



6-7 YEARS | WEEK 03

Technology - Algorithms & Robotics

1. Crack the code - Shift key

2. Crack the code - Shift key

3. Crack the code - Shift key

4. Crack the code - Shift key

5. Unplugged coding

6. Unplugged coding

7. Tracing the route

8. Algorithm - Step by step

9. Algorithms - Put it in order

10. Algorithms - Fix the errors

11. Algorithms - Complete the steps

12. Algorithms - Play a board game

13. Draw a robot based on the algorithm

14. Robotics - Uses of robots

15. Robotics - Design a robot

16. Robotics - Robots from movies

17. Robotics - Make a recycled robot

18. Robotics - Assemble a robot

19. Coding - Branching

20. Coding basics - Debugging

CRACK THE CODE - SHIFT KEY



Each Alphabet is shifted to it's next alphabet, A becomes B, B becomes C and so on. Let's have fun cracking the coded messages.

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

B	M	M	J	H	B	U	P	S
---	---	---	---	---	---	---	---	---



Go backward each alphabet

See you later,

A	L	L	I	G	A	T	O	R
---	---	---	---	---	---	---	---	---

Q	P	M	B	S	C	F	B	S
---	---	---	---	---	---	---	---	---



Go backward each alphabet

Take care,

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D	S	P	D	P	E	J	M	F
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Go backward each alphabet

After a while,

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C	V	U	U	F	S	G	M	Z
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Go backward each alphabet

Bye, bye

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CRACK THE CODE - SHIFT KEY

Each Alphabet is shifted to it's next alphabet, A becomes B, B becomes C and so on. Let's have fun cracking the coded messages.

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

Z	O	O	K	D		N	E		L	X		D	X	D
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O	H	D	B	D		N	E		B	Z	J	D
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N	M	B	D		H	M		Z
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A	K	T	D		L	N	N	M
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CRACK THE CODE - SHIFT KEY

Each Alphabet is shifted to it's previous alphabet, A becomes Z, B becomes A and so on. Let's have fun cracking the coded messages.

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

N	B	U	I	F	N	B	U	J	D	T
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J	T		C	F	B	V	U	J	G	V	M
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T	D	J	F	O	D	F
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J	T		G	V	O	!
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						!
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CRACK THE CODE - SHIFT KEY

Each Alphabet is shifted to it's previous alphabet, A becomes Z, B becomes A and so on. Let's have fun cracking the coded messages.

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

D	M	P	D	L		U	J	D	L	J	O	H
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U	J	D	L		U	P	D	L
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U	J	D	L		U	P	D	L
---	---	---	---	--	---	---	---	---

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U	J	N	F		J	T		G	B	T	U	!
---	---	---	---	--	---	---	--	---	---	---	---	---

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UNPLUGGED CODING

Help the mumma rabbit reach her baby rabbit. It cannot cross the obstacles : snake, monkey, lion, rhinoceros, tree etc. It can only go UP, DOWN, LEFT, RIGHT. It can JUMP over puddles. It needs to perform tasks as instructed.

			Perform Task : Clean itself
	Perform Task : Clean itself		

Permissible
Arrows

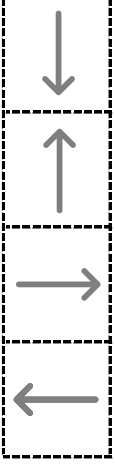
 Move Right	 Move Up	 Move Left	 Move Down	 Jump	 Perform Task
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Sequence



UNPLUGGED CODING

The route has been laid out to reach from the starting point to the endpoint. The arrows show the direction of movement. Trace the path using these arrows in the white boxes' path such that the robot goes through all the boxes. You can also cut out the arrows from the reference sheet and paste them to trace the route!








END			

T: Algorithm - Step by step



Algorithm means a set of rules that we need to follow to do any work. We use it in our every day life like, while doing homework or when mom makes dinner. Today let's try to use it for one simple task. Your mom has given you a task - cleaning of your room. Cut pictures that are given below and paste them in correct order for cleaning the room. Write the name of the task along with the pictures.

1	Task name	2	Task name	3	Task name
Paste picture here	Paste picture here	Paste picture here	Paste picture here	Paste picture here	Paste picture here
4	Task name	5	Task name		
Paste picture here	Paste picture here	Paste picture here	Paste picture here		

				
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T: Algorithms - Put it in order



Algorithm means a set of rules or steps that we follow while doing any work. The steps should be followed in the correct order, otherwise the end product might not be the same that we intended to get. With the help of your parents, write the steps to make a simple lemonade. Ingredients for making lemonade are given below.

Ingredients :

- a) Lemons
- b) Salt
- c) Sugar
- d) Water



Steps :

- 1 _____
- 2 _____
- 3 _____
- 4 _____



Answer Key: 1. Squeeze the juice out of lemon. 2. Put the lemon juice in a glass of water. 3. Add sugar and salt to taste. 4. Stir well and enjoy.

T: Algorithms - Fix the errors



If we do all our work step by step, then we can definitely achieve the desired results. Given below are steps that we follow in our morning routine. Check those steps and arrange them in the proper order in the given boxes.

1 Take a bath.

2 Get ready for school.

3 Drink milk.

4 Get up early in the morning.

5 Do yoga.

6 Eat breakfast.

7 Brush your teeth.



Answer Key: 1. Get up early in the morning. 2. Brush your teeth. 3. Drink milk. 4. Do yoga. 5. Take bath. 6. Eat breakfast. 7. Get ready for school.

T: Algorithms - Complete the steps



Can you complete the tasks given below and fill in the blanks with correct words? This way we will be able to complete a simple task that we do in our day to day life.

1 Making a sandwich

a) Cut the _____ in triangular shape.



b) Spread _____ over the bread.



c) Put some _____ slices over it.

d) Your _____ sandwich is ready.



2 Cleaning your toys.

a) First sort all your toys _____



b) Then take some _____ in a bucket.



c) Put some _____ in the water.

d) Wipe dry your toys with a clean _____

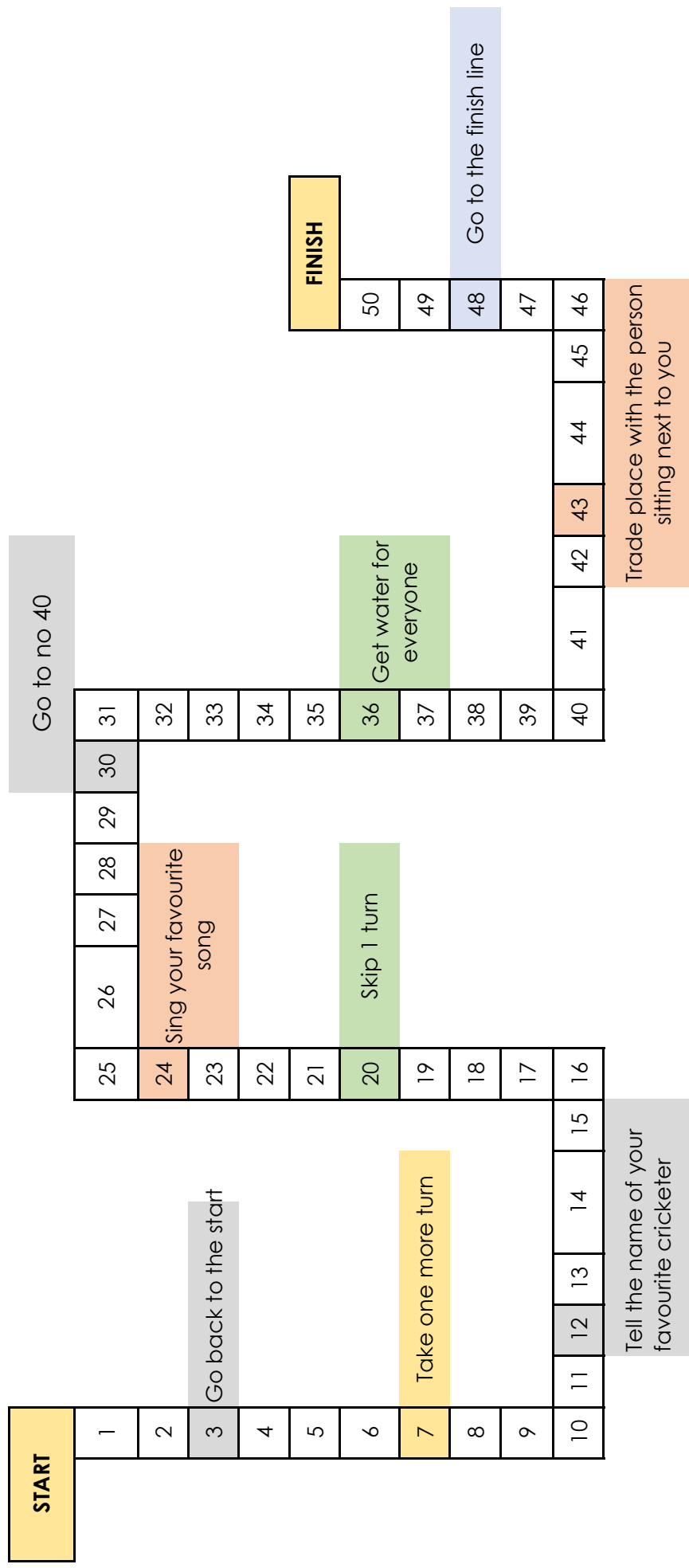


Answer Key: 1 - a. bread b. chocolate sauce c. banana d. delicious 2 - a. by type b. water c. soap d. cloth

T: Algorithms - Play a board game



Who does not like to play board games? Use a dice to play this fun board game with your friends and family. Follow the instructions given on the board and have fun!

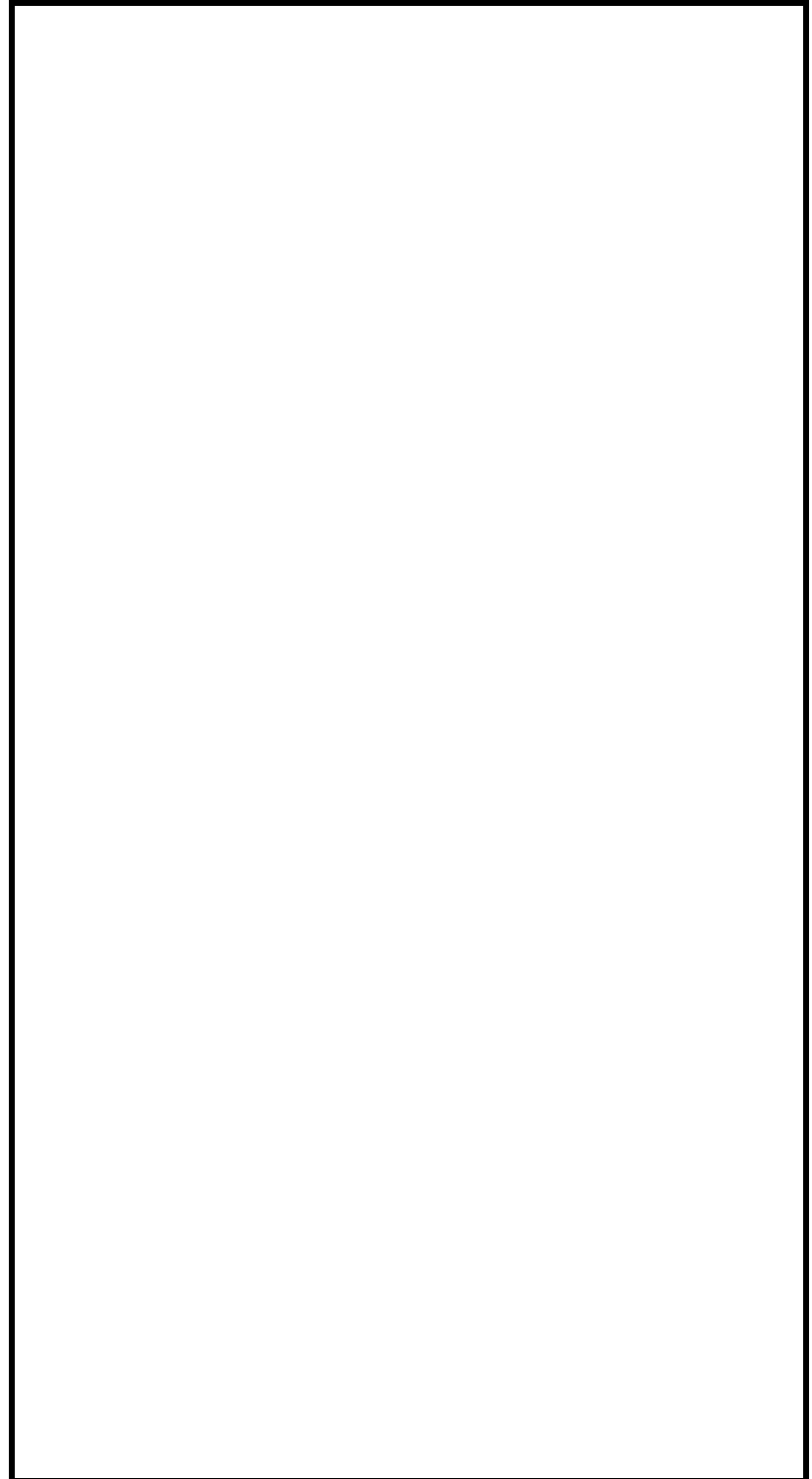
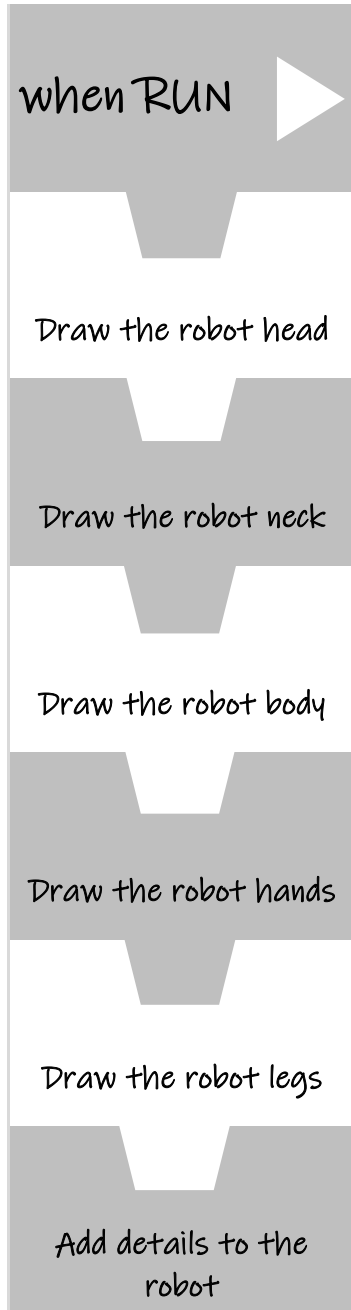




Drawing a Robot Based on the Algorithm

Let's use some imagination and creativity. Follow the given steps of the algorithm and design a robot.

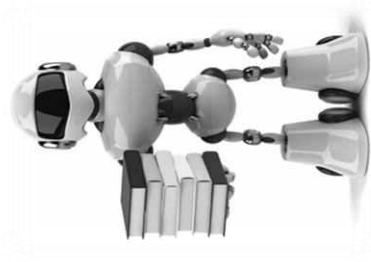
MY ROBOT



E: Robotics- Uses of robots

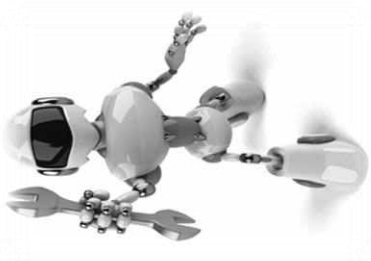


A robot is a machine that does tasks without the help of a person. Many people think of robots as machines that look and act like people. Write few examples of how these robots are used in their given industry. One is done for you.



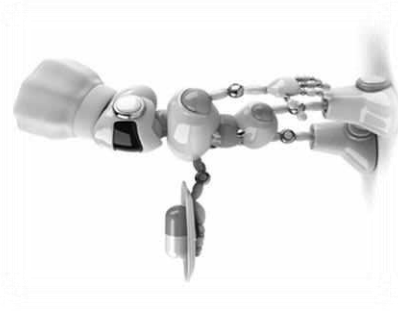
Education

1. Social teaching



Manufacturing

1. Car assembly line



Healthcare

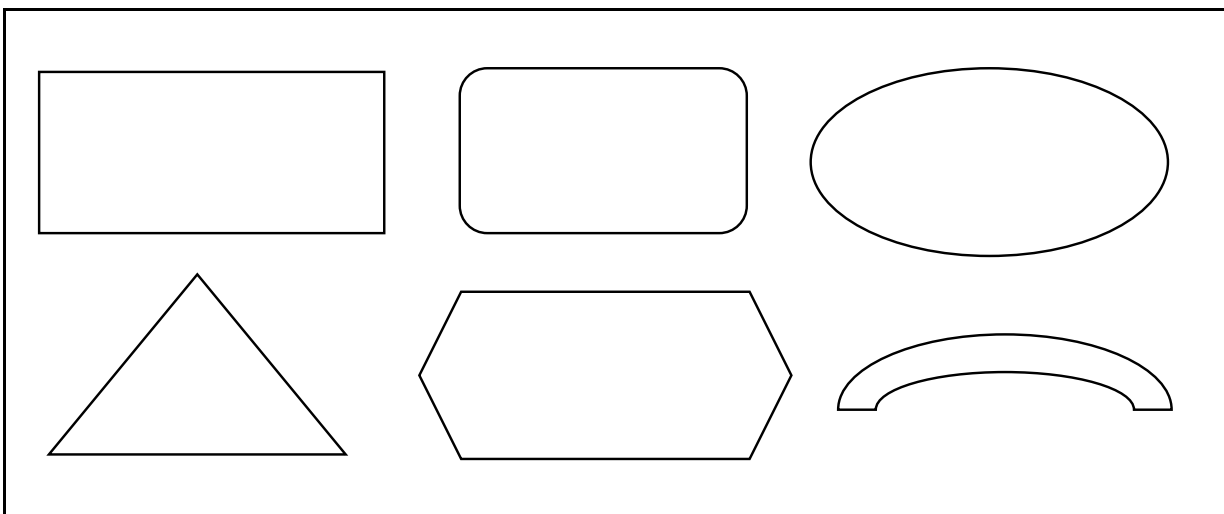
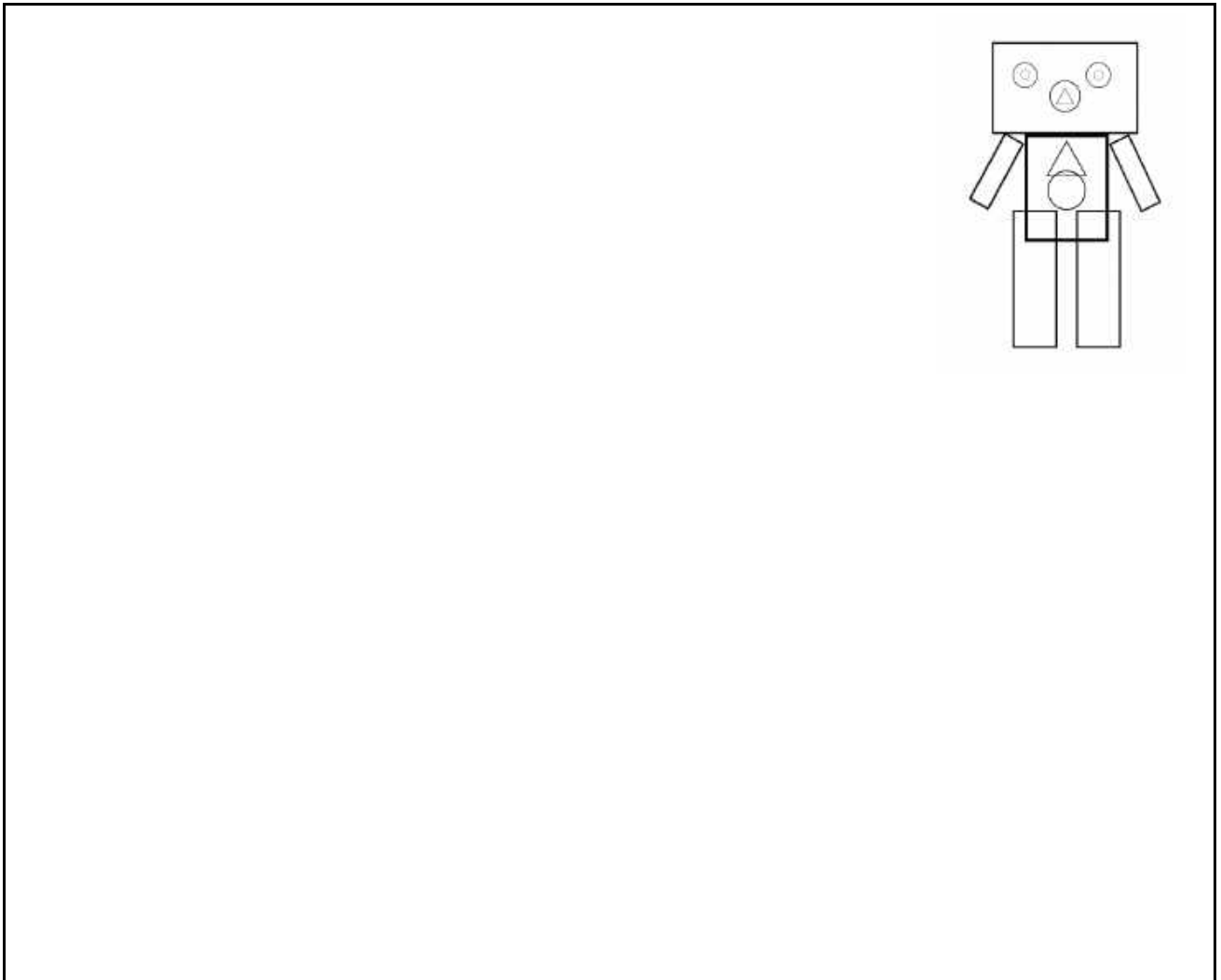
1. Remote surgery



E: Robotics - Design a Robot



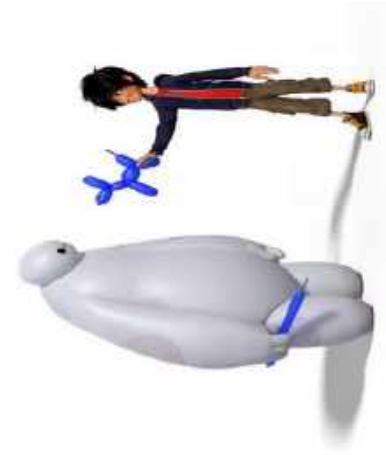
Do you like robots? The first robot for use in the industry was invented in 1954 by George Devol. Draw a robot, using the shapes given below in the box. Use the given picture as a reference, you can draw yours in the space given below.



E: Robotics - Robots from movies



Master Mystery, 1919 filmed serial of 15 instalments, it contains the first appearance of a robot in cinema. Here are some of the famous Hollywood movies with robots. Let us try to identify and match the name of the movies with the corresponding characters.



Iron Man

WALL-E

Transformers

Big hero 6

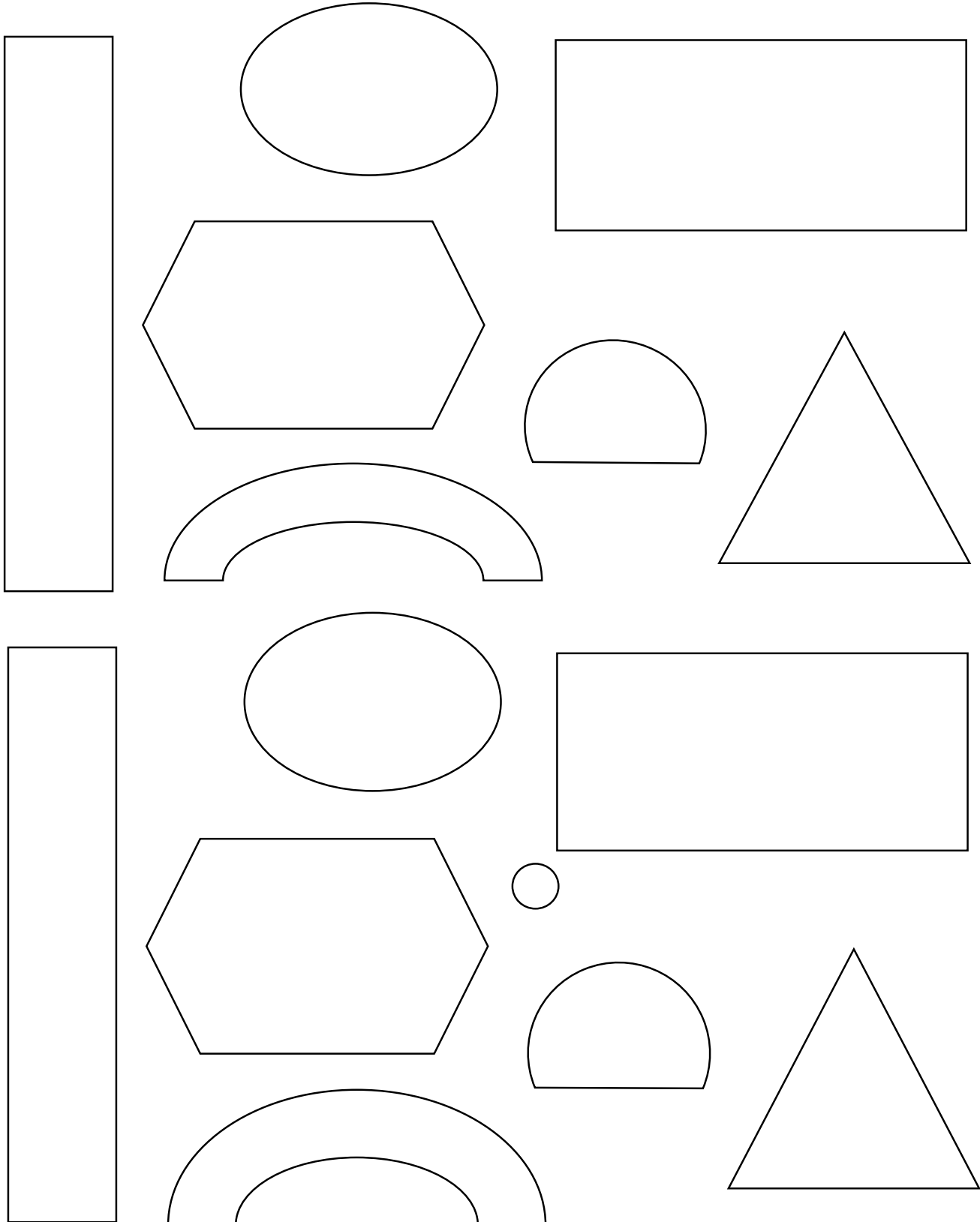
Answer Key: 1.WALL-E, 2. Big hero 6, 3.Iron Man, 4.Transformers.



E: Robotics - Assemble a robot



Cut the shapes given below and stick them on the cardboard and cut according to the size with the help of an adult. Now organize these to make a robot. You can decorate your robots using paint, sticks, paper, washi tape, bottle caps, etc. Stick a rope on the backside of the robot and start playing.



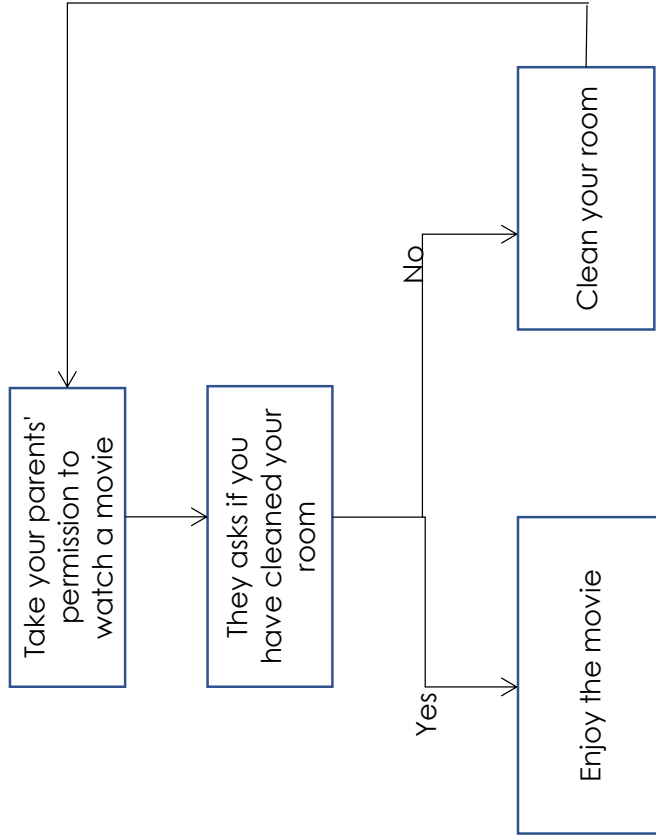
T: Coding - Branching



Branching basically means checking conditions which determine the choice being made. So, in other words, making a decision depending on what is happening or what has happened. Many times we see that, in order to get something we want, we have to do some chores or work. For example, **if** you want to visit the zoo, **then** you must complete your homework first. Given below is an example of if-then branching. Try to create a similar diagram for a scenario where you want to go to the park, but you must help your brother in finishing his drawing first. Use your imagination in creating if-then scenario.

You want to watch a movie

You want to go to the park



T: Coding basics - Debugging



Debugging means identifying and removing the errors. Have you observed that whenever you face any problem, your parents try to solve that by identifying the root cause? Given below is an example of debugging. Try to create one such scenario using your imagination with the help of your parents.

Scooter is not starting

- 1 Your dad checks if the ignition is on.
- 2 He checks if the vehicle has sufficient petrol (or fuel)
- 3 He checks if spark plug is connected.
- 4 If none of the above things work, then he calls a mechanic.



Your toy is not working

- 1 _____
- 2 _____
- 3 _____
- 4 _____



Answer Key: 1. Check if the car and remote has batteries. 2. Check if those batteries are in working condition. 3. Check whether all car parts are in shape and nothing is broken. 4. If none of this works, take help from your parents.