

OZOBOT BIT ACTIVITY

WHO CAN FIND THE POT OF GOLD?

This is a fun game that challenges your students to program Ozobot to find the pot of gold. You can even make a race out of it and see who can get there first! Students will work on their ability to decipher and think “in code” while they are playing this game. It is an activity for all ages since it can be adjusted to your students’ abilities.

There is a twist in the programming done in this game. Ozobot Bit is loaded with a supplied program and then put on a test track. Students have to first figure out what the different colors on the test track mean. After they “break the code”, they can go on to program Ozobot on the maze printout to find the pot of gold.

Although this game was created for St. Patrick’s Day, this is an activity that can be played all year round!

Age

Grades K-12

Estimated duration

30-50 min

Materials

- Ozobot Bit, 1 per group of at most 3 students
- Markers in colors black, red, blue and green (Ozobot Markers are recommended, but Crayola Classic Markers or Sharpie’s Chisel Tip Markers also work)
- Pencils to fill in the code table and to pencil in the solution
- Access to the OzoBlockly editor (<http://ozoblockly.com/editor>), on a computer
- Access to the supplied OzoBlockly program st-patricks-day.ozocode
- Printout of the “How to Play” sheet, 1 per group
- Printout of the test track, 1 per group, optional
- Printout of the color code table, 1 per group
- Printout of the maze, 1 per group plus extras just in case students fill in the wrong colors

Students should know

- How to calibrate Ozobot for play on paper and digital screens
- How to load and run an OzoBlockly program

(to review please refer to the "Ozobot Tips" sheet

<http://files.ozobot.com/stem-education/ozobot-tips.pdf> and see this video

<https://www.youtube.com/watch?v=fwlrAZZfvRc>)

INSTRUCTIONS

Note: This activity has two parts: in the first part, students have to figure out what the code is, i.e. what action Ozobot does when encountering a colored intersection or line end. This part is optional. If you like, you can give students the color code table and skip to the main game, which is the second part of the activity.

Preparation

Divide the class into groups of at most three students. Pass out one copy of the “How to Play” sheet to each group.

Each group should have one Ozobot Bit and access to the OzoBlockly editor <http://ozoblockly.com/editor> on a computer. Also, please make sure that there is a copy of the OzoBlockly program st-patricks-day.ozocode available on each computer. You can download the program from the Lesson Library page of this activity under “Attachment”.

Guide students to pull up the OzoBlockly editor and load the st-patricks-day.ozocode program. Then, instruct them to press on “Load Ozobot” on the bottom left. From there, follow the instructions on how to calibrate Ozobot to the screen and load the program onto Ozobot.

Note: Loading the program only works on computers, not on tablets. If your students only have access to tablets, then you can load the program onto all Ozobots on a computer before class starts. Ozobots will remember the program even after being turned off. In class, skip to the paper calibration as explained in the next paragraph.

After loading the program, Ozobot is almost ready to play. Since we will be using Ozobot on paper for the rest of the activity, make sure that students calibrate Ozobot on paper (see the “Ozobot Tips” sheet <http://files.ozobot.com/stem-education/ozobot-tips.pdf> for more information).

Part 1: Break the Code!

Again, this part is optional. If you would like to skip it, give one copy of the color code table to each group and continue with to part 2. Otherwise, follow the directions below.

Hand out one copy of the test track to each group. Instruct the students to start the program they just loaded by double-clicking Ozobot's start button and setting Ozobot onto any line of the test track.

Students will be able to tell if the program is running if Ozobot is stationary for two seconds with a white LED light and then switches to a green LED light and starts moving. If Ozobot moves with an aqua LED light, that means the default behavior is active and the program is not running. Probably the start button wasn't double-clicked.

Students are asked to observe Ozobot and to figure out how Ozobot reacts to the different colors. Ask students to record their findings in the table on the test track handout.

You may want to hint to students that the colors mean different things depending on if the color is at the intersection or at a line end. Also, be sure to ask them what happens if Ozobot cannot follow the directions. For example, what happens if Ozobot is instructed to go right, but there is no right turn. Actually in this case, Ozobot throws an exception (by flashing red and blue) and stops running the program.

Students may have to start the program again and place Ozobot on different parts of the track to figure out all the codes.

Give students some time to find their answers and discuss the findings with the whole class afterwards.

Part 2: Find the Pot of Gold!

Now it is time for the main game: make Ozobot find the pot of gold! Students can find the rules on the "How to Play" sheet. Pass out this sheet if you haven't done so. Also pass out the color code table. If your students completed Part1, then they have filled in their own table, which they could use instead. Just make sure that their answers were correct!

The goal of the game is to fill the intersections with the right colors to program Ozobot to go from start to the pot of gold. And as an added difficulty, the task is to pick up (or drive by) as many cloverleaves as possible.

There are a couple of rules you can impose to make this game more or less difficult:

- You could impose a time limit and see who can reach the pot of gold first or within the time limit
- You can add the rule that Ozobot has to pick up at least 3 (or any number from 1 to 7) cloverleaves on the way to the pot. This can make the game much easier/harder.

You may want to instruct your students to pencil in the solution first. Only after they found a way to go, they should use the markers to fill in the correct colors. But even so, they may need more than one sheet to finish the game.

Note that there is more than one way to pick up all cloverleaves on the way to the pot of gold. You can find one of them on the last page of this document!

OZOBOT BIT GAME

FIND THE POT OF GOLD

HOW TO PLAY

Objective

Help Ozobot find the way to the Pot of Gold and pick up as many cloverleaves as possible on the way!

You will need

- One Ozobot Bit
- Markers in colors black, red, blue and green (Ozobot Markers are recommended, but Crayola Classic Markers or Sharpie's Chisel Tip Markers also work)
- Access to the OzoBlockly editor (<http://ozoblockly.com/editor>), on a computer
- The OzoBlockly program st-patricks-day.ozocode

Preparation

1. Open the OzoBlockly editor <http://ozoblockly.com/editor> on a computer.
2. Load the OzoBlockly program st-patricks-day.ozocode into the editor.
3. Press "Load Ozobot" on the bottom left. From there, follow the instructions on how to calibrate Ozobot to the screen and load the program onto Ozobot.
4. Now calibrate Ozobot to play on paper.

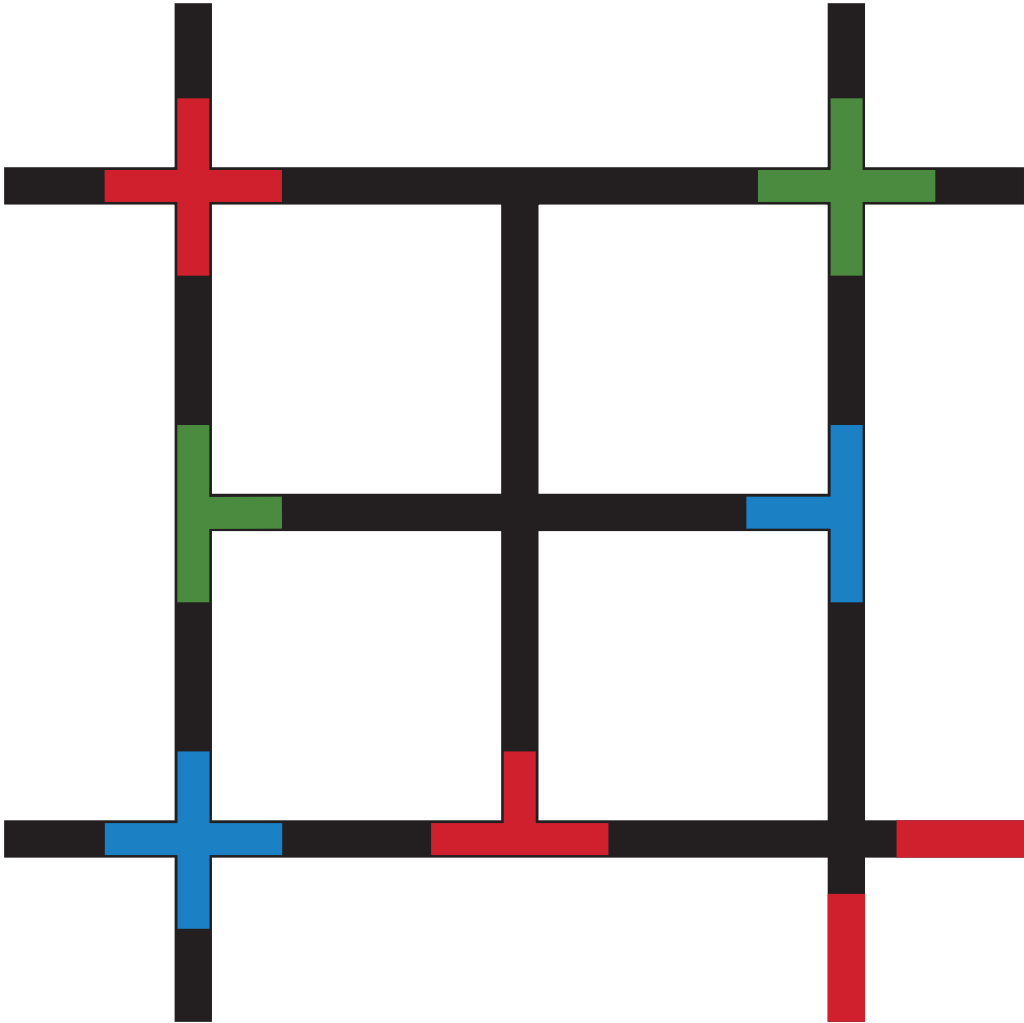
Instructions

- Color the intersections to program Ozobot to go from start to the pot of gold. Use the colors in the color code table.
- Remember to make Ozobot pick up as many cloverleaves as possible on the way to the pot of gold. Can you pick up all seven of them?
- Once you have colored the intersections, start the program by double-clicking Ozobot's button and set Ozobot onto the start of the maze. Did you program Ozobot correctly? Has Ozobot reached the pot of gold?

Have fun!

COLOR CODE TABLE FOR THE POT OF GOLD GAME

Object	Color	Action
Line End	Black	U-turn
	Red	Rainbow & end of game
Intersection	Black	Random turn
	Red	Right turn
	Green	Continue straight
	Blue	Left turn

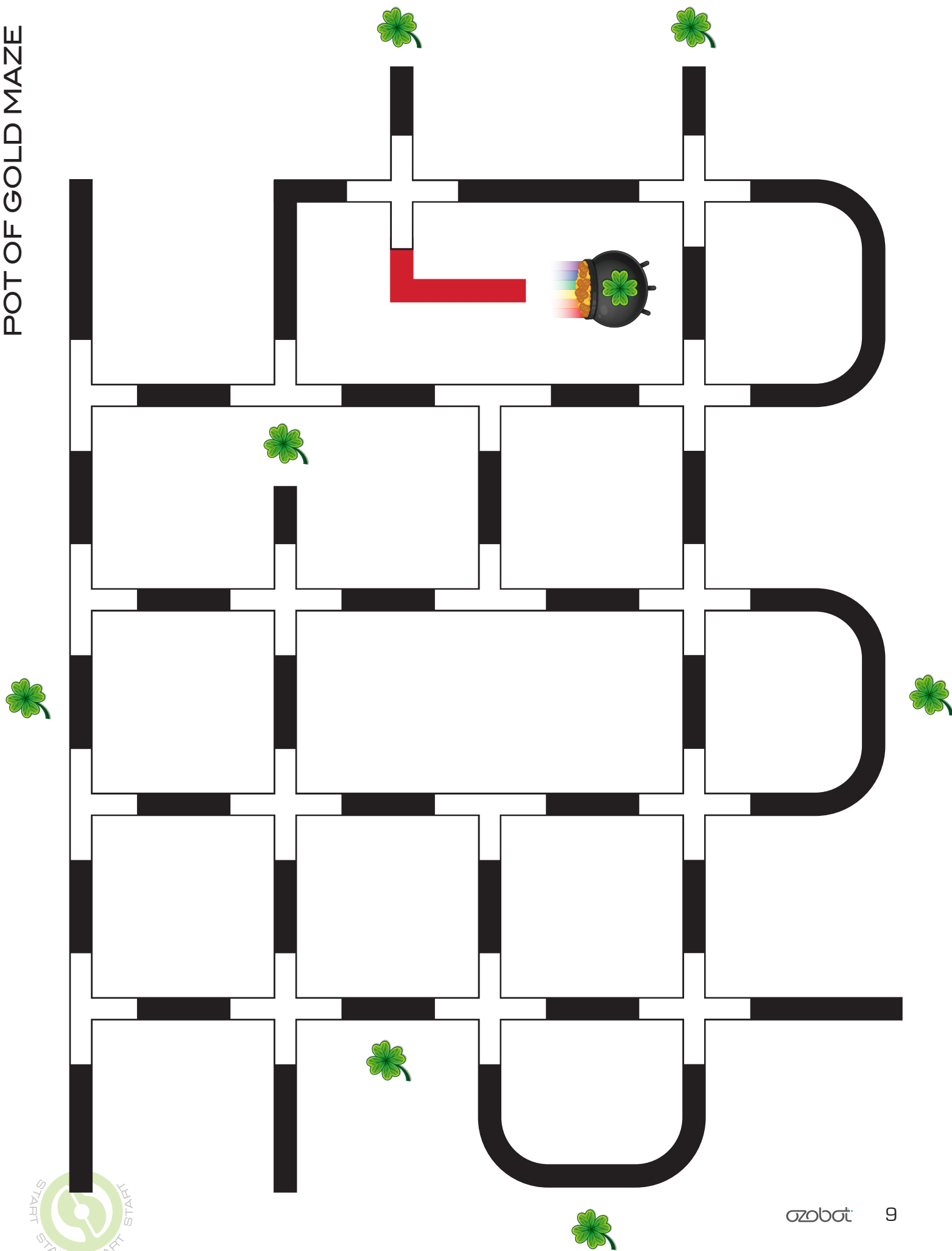


Break the Code:

Object	Color	Action
Line End	Black	
	Red	
Intersection	Black	
	Red	
	Green	
	Blue	

What happens if Ozobot cannot make a turn? For example, what happens if Ozobot is supposed to turn right but there is no way right? _____

POT OF GOLD MAZE



EXAMPLE SOLUTION

