Leader Overview: Lost in the Stars Escape Room

Lost in the Stars is a story-driven, offline escape room designed for Code Club sessions or classroom enrichment. Learners step into the role of junior astronauts on a stranded ship, solving a series of puzzles to reactivate systems, decode secret messages, and navigate back to safety. It's a flexible and fun unplugged activity that supports computational thinking in a non-programming context, building teamwork, reasoning, and sequencing skills.

This document explains the running of the escape room, the design rationale and provides extra clues for creators who get stuck, as well as the answers to the puzzles so you can check who gets it right!

Target Audience

Ideal for learners aged **12–16**. It works well for mixed-ability groups and collaborative environments. The escape room contains coordinates, cyphers and logic challenges.

Embedded Learning

The puzzles are rich in computational thinking concepts:

- **Logic and Boolean reasoning** – seen in the switch toggle challenge.
- **Cryptography basics** – through Caesar cipher decoding.
- **Algorithmic sequencing and conditionals** – in rebooting ship systems and navigation programming.
- **Pattern recognition and spatial reasoning** – through directional movement and map-based puzzles.
- **Problem decomposition** – learners must break down each challenge into manageable parts.
- **Teamwork and communication** – vital for collaborative completion.

Escape Room Challenges

1. **Get the Captain's Message** A logic puzzle involving switches that toggle multiple systems. The goal is to activate only two key systems. Requires trial and error, tracking state changes, and thinking conditionally.
2. **Decrypt the Captain's Message** A Caesar cipher-style decoding activity. Students must determine the shift and translate the scrambled message into readable instructions.
3. **Restart the Ship's Systems** A logic-based sequencing puzzle with dependencies between systems (e.g., "X must come before Y"). Reinforces conditional logic and deductive reasoning.
4. **Program the Navigation Computer** Learners use an 8-digit code as movement instructions for a robot on a grid. Teaches instruction-following, direction control, and basic algorithms.
5. **Navigate the Star Map** A riddle-based spatial reasoning challenge where students follow clues and directional steps to reach their destination.

Facilitation Tips

Group Size: Best run in pairs or alone.

Time Required: 60 minutes total, 5 separate activities.

Materials: Printed worksheets, pencils, paper.

Support Strategies:

- Offer hints after a set time or when creators are frustrated.
- Allow student collaboration and discussion.
- Use a timer or light roleplay to add urgency.
- Debrief after each challenge to discuss learning points.

Why It Works

- **Narrative immersion** keeps learners motivated.
- **Unplugged, but deeply computational** – ideal for screen-free sessions.
- **Scalable difficulty** to support varied skill levels through hints.
- Encourages a **growth mindset** and creative problem-solving.

Extension/Enrichment Ideas

- Ask learners to present a “mission log” to explain their process.
- Learners create their own escape room challenges.
- Add a leaderboard or star chart.

Answers to Puzzles

Puzzle 1

Extra Hint: Don't start with switch 'C' (as it will need to cancel itself out)

Solution: A,B,D,E (1+2+4+5 = 12)

Puzzle 2

Extra Hint: A,B,D,E: 1+2+4+5 = 12 (from the last puzzle)
Cypher Key = 12
('A' should now be 'L')

Decoded message: THE LIFE SUPPORT SYSTEM IS BAD. RESTART IMMEDIATELY!
Solution: Restart the life support system

Puzzle 3

Extra Hint: Life support goes first, then follow the clues in order. Write them down, leaving gaps so you can slide others in as you go.

Solution:

System	System ID
Life Support	3
Sensors	7
Artificial Gravity	2
Communications	4
Defence Systems	8
Navigation	5
Engines	1
Shields	6

Sequence: 3,7,2,4,8,5,1,6

Puzzle 4

Extra Hint: Write out the number sequence. Beneath each number, draw the direction the robot should move. Follow the directions in order.

Solution: (2,4)

Puzzle 5

Solution: (2,4) → (5,2) → (4,-5) → (-3,-6) → (-3,6) → (-5,5) = Planet Zingpop.

Lost in the Stars - a Code Club Escape Room

You're a junior explorer with the famous **Star Explorer's Club**, adventurers renowned for charting distant galaxies and discovering hidden worlds. Onboard your spaceship, the **Celestis**, your latest expedition was supposed to be just another routine journey into unknown space.

But suddenly, disaster struck! Out of nowhere, your ship was battered by a violent asteroid storm, knocking out critical systems and leaving your crew stranded deep in uncharted territory. Captain Arden has gone missing, and as junior crew members, you must now rely on your courage, teamwork, and quick thinking to survive and find your way home.

Time is running out. Solve each puzzle carefully—every step could mean the difference between drifting forever and returning safely home to share your incredible story.

Are you ready, Explorers? Your adventure begins now!

Get the Captain's Message

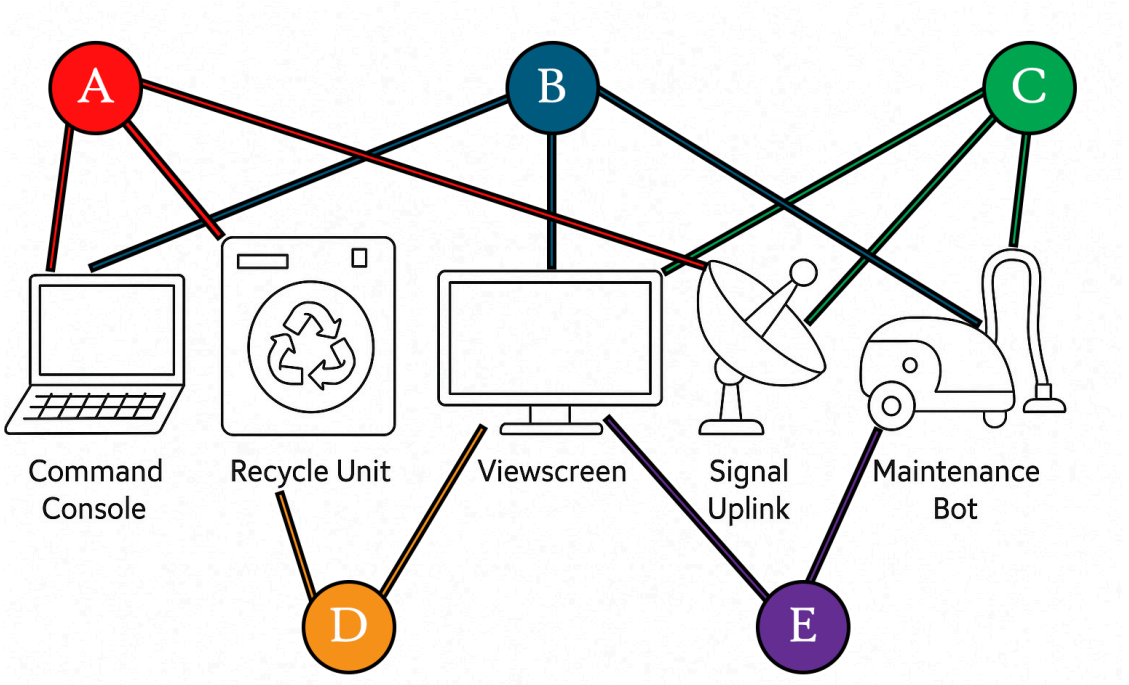
The ship's emergency systems are down. You're junior crew aboard the *Celestis*, and you have one critical task in this situation:

> **Activate the Viewscreen and the Signal Uplink** to receive the captain's secret message.

Only five switches are still working (A–E), and each one **toggles** power to a mix of systems. That means that pressing a switch will **turn ON** any connected system that's off—or **turn OFF** any that are already on. All systems are off right now.

Your goal:
Turn ON **only** the **Viewscreen** and **Signal Uplink**. All other systems must remain off to save power.

Hint:
It will take **four** presses in total to turn on the systems you need.



The switches you need to press are:

Decrypt the Captain's Message

Great job! Lights flicker and the Viewscreen hums to life, casting spooky shadows across the bridge. Suddenly, a scrambled message crackles urgently across the screen—it's from Captain Arden!

```
FTQ XURQ EGBBADF EKEFQY UE NMP. DQEFMDF UYYQPUMFQXK!
ADD UP SWITCHES USED (A=1, B=2, C=3, D=4, E=5) TO FIND MY CODE.
```

Your goal: Decode Captain Arden's message quickly—it contains important instructions!

A **cipher** is a secret way to write a message by changing letters into different ones. To read the secret message, you must know how many spaces to shift each letter **backwards** in the alphabet. For example, if the letter **A** went **back 2** spaces, it would be represented by the letter **Y** in the message.

Fill in the table below with the shifted letters to help you decode the message.

Cypher Key: _____

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Message:

What does the captain need you to do now? _____

Hint: Each letter corresponds to a number: A=1, B=2, C=3, D=4, E=5. Add the right numbers to get your **cipher key**.

Restart the ship's systems

Well done - you decrypted the Captain's message! The ship urgently needs a reboot! But restarting ship systems isn't easy. Each system must reboot in exactly the right order, or you'll lose critical power!

Follow the reboot instructions **carefully** to find the rest of the correct reboot order. Captain Arden's message specifically said to restart **a certain system first**. What was it?

Reboot Instructions:

- The system from the Captain's message must restart first.
- Navigation can only restart after Communications.
- Engines need Navigation online first.
- Shields must reboot after Engines.
- Sensors must restart immediately after Life Support.
- Artificial Gravity must restart after Sensors, but before Communications.
- Defence Systems must reboot after Communications, but before Navigation.

Ship Systems & IDs:

System	System ID
Engines	1
Artificial Gravity	2
Life Support	3
Communications	4
Navigation	5
Shields	6
Sensors	7
Defence Systems	8

Write your reboot order clearly here:

System Name _____ System ID

1. _____ ID:____
2. _____ ID:____
3. _____ ID:____
4. _____ ID:____
5. _____ ID:____
6. _____ ID:____
7. _____ ID:____
8. _____ ID:____

Program the Navigation Computer

The system reboot worked—but now you've discovered that your navigation module has been damaged! You'll need to manually reprogram the ship's helper robot to scan the surrounding area for safe paths forward.

Captain Arden left one last clue: "Use the reboot code to initialise the robot's movement program."

Use the **8-digit reboot code from the last puzzle** to control the navigation robot.

Each number in the code tells the robot to make a move:

- 1 = Move up
- 2 = Move down
- 3 = Move left
- 4 = Move right
- 5 = Move one space in the same direction as last time
- 6 = Spin (do nothing)
- 7 = Move diagonally up-right
- 8 = Move diagonally down-left

Start the robot at the middle of the 5x5 grid below. Follow each instruction in order to find out where the robot ends up!

		x				
		1	2	3	4	5
y	1					
	2					
	3			🤖		
	4					
	5					

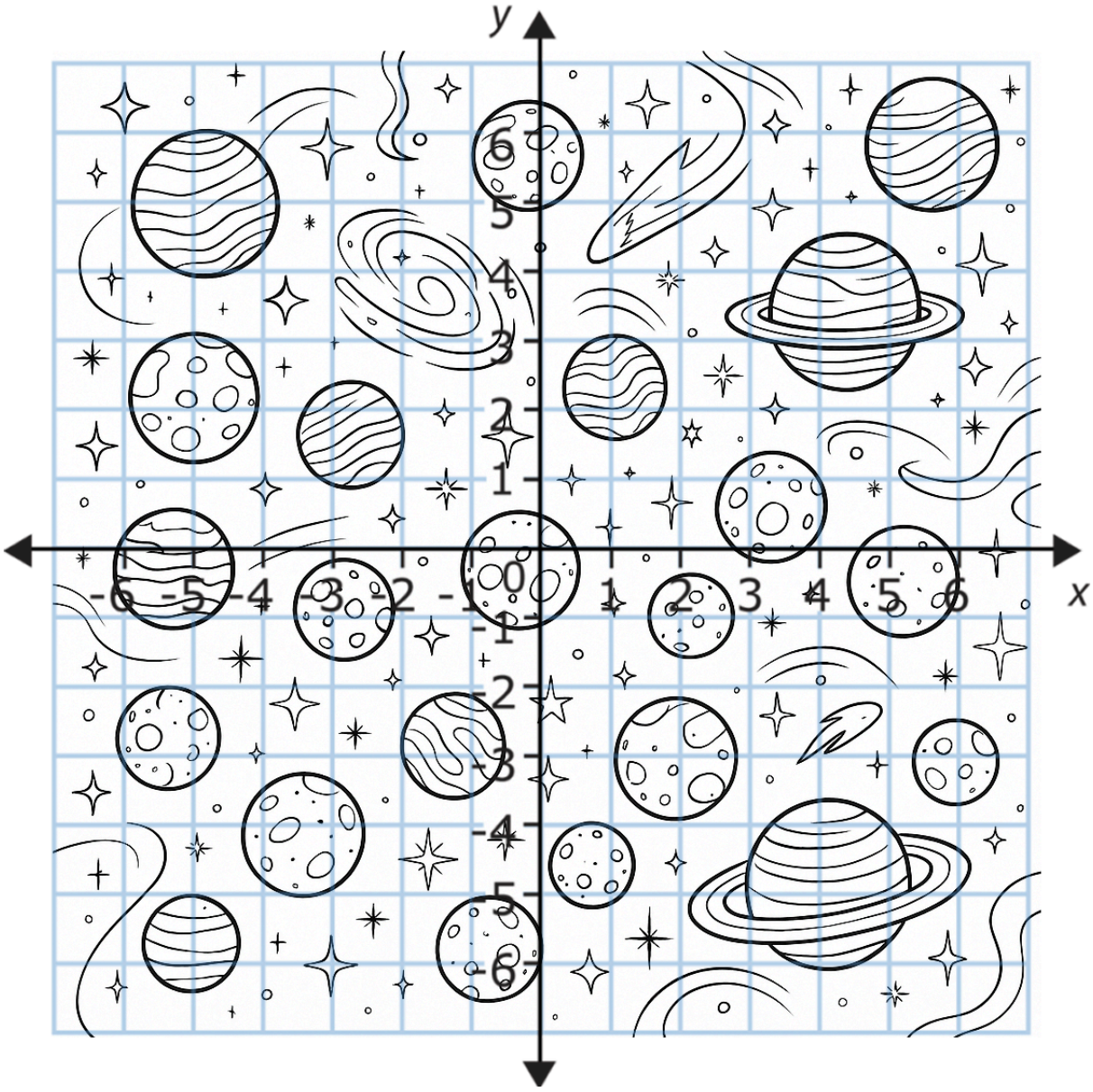
Write down the final position of the robot here:

(__x__,__y__)

Navigate the star map

Great work! The navigation robot is online and ready. Its scanners have detected a safe path through the nearby star system—but you'll need to plot the course carefully yourself! You have the **starting position** from the previous task - the clues begin there!

Your goal: Follow the clues below to plot your course through the star map. Each clue will guide you step-by-step to your final destination and safety: the headquarters of the Star Explorers Guild!



Starting position:(__x__,__y__)

Clues

Clue 1:
From your **starting position**, move 3 spaces to the right (east), then 2 spaces down (south).
New coordinates: (___, ___)

Clue 2:
"I'm ringed with grace, floating in space,
Seven down, and one left is the place."
New coordinates: (___, ___)

Clue 3:
From your current position, move left and down until you land directly inside a star with four points.
New coordinates: (___, ___)

Clue 4:
- Head directly up until you reach the twin star to this one.

New coordinates: (___, ___)

Clue 5:
"I'm large and striped,
A giant sight,
One step down,
Two steps left is right."

New coordinates: (___, ___)

What planet have you discovered at the end? _____

Congratulations, Explorer! You've successfully plotted your course.

Mission Accomplished!

Incredible work, Explorers!

After carefully navigating the treacherous star system, you've identified the mysterious planet _____ as your destination. Moments after plotting your course, the Celestis' navigation systems light up, locking onto _____'s signal. Relief washes over you as the ship smoothly sets a safe trajectory.

As you approach _____, vibrant colours and welcoming signals from the Star Explorer's Club headquarters fill the viewscreen. You've done it—your courage, teamwork, and quick thinking have guided you safely home.

Captain Arden's voice crackles warmly over the communicator:
"Outstanding work, crew! Thanks to your bravery, the Celestis is safe, and your names will go down in Club history."

Congratulations, Explorers!