SPLAT MINING

GAME SETUP

2–4
PLAYERS

1
SPLAT

SPLATS ARE BURIED TREASURE!

GAME SUMMARY

UNRULINESS: Sitting or standing

GAME RULES: Tap to carefully remove dirt from your Splat jewel.

Very carefully clean the dirt off of your precious Splat jewel.

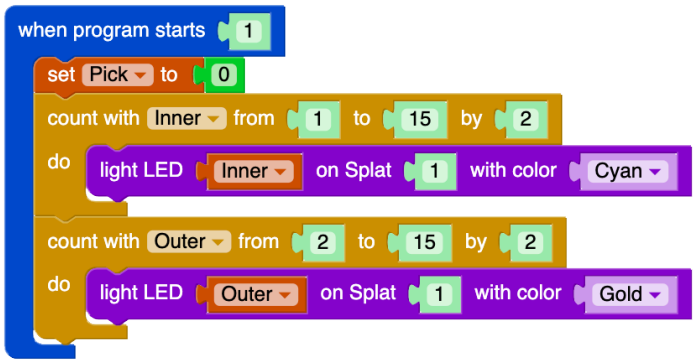
The program starts with the center of the Splat lit cyan and the outer lit gold. Press carefully to remove pieces until you only have your clean, blue jewel. The largest jewel, the most cyan LEDs in one clump, wins!

HOW IT WORKS

PART ONE

This program uses the 'inside, outside' numbering approach to light the inner lights one color, and the outer lights another. For each Splat, the inner lights are ODD numbers, and the outer ones are EVEN. By using the **COUNT WITH/BY** block and two variables, you can count the even and odd numbers separately.

In the **WHEN PROGRAM STARTS** block; the variables **INNER**, and **OUTER**, represent the odd and even sets of numbers. Starting at 1, and counting by 2, you will go through all of the ODD numbered lights (1, 3, 5, 7, ... ect) while starting from 2, will get you the even ones (2, 4, 6, 8, ... ect). The **PICK** variable will choose the numbered LED that gets turned off or 'picked' away.



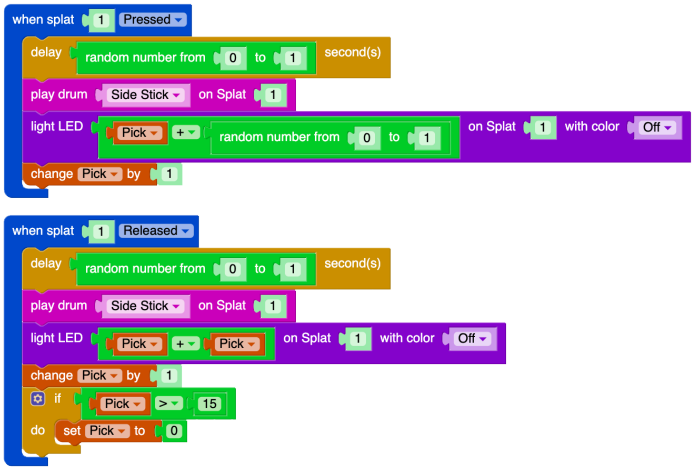
CODE IMAGE: PART 1

PART TWO

First, the **WHEN SPLAT PRESSED** starts a **SHORT RANDOM NUMBER** delay, after which a sound plays and a random LED is turned off. The **PICK** variable is then increased by one, to continue the game by moving around the circle of LED lights.

The **WHEN RELEASED** block turns off a second LED for each Splat release. This second LED is chosen by the number **PICK** + **PICK** to guarantee that this is one of the outer (even numbered) LEDs. This is done to make sure the game is more likely to end with a center 'Gem' of lights remaining.

The final **IF/DO** block keeps the **PICK** variable inside the range of LED light numbers, 1-14.



CODE IMAGE: PART 2

SUGGESTED OUTLINE

1. **INTRODUCE EXERCISE**
Introduce the activity. Explain the game rules and demonstrate how the activity works. Work together as a class to list program objectives, and draft a simple flowchart of key actions.

2. **GUIDED WORK TIME**
Introduce the essential blocks and tie them directly to the game rules. Highlight the **COUNT BY** blocks and explain how they work to remove cyan and gold LEDs. Have students compare the use of the **WHEN SPLAT PRESSED** and **WHEN SPLAT RELEASED** blocks.

3. **GROUP WORK TIME**
Support groups as they work to build their programs, and through the testing and debugging process. Encourage groups to collaborate across the class to work through challenges. Ensure groups are documenting their development process and adding comments as necessary.

4. **STUDENT SHOWCASE!**
Give groups time to play their games. Have groups present their largest jewel finds!

GOING FURTHER

EXTENSION
This program is written for one Splat, but encourage students to find ways to incorporate additional Splats into the game play.

SUPPORT
Try building the code within **WHEN PROGRAM STARTS** block as a full class. Have students outline the needed code on paper before they begin programming.

CSTA STANDARDS

ALGORITHMS & PROGRAMMING

GRADES 6—8

2-AP-10 ALGORITHMS	Use flowcharts and/or pseudocode to address complex problems as algorithms. **(P4.4, 4.1)**
2-AP-12 CONTROL	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. **(P5.1, 5.2)**
2-AP-13 MODULARITY	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. **(P3.2)**
2-AP-17 DEVELOPMENT	Systematically test and refine programs using a range of test cases. **(P6.1)**
2-AP-19 DEVELOPMENT	Document programs in order to make them easier to follow, test, and debug. **(P.7.2)**