

# Bug Detective

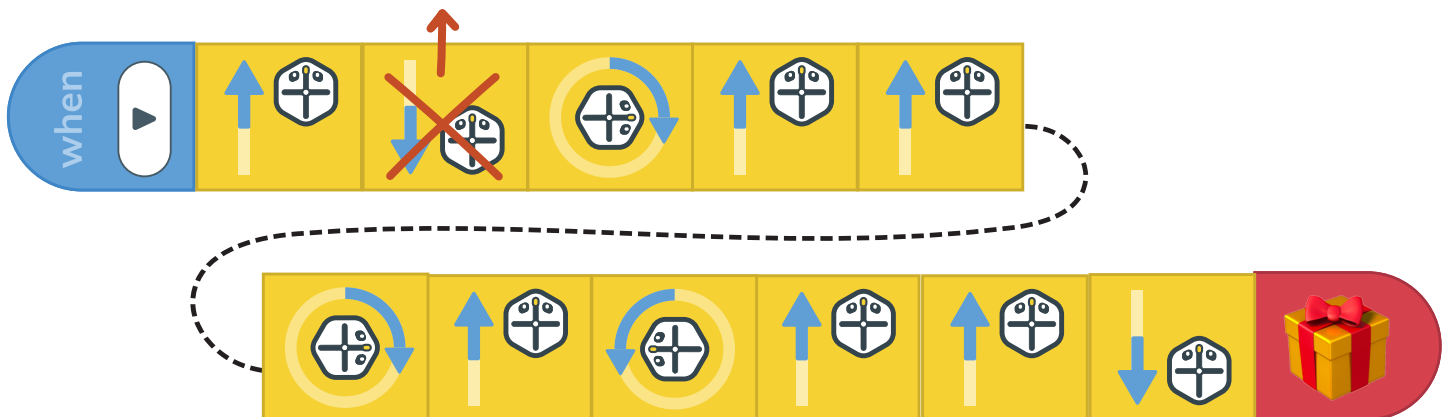
Root is on a mission to deliver gifts to its friends.  
Can you help find all the bugs in its code to help it arrive on time for the holiday?

**Directions:**

Solve the maze with a pencil first. Then, read Root's code below the maze and correct all the bugs.



Hint: There are 2 more bugs in this code!



**Directions:**

Hint: There are 4 more bugs in this code!

Hint: There are 4 more bugs in this code!



# Computer Science Education Week 2018

## Clear the Roads

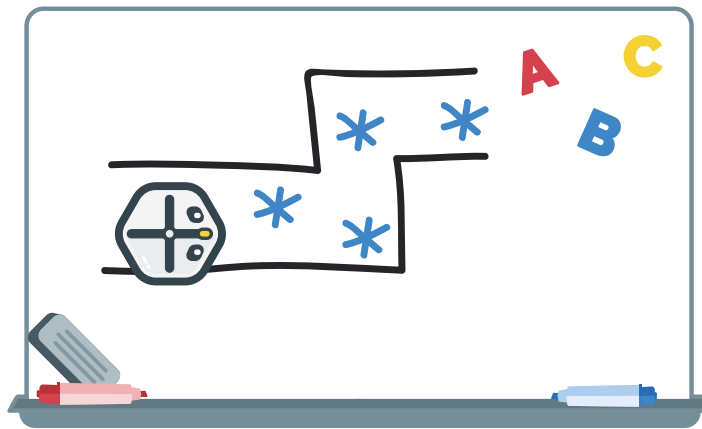
Use Root's eraser on a magnetic whiteboard to clear the roads from snow and ice.  
Can you take it further and make a self-driving root?

---

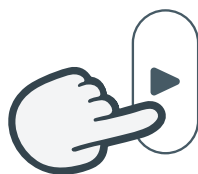
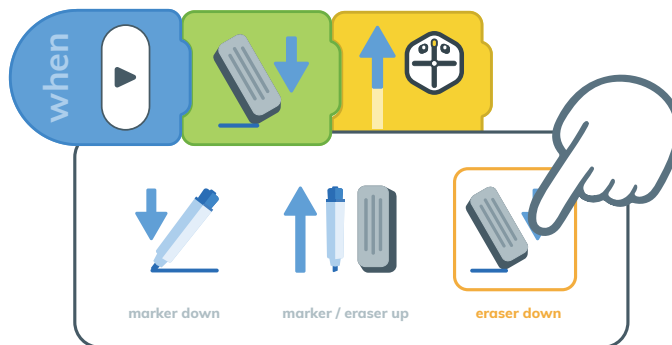
### Directions:

1. Work together to draw a maze on your whiteboard.

Fill the maze with lots of snowflakes for Root to erase.



2. Next code Root to drive through the maze. Use the eraser block to tell Root when to erase the snow.



3. Press Play to watch Root clear the snow. Does Root erase all of the snow? Try making harder mazes with a lot more snow. can you code Root to do its job?

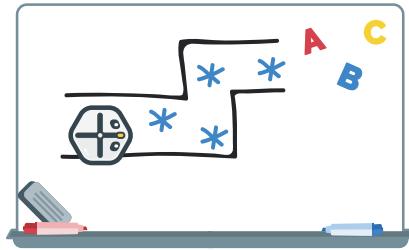
# Computer Science Education Week 2018

## Clear the Roads

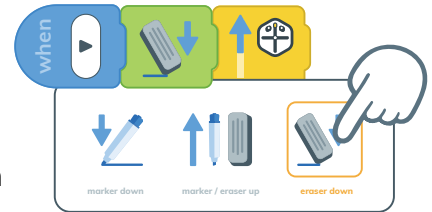
Use Root's eraser on a magnetic whiteboard to clear the roads from snow and ice.  
Can you take it further and make a self-driving root?

### Directions:

1. Work together to draw a maze on your whiteboard. Fill the maze with lots of snowflakes for Root to erase.

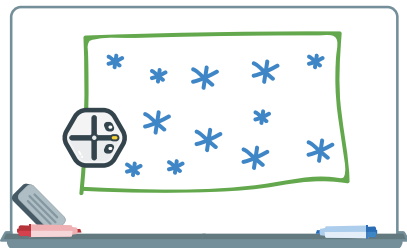


2. Next code Root to drive through the maze. Use the eraser block to tell Root when to erase the snowflakes.



3. Press Play to watch Root clear the snow. Does Root erase all of the snowflakes?

### Going Further: The Self-Driving Snow Plow



Draw a large, green rectangle on your whiteboard. Fill the rectangle with lots of blue snowflakes.

Can you use **Wheel Speeds**, **When Color**, **Turn** and **Erase Blocks** to bounce off the walls of the rectangle and erase all of the snowflakes?



**Wheel Speeds Blocks** turn Root's wheels on until you tell them to stop!



**When Color Blocks** tell Root what to do if it drives over whatever color you pick.



**Press Play** to test your Self-Driving Snow Plow Program. Does Root erase all the snowflakes?



# Computer Science Education Week 2018

## Draw a Song

Did you know that Root can see colors?  
Use Wheel Speeds, When Color and Music Blocks to draw a song for Root to sing!

### Directions:



1. Open the Root Coding App and connect to your Root.



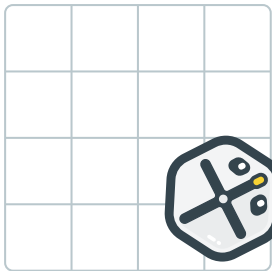
2. Drag out a green **Wheel Speeds Block** and attach it to the **When Play Block**. The **Wheel Speeds Block** turns Root's wheels on forever until you stop your program.



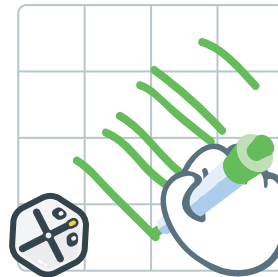
3. Drag out a **When Color Block**. The **When Color Block** tells Root what to do when it drives over a color.



4. Attach a **Music Block** to the **When Color Block**. This code tells Root to play the note C when it drives over the color green.



5. Next, grab your Root, fold-out whiteboard grid and a green dry-erase marker.



6. Draw green lines on the whiteboard grid for Root to drive over.



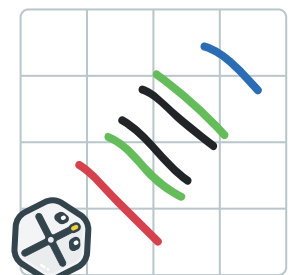
7. Press Play to watch Root drive over the green lines and play music. Is your song very fast or slow? Does Root see a lot of green lines or only a few?

### Going Further:

Add more **When Color Blocks** and edit them to code Root to play different notes when it sees Red, Blue and Black.



Then press Play to watch Root drive over your colored lines and play your song. Try changing your lines to make your song better!



# Computer Science Education Week 2018

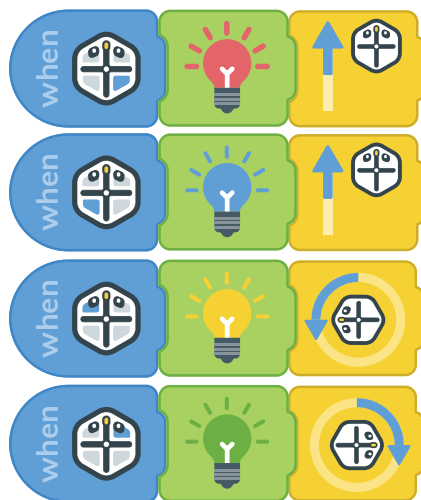
## Robo-Dance-Off

How are your robot dance moves?  
Code Root to help test your muscle memory and stage a coordinated dance-off!

---



1. Mark each of the zones on top of Root with an up, down, left, or right arrow.



2. Code Root to change colors and move in the direction of the arrow when each zone is touched.



3. You made Root respond with dance moves when you touch its top! Put on some music and practice your robot dance moves!

---

### Going Further:

Can you make your dance moves more complicated by adding more code blocks to each **When Block**?

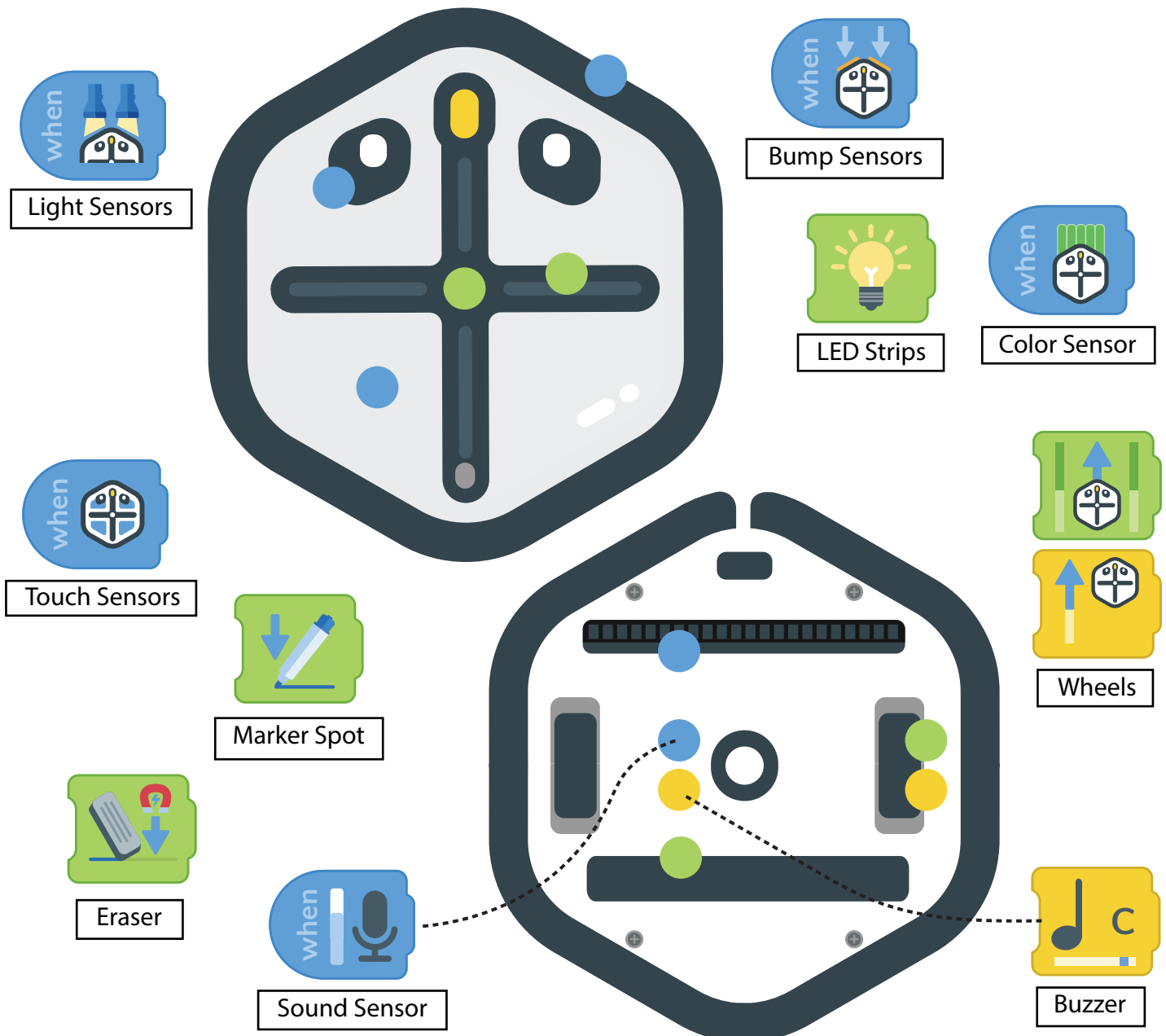


# Computer Science Education Week 2018

## Match Root's Pieces

Root has so many pieces! Can you find them all?

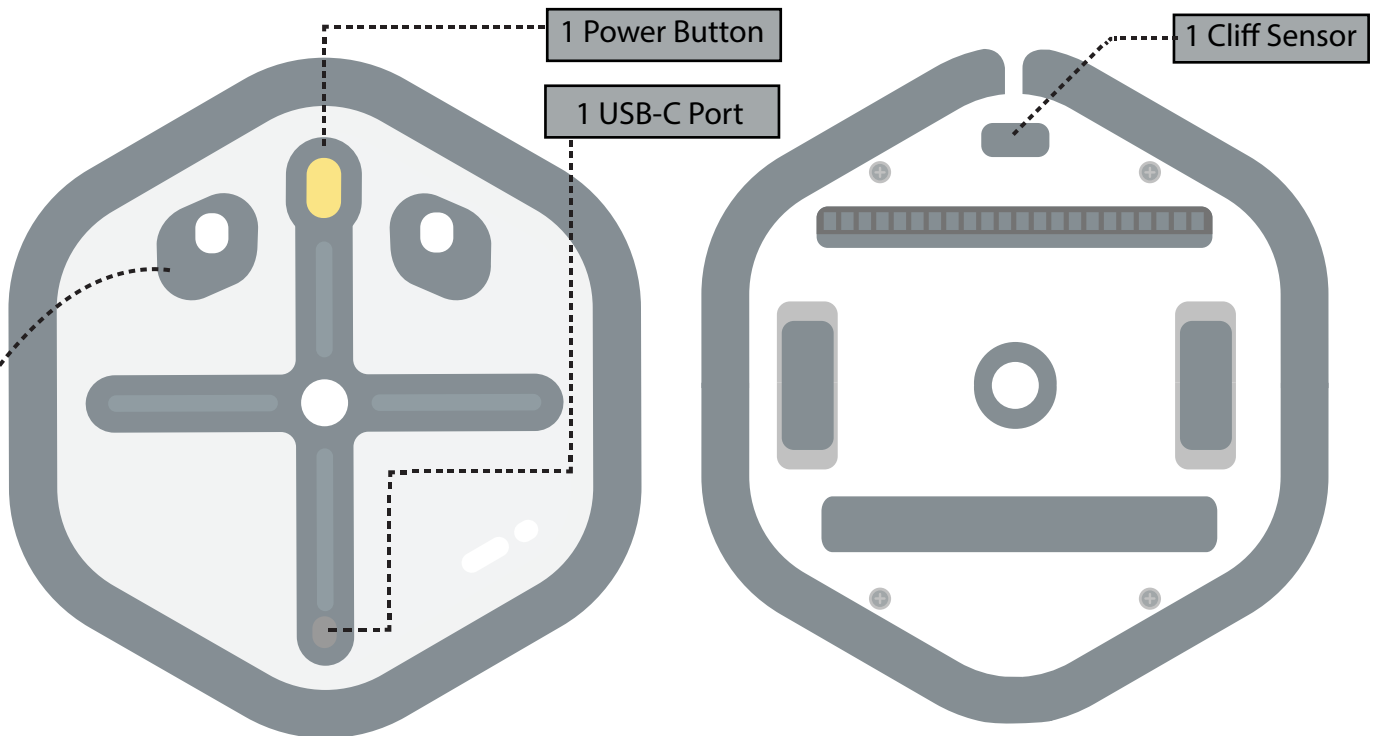
**Directions:** Draw an arrow from code block to the dots to show where all of Root's pieces are.



# Robot Schematic

Root has so many pieces! Can you find them all?

**Directions:** Draw an arrow from each box to Root to show where all of Root's pieces are. Then, draw a line to connect each box to the block(s) you use to code that piece.



2 Light Sensors

4 LED Strips

1 Marker Spot

1 Eraser

4 Touch Sensors

2 Bump Sensors

1 Color Sensor

2 Wheels

