Ages 6–8 · Hour of AI · Unplugged

Tracking a Shipwreck



Game Kit: Train an AI Underwater Robot

Teams of 3–4 students train a paper AI to steer an Autonomous Underwater Vehicle (AUV) to a hidden shipwreck. Print in **color**. Cardstock lasts longest. Cut on the dashed lines. Tiles are cut and folded only: no boxes, no glue needed. Laminate the map and Brain board if you can, and store each team's kit in an envelope so you can reuse it.

What to print

Piece	How many	Where
Ocean Map	1 per team	page 2
Ocean tiles (fold-over)	1 set per team	pages 3–4
The AI's Brain + arrow cards + AUV	1 per team	page 5
Star tokens	1 sheet per team	page 6
Team job cards	1 set per team	page 7
Team Score Sheet	1 per team	page 8

Each team also needs one Student Activity Workbook (the Recorder writes in it), and each student needs a copy of workbook page 4. Supplies: scissors or a paper cutter, an optional glue stick, and an envelope or zip bag per team.

Quick rules (read aloud)

1. **Set up.** The Map Keeper shuffles the 15 ocean tiles and lays them on the map, **sonar side up**. The Start tile goes on square **A1**. Put the AUV on Start.
2. **See.** Look at the squares that touch the AUV (up, down, left, right) that it has **not** visited yet. (All visited? Then any touching square counts.)
3. **Choose.** Find each square's sonar picture on the AI's Brain. The AUV goes to the one with the **most stars**. A tie? Flip an arrow card to choose.
4. **Move & peek.** The Pilot moves the AUV and crosses off 1 battery bar. The Map Keeper flips the tile so everyone can see, then flips it back.
5. **Reward.** The AI Trainer changes the stars for that sonar picture: **Shipwreck +3**, **Debris +1**, **Rocks: take 1 away** (and cross off 2 more bars). Sand, Fish, Whale Bones: no change.
6. **Record.** The Recorder writes the step number on the Mission Log and draws what was found.
7. **Repeat.** Keep going until you find the shipwreck or the battery is empty. Then fill in that mission's row and bar on the **Team Score Sheet**. **Keep the stars!** Shuffle a new map for the next mission.

Battery: 12 bars per mission. **Missions:** 3 training missions, then a **Final Test** on a brand-new map. In the Final Test the AI Trainer does not change any stars, so the AI uses only what it already learned.

Ocean Map

Search area

Lay one tile on each square, sonar side up. The AUV moves up, down, left or right, one square at a time.

	A	B	C	D
1	**START** Start tile goes here			
2				
3				
4				

Each square is 1.88 in. Ocean tiles are 1.8 in, so they fit inside the squares.

Ocean Tiles

Part 1 of 2

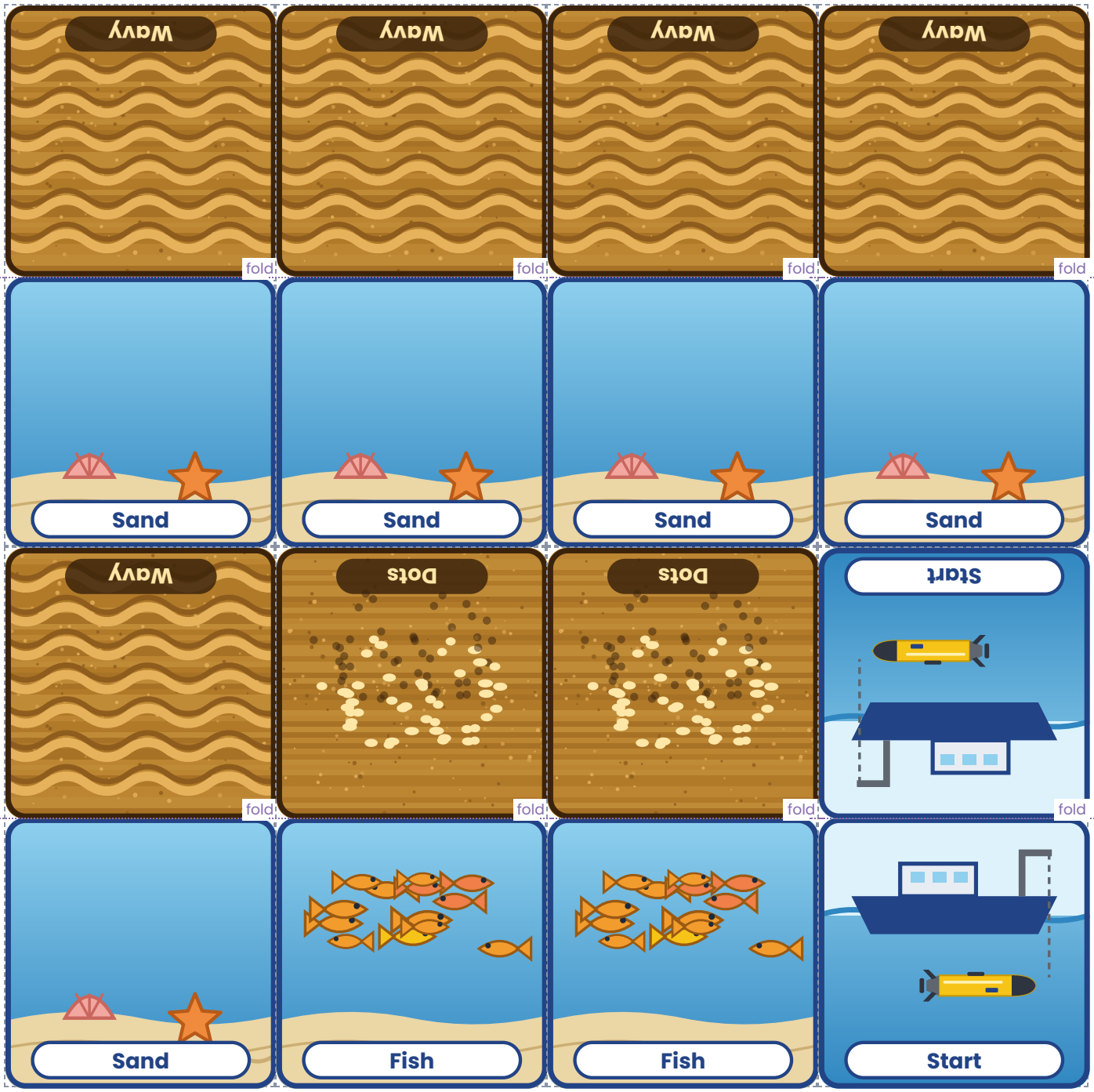
Cut out each strip (the strips touch, so a paper cutter needs only a few straight cuts). Fold it in half on the dotted line: one side shows the sonar picture, the other shows the real thing. No glue needed; a dab of glue stick keeps it from springing open. The brown **sonar** side is what the AUV sees from far away. The blue side is what is really there.



Ocean Tiles

Part 2 of 2

Cut out each strip (the strips touch, so a paper cutter needs only a few straight cuts). Fold it in half on the dotted line: one side shows the sonar picture, the other shows the real thing. No glue needed; a dab of glue stick keeps it from springing open. The brown **sonar** side is what the AUV sees from far away. The blue side is what is really there.



The AI's Brain

Put star tokens in a row to show how much the AI likes each sonar picture. At the start, every row is empty: the AI knows nothing yet!

The AI's Brain



Straight



Round



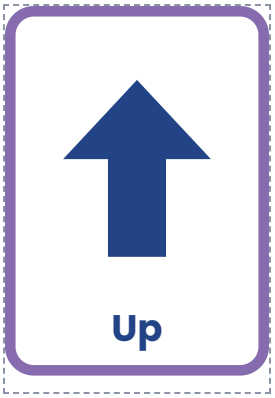
Wavy

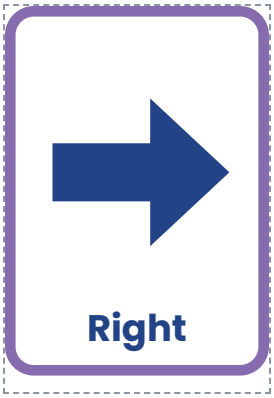


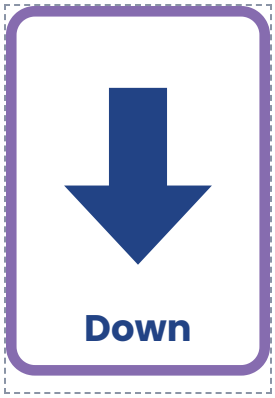
Dots

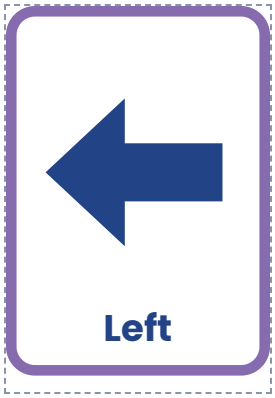
Arrow cards and AUV (cut out)

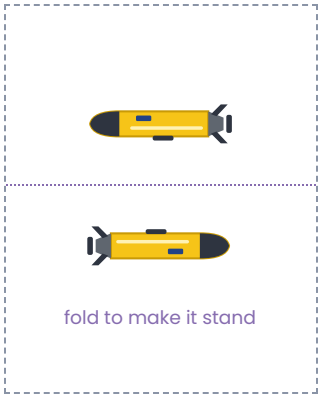
Use the arrow cards to break a tie: shuffle, flip the top card, and go that way if it points to a tied square. If not, flip the next card.





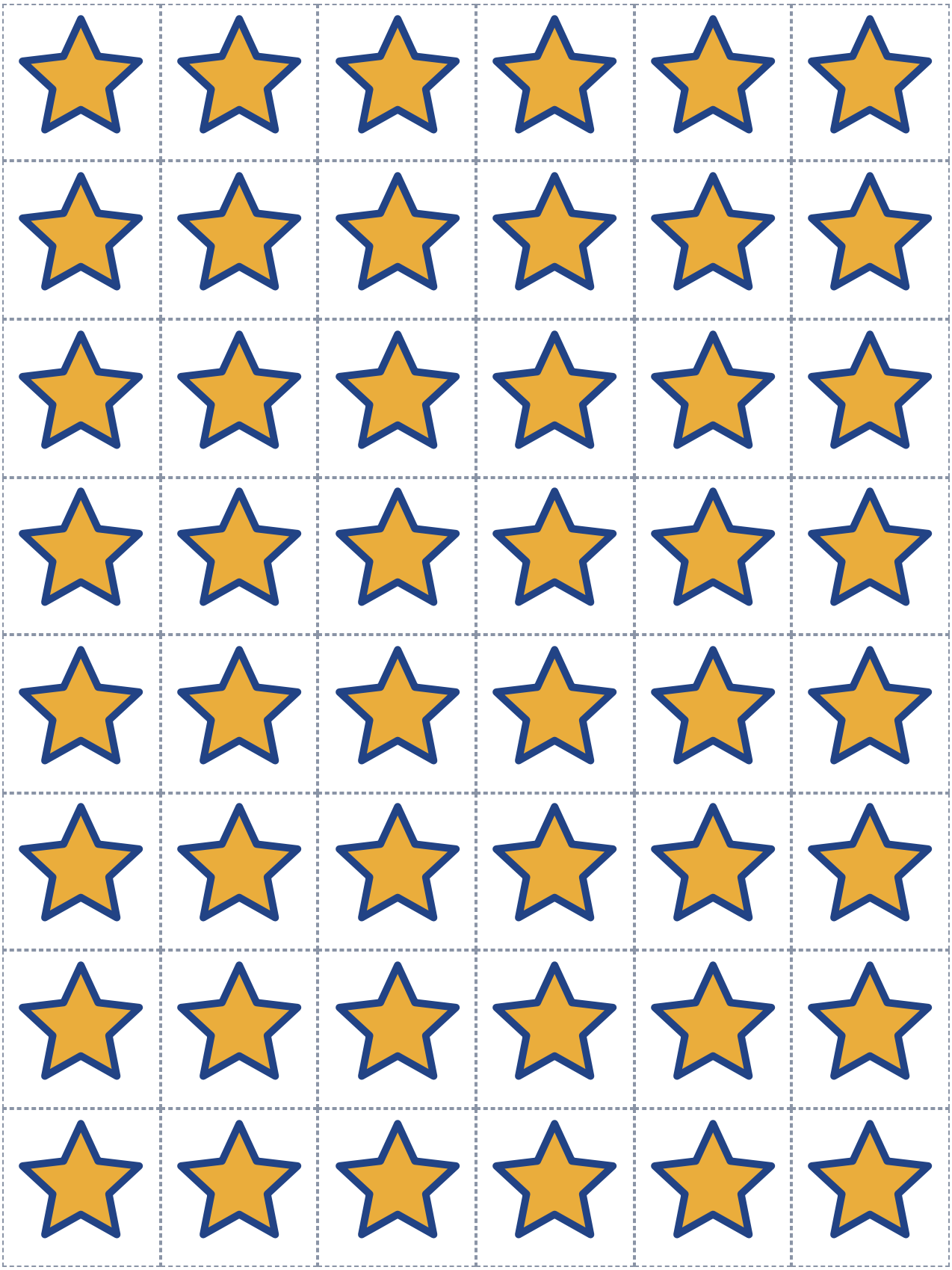






Star Tokens

Cut out the stars. The AI Trainer adds or takes away stars on the AI's Brain. A team uses about 20 in a lesson.



Team Jobs

AUV Pilot



- Moves the AUV one square at a time.
- Follows the AI's choice, not their own idea!
- Crosses off battery bars.

Map Keeper



- Shuffles and lays out the tiles.
- Flips a tile to show what is there, then flips it back.
- Keeps the map secret.

AI Trainer



- Reads the AI's Brain to find the most stars.
- Adds or takes away stars after each move.
- Flips an arrow card for a tie.

Recorder



- Writes each step on the Mission Log.
- Draws what the AUV found.
- Fills in the Team Score Sheet.

Teams of 3: the Pilot also crosses off battery bars and the Recorder also flips arrow cards. Switch jobs after each mission.

Team Score Sheet

Team name: _____ Names:

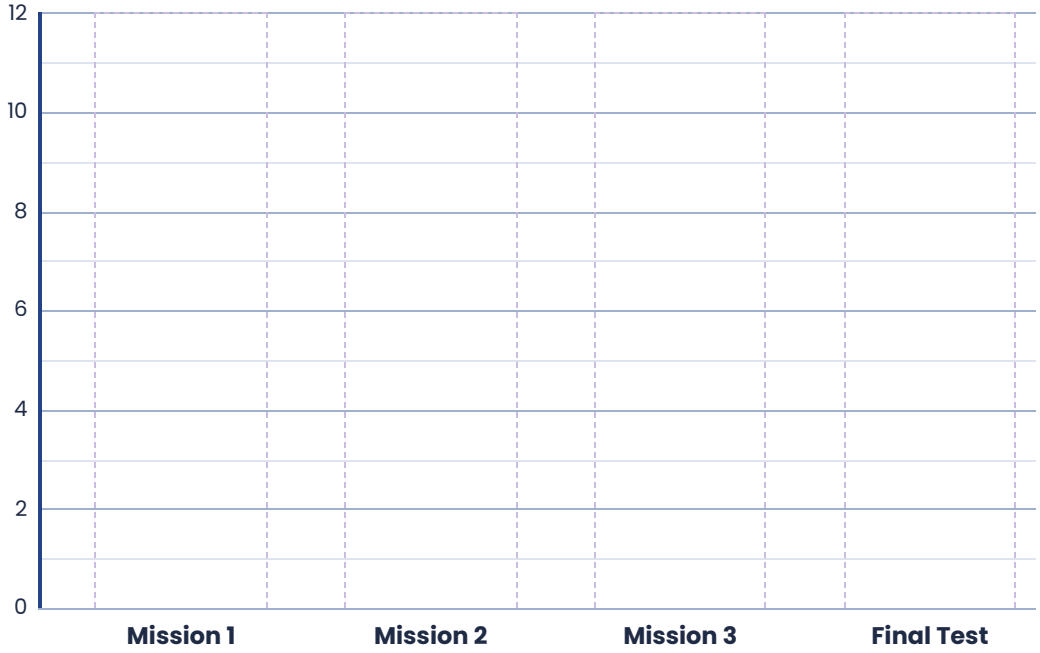
_____

Mission	Found the shipwreck?	Battery bars used	 Straight	 Round	 Wavy	 Dots
Mission 1	YES / NO					
Mission 2	YES / NO					
Mission 3	YES / NO					
Final Test	YES / NO					

After each mission, write how many stars each sonar picture has on the AI's Brain.

Graph it! Battery bars used

After each mission, color its bar up to the number of battery bars used. A shorter bar means the AI found the wreck faster. (Did not find it? Color all 12.)



Did our AI get better?

_____