Name_____ Date_____

Exploring zBot
Worksheet

1. This is zBot! As you can see, there are two circuits: one circuit with LEDs and one circuit with motors. They are both being powered by the 9-volt cell.

2. Turn on the motor circuit by clicking the on/off switch to the right of the 9-volt cell. In which direction are the motors spinning, clockwise or counterclockwise?

3. Predict: How can you make the motors change direction?

4. Test your idea for making the motors change direction. What did you change to make the motors spin in the other direction?

5. Predict: What will happen to the motors if you change the current flow in the motor circuit?

6. Explore: Change the current flowing through the motor circuit by either adding a resistor to the circuit or changing the 9-volt cell into a series cell battery pack. Take a photo after changing the circuit.

7. What change did you make to the motor circuit? How did changing the motor circuit affect the movement of the motors?

8. Explore: What is the minimum amount of current (mA) that needs to flow through the motors in order for them to spin? How can you achieve this minimum amount?

9. Reset the original parts in your circuit.

10. Turn on the LED circuit by clicking the on/off switch on the LED circuit.

11. Currently, there are two 22-ohm resistors on this circuit. Predict: What will happen to the LEDs if you remove one of these resistors?

12. Explore: Remove one of the resistors in the LED circuit and replace it with a copper wire from the inventory. Take a photo after changing the circuit.

13. How did changing the LED circuit affect the LEDs?

14. Reset the original parts in your circuit.

15. Explore: What is the minimum amount of current (mA) that must flow through the LEDs in order for them to turn on? How can you achieve this minimum amount?

16. Explore: Make additional changes to zBot and take a photo when you have created something unique.