. After they have completed their jumping jacks, they should repeat the original code, which was to...simply walk 10 steps forever.

*Please note: If students are following this game correctly they should be bumping into an object, turning 180 degrees, potentially shaking hands, saying sorry, doing 10 jumping jacks and walking back to where they started (hence the loop). Students should participate in this game for about five minutes.

After the game is over hold a discussion about how loops work (repetition) and begin to find out what students understand about conditionals and how it might apply to Scratch and coding.

Give out Space Bucks for students that are having a positive attitude and students who are doing their best.

Teacher Guided Learning (10 min)

Don't Forget: NA

Mini-lesson:

Discuss the theme of the day. Explain to the class that they are going to be learning how to create loops for their Sprites in Scratch just like they did in Campfire. Explain to students that loops are repeating patterns like a person walking back and forth in the same way forever, or doing jumping jacks and never stopping. Explain that loops can be fast or slow but they will always repeat and do not stop.

To create a loop we are going to be learning about two new blocks in Scratch. The first block can be found at the end of the "motion" category and is called the "if on edge bounce" block. In the coding world we call this a conditional. What this block, and blocks like it basically mean, is that if something happens then something else will happen. For example, a conditional for the real world could be: if I eat 10 pizzas, then my stomach will hurt. In Campfire If we bumped into another person, THEN we had to say, "I'm sorry cowboy/cowgirl" before continuing to follow the code.

Second is the forever block. This block can be found in the control category. On the top of the block is the word "forever." Explain to students that whatever you put inside this block will go on forever as long as you attach it to an event block, start it and have the right code blocks. The forever block creates a loop for your character to repeat the code forever. Just like in Campfire when you continued walking 10 steps forever or in a loop until you bumped into something or someone.

Teachers are welcome to model/create the code Willy provides in the student-facing video and in the "Loops" handout sheet. Walk them through how he created this code/loop.

Partner/Team Practice (20 min)

Don't Forget:

Hand out "Loops!" handout to each student.

Mini-lesson:

Instruct students to go back to the project that they created/saved in Lesson 2.4, called Animal Habitat. If students cannot find their project or if they feel like they should start over, using the resources from Lesson 2.5, have them push create and save/share/title Animal Habitat 2.

Tell students that they should follow the directions in the "Loops!" handout to create their first loop. Remind students that it is important to stay organized with regard to

placing their codes in the Scratch projects.

If there's time students should try and experiment by either creating new codes or by making their loop include more movements or changing how fast or slow the movements are happening. Make sure students save and share.

Give out Space Bucks for students who are helping others, staying positive, on task, and doing their best.

Reflect/Connect (10 min)

Don't Forget: *NA*

Mini-lesson:

Quickly divide the class into two groups. Allow students to choose the group they feel like they belong in.

Group 1: should be made up of students who felt confident following the premade code, got their Sprites to move, got their loops to work correctly and had the conditional correctly in place.

Group 2: should be made up of students who had some difficulties with getting their Sprite to move, looping the code or adding the conditional.

Assign students in group 1 to partner with students in group 2. Group 1 will teach group 2 students how to create a loop and use a conditional. Encourage students to look at mistakes made and what they can learn from them.

If all students are in Group 1 – have students share some of their successes.

If all students are in Group 2 – review teacher-guided learning.

Give out Space Bucks for students that are helping others with Scratch and students who are doing their best.

Models:

Loops There it is Directions Sheet

"LOOPS THERE IT IS" DIRECTIONS

1

**MOVE 10 STEPS FORWARD,
FOR AS LONG AS POSSIBLE
UNLESS...**

2

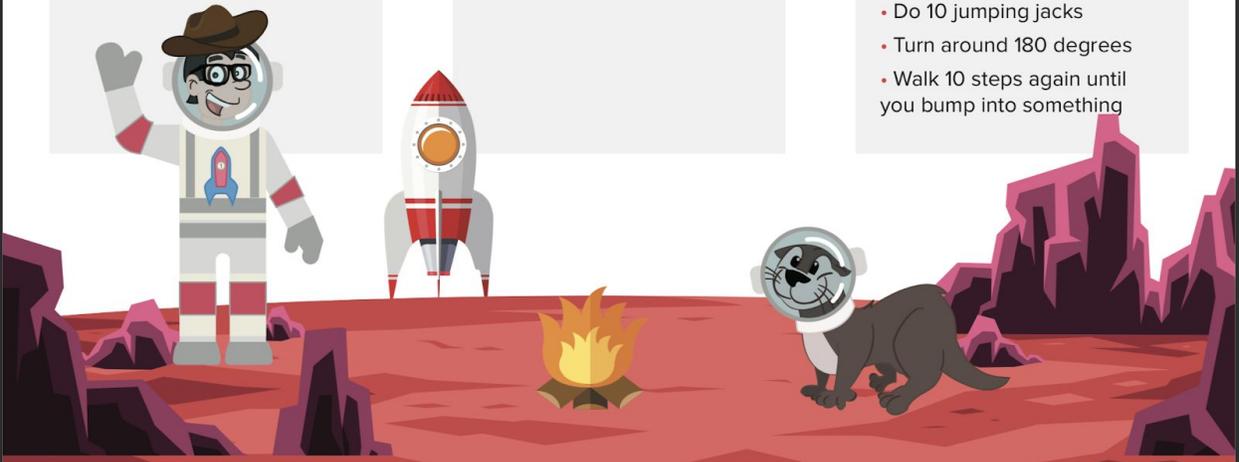
**IF YOU BUMP INTO AN
OBJECT, THEN YOU**

- Do 10 jumping jacks
- Turn around 180 degrees
- Walk 10 steps again until you bump into something

3

**IF YOU BUMP INTO
ANOTHER PERSON THEN
YOU**

- Shake their hand
- Say "I'm sorry Cowboy/
Cowgirl"
- Do 10 jumping jacks
- Turn around 180 degrees
- Walk 10 steps again until you bump into something



The illustration depicts a scene on a red planet. On the left, an astronaut in a white and red suit with a brown cowboy hat waves. In the center, a red and white rocket stands on the ground. To the right, a black dog with a white chest patch and a silver helmet sits. In the foreground, a small campfire with yellow and orange flames burns on the red soil. The background features jagged, dark red rock formations under a white sky.

Loops! Handout

LOOPS

1

Click on "Create" to start a new project

Create

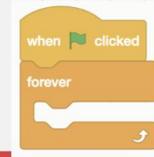
2

Add 'when green flag clicked' block – **Event**



3

Add the 'forever' block - **Control**



4

Put the 'move 10 steps' block inside the 'forever' block - **Motion**



5

Put the 'if on edge, bounce' block inside the 'forever' block - **Motion**



6

Test your code by clicking the green flag



7

Push the red stop sign button to stop the loop



8

If you have time, try out different blocks in your loop



9

Save your project as "Loops" and share it

