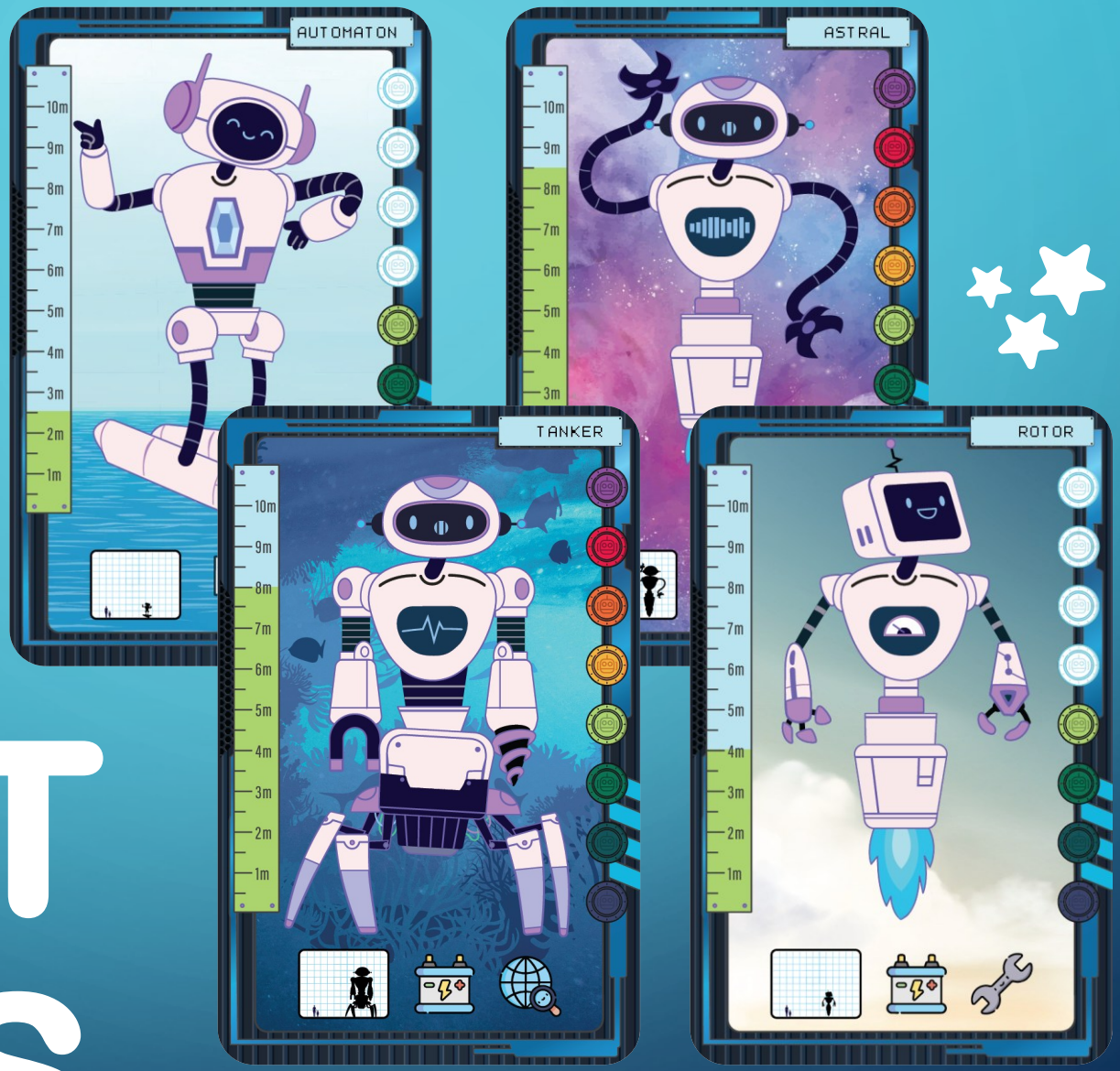
An introduction to

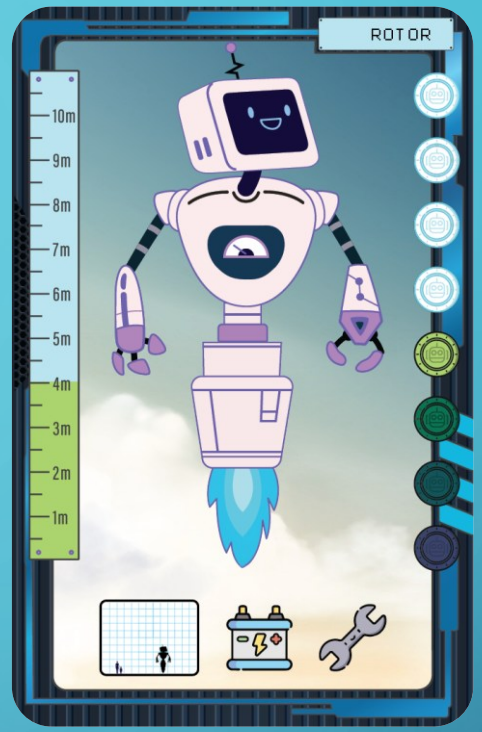
ROBOT CARDS

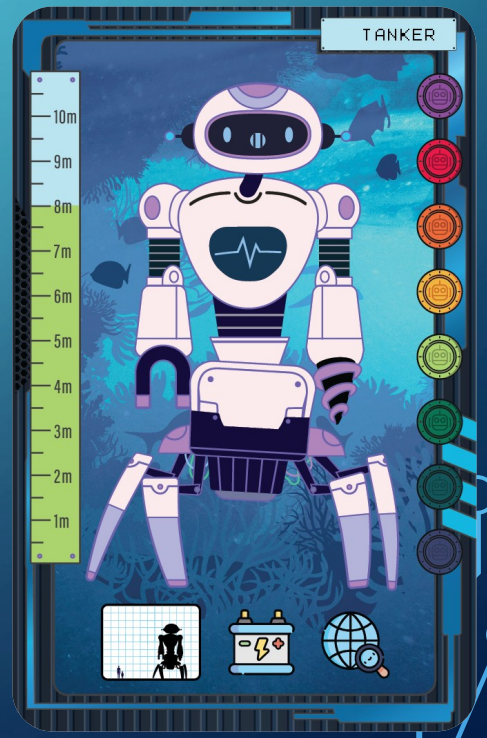


Data Education in Schools

WHAT ARE ROBOT CARDS?

- You will be introduced to the robot cards!
- Each card holds data about a fictional robot.
- In your class, you will be able to play games with these cards, and discover more about them. Do you wonder anything?
- Let's learn about what's on the card!





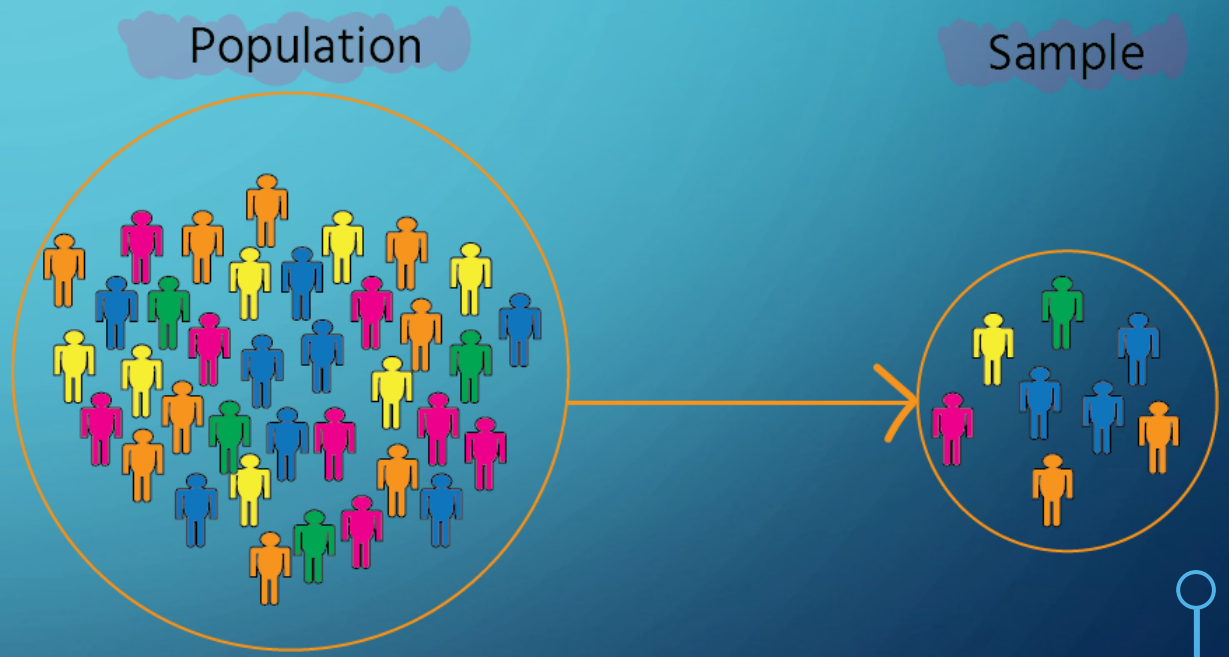
THE WORLD OF ROBOTS

- The robots on the robot cards exist in THE WORLD OF ROBOTS, a fictional world that is similar to our own.
- In this world, robots help humans with many tasks from production to healthcare.

SAMPLE

- What is a sample?

A **sample** is a small part of a bigger group that we study to learn about the whole group.



- The cards we have today are a sample of the total robot world population.

SAMPLE

A **sample** is a small part of a bigger group that we study to learn about the whole group.

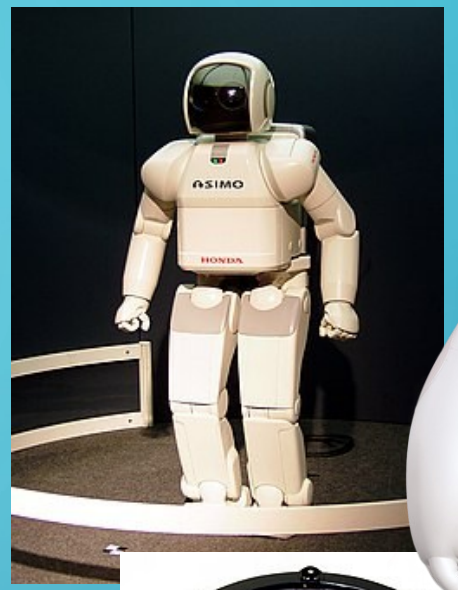
- The robot cards we have are a set of all the robots that live in the robot world.
- Can we use the cards we have to find out about the wider robot population?

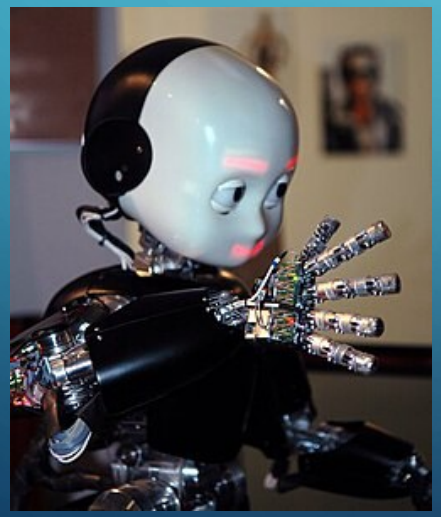
WHAT IS A ROBOT?

robot
/ˈrəʊbɒt/

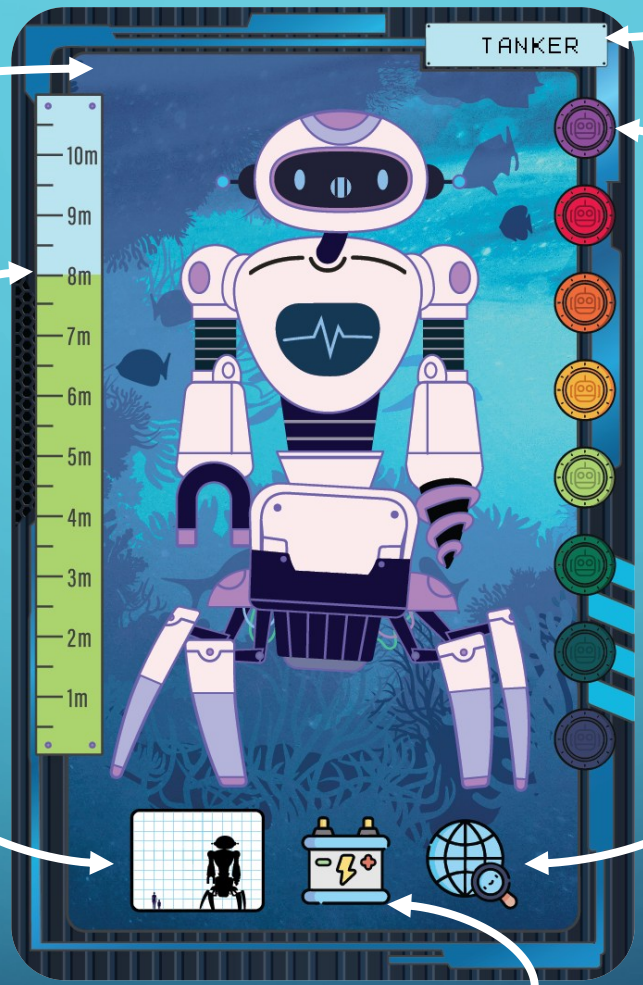
noun

1. (especially in science fiction) a machine resembling a human being and able to replicate certain human movements and functions automatically.
   "the robot closed the door behind us"
2. a machine capable of carrying out a complex series of actions automatically, especially one programmable by a computer.
   "half of all American robots are making cars or trucks"





WHAT'S ON THE CARD?



NAME

CLASS

COST

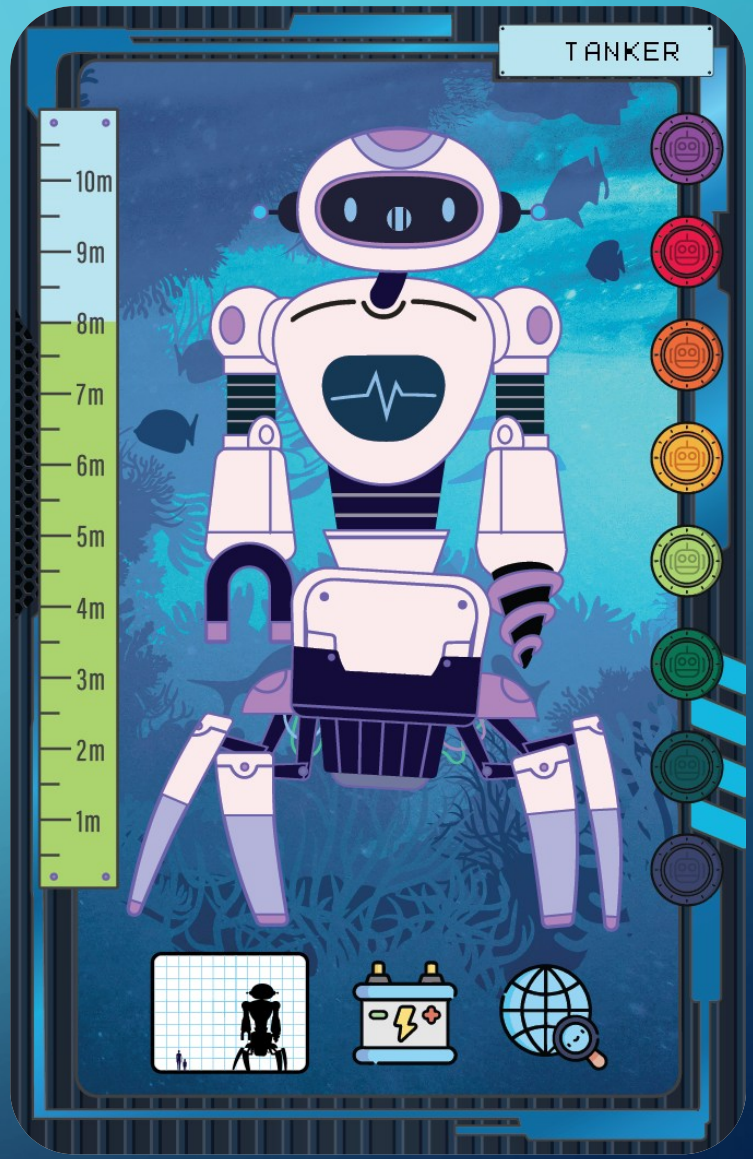
HEIGHT

FUNCTION

POWER TYPE

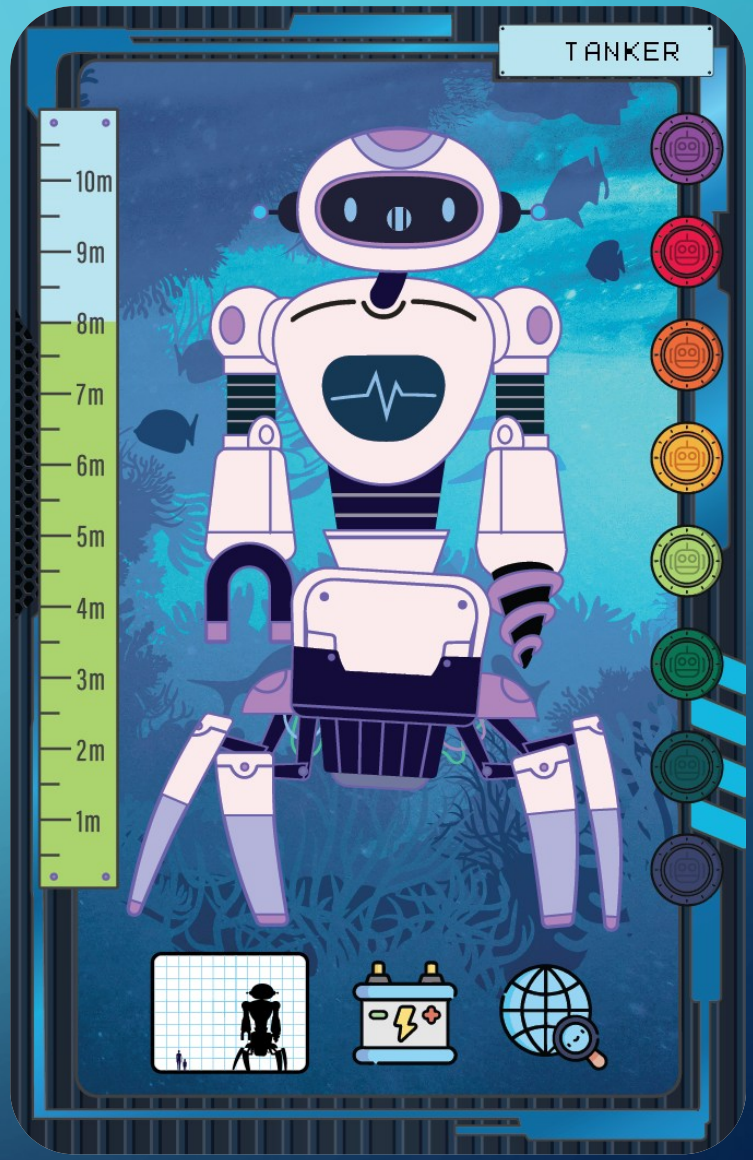
NAME

- Each robot has a name, shown on the top right of the card!
- This attribute can be used to refer to a specific robot, as every name is unique.



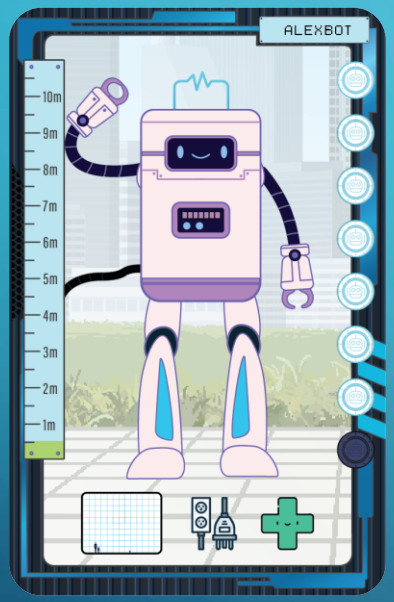
CLASS

- The class of a robot is where a robot primarily operates and is located.
- You can tell which class a robot is by the background showing the setting it's in.
- This card is an underwater robot.

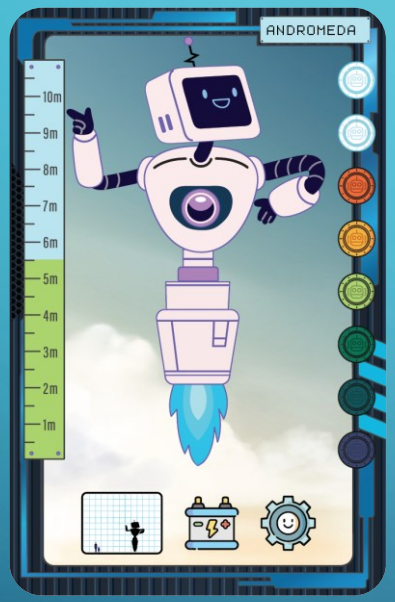


CLASS

There are 5 class types:

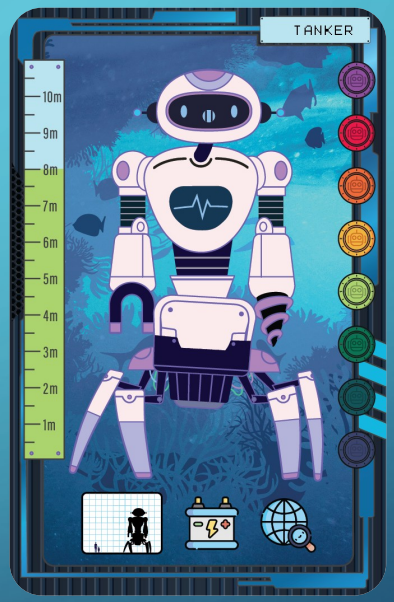


On Land

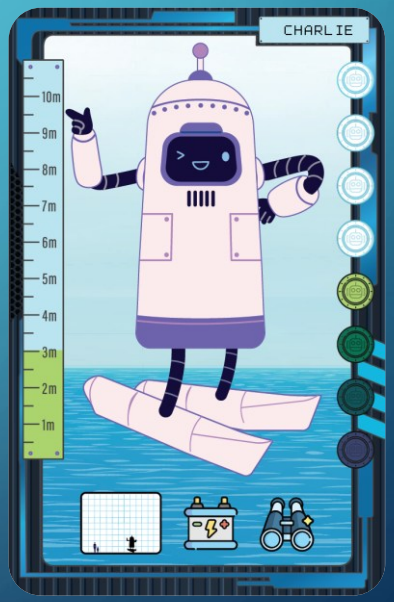


In Air

In Space



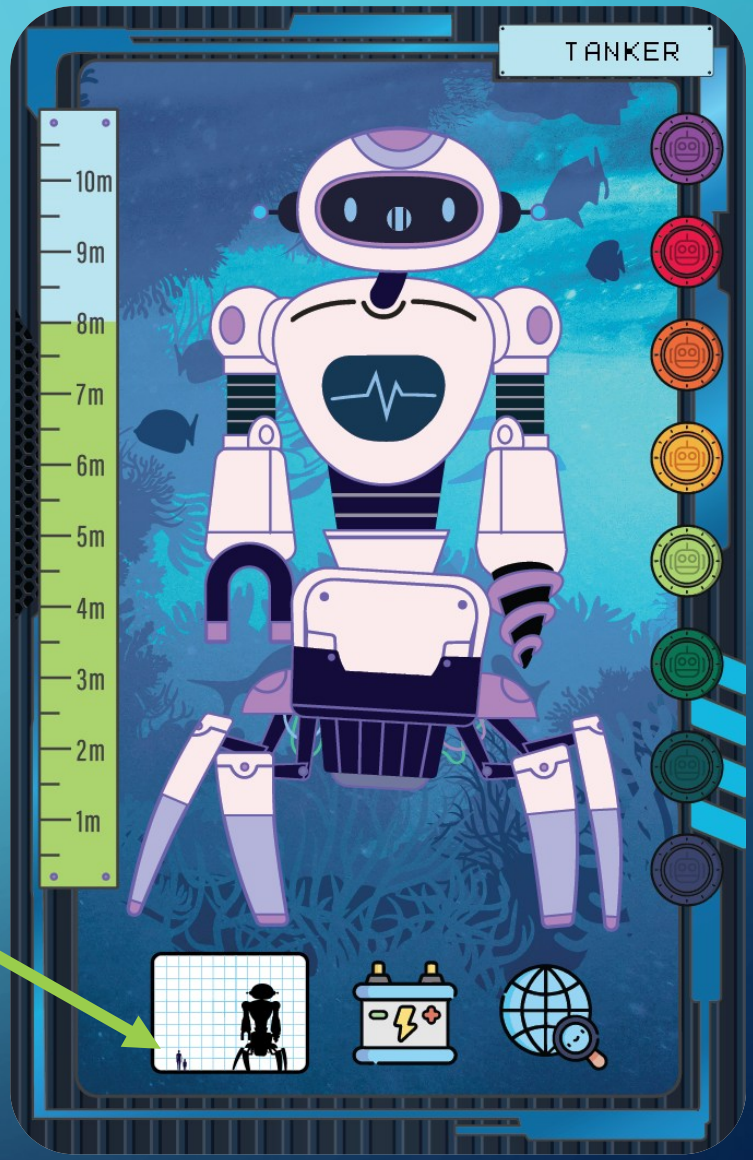
In Water



On Water

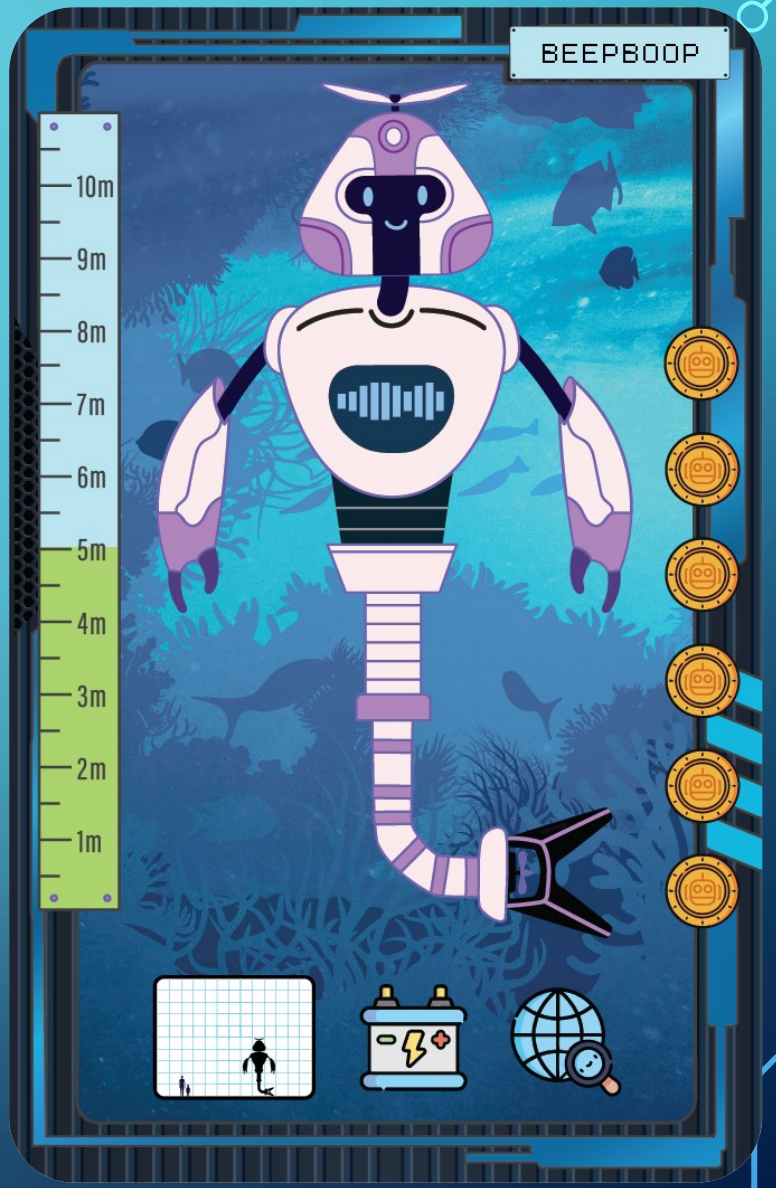
HEIGHT

- The height of a robot is shown by the green ruler on the left side of the card.
- There is also a height comparison scale showing how big the robot is compared to a human (you can see the tiny human and child here!)



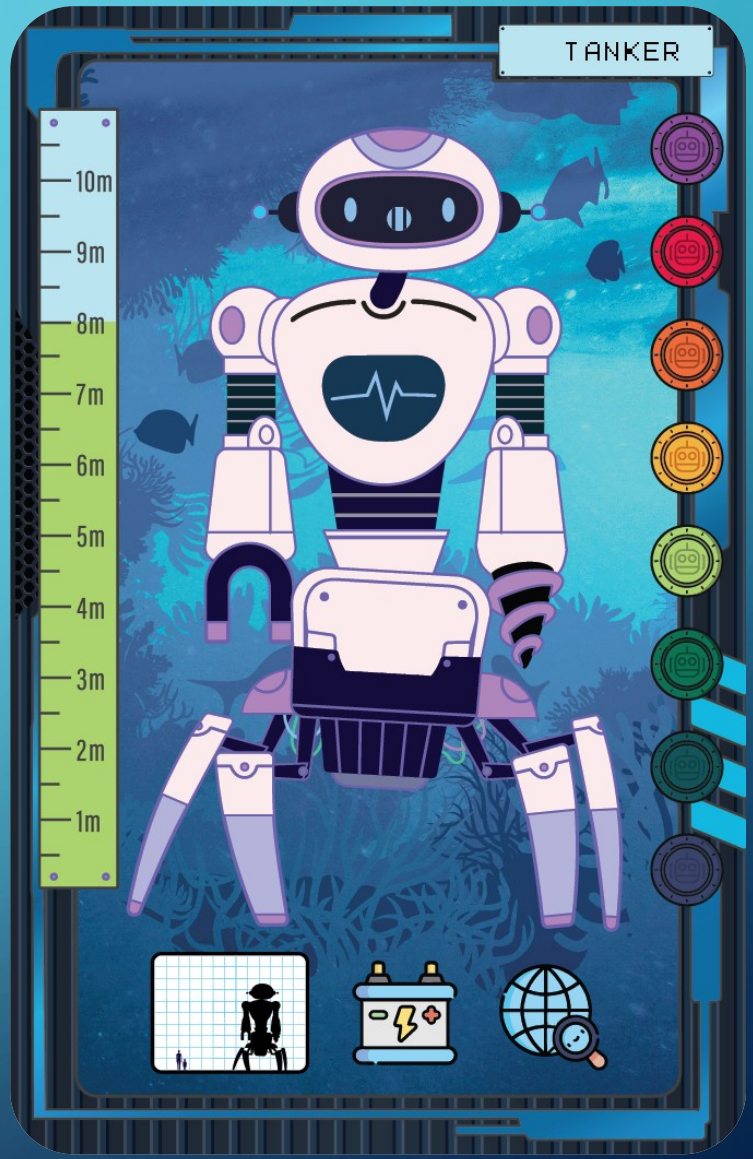
COST

- Cost is shown on the right-hand side in BOTCOINS.
- The more BOTCOINS that there are, the higher the cost.
- This is based on how expensive it was to manufacture this robot. What factors do you think contribute to this amount?



FUNCTION

- The function of a robot is the main use it has to humans.
- This is represented by the symbol on the bottom right.
- This robot's function is exploration.



FUNCTION

- Each robot card has one of these 5 functions.
- The function specifies what task the robot focuses on.
- How might function relate to other attributes?

Exploration

Medical

Service

Production

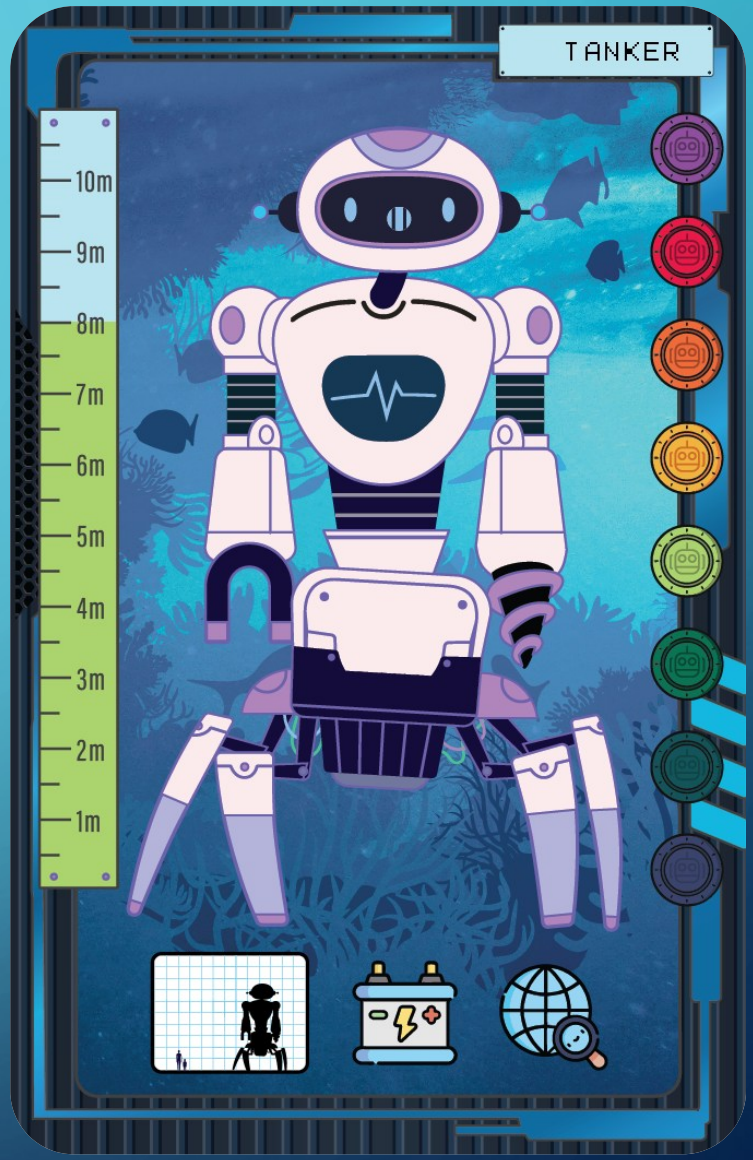
Search and Rescue

POWER TYPE

- We can also see the power type of a robot, this is whether they operate through being connected to another power supply, or they have their own internal battery, which might be charged through solar power, for example.
- The two power symbols are:

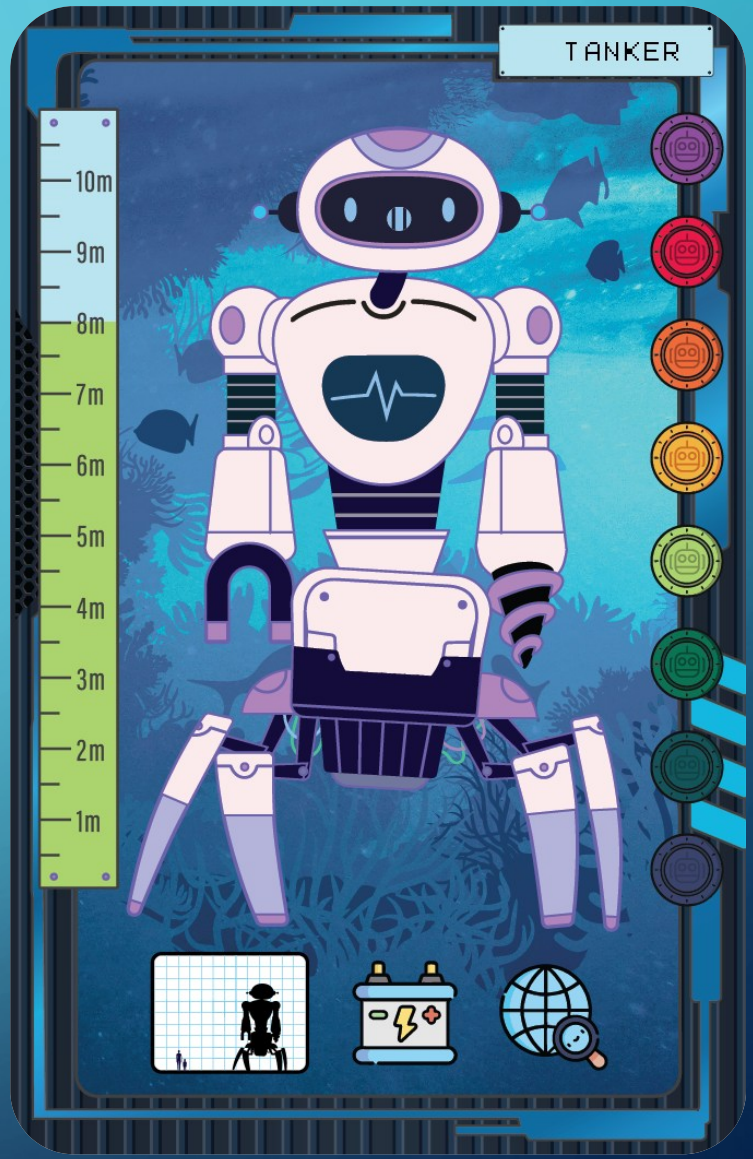
BATTERY

PLUGGED IN



ROBOT PARTS

- We can see the different components of the robot by the picture of the robot in the middle.
- How do you think these components might relate to other attributes the robot has?



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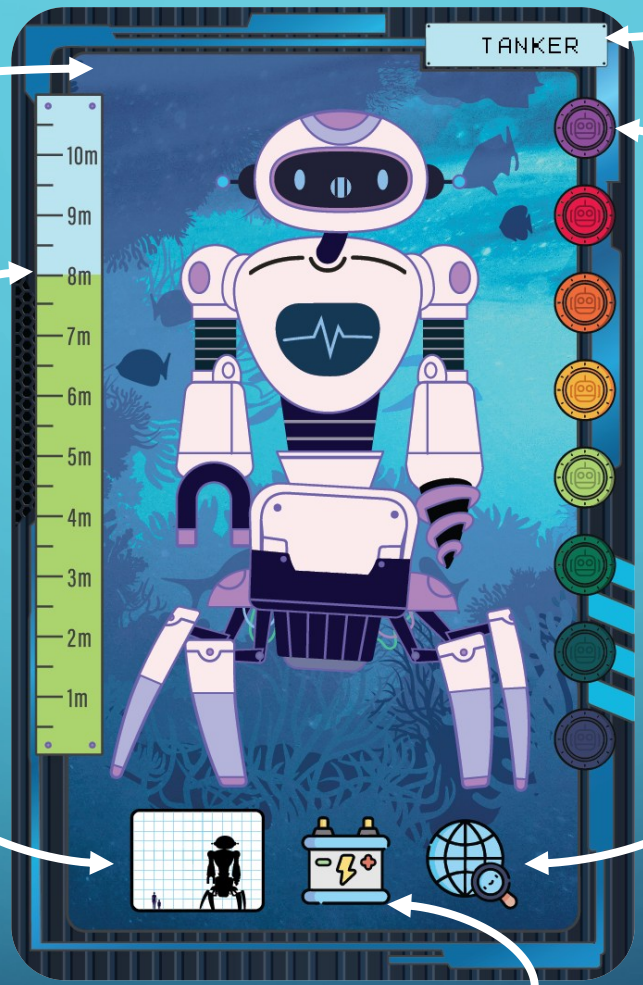


NAME

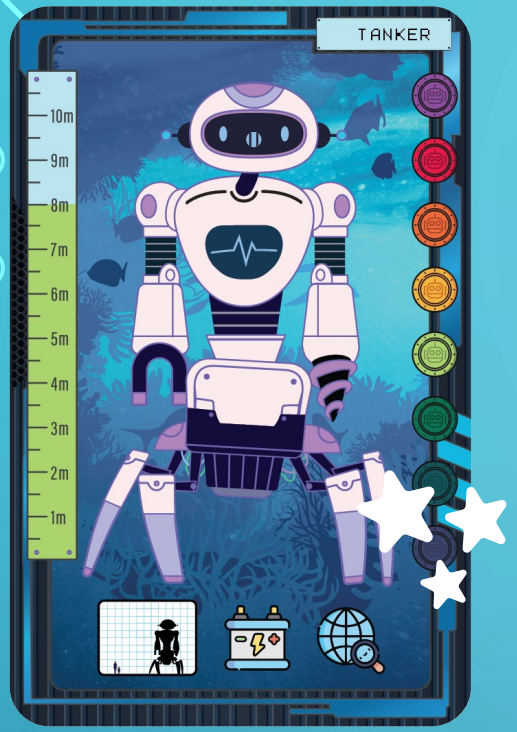
CLASS

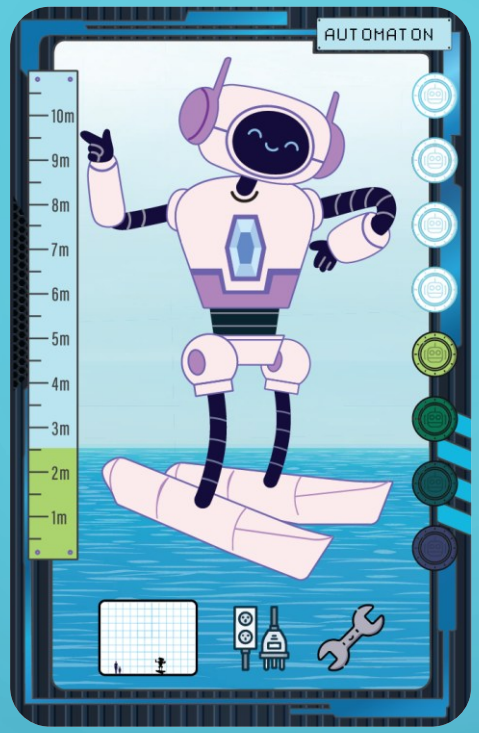
COST

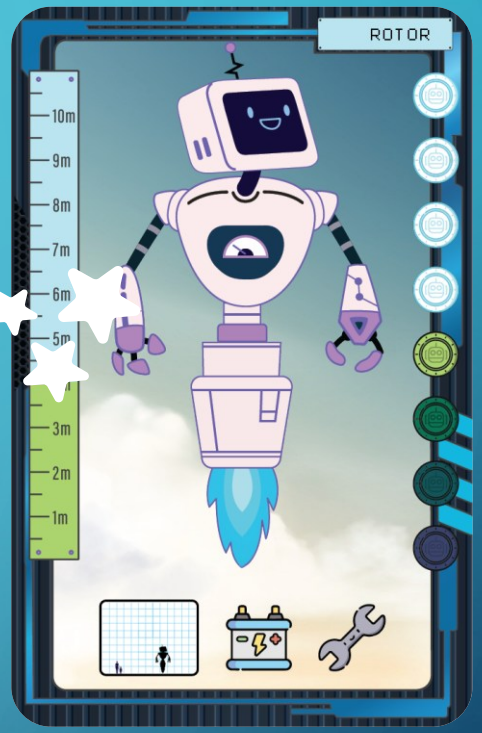
HEIGHT

FUNCTION

POWER TYPE







ACTIVITIES

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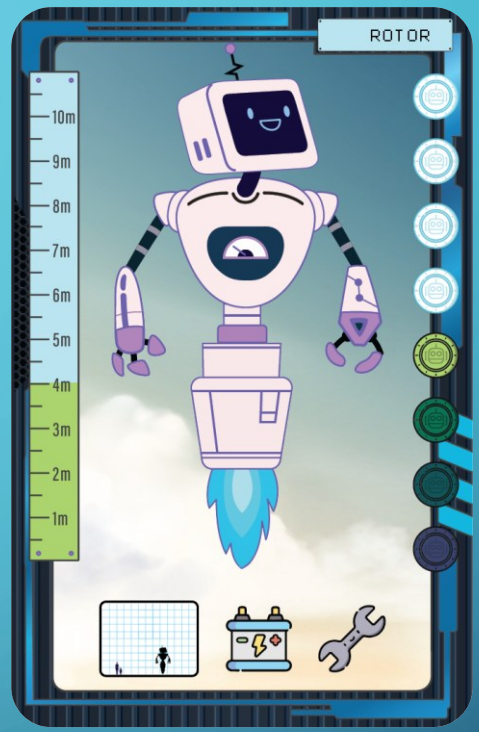
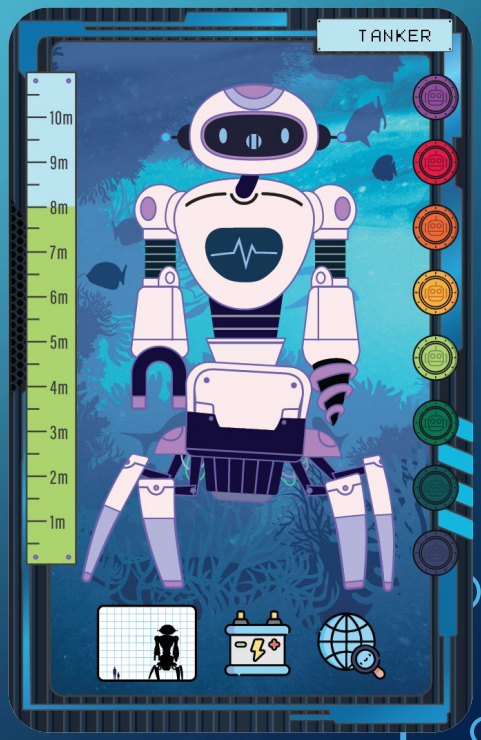
LET'S HAVE A LOOK AT THE CARDS!

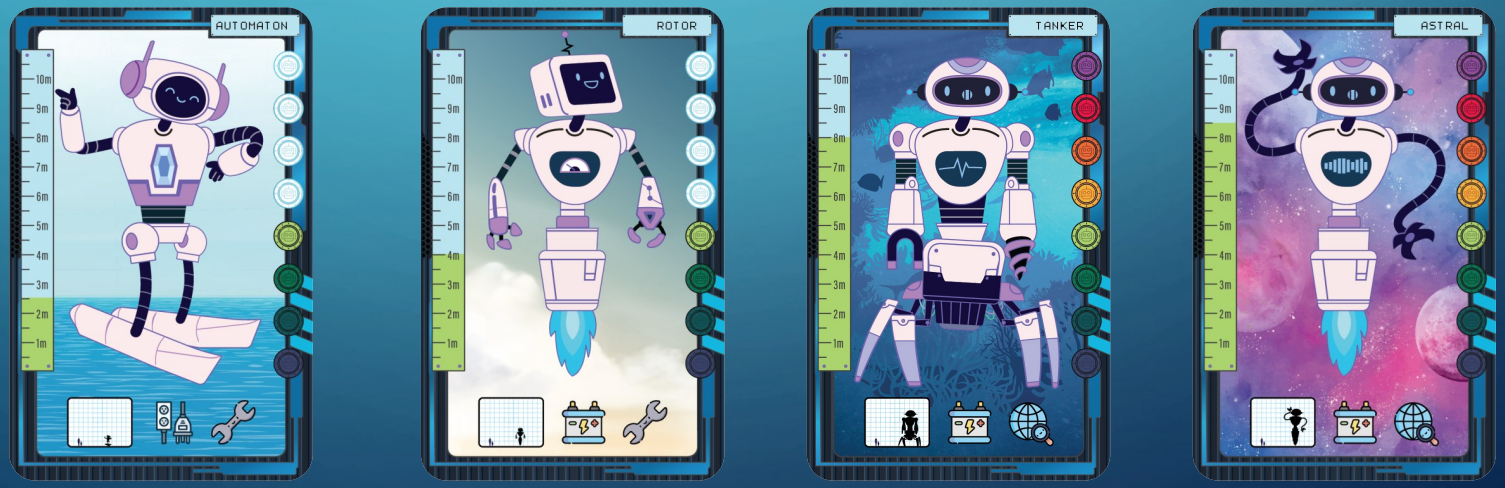
- Have a look at the cards!
- What do you notice about them?
- Do you have any questions or wonder about anything about the cards or patterns in the cards?





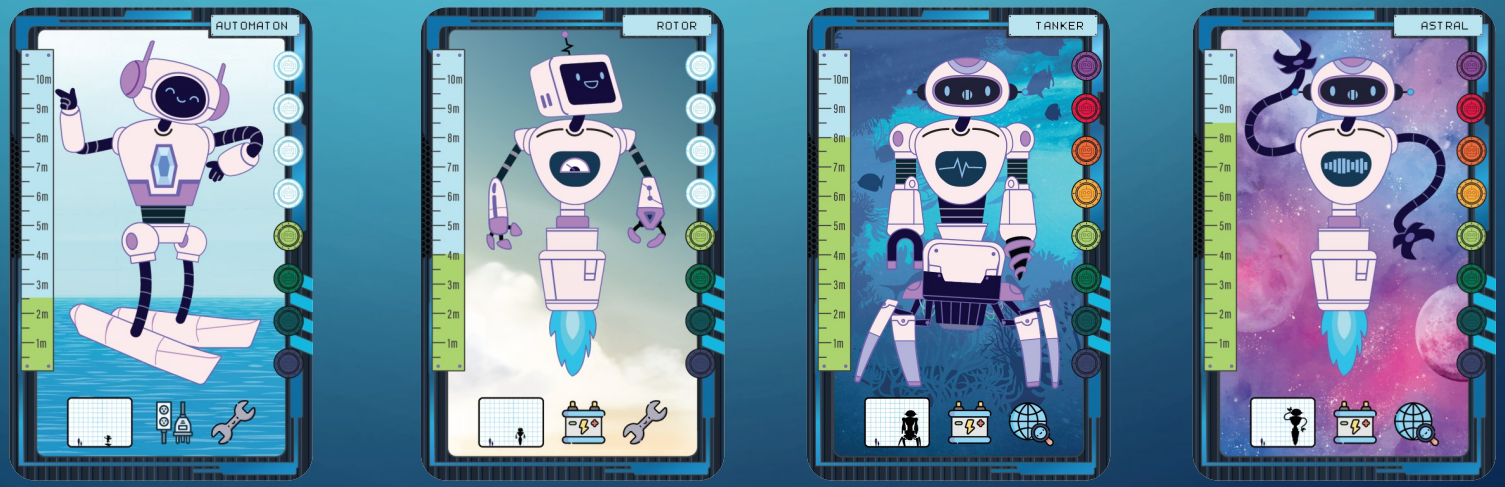
ORDERING

- Let's start by ordering some cards by height!
- In your groups, order the cards by size, which is shown on the left hand side shown by the green scale.



ORDERING

- Do you notice any patterns in the cards you've ordered?
- Does this make you wonder anything?

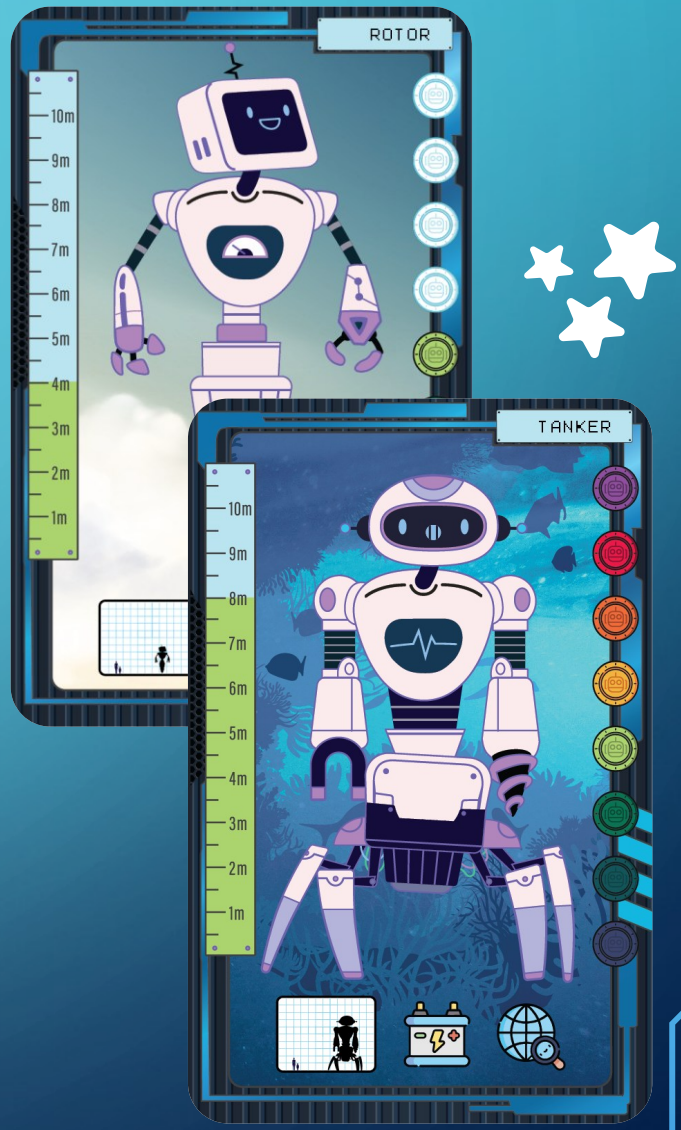


GROUPING

- Now let's group robots together based on some of their attributes.
- First, let's group by class (the background on the cards).
- Organise your cards in these groups by stacking them on top of each other.

GROUPING

- Which group has the most cards in it?
- Which group has the least?
- Do you notice any patterns in the groups?

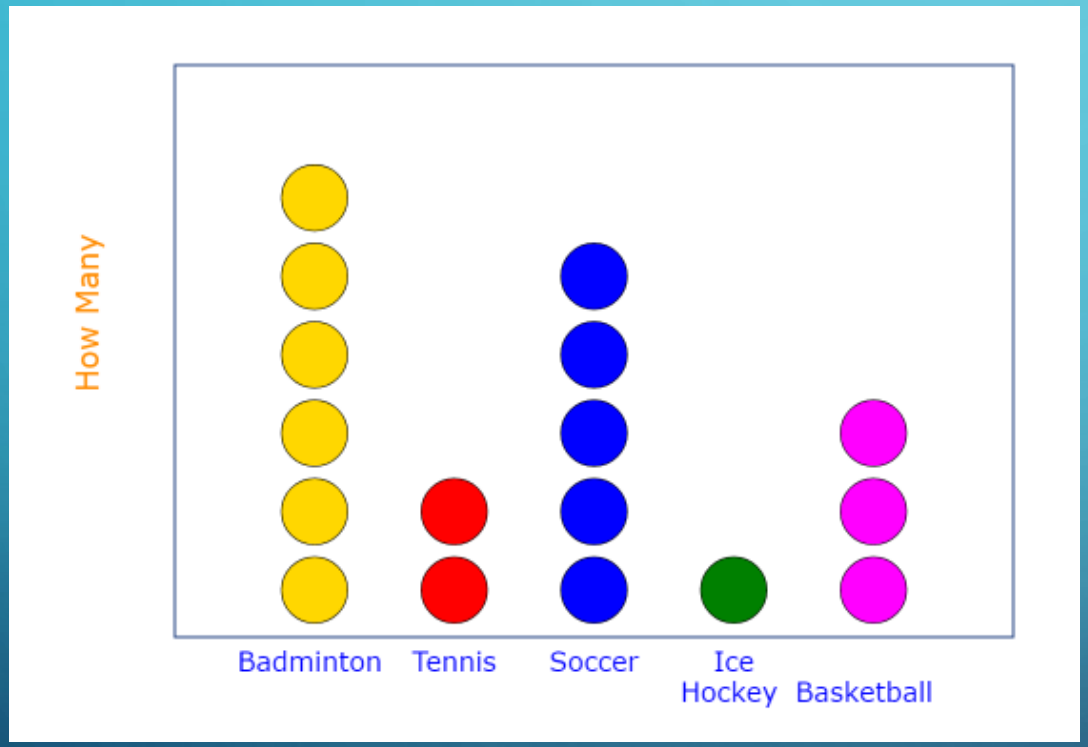


GROUPING

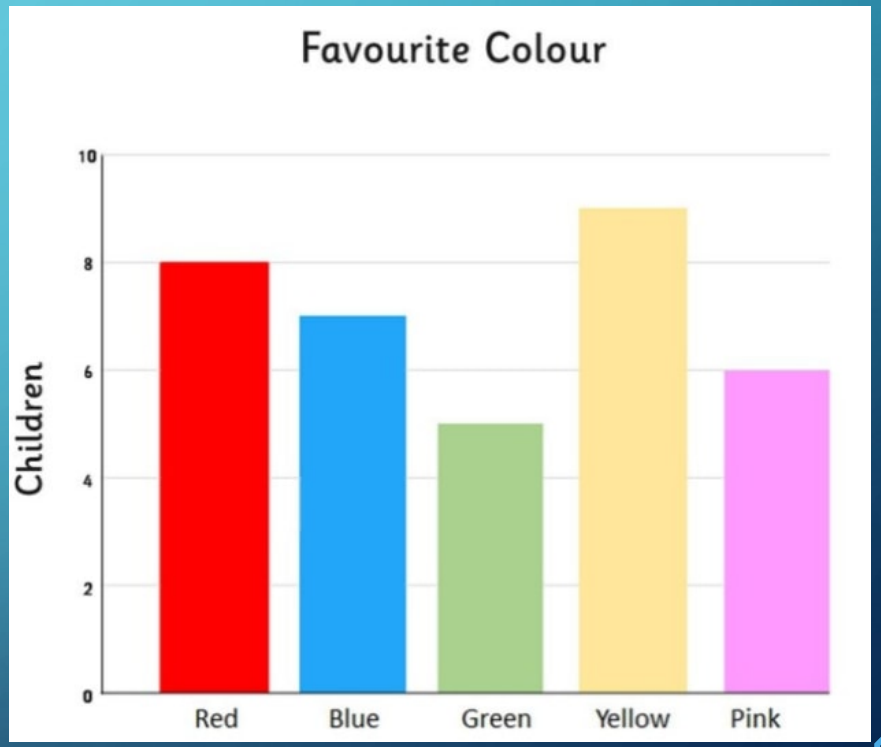
- Let's do the same thing, but this time for cost!
- What do you spot?

BAR CHARTS AND DOT PLOTS

- What's the point of creating these charts?



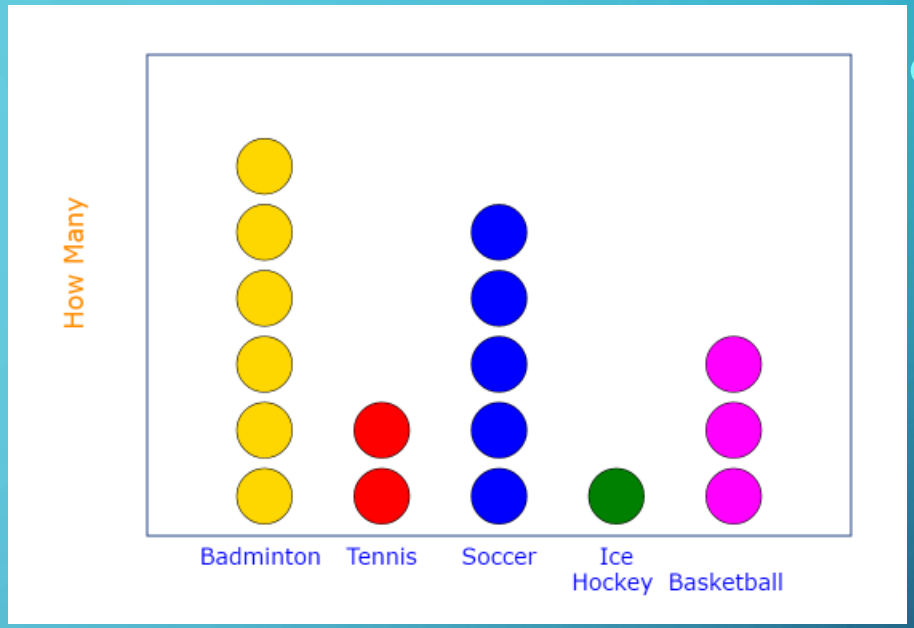
A DOT PLOT

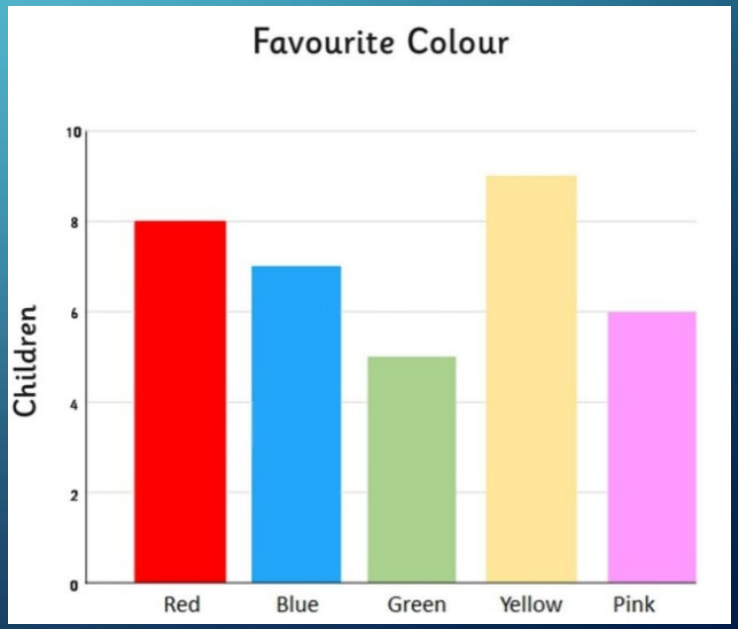


A BAR CHART

BAR CHARTS AND DOT PLOTS

- What you've created is approximately a bar chart (or a dot plot)!
- How has laying out the cards like this helped you understand the robots more?



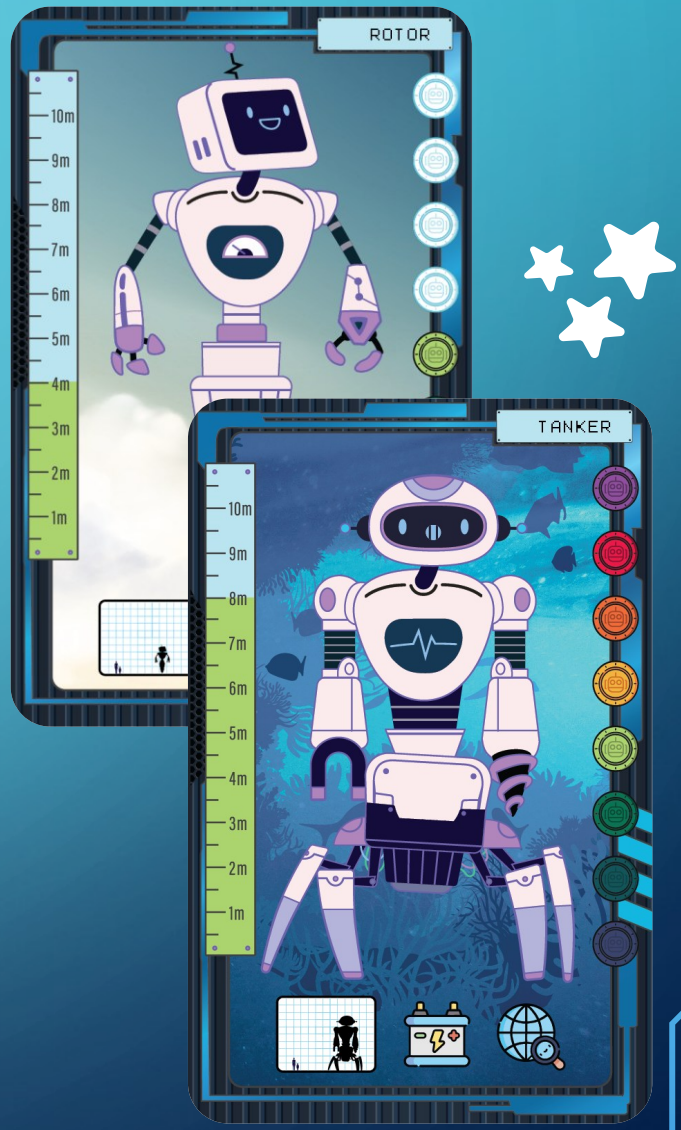


SCATTER PLOTS

- How can we visualise whether 2 variables are related?
- Can we make a scatter plot of the cost and the size using the robot cards?

AVERAGES

- In this activity, you will work out the average height of robots of different classes.
- Plan your investigation and carry this task out.
- What results did you get?
- How do your results compare with other groups?
- What is the largest and shortest class on average?
- How could your investigation be improved next time?



INVESTIGATION

- Do you wonder anything about the robots?
- How might different attributes relate to each other?
- Decide on a theory you have about the robot cards, and investigate it. Some examples of hypothesis you might have are:
  - Hypothesis: space robots tend to be more expensive.
  - Hypothesis: land robots are more likely to have the function of production than air robots.
  - Hypothesis: robots with more moving parts are move expensive.
- What did you discover?