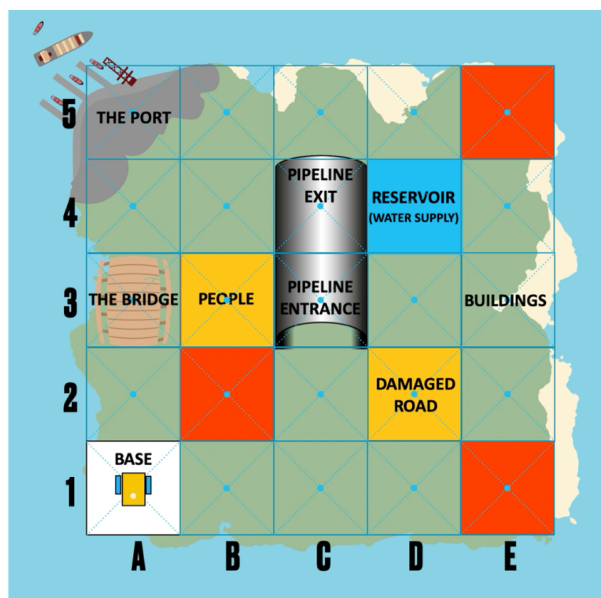


Teacher Guide: How to set up the island map

Lesson 2

For this lesson, students will be introduced to an island that has been affected by a strong earthquake and they will learn to program a robot rescue vehicle to explore the island to assess the damage and begin re-establishing communication.



IMPORTANT MAP POINT:

For this lesson, the map is quite simple and flat to help students navigate their robot rescue vehicle across the island, without crashing into 3D objects. So there are **no** physical items (like the Pipeline) placed on the map. Have fun!

STEP 1

You can create the map above for Lesson 2 using whatever resources you have access to such as large sheets of sugar paper or display backing paper. Ideally, use a light, plain colour. The map can be rolled up and stored away safely after each lesson. Alternatively, you could create the map grid on the floor using sticky tape. The map needs to be made up of **25** 30cmx30cm squares so measure the grid out and draw on the squares and grid references. Make sure you add a dot to the centre point of each square; this will help your students program their robot rescue vehicle to move from the middle of one square to the middle of another (as this is a distance of 30cm).

STEP 2

Use coloured paper to block out the squares in **WHITE**, **RED**, **YELLOW** and **BLUE** on the map (if you overlap and stick two pieces of A4 paper together, they make great 30cm X 30cm squares!)

STEP 3

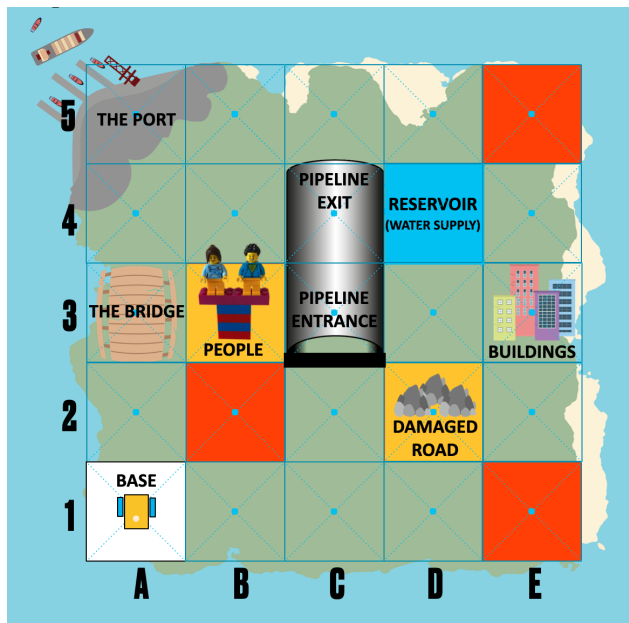
Label up the squares as shown. The **WHITE** zone is the BASE that the EARTHQUAKE RESCUE team are working from. This is where the robot rescue vehicle starts its journeys around the island. Be aware, that in this lesson, the **RED** zones are currently unsafe for the robot rescue vehicle to enter or pass through. Avoid these!

STEP 4

You **could** get some students to paint or colour a coastline to make the map look more realistic. They **could** also illustrate the squares with: BASE, THE BRIDGE, THE PORT, THE PEOPLE, PIPELINE

Lesson 3 & 4

Now we add some structures to the island map to make it 3D!
This is how your island map should look:



IMPORTANT MAP POINT:

In these lessons, 3D objects are added to the mat. Adjust the set up to meet the needs of your students – add, move or remove objects as needed.

REALLY IMPORTANT

Place a BLACK strip of tape on the mat in front of the PIPELINE ENTRANCE.



THE PEOPLE

POSITION: B3

As a result of the earthquake, some people need rescuing. Add two LEGO minifigures (from the SPIKE Prime box) to the island map – they represent people who need rescuing. The people are raised up on LEGO system bricks, creating a flat surface, as this makes it easier to ‘sense’ the people if students want to use a Distance Sensor to locate them.



THE DAMAGED ROAD

POSITION: D2

As a result of the earthquake, the tarmac road has been damaged and is now covered in debris. You can create the rubble on the damaged road out of anything – screwed up paper, cut up egg carton, papier-mâché...



THE PIPELINE

POSITION: C3 & C4

The 'water pipeline' has been damaged during the earthquake and is blocked. The pipeline needs to sit over 2 squares and have an entrance and exit that is big enough for the robot rescue vehicle to pass through, as it will be investigating the blockage.

The pipeline needs to have these approximate dimensions: 30cm width, 60cm length, and 16cm height.

You can use any resources you have access to but 2 cardboard drinks boxes taped together (or 2 printer paper boxes) should work well!



THE BLOCKAGE

POSITION: C4

You can create the 'blockage' in the pipeline out of anything that can fit inside the pipeline – but it must be a flat surface and should be light enough that it can be 'pushed' out of the pipeline by the robot vehicle. An empty snack bar box works well.

Position the 'blockage' towards the exit of the pipeline.

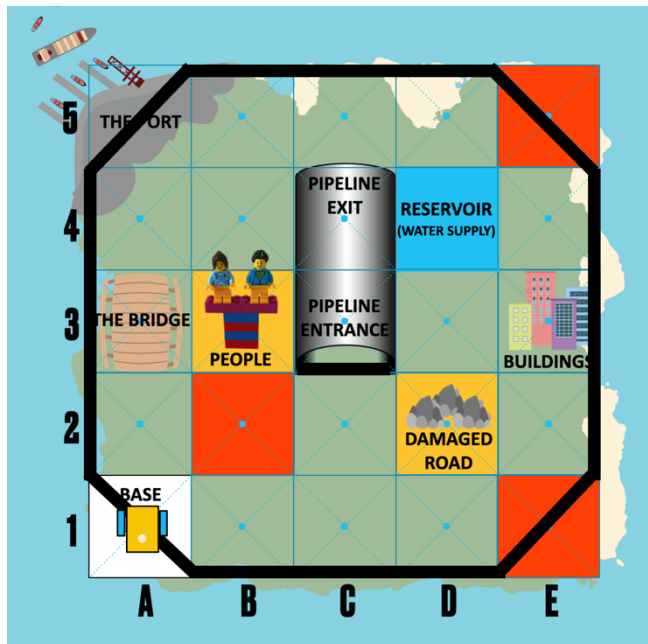


THE BUILDINGS

POSITION: E3

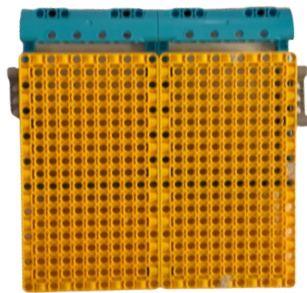
To create an additional element, you could add some 3D buildings. Why not choose some of the 'structures' that your students created in Lesson 1? Or use pencil pots or crisp tube structures. Why not have students create some amazing buildings of their own?!

Lesson 5



IMPORTANT MAP POINT:

Mark a **BLACK** line (as shown) around the mat. Black electrical tape works really well. Notice how the corners are angled – otherwise the robot will shoot off!

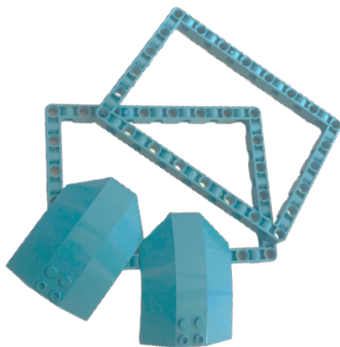


THE EMERGENCY BRIDGE

POSITION: IN BASE

During the earthquake, the bridge in A3 was damaged. An emergency bridge will need moving into A3 (from the BASE) by a robot rescue vehicle, to allow vehicles to pass safely. **Please note that the Emergency Bridge can only be crossed in one direction!**

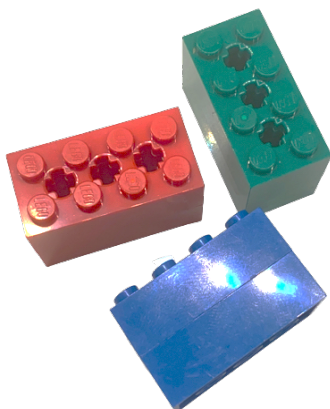
BUILDING INSTRUCTIONS: (L5_Bridge)



SHELTER

POSITION: IN BASE

During the earthquake, houses and buildings were damaged. These steel frames and tarpaulin will need moving to the Buildings area of the island so that repairs can take place.



EMERGENCY SUPPLIES

POSITION: IN BASE

Since the earthquake, islanders have been in desperate need of Medical Supplies (red bricks), Clean Water (blue bricks) and Food (green bricks). These supplies will need to be delivered to 3 different areas in need on the island.