



# MINECRAFT

## EDUCATION EDITION

### **Educator Guide**

Block 3 - Lesson 2

45 minutes

Single Student

## **Running Out of Time: Dinosaur Run: Creativity in Coding - Events and Variables**

## THEME OVERVIEW

Tell students: Today you will be investigating and becoming more familiar with Events. Remember Events are what causes things to happen. Knowing this, let's see how you will use events to handle these challenges.

## CODING OBJECTIVES

By the end of Lesson 2, students should be comfortable

- Using different events
- Making the right coding choice depending on the circumstances
- Combining different events.

## THINGS TO KEEP IN MIND

- Remind students there may be more than one solution for each of the activities.
- Use the Handout to capture students' learning: ask students to take a screenshot of the coding snippet and write the explanation of what the code does (this can be used as homework).

## START OF LESSON PROCEDURE

Number of Activities: 5

### CONCEPT REVIEW: 5 minutes

Recap of concepts learned.

1. Q. What is an **Event**?
  - A. An event in computer science is an action or occurrence that is detected by a computer. For example, when someone selects the button on their mouse, it generates a "mouse click event" for the computer.
2. Q. What is a **Variable**?
  - A. Variables are a lot like lockers: variables are places in which computers keep things. Computers need containers in which to keep numbers, text, and other information so that later they can make decisions. The code tells the computer when to look in these lockers and what to look for.



3. Q. What is an event handler? Can you name at least 2 event handlers?
- A. An event handler is a part of your program that runs when a specific event happens (it “handles” the event).  
On Player walk/ swim/ fall/ swim lava/ fly, etc., On Item Used, On chat command, etc.



## LESSON INTRODUCTION AND LEAD-IN: 5 minutes

### Coding Practice – Creativity, Player Validation, and Special Effects:

This lesson is all about students learning to think for themselves and problem solve. They will utilize the skills they have accrued over the past two blocks to reach their objectives. In the previous lesson we focused on Events and Variables. This Lesson will focus on students becoming more comfortable with Events. All of these activities are Student Validated. Once again, there are no right nor wrong answers to these activities, it is all about the student using the tools they are given to solve the problem in the most efficient way they can.

### Lead In:

The students are being placed in a world with certain goals to reach. When they spawn in game, they will see Dr. Rubin. She informs them they need to get back to the TDD or Time Gate. In order to do this, they have several challenges they must conquer.

For these activities, the code is just a suggestion, and the students can use whatever method they can think of to move past the obstacle. Students will need to think creatively to successfully navigate all the challenges.

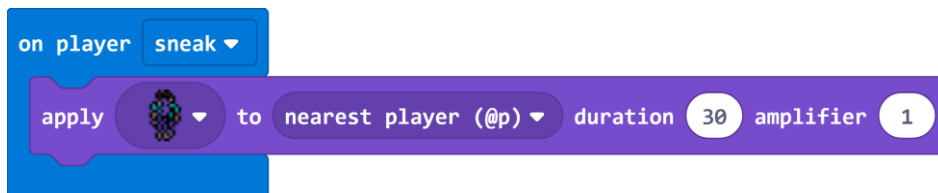
Tell the students: Oh no! We’ve landed in pre-historic times. We must have mis calibrated the flux capacitor. Luckily, we have detected the time game near your position. You need to find the time gate and get back to the base.

## CODING ACTIVITIES: 30 minutes

### Activity 1: Dinosaur Sneak

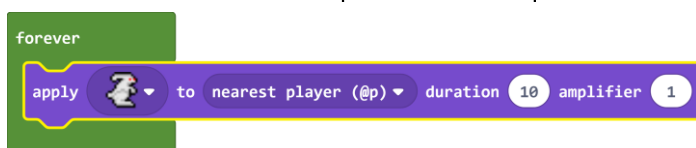


The student should use **On User Sneak** or **On Chat Command** with Enhancements to give themselves the whatever enhancement they want to use to sneak past the dinosaur. They will need to use the sneak function from Minecraft to get by. You enable Sneak by holding down the Shift Key & W on the keyboard for students using PCs, or for iPads using the Sneak function on the in-game joystick. **\*\*Note: if the dinosaur detects the student nearby the student will be teleported back to the beginning.\*\***



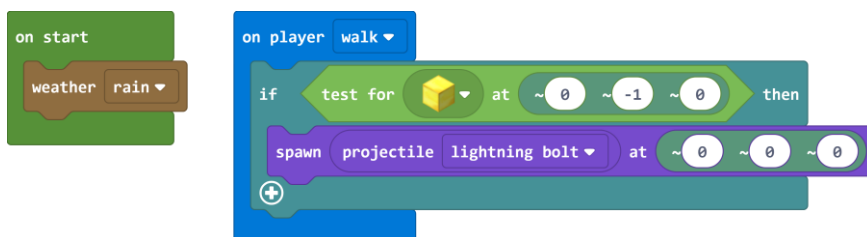
### Activity 2 - 4: Navigating the Temple

The student can use the **On User Walk** or **On Chat Command** or **On Start** events to give themselves the necessary enhancements to navigate the 3 obstacles in the temple. Where they will need to get creative is with the duration of the enhancements. The default timing on the duration is approximately 10 seconds. This is much shorter than what they may be accustomed to in the game with drinkable potions or splash potions. They will need to figure out how long those durations need to be in order for the enhancements to help them complete the obstacle.



### Activity 5: Powering the Gate

The TDD cannot be powered without some help. To make this happen lightning is going to strike the gold blocks that are placed around. Students need to use the event **On Player Walk** as soon as the player begins moving rain will fall. As the player moves to each of the gold blocks, lightning will strike. Once all the gold blocks have activated lightning the TDD will light up and the game will announce “Activity Complete”.



## LESSON CONCLUSION: 5 minutes

Ask the students about the skills that they have learned during the lesson, to reinforce the concepts.

1. Q. What is an Event?
  - A. the change in the state of an object—this change is brought about as a result of some sort of user interaction, for example, when a block is placed something else happens, or when the Start is activated.
2. Q. What do the purple blocks of code do?



- A. Enhancement that allow the student to have extra abilities for varying amounts of time and strengths.
3. Q. **On Player Walk** is a what?
  - A. Event trigger/ Event Handler.
4. Q. What events did you use to solve the puzzles in this lesson?
  - A. The answers will vary.



## EDUCATION STANDARDS - LESSON 3

CSTA K-12	
1B-AP-10	Create programs that include sequences, events, loops, and conditionals.
1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
ISTE	
3D	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
4A	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
5C	Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

