

Eddy's Secret : Structure

1. Online game : room contents

The robot needs a basic structure that gives it its shape and strength. This can be a skeleton, for example, for humanoid robots, or a chassis for wheeled or tracked robots. The right materials should be chosen according to the function of the robot: should it be light enough to fly, very strong, or resistant to humidity? Should it be able to float, be very manoeuvrable or be extremely precise in its movements?



Here are the different clickable elements, as well as the text displayed in the game:



Wood, plastic, metal. The choice of construction material is very important to ensure that the robot is the right weight and strength.



This robot looks familiar! However it does not look very good without its head!



To mimic the complexity of the human body's muscles, a robotic arm needs a large number of motors.



There are a great many types of robots. The general shape of the robot depends on its use. Does it need to walk like a spider, drive like a car, fly like an insect, or be impact resistant?



The chassis for this drone is very light. Even with its rotor blades and small motors, it is still light enough to fly!



Some robots can go in water. They have a chassis that looks like a boat hull.



Humanoid robots have a skeleton that is similar to that of humans. They have a head, arms, legs, etc. and are very complex robots!

The main puzzle starts when you click on the room symbol and it is a chassis with linked metal tracks which the road wheels run along.



In this puzzle, find the right parts of each robot and assemble them so that the robot matches its silhouette. The code to find is 1618.

Change the robot assembly to match the silhouette.

← →

← →

← →

SUBMIT

2. Additional puzzles on paper

Activity 1: The maze

Difficulty: ★★☆☆

Find your way through this maze by finding the correct lock. At each intersection, answer the question to choose the correct path! Are you ready? Yes? Then enter the maze at the arrow. Good luck!

Objectives: Associate the link between a robot and its use
Identify the questions to ask when designing a robot
Pracise the logical notion of "if... then"

Activity 2: Robotic jigsaw

Difficulty: ★★★☆☆

You are a robotics engineer and you have to build 4 robots that have a specific function. Using the descriptions and the silhouettes, find and assemble the correct elements: sensors, actuators, structure and power source in order to find the secret code.

Objectives: Find the link between the structure and function of a robot
Recognise the elements necessary for a robot to function

Material: Scissors

Activity 3: Chimera Game - GAME (no code to find)

Difficulty: ★★☆☆

In this game of observation and strategy, each player has to reconstruct the robots from their silhouette through collecting the correct pieces that make them up. Pay attention to the small details and avoid the traps set by the other players!

Objective: Locate the parts of a robot from its silhouette

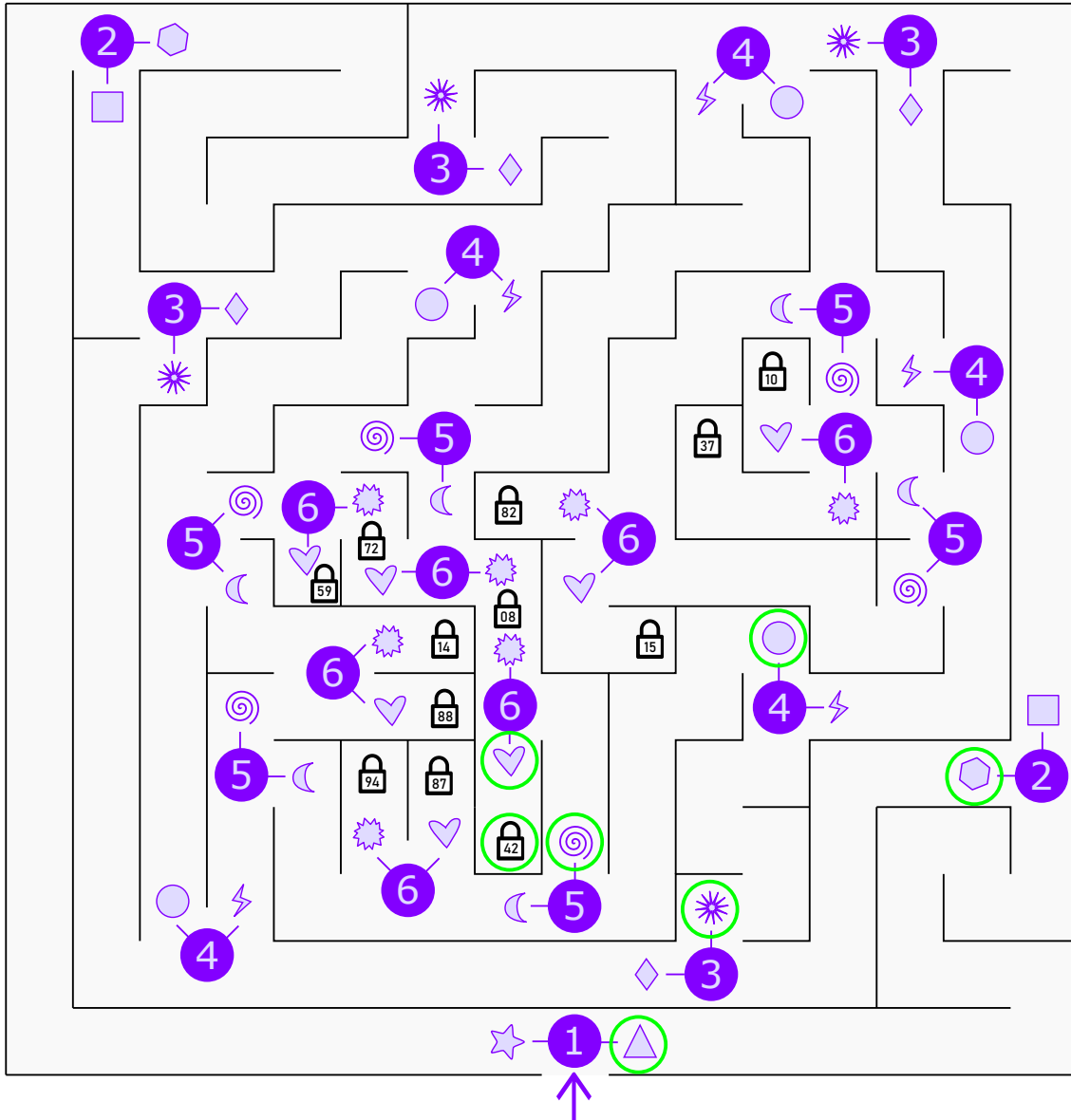
Material: Scissors

3. Answer to the additional puzzles



The maze

Find your way through this maze by finding the correct lock. At each intersection, answer the question to choose the correct path!



Are you ready? Yes? Then enter the maze at the arrow. Good luck!



1 Is it more important for a drone to be :

 light or large  ?



2 Is it more important for an autonomous car to be :

 fast or  safe ?



3 Is it more important for a lawnmower robot to be :

 moisture resistant or heavy  ?



4 Is it more important for a Mars exploration robot to be :

 energy self-sufficient or bendy  ?

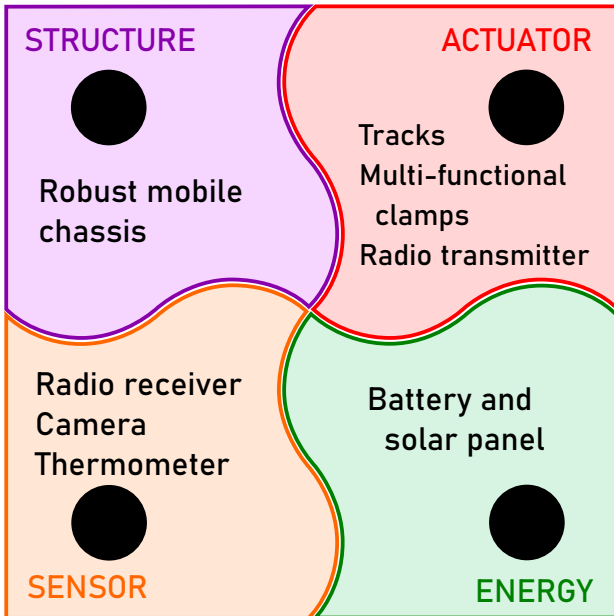
5 Is it more important for a surgical robot to be :

 portable or  reliable ?

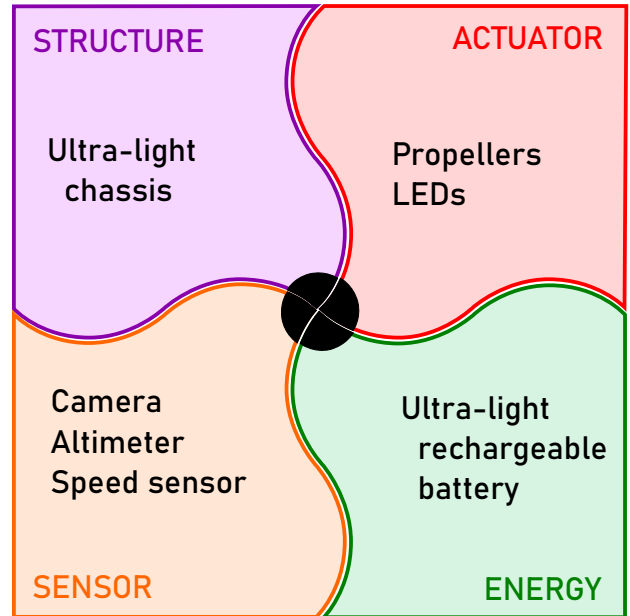
6 Is it more important for an industrial robot arm to be :

 accurate or all-terrain  ?

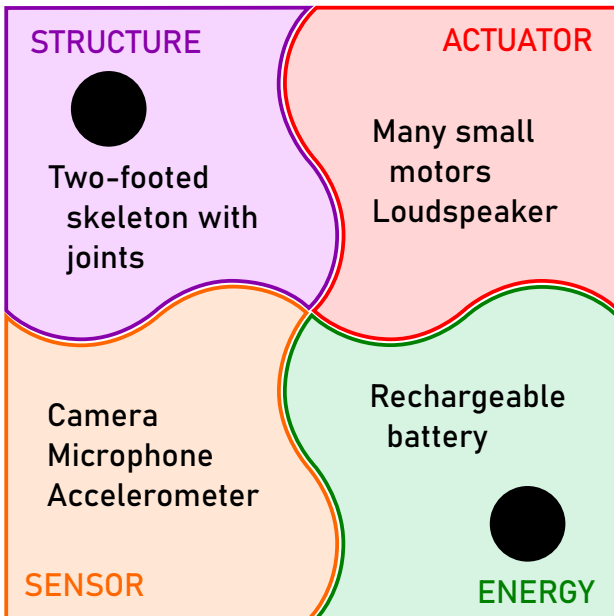
A Explorer robot



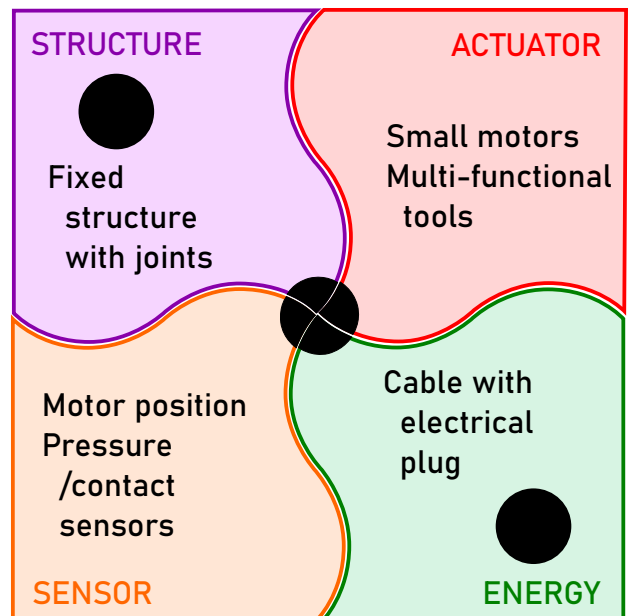
B Bio-inspired robot



C Humanoid robot



D Robotic arm



Secret code:

<u>4</u>	<u>1</u>	<u>2</u>	<u>3</u>
A	B	C	D

Chimera Game

In this game of observation and strategy, each player must reconstruct the robots from their silhouette, by collecting the correct pieces that make them up. You have to pay attention to the small details and avoid the traps set by the other players!

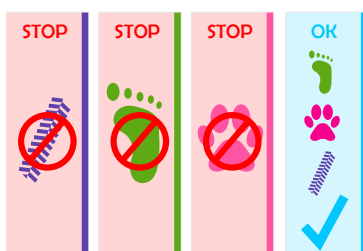
1. Each player takes a large card of each colour, and places a robot silhouette of the corresponding colour on top. The aim of the game is to find the three pieces corresponding to each silhouette and rebuild the robots.
2. A pile is made up of all the "robot" cards (striped back). Each player starts the game with 3 cards in their hand.
3. On his turn, each player draws two cards from the pile, then can choose between: drawing a card at random from another player's hand, or taking the card on top of the discard pile.
Then he must lay down cards until he has exactly 3 in his hand. He can:
 - build a piece of his robot by placing the corresponding card in front of him
 - play an action card (to another player or to himself)
 - discard one or more cards by placing them face up in the discard pile.
4. The first player to finish all his robots wins.

Variation

The game can be simplified by removing the rover robots (purple) from the game, along with all the corresponding cards and silhouettes. In this case, the action cards "lost lab key", "new key" and "change of plan" are also removed.

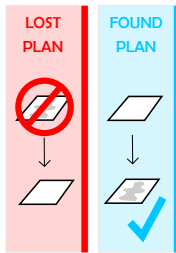
Action cards:

STOP and OK:



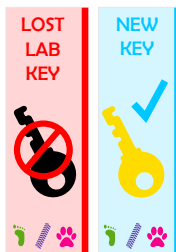
When a STOP card is placed to the left of the robot of the corresponding colour, the construction of this robot is stopped (the player cannot place any more cards) until he places an OK card on top.

LOST PLAN and FOUND PLAN



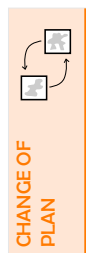
When a LOST PLAN card is placed to the left of a robot, the construction of this robot is stopped (the player cannot place any more cards) and the silhouette card is turned face down. When a FOUND PLAN card is placed on top, the silhouette is face up and construction can resume.

LOST LAB KEY and NEW KEY



When a LOST LAB KEY card is placed to the left of a robot, the construction of all the robots of this player is stopped (the player cannot place any more cards). When a NEW KEY card is placed on top, construction can resume.

CHANGE OF PLAN



When a player plays a CHANGE OF PLAN card, he may exchange the silhouette of one of his or another player's robots with an unused silhouette of the same color.

CHOOSE FROM THE DISCARD PILE

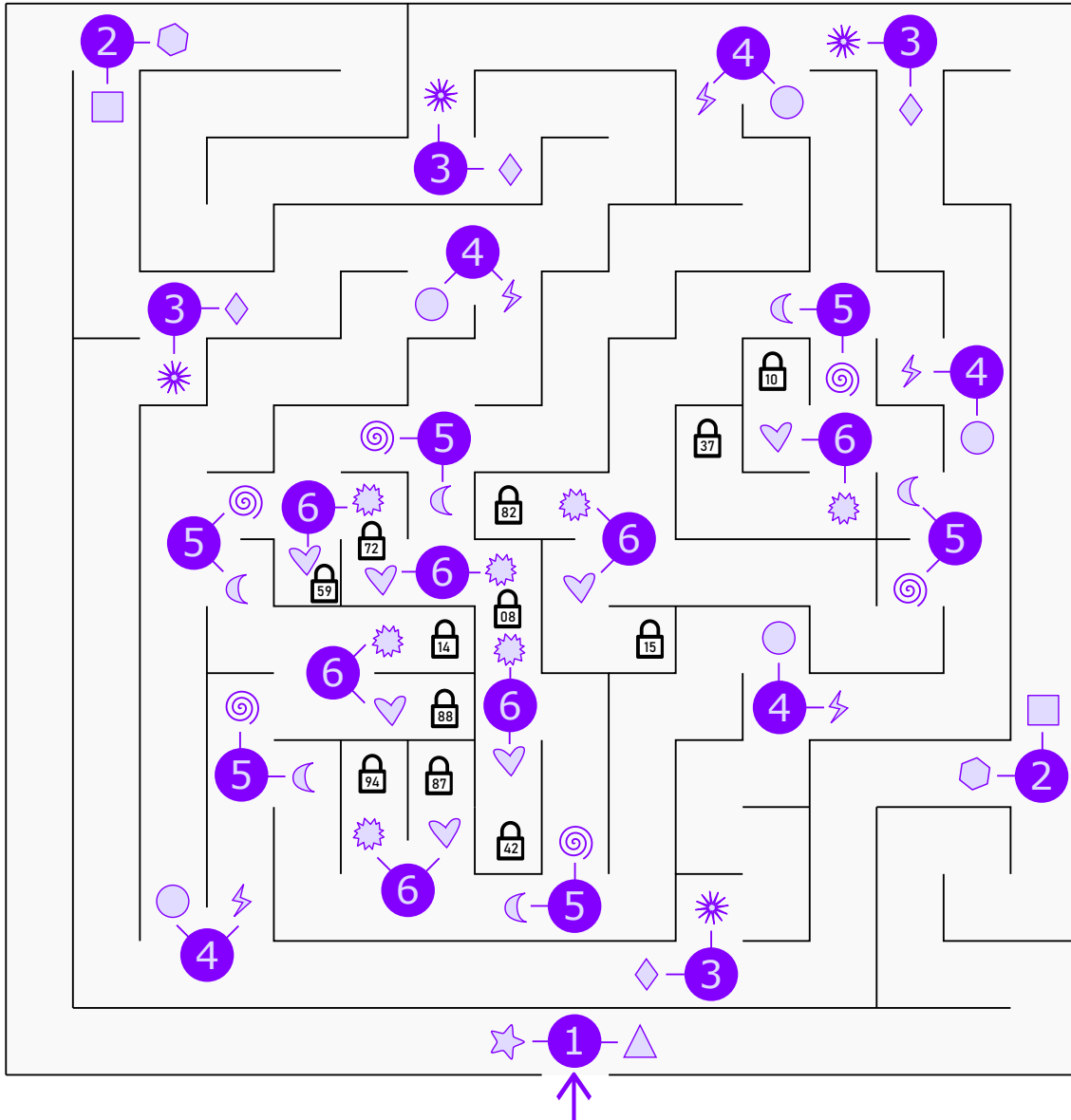


When a player plays a CHOOSE FROM THE DISCARD PILE card, they may look at all the cards in the discard pile and choose one to put into their hand.

The maze

Find your way through this maze by finding the correct lock. At each intersection, answer the question to choose the correct path!

Are you ready? Yes? Then enter the maze at the arrow. Good luck!

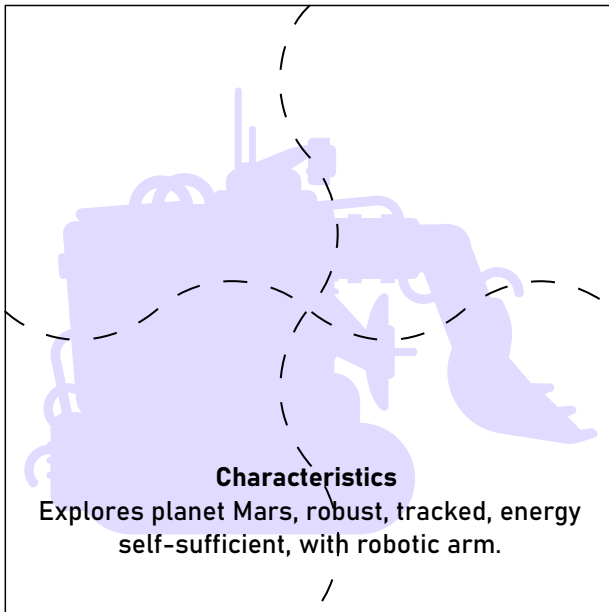


- | | |
|--|---|
| <p>1 Is it more important for a drone to be :</p> <p>△ light or large ☆ ?</p> | <p>4 Is it more important for a Mars exploration robot to be :</p> <p>● energy self-sufficient or bendy ⚡ ?</p> |
| <p>2 Is it more important for an autonomous car to be :</p> <p>□ fast or safe ⬡ ?</p> | <p>5 Is it more important for a surgical robot to be :</p> <p>☾ portable or reliable ⌀ ?</p> |
| <p>3 Is it more important for a lawnmower robot to be :</p> <p>☀ moisture resistant or heavy ⬠ ?</p> | <p>6 Is it more important for an industrial robot arm to be :</p> <p>♥ accurate or all-terrain ✨ ?</p> |

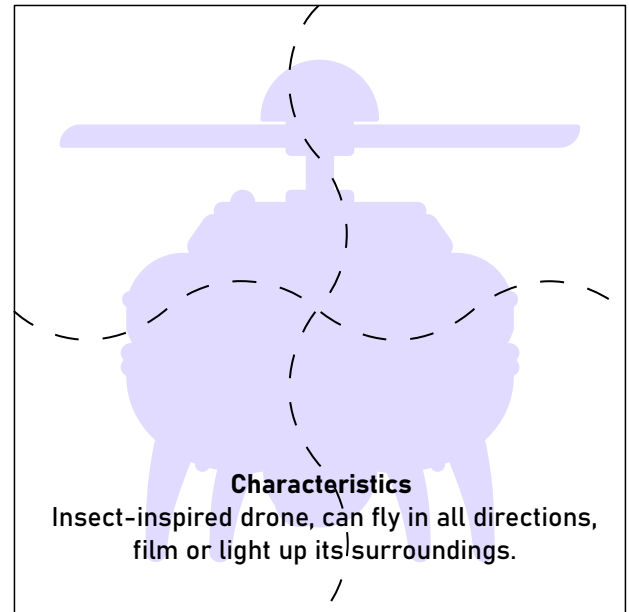
Robotic jigsaw

You are a robotics engineer and you have to build 4 robots that have a specific function. Using the descriptions and the silhouettes, find and assemble the correct elements: sensors, actuators, structure and power source in order to find the secret code.

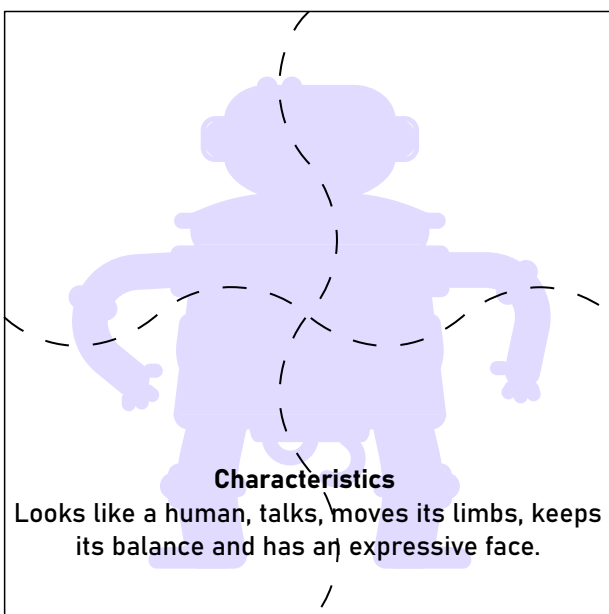
A Explorer robot



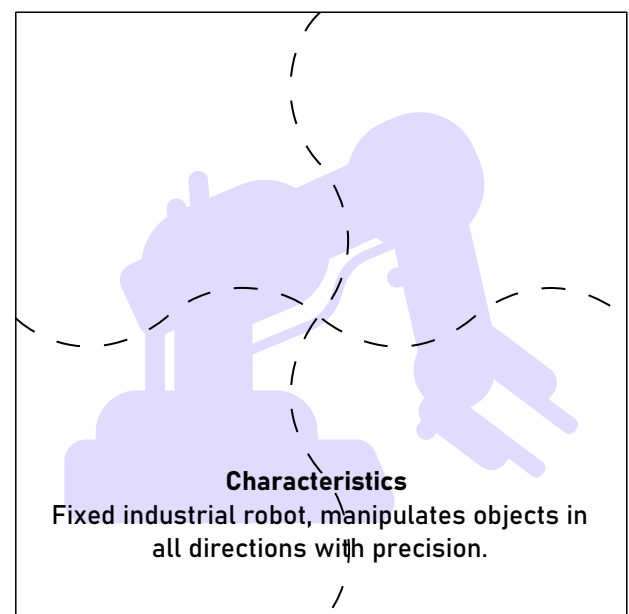
B Bio-inspired robot



C Humanoid robot



D Robotic arm




Secret code:

A B C D

Mechanical workshop - Activity 2


✂

STRUCTURE




Robust mobile chassis

STRUCTURE



Fixed structure with joints

STRUCTURE



Two-footed skeleton with joints

STRUCTURE

Ultra-light chassis

ACTUATOR

Many small motors
Loudspeaker


ACTUATOR

Small motors
Multi-functional tools

ACTUATOR


Propellers
LEDs

ACTUATOR




Tracks
Multi-functional clamps
Radio transmitter

Radio receiver
Camera
Thermometer




SENSOR

Camera
Altimeter
Speed sensor




SENSOR

Camera
Microphone
Accelerometer




SENSOR

Motor position
Pressure /contact sensors




SENSOR

Cable with electrical plug




ENERGY

Battery and solar panel




ENERGY

Ultra-light rechargeable battery



ENERGY

Rechargeable battery




ENERGY

**CHOOSE FROM
THE DISCARD PILE**



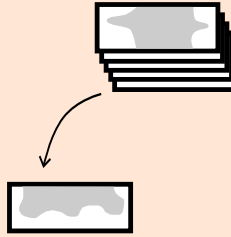
OK



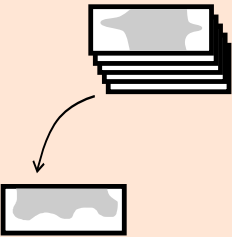
OK




**CHOOSE FROM
THE DISCARD PILE**




**CHOOSE FROM
THE DISCARD PILE**



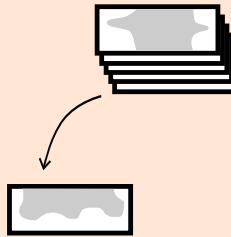
OK





OK



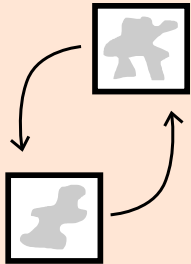
**CHOOSE FROM
THE DISCARD PILE**



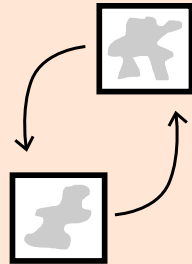
NEW
KEY



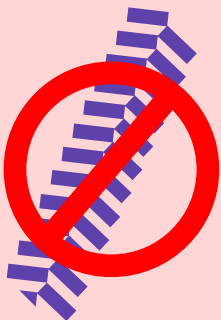
CHANGE OF
PLAN



CHANGE OF
PLAN




STOP



STOP




STOP



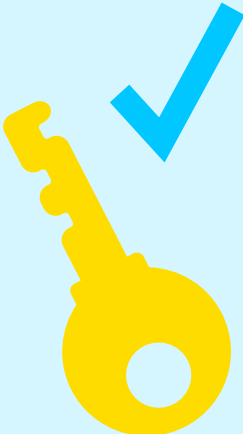
**LOST
LAB
KEY**



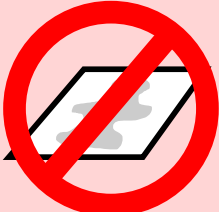
**NEW
KEY**




**NEW
KEY**




**LOST
PLAN**



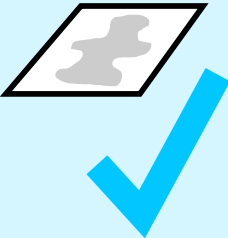
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**FOUND
PLAN**



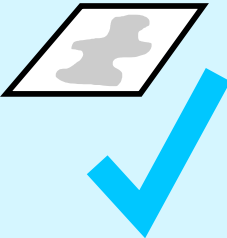
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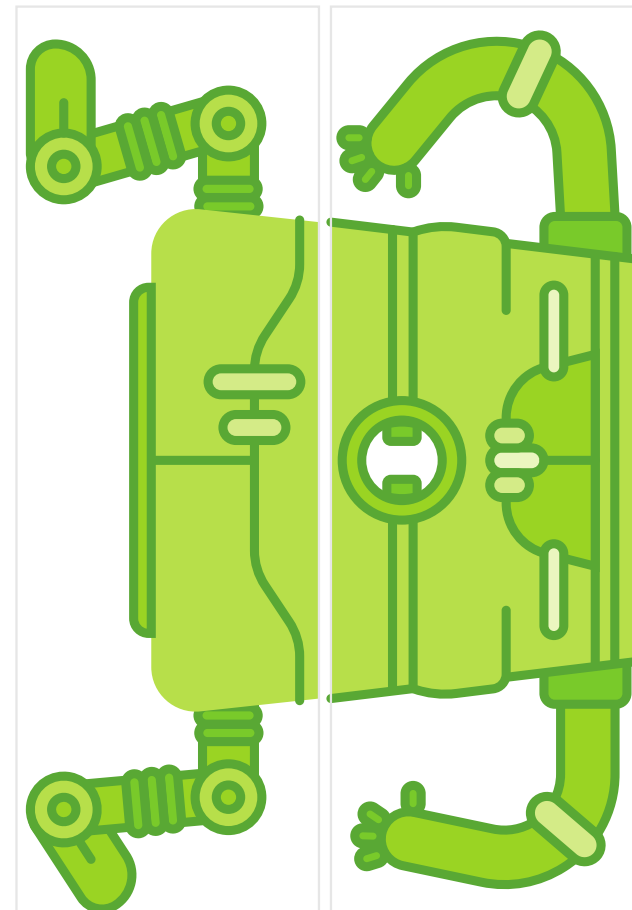
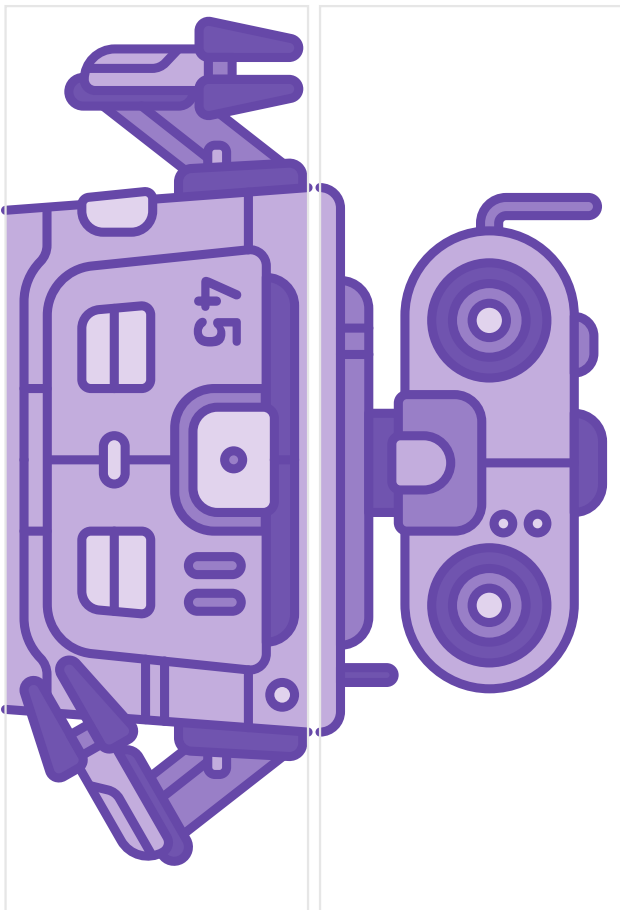
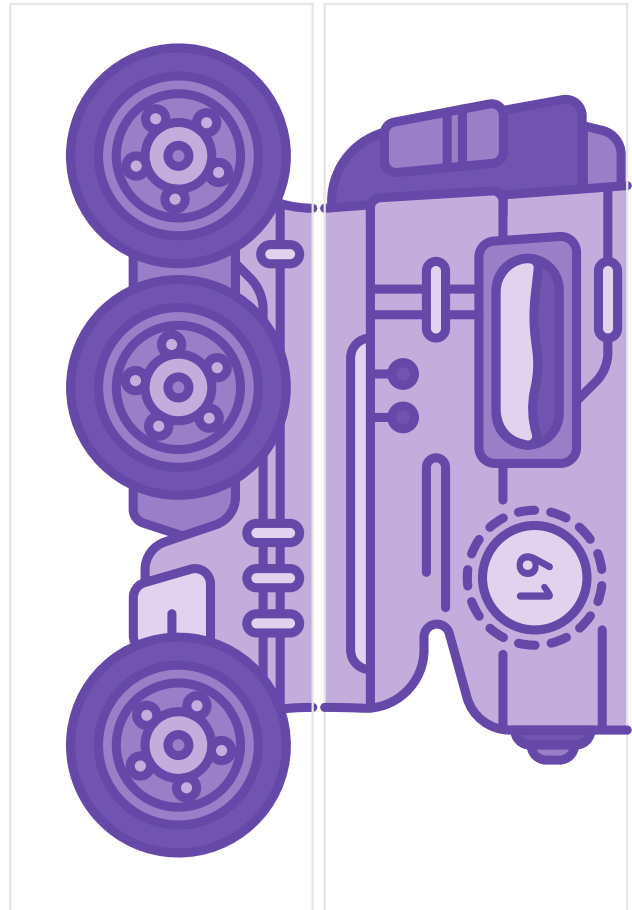
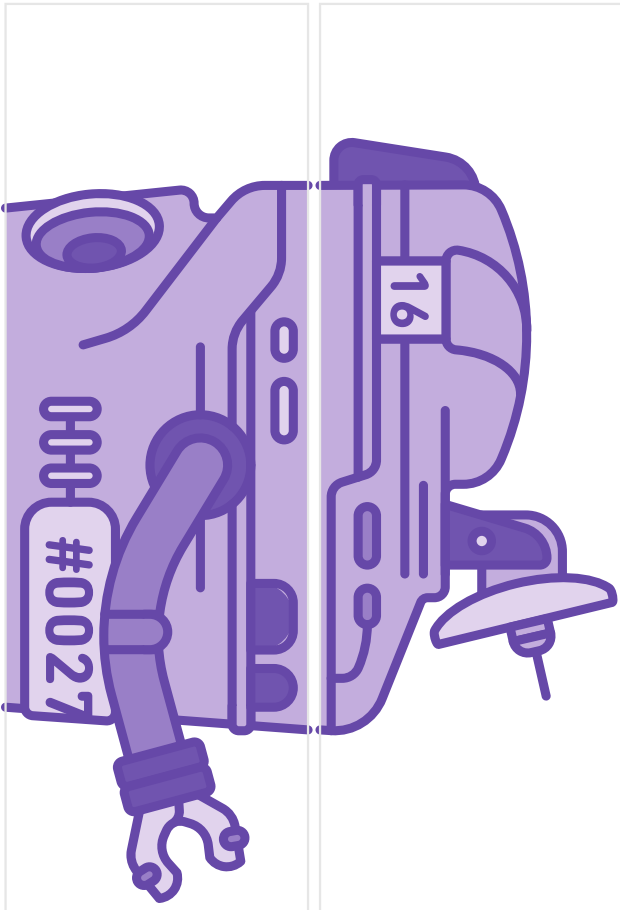


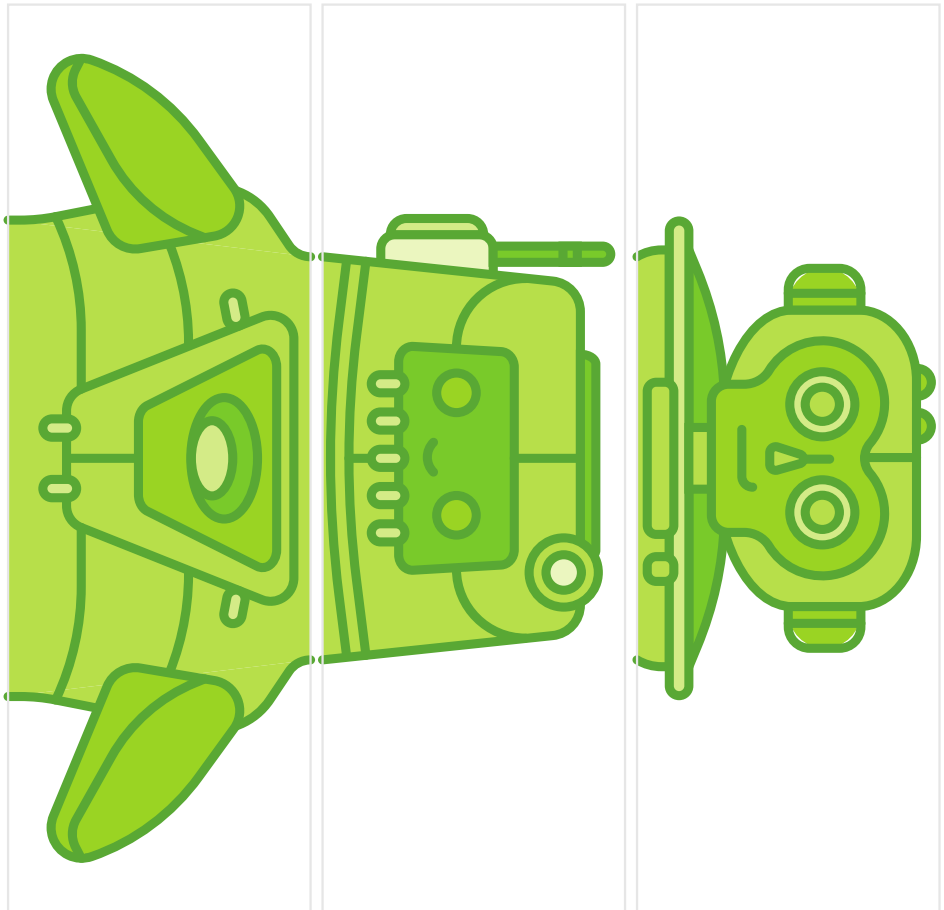
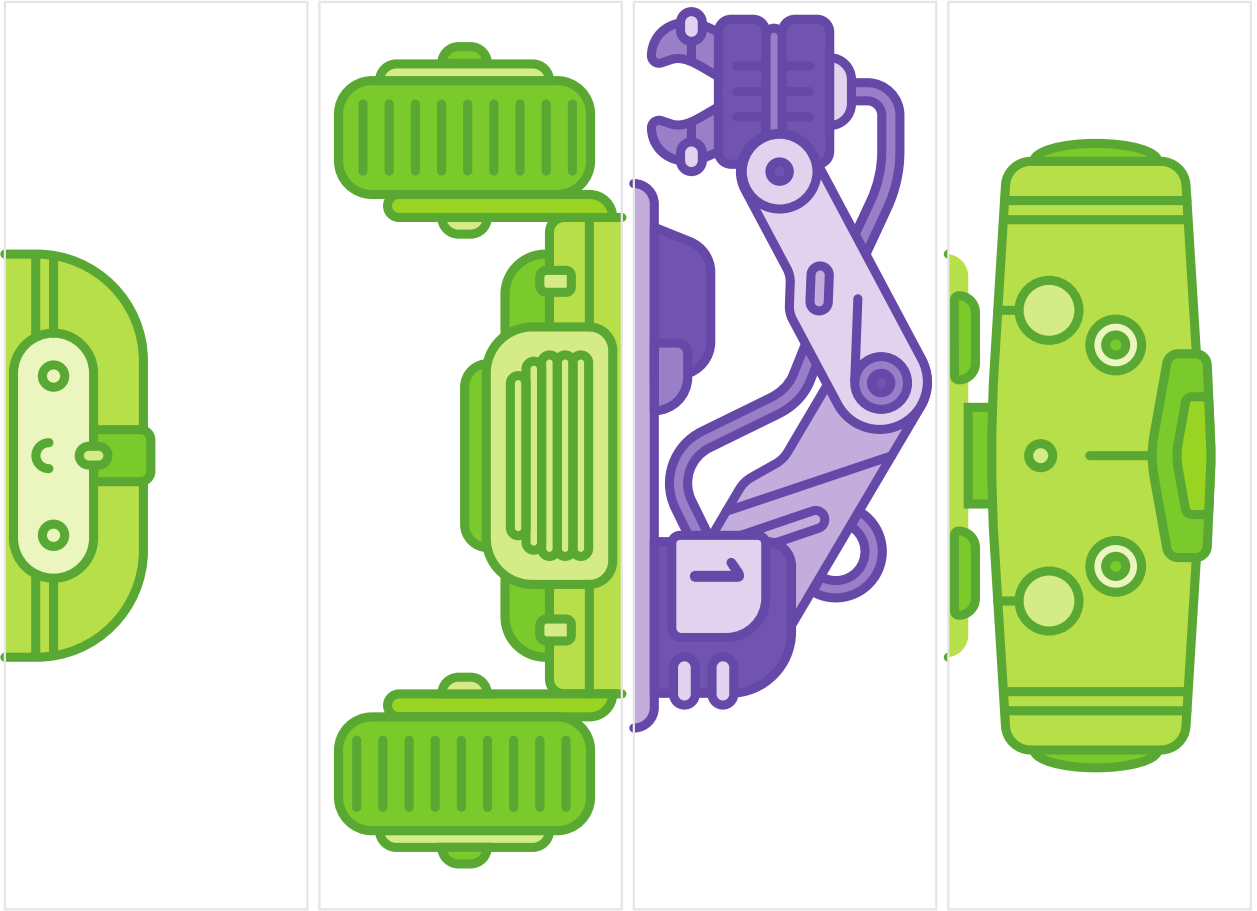
**FOUND
PLAN**

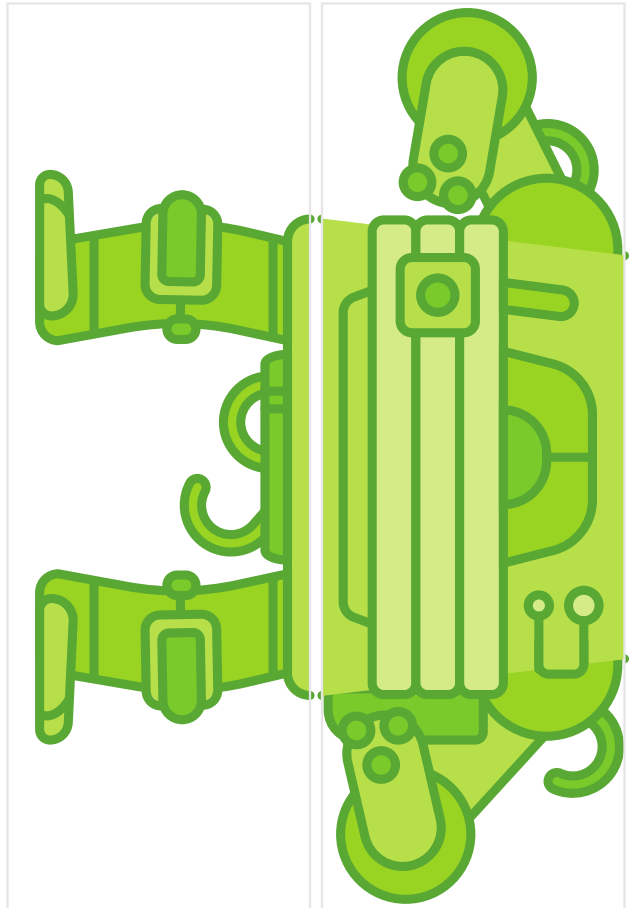
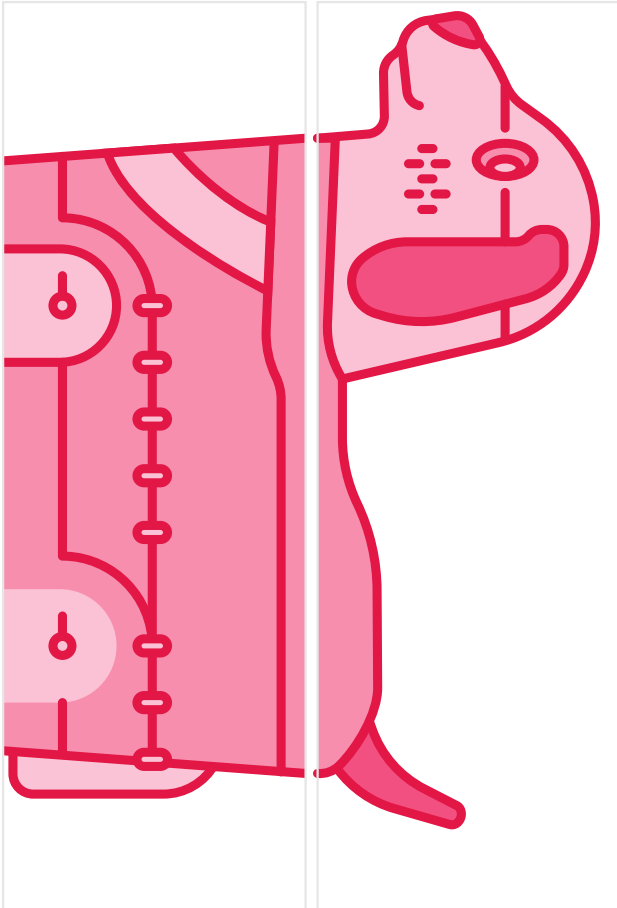
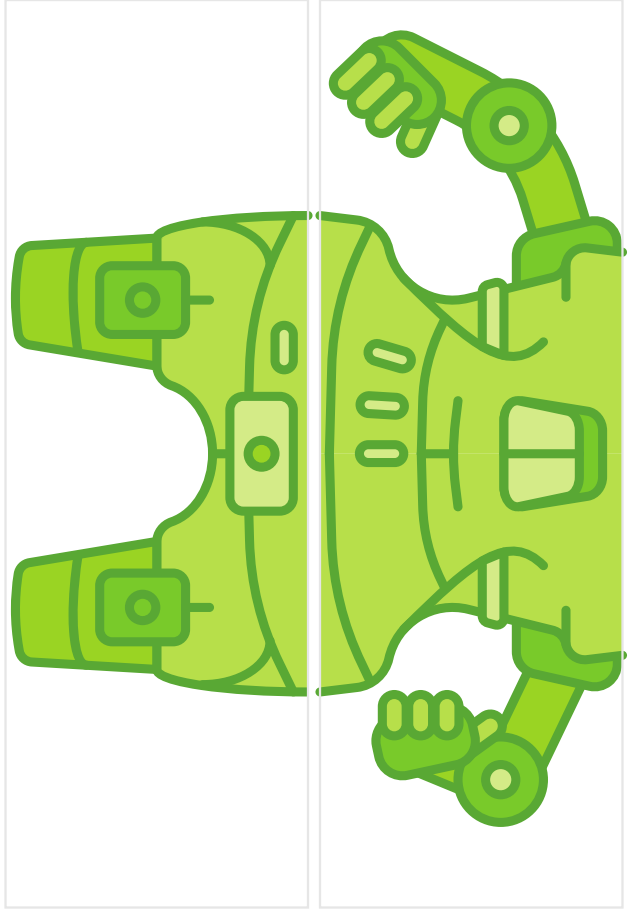
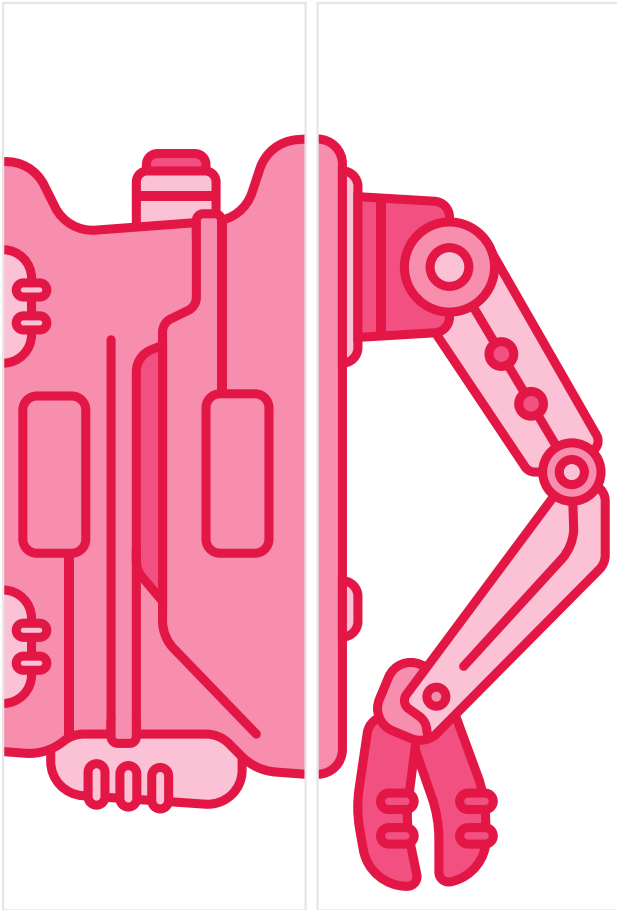


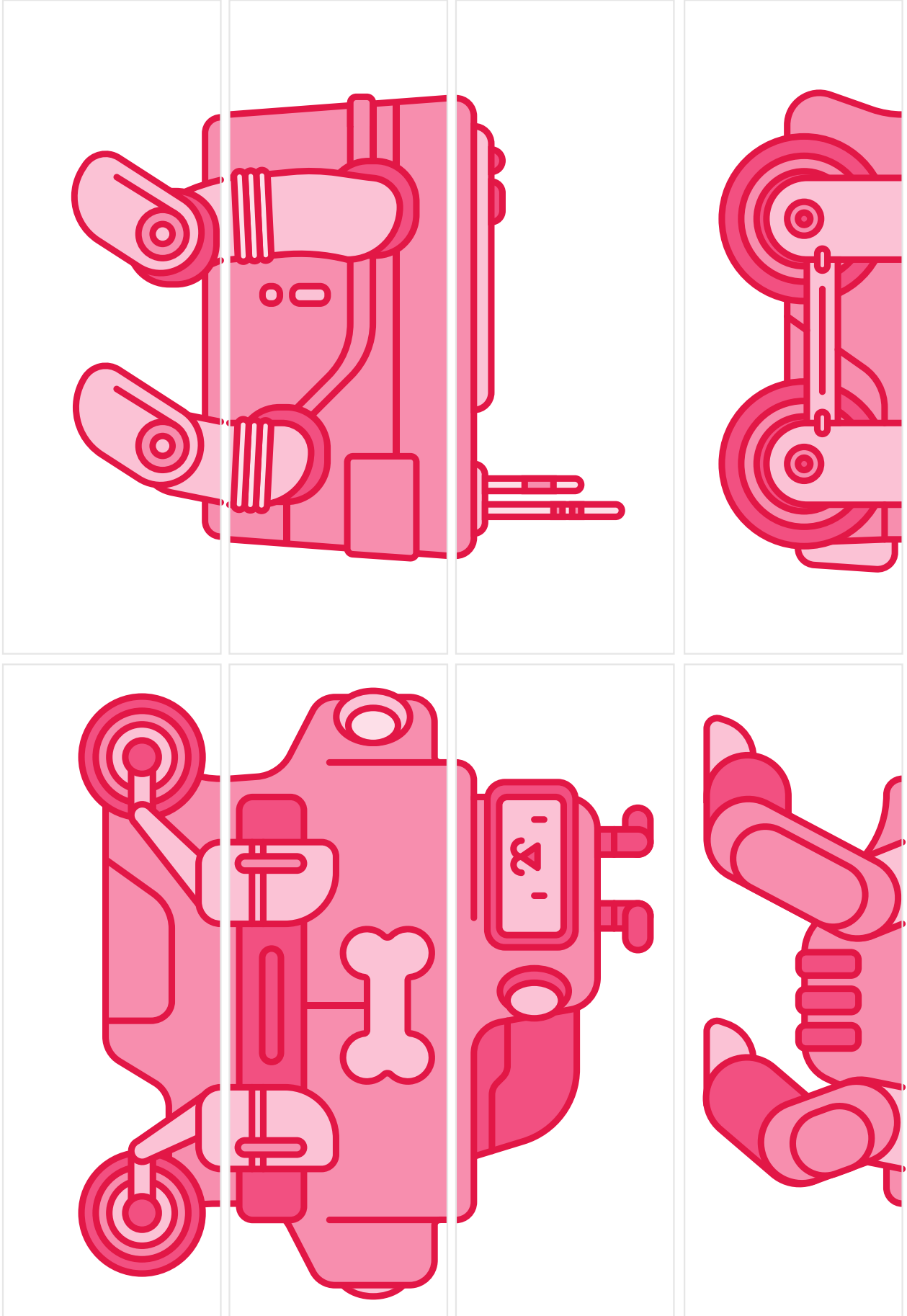
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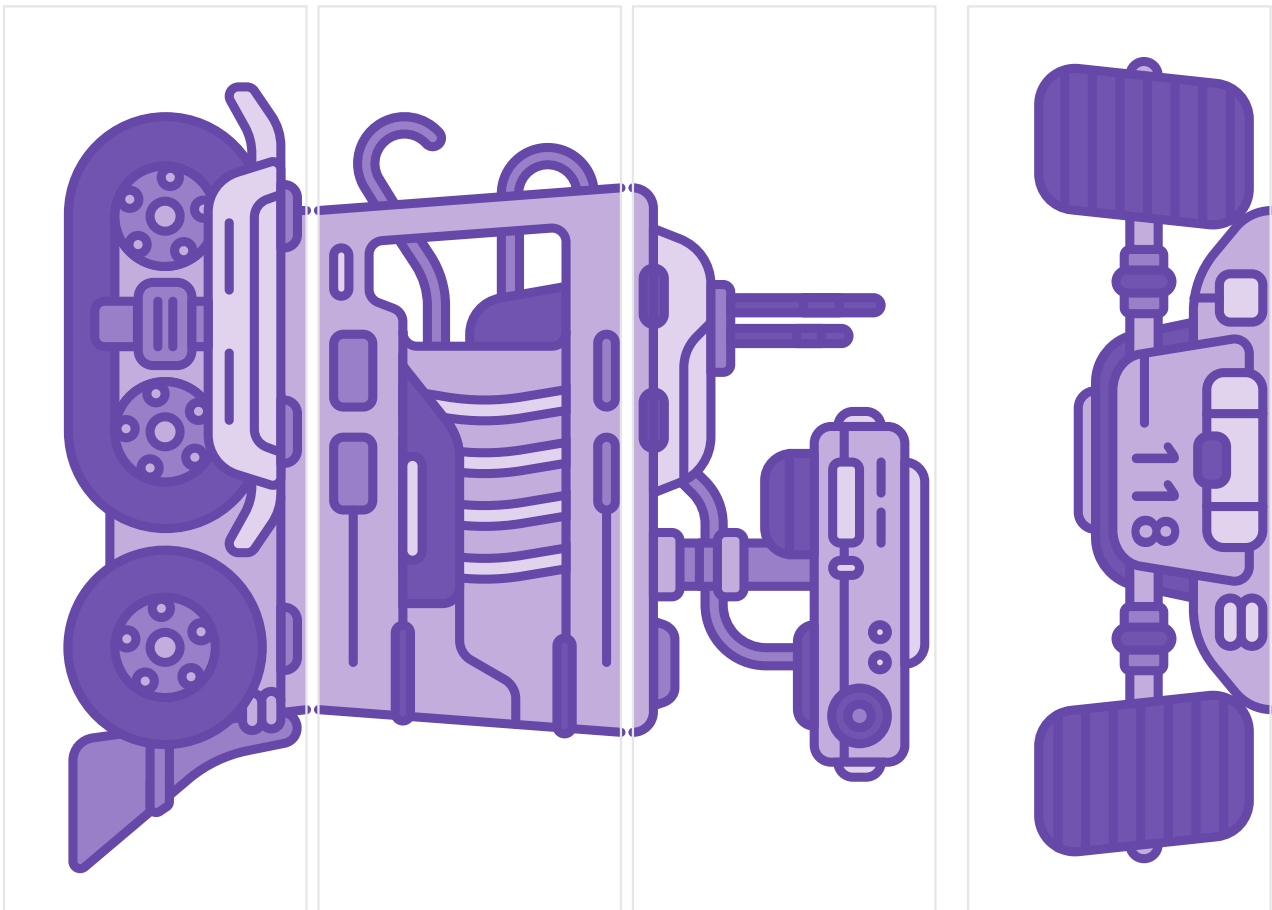
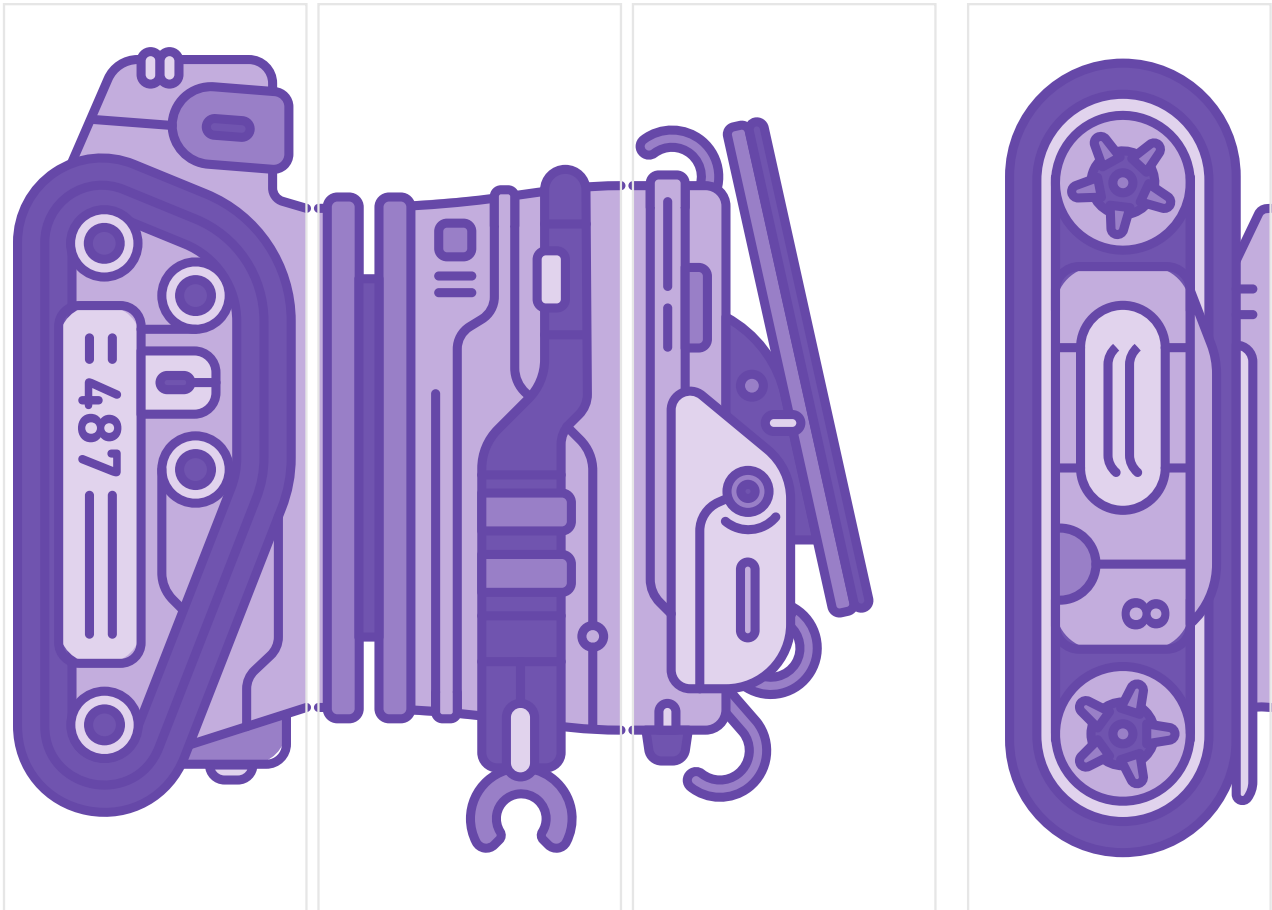


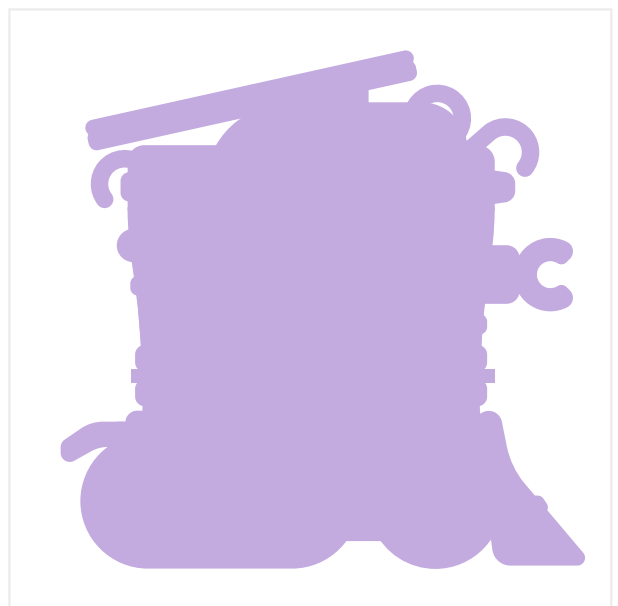
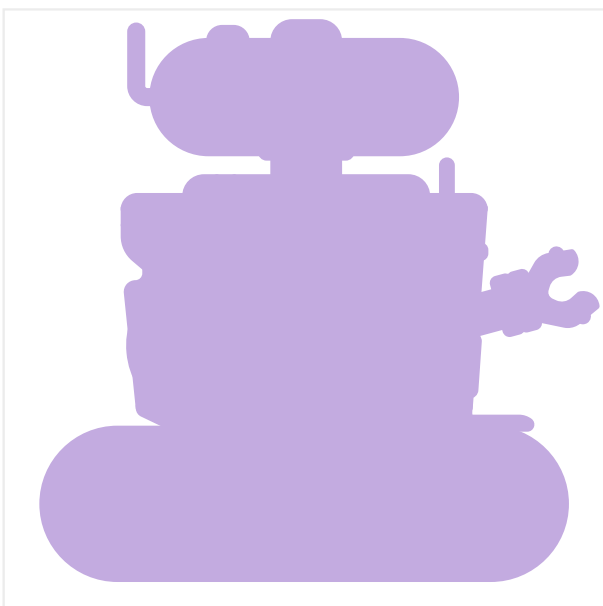
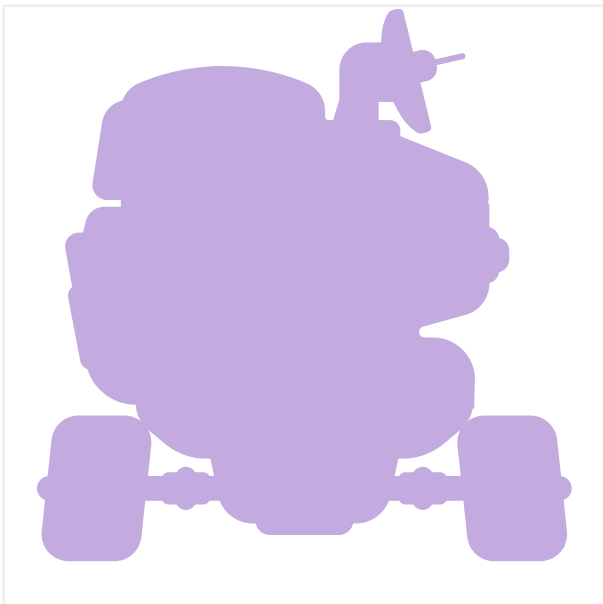
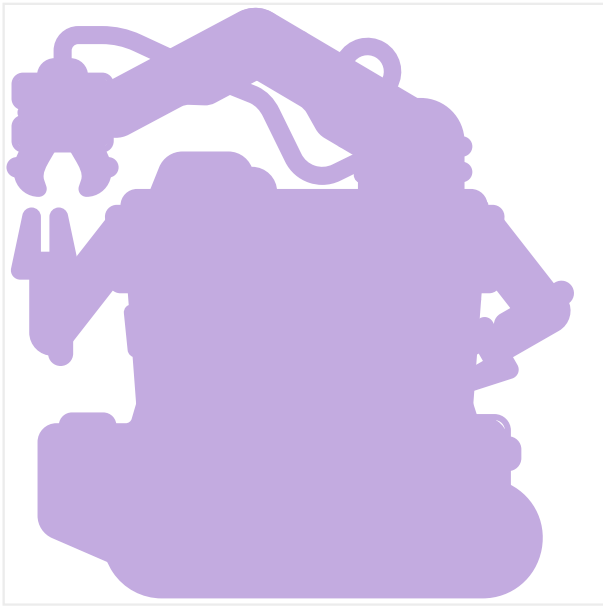




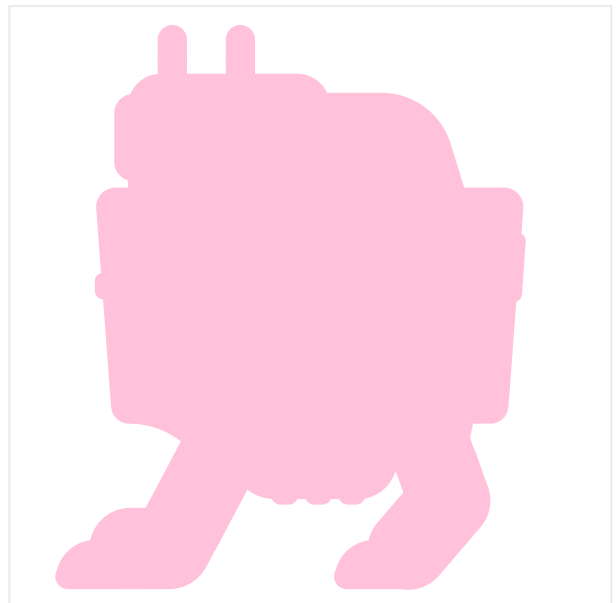
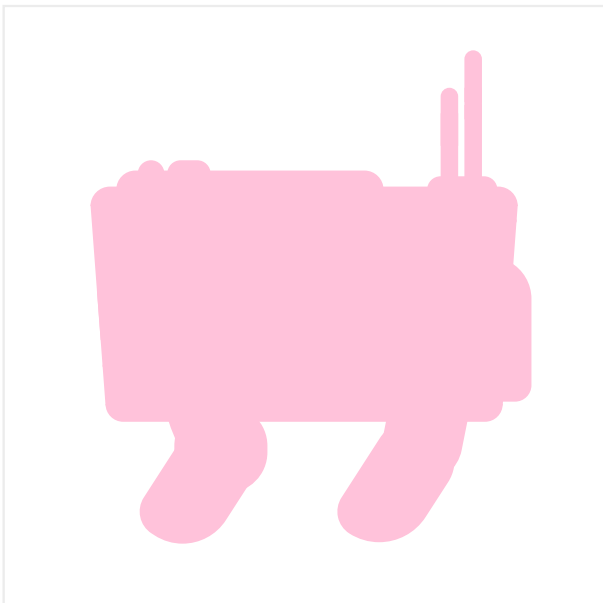
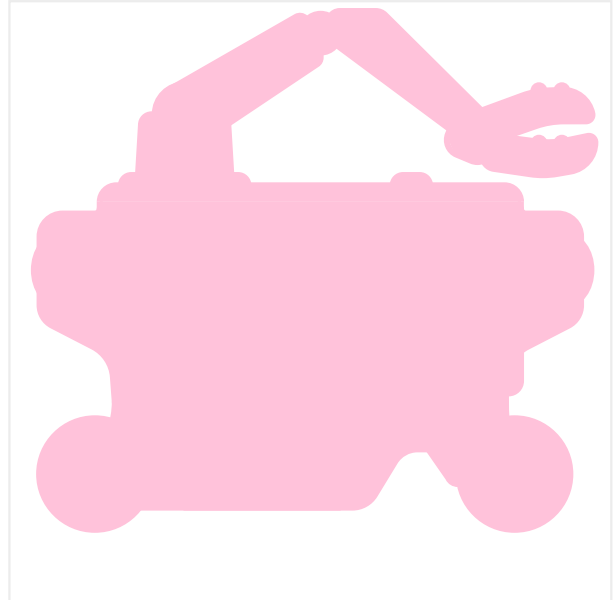
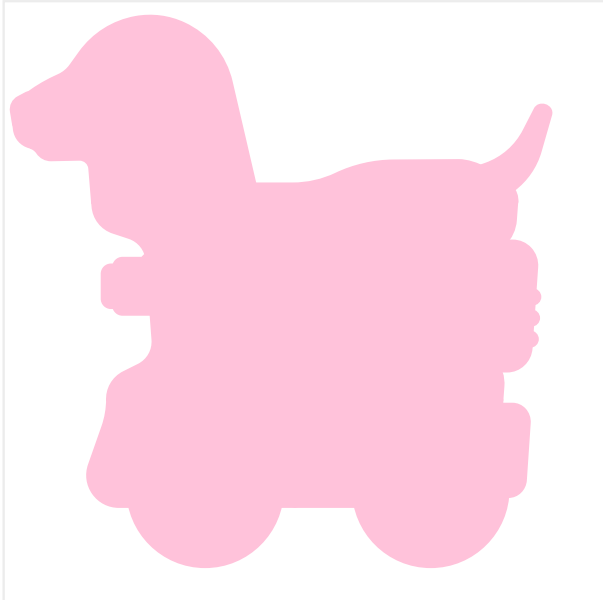


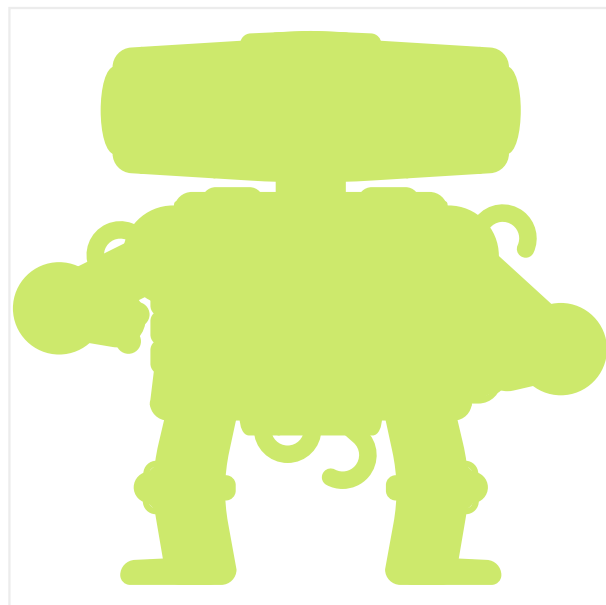
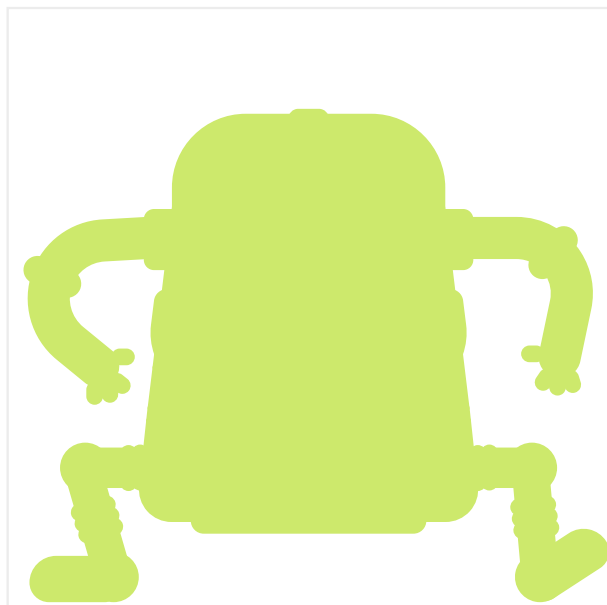
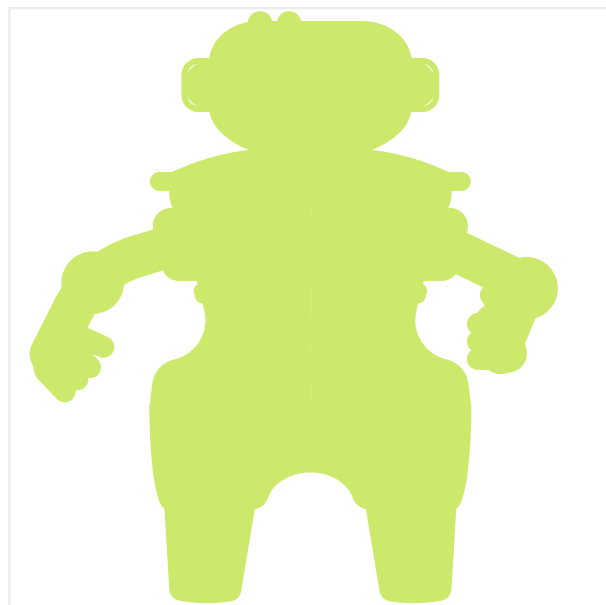
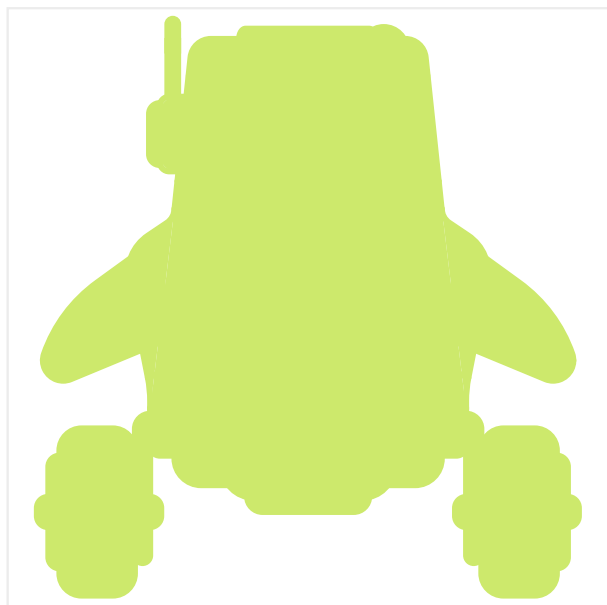




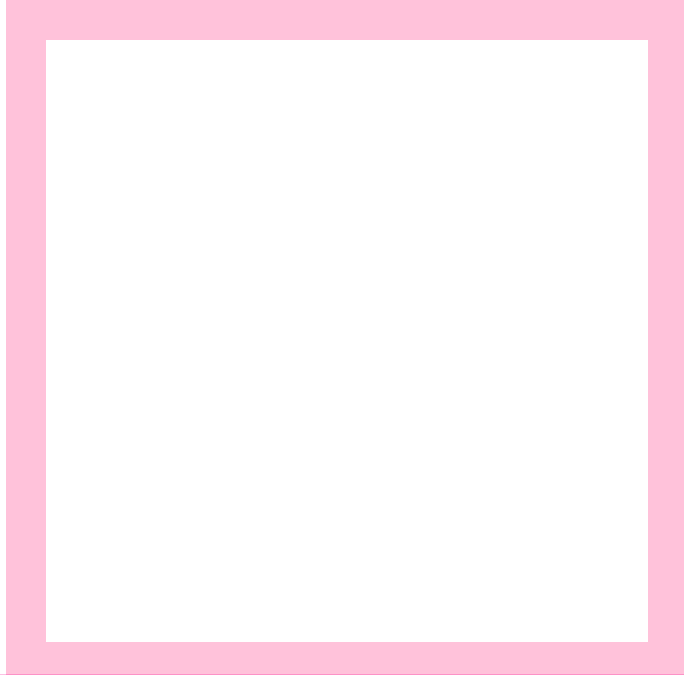


Atelier de construction - Activité 3



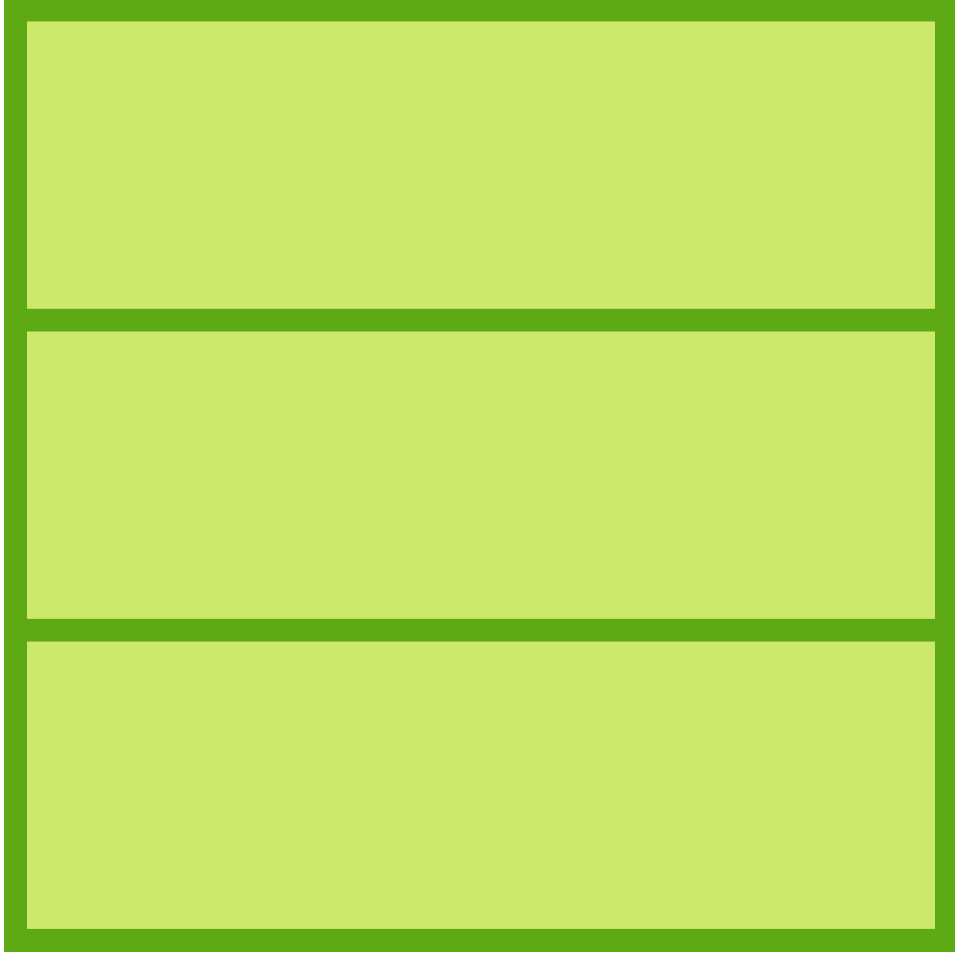
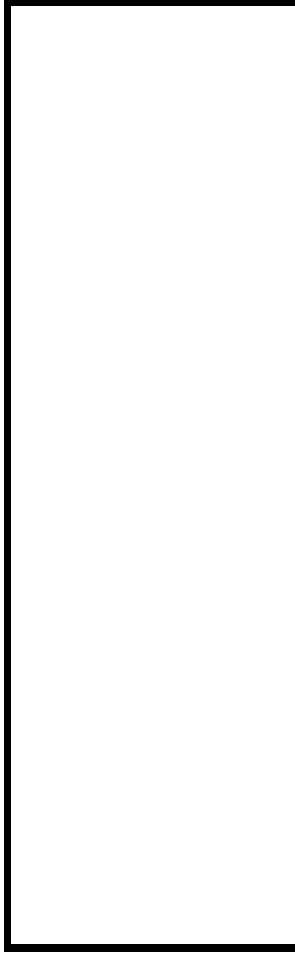
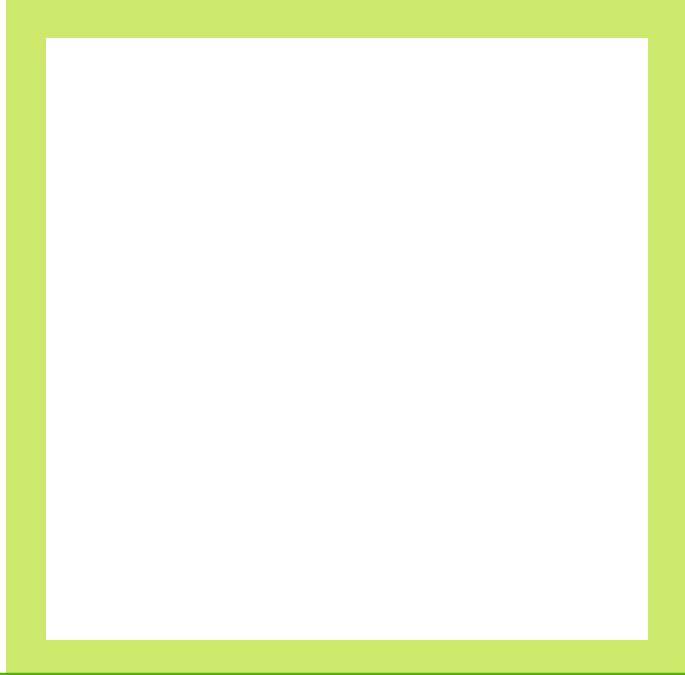


DOG ROBOT



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HUMANOID



ROVER

