

Lesson Plan 2-3.CT.6

BACKGROUND INFORMATION

LESSON TITLE: *Which Way?*

STANDARD(S): 2-3.CT.6 Create two or more algorithms for the same task.

HOW THE LESSON FITS INTO AN INSTRUCTIONAL SEQUENCE: This lesson continues building knowledge of computational thinking and working through problem solving skills.

MATERIALS NEEDED: Paper, Pencil, handout of [Coding Map](#) (2 per student), [Bot Map Marker](#).

PRIOR PREPARATION NEEDED: Make copies of the [Coding Map](#) (2 copies per student) Make a [copy and cut out Bot](#), if you wish to have students use it as a marker on their map.

SAFETY CONSIDERATIONS: N/A

LESSON SUMMARY

SUMMARY OF THE LESSON: There's more than one way to reach the same goal. Different steps might be taken but the same goal can be achieved.

OBJECTIVES:

- I can create two or more algorithms for the same task.

ESSENTIAL VOCABULARY:

- Algorithm - A set of instructions or rules used in order to solve a problem.
- Sequence - A set of events that follow one another in order to achieve an end result.

ACTIVATE PRIOR KNOWLEDGE

PRESENTATION OF INTERESTING PHENOMENON (IF APPLICABLE)/HAVE STUDENTS THINK AND DISCUSS PRIOR KNOWLEDGE/HAVE STUDENTS ENGAGE IN A SKILL THAT THEY HAD PREVIOUSLY LEARNED

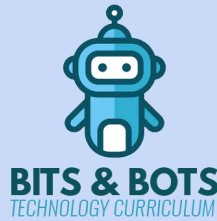
DIALOGUE PROMPT: Everyone brushes their teeth on a daily basis. But do we all brush our teeth the same way? Think quietly for a bit about how you brush your teeth and the steps you take.

Call on students to share their process. The goal is to have different examples.

Ask the class if everyone had the same steps. Did we all end with the same goal - clean

teeth?

VIDEO INSTRUCTION



APPLICATION ACTIVITY

WHAT STUDENTS WILL BE DOING TO ENACT THE INFORMATION GAINED IN THE VIDEO INTO CREATING THEIR OWN UNDERSTANDING OF THE CONCEPT/CREATING SOMETHING WITH THE KNOWLEDGE GAINED/SOLVING A PROBLEM

Students will use a [coding map](#) and will develop two algorithms to get their “bot” to the same goal each time. The idea is to create different paths that end at the same location. Students will share their map with a partner and compare their paths that they took. There is a spot at the bottom to write their algorithm down in the small boxes or students can write the algorithm in the spaces on the map.

Using the coding map provided, create two algorithms for your bot to follow to get to the charging station. You may want to move the “bot” along as you write the algorithm. Directions can be written at the bottom in the boxes or you may write in the boxes up top. When you have finished, have a partner try out your algorithms.

Are they both different and do you reach the goal in each?

CLOSURE

DESCRIPTION OF CLOSURE EXERCISE: Gallery Walk & Group Share

Have students display their finished maps with the algorithms. Students should view a couple of other students' maps looking for similarities and differences.

As a whole group, share what students noticed.

- Did everyone have the same algorithm?
- Was there a strategy that you used to complete the algorithm (shortest route, least amount of turns)?

EXTENSION AND SPACED PRACTICE IDEAS

How can the teacher keep this concept recurring in their classroom to make sure that students remember and internalize the concepts presented in this progression?

Extension Activity 1:

The lesson could continue by using the same coding map but adding in obstacles that the bot

must travel around. Teachers or students can add the obstacles.

Extension Activity 2:

Materials Needed: Students can work in a group and each group will need a Sphero Indi Car. If your school does not have a set of Sphero Indi Cars, you may borrow one through the St. Lawrence-Lewis School Library System's Media Library Catalog at: <https://sllboces.insigniaails.com/Library/Home>, or local lending library.

Sequence: Students would create multiple tracks that all end up next to the bathroom in their classroom. How many different ways can the Indi car get to the bathroom?