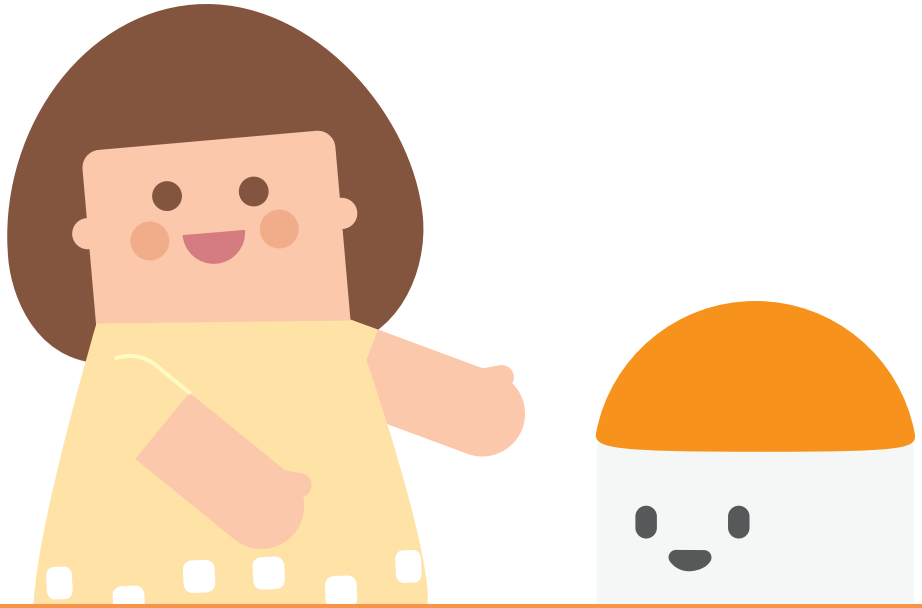
matatalab

Coding Set Home Edition

STORY BOOK 1



Command 指令

Sequence 序列

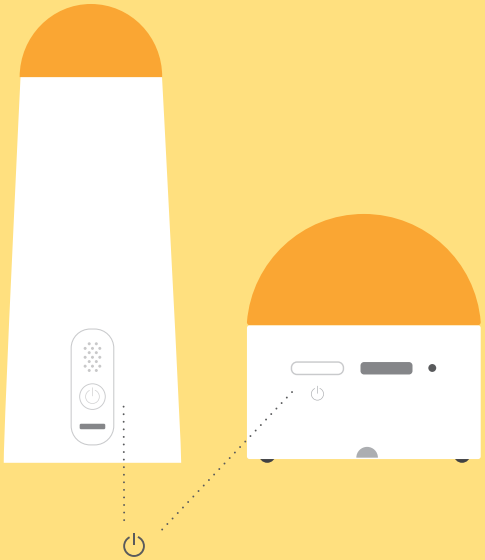
Number 数字

What I cannot create, I do not understand.

- Richard Feynman

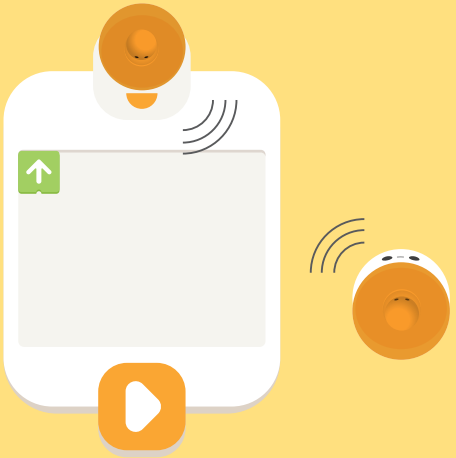
Instructions

How to turn them on



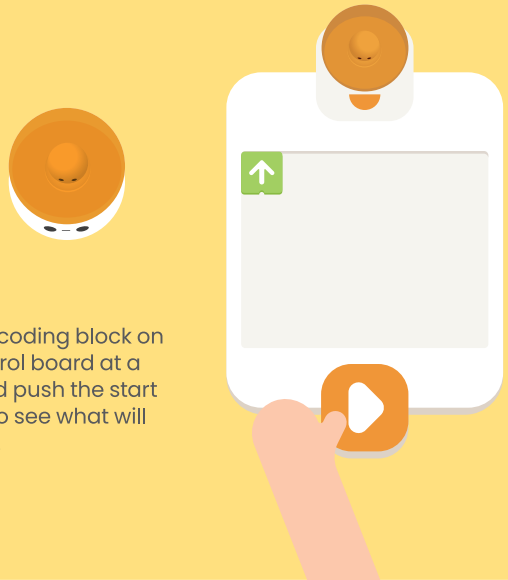
Press and hold for one second.

How to pair



When the devices are turned on, the indicators on both devices will flash, and the pair begins. When they pair successfully, there will be a "Ding" tone. Both indicator lights will then turn blue and stay on.

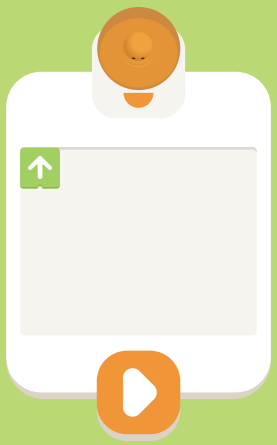
A robot cannot think independently like humans. Instead, the computer inside its body receives and executes commands sent by humans. Give MatataBot some commands that it can understand!



Put one coding block on the control board at a time and push the start button to see what will happen.

Notch facing down.

How to move MatataBot to the bumper car area?

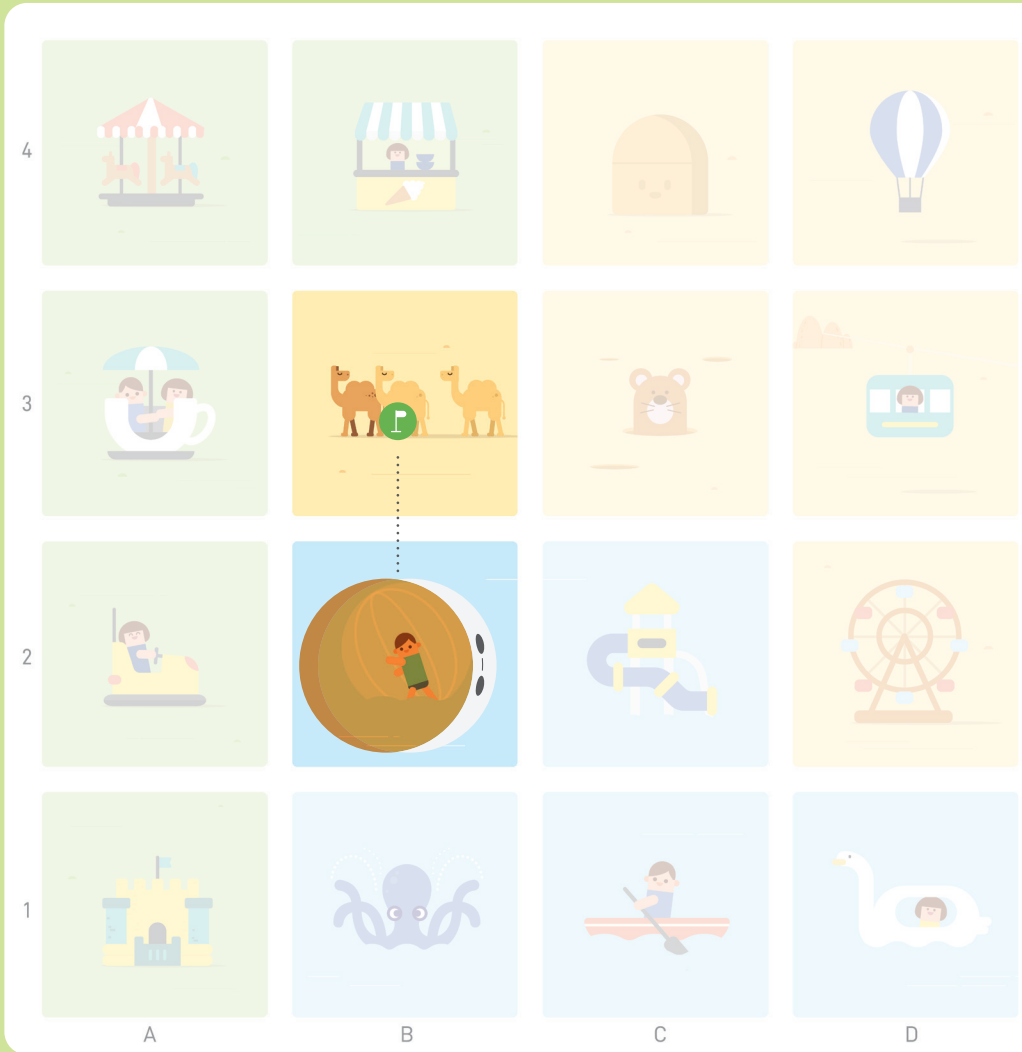


How to send the ice cream to the camel at the fastest speed ?

Can MatataBot move to the camel ?

1

2



Can MatataBot move to the position of the zorb ball?

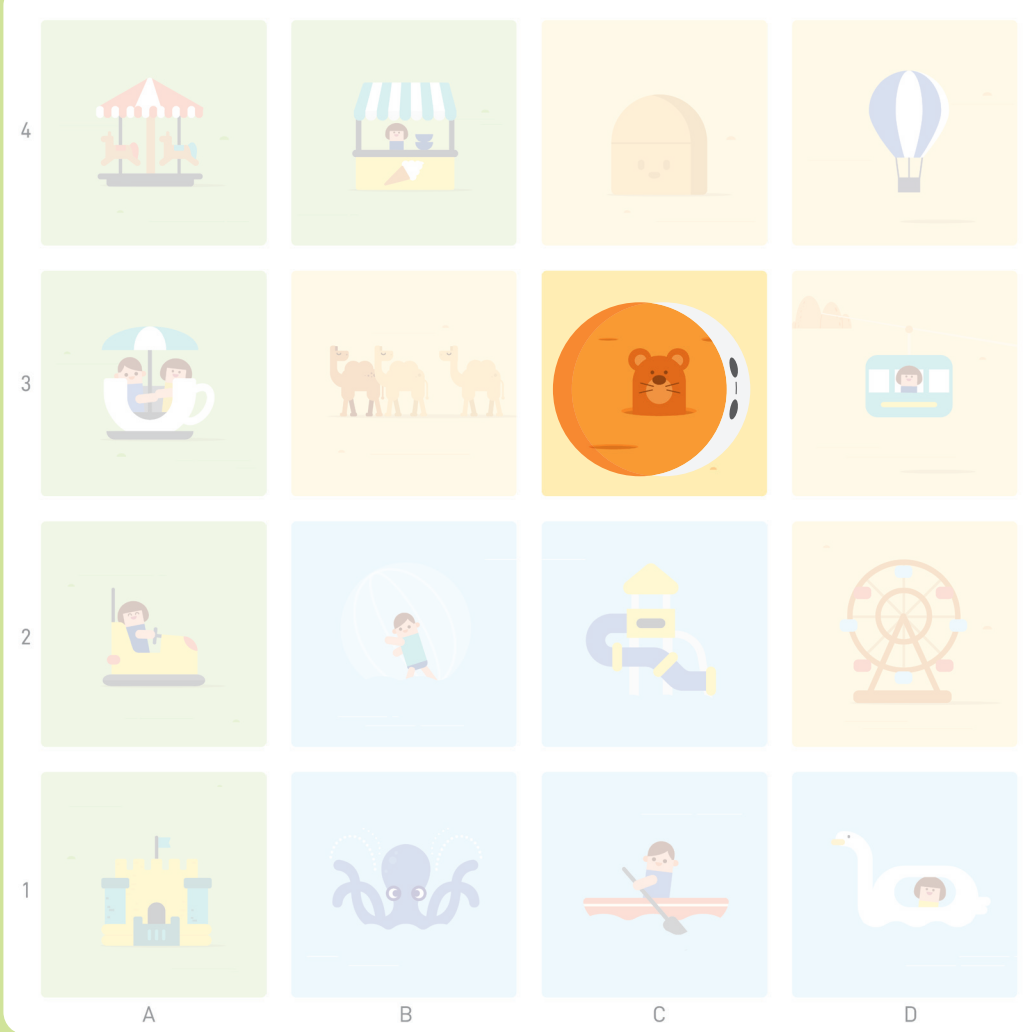
1

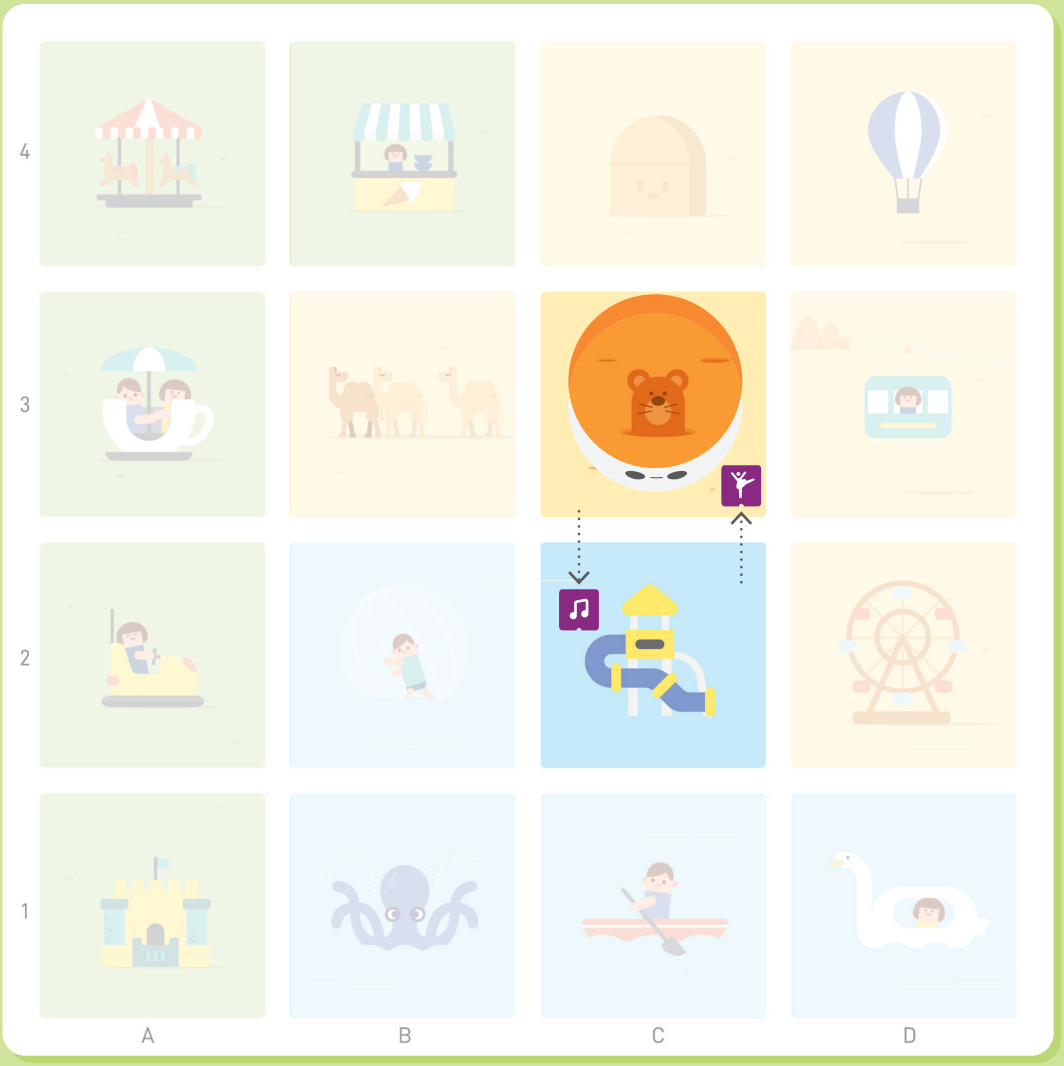
2

Ding! Ding! Two moles bumped their heads!

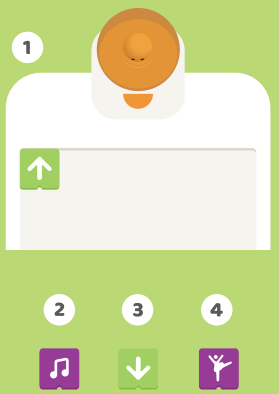
1

2





Move MatataBot to the water slide, sing a song, return to the mole and dance.



1 Move from the gate to the rotating cup ride.

2 Move from the gate to the carousel.

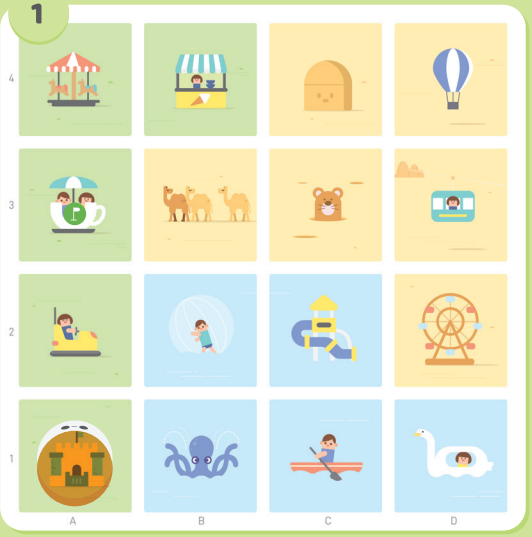
3 Move from the carousel to the ice cream shop.

4 Move from the camel to the mole.

Come to try more solutions!

The answer is on page 48

1



2

3

4

5 Move from the mole to the boat.

6 Move from the boat to the gate.

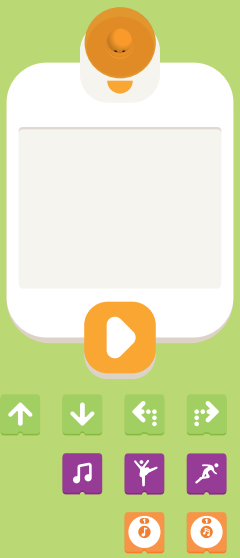
7 Move from the gate to the carousel.

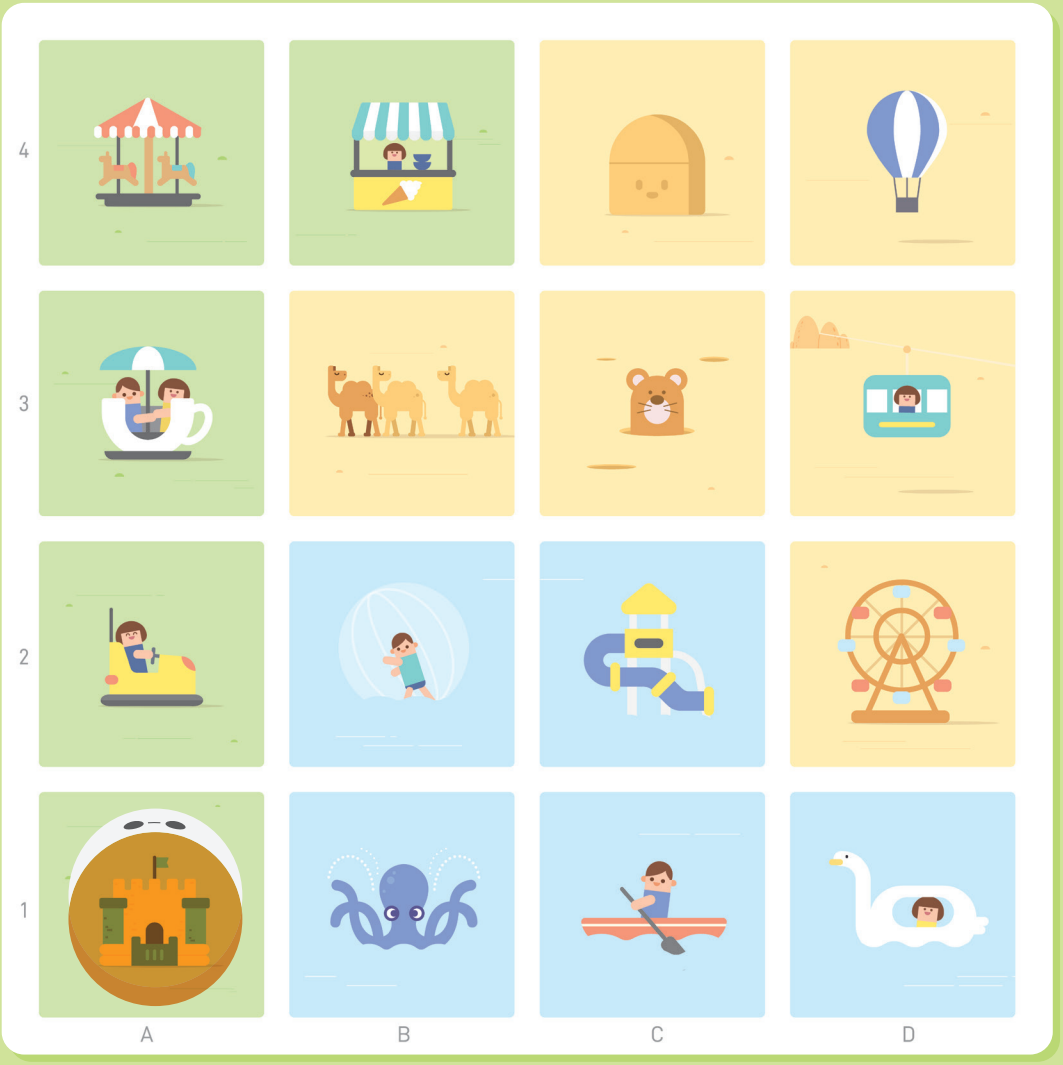
8 Move from the carousel to the hot air balloon.

Come to try more solutions!

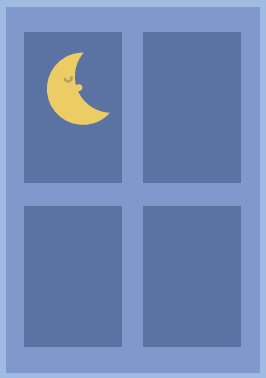
The answer is on page 48

Explore the amusement park.

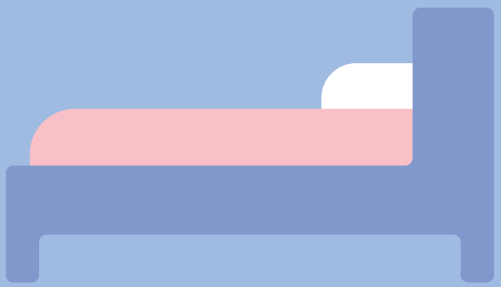




Do you know how to show the way in life?

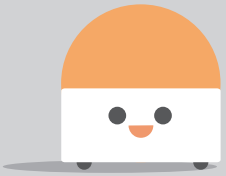


What do you do when dad says “It is time to go to bed” ?



What should you do when you hear a car horn?

Why is the remote toy car under your command?



Control Board

The board for placing coding blocks. It is an input device.

Camera

Camera can collect command information and give it to computer. So, it is an input device.

Coding Block

Computer-readable commands are printed on the coding blocks. So, they are input devices.

MatataBot

A MatataBot can perform corresponding actions or make sounds according to commands. So, it is an output device.

Input device and output device

The foundation of the computer inside the robot is the cooperation of different components. Some components could collect and store information (input devices), while others allow us to see or hear information (output devices). We can use the input device to send information to the computer, and use the output device to view or listen to the information sent from the computer.

Which are input devices?
Which are output devices?

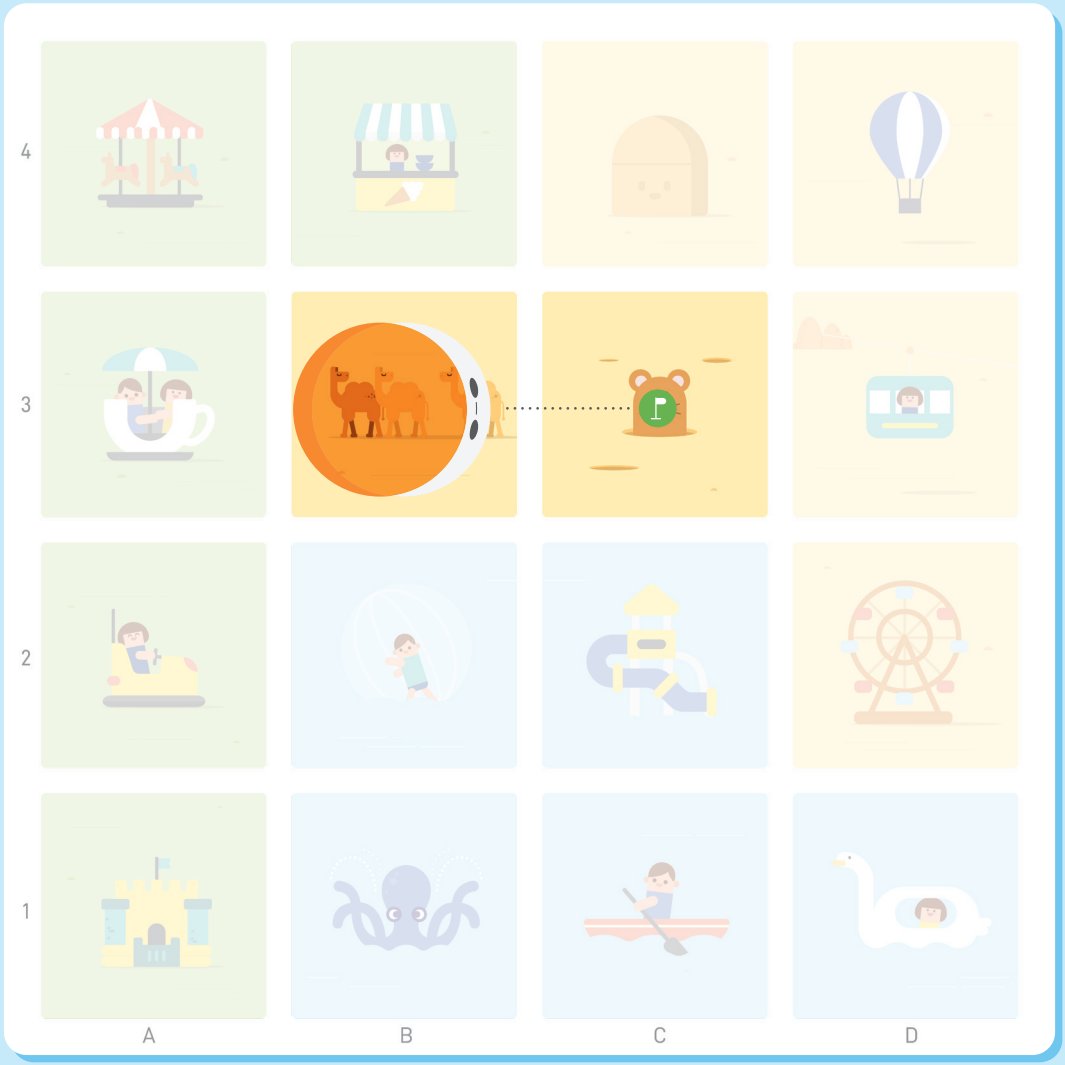
Unit Goals

Understand and apply command : When we write a program, we need to consider carefully about what we want to direct the robot to do with the program. Every step we think of is a command.

Difficulties

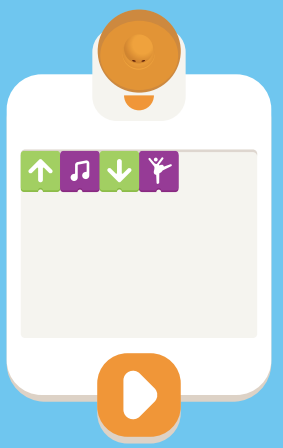
- Turn on/off : Press and hold for 1 second. Adults can model and encourage children to operate by themselves.
- Confirm the pair: Do not rush to operate after powering on; you will hear the tone that signifies the pair between the Command Tower and MatataBot, after which you could start programming.
- Identify the coding block: Place the coding block in front of the robot's eyes, with the notch pointing to the robot, and identify the coding block by reading the direction of the arrow.
- Exact statement: Ask the children to use prescribed terms when speaking from the very beginning: one step forward, one step backward, turn left, turn right, and more. (See the instruction manual for the rest of the information).
- Multiple strategies to solve problems: Using the Move Backward coding block is sometimes a faster way to reach the destination. Encourage children to explore and apply this coding block in a flexibly way.

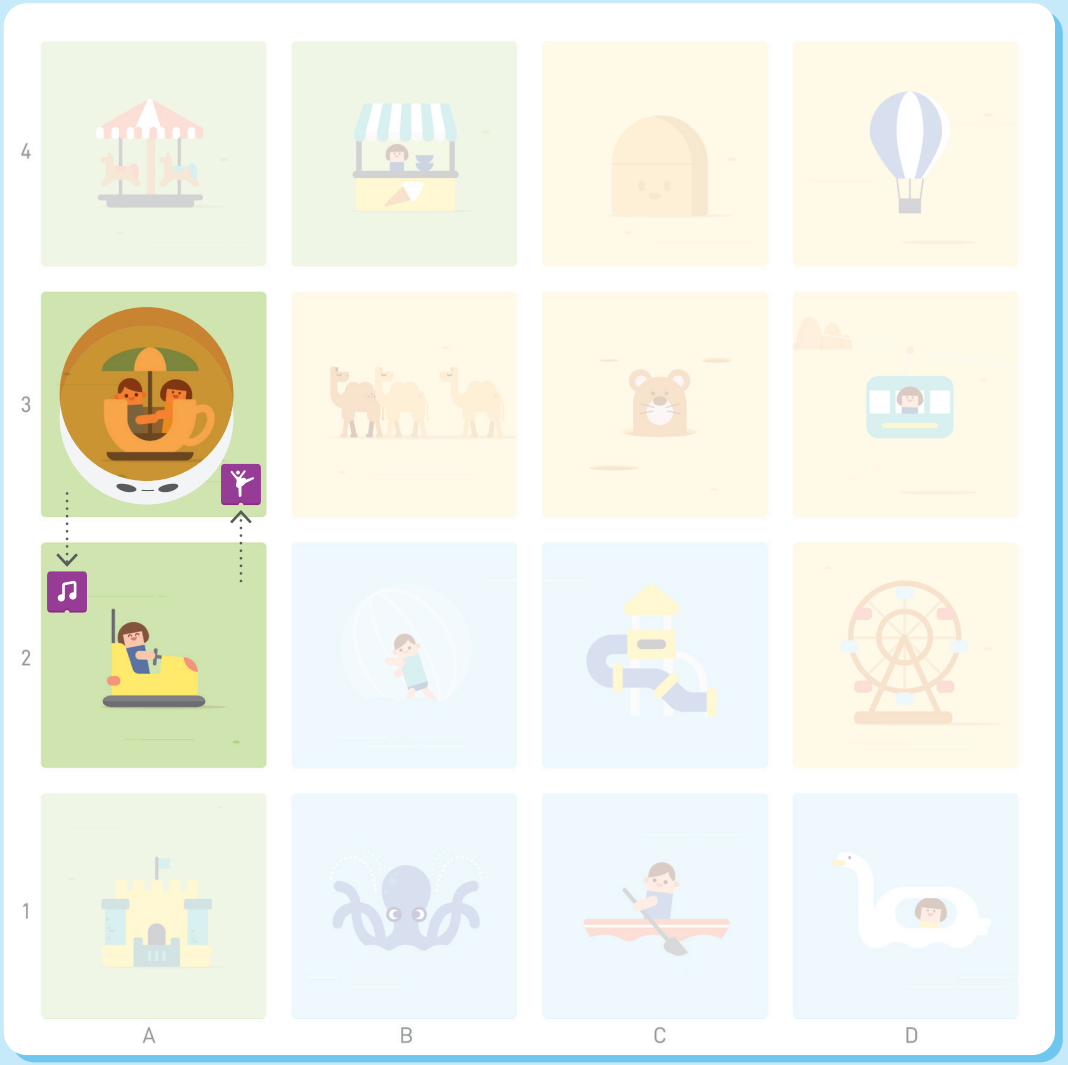
Parent's Guide

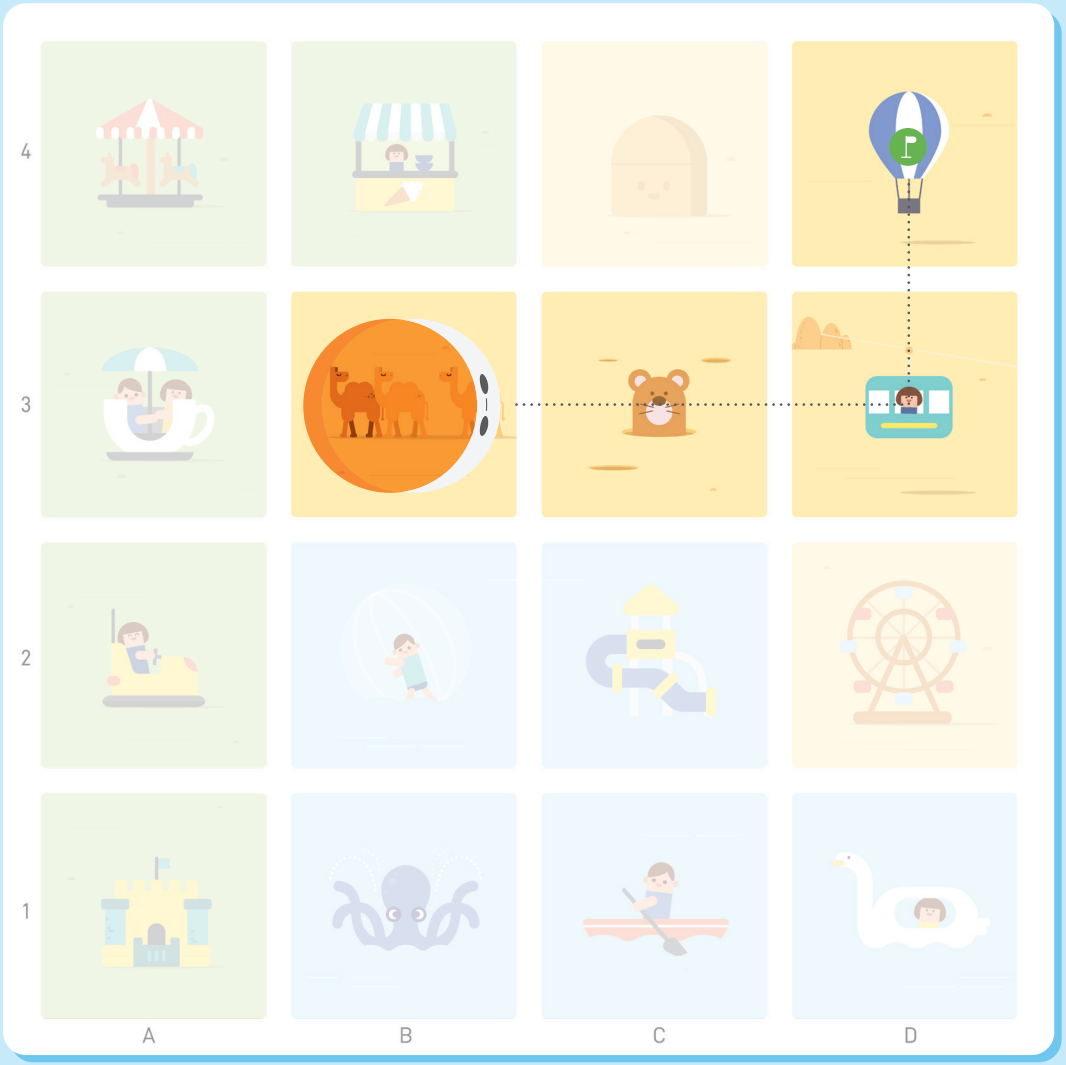


Place the coding blocks on the control board according to this program, listen to it. How many moles did MatataBot step on after moving forward?

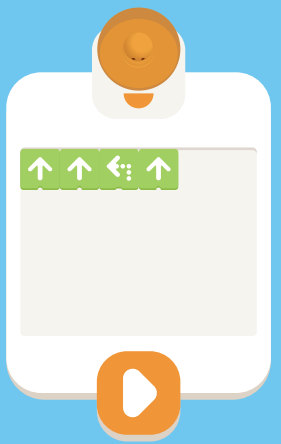
Place the coding blocks on the control board according to this program and describe what happened.



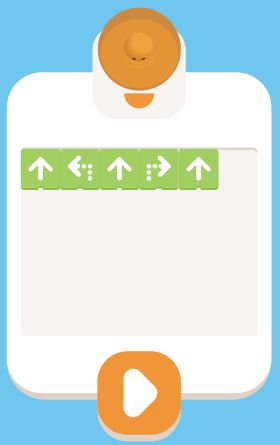


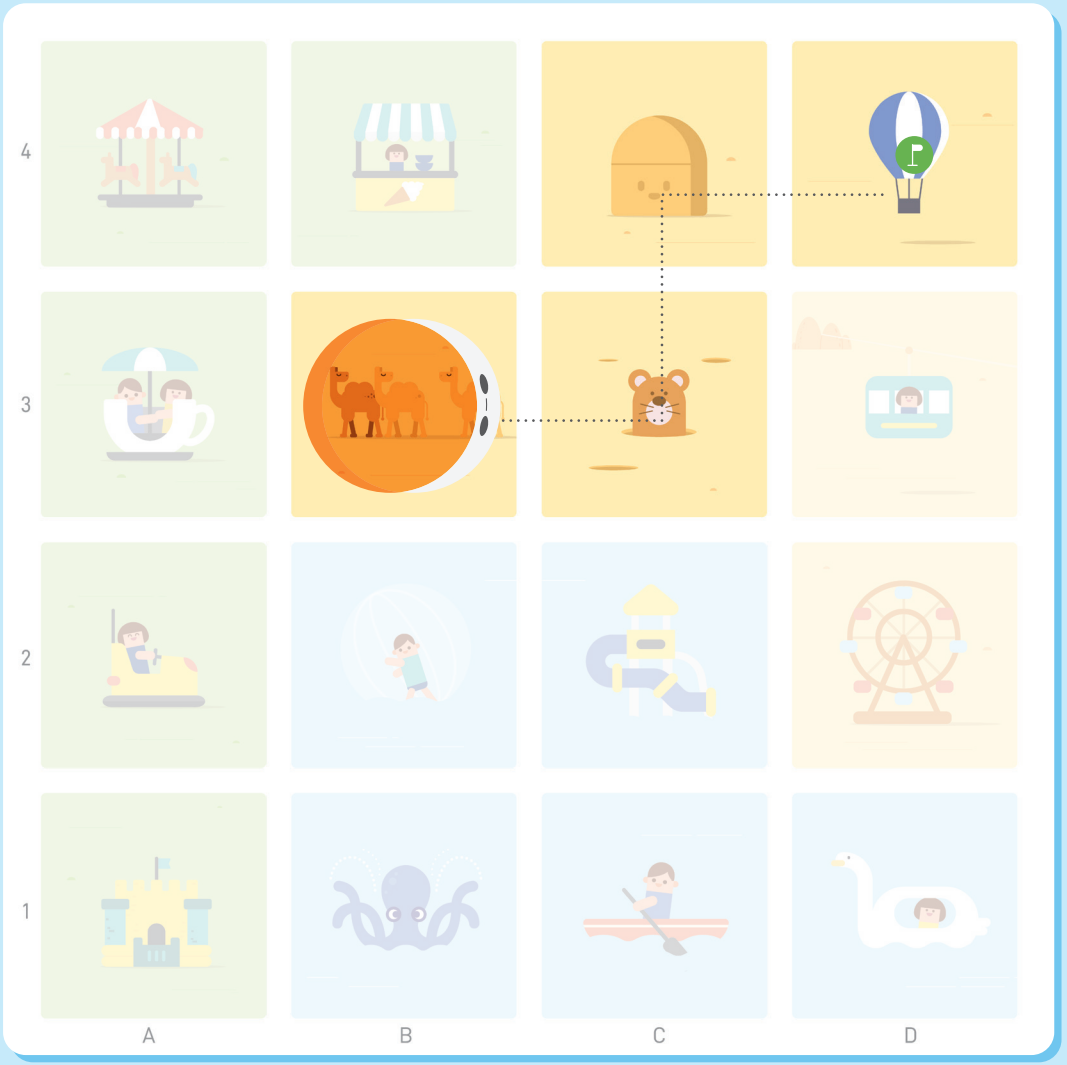


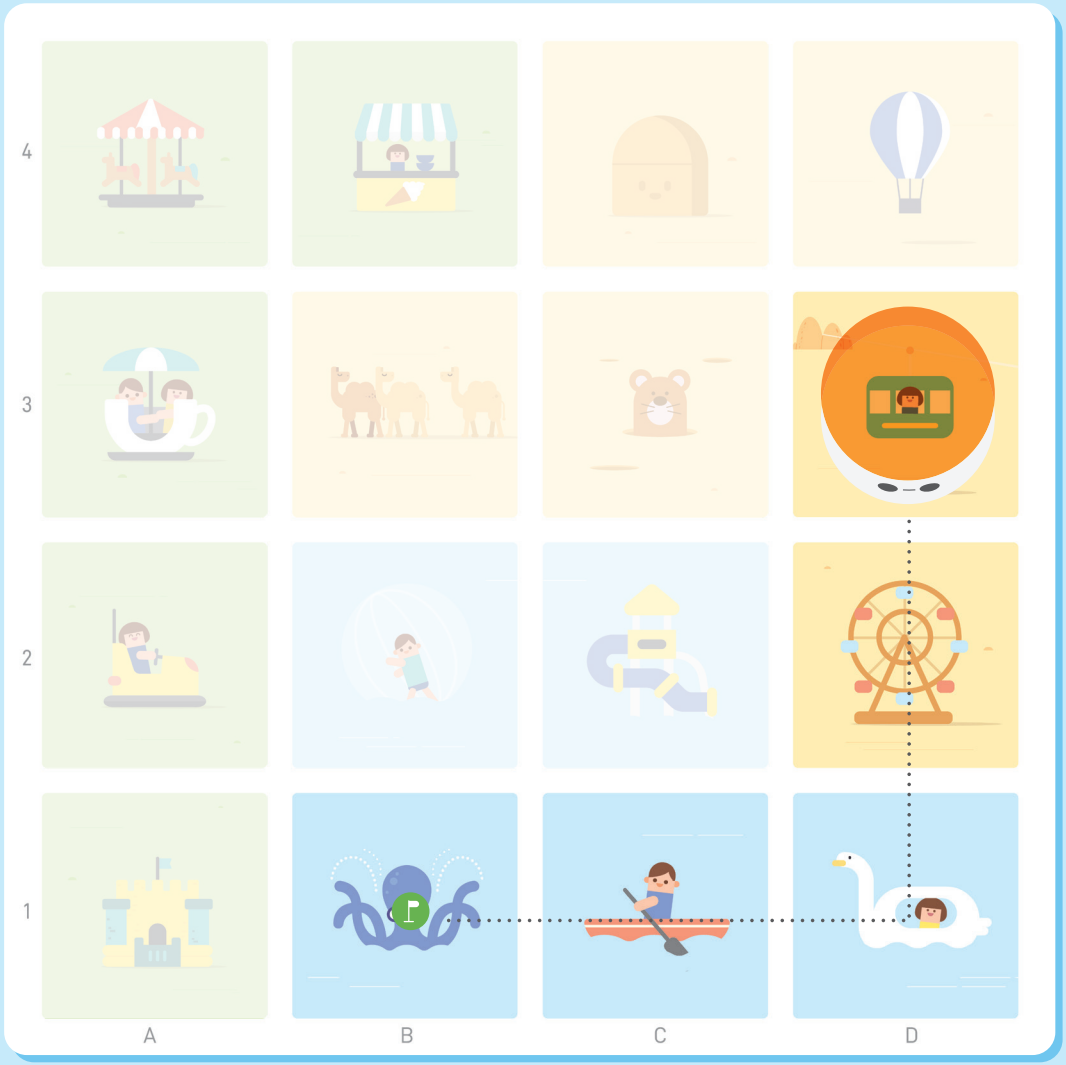
Will this program enable MatataBot to move to the hot air balloon?



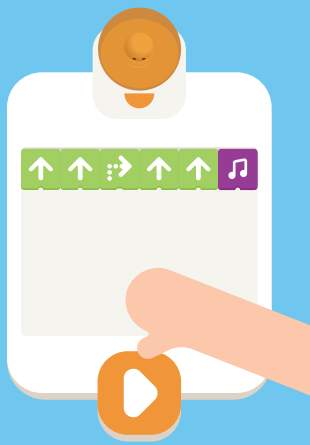
Will this program also enable MatataBot to move to the hot air balloon?



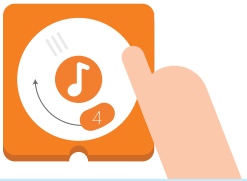


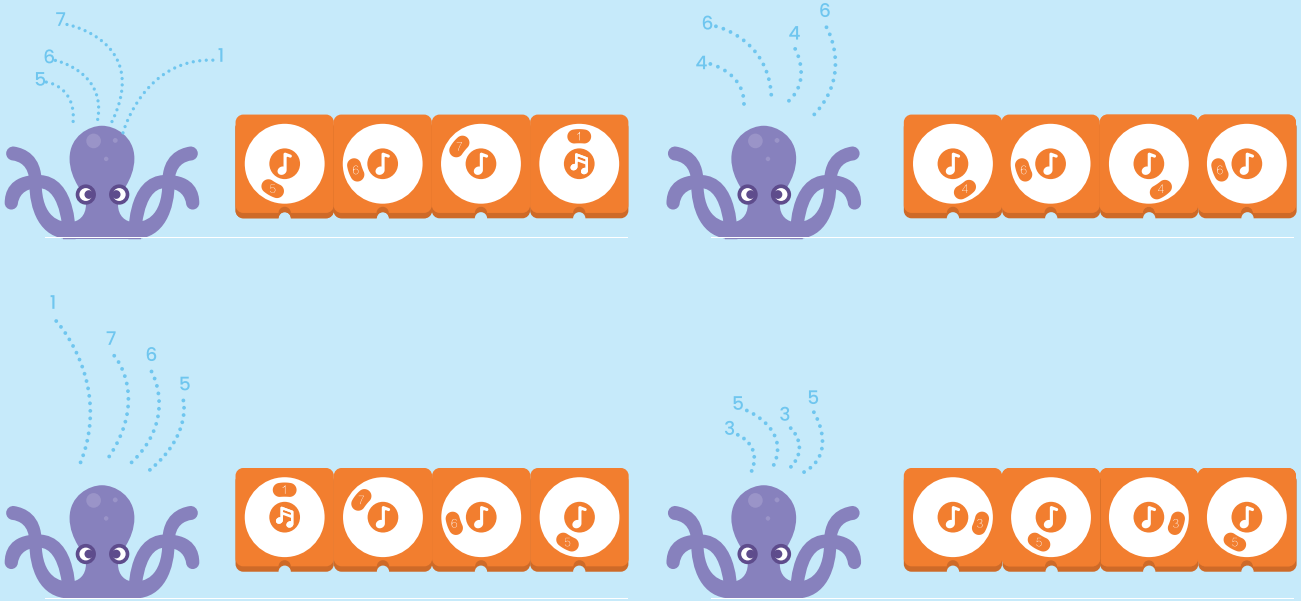


Can this program leads MatataBot to the music fountain? What happened at the end?



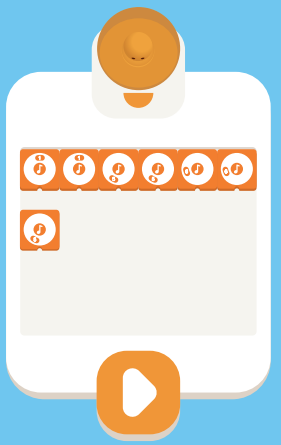
Turn the white knob until you get the note you need.



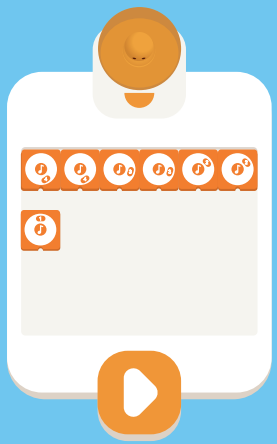


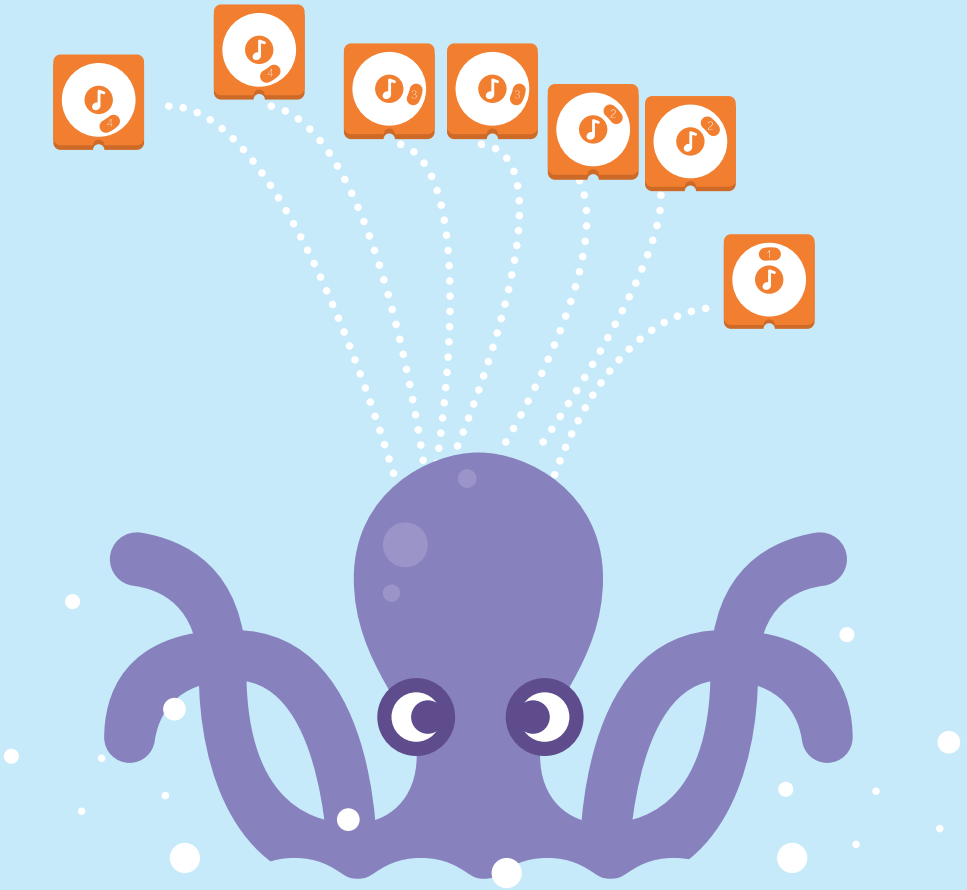
Can you create programs that can change the pitch?

What song is the music fountain playing? Have you heard of it? Place the following program on the control board and listen to the music.

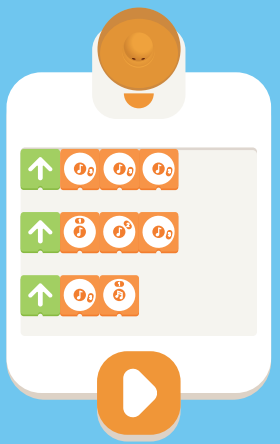


Place the coding blocks on the control board and listen. If we change the order of the coding blocks, what will happened?

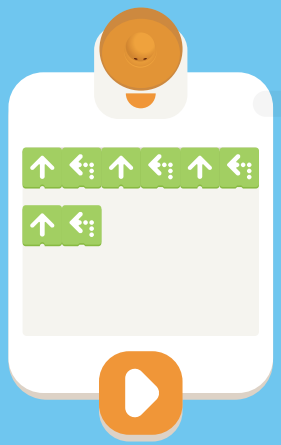


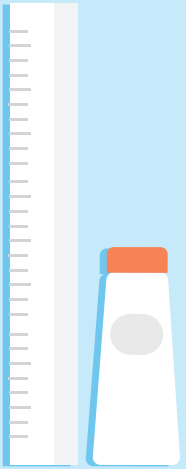


Birds like to stand high. Singing the same songs as them will lure them down to play with MatataBot.

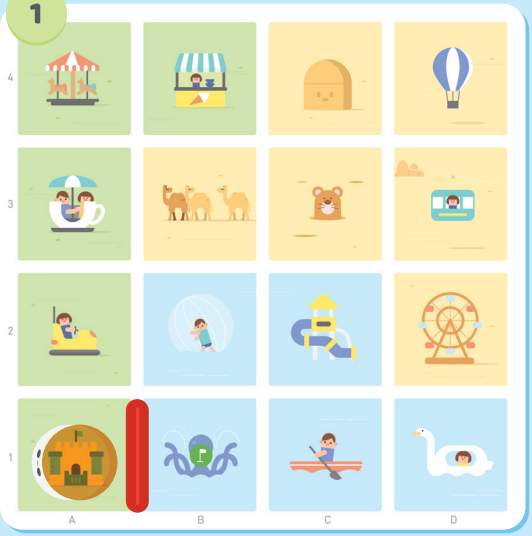


Place a pen in the pen holding place and program MatataBot to draw a square.



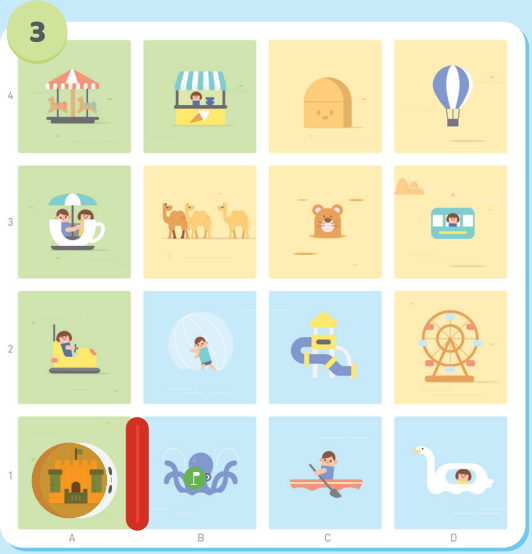


1

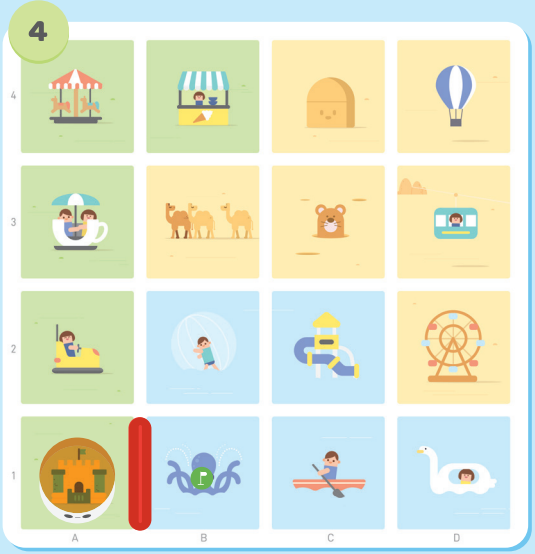


2

3



4



Avoid the obstacles to reach the destination.

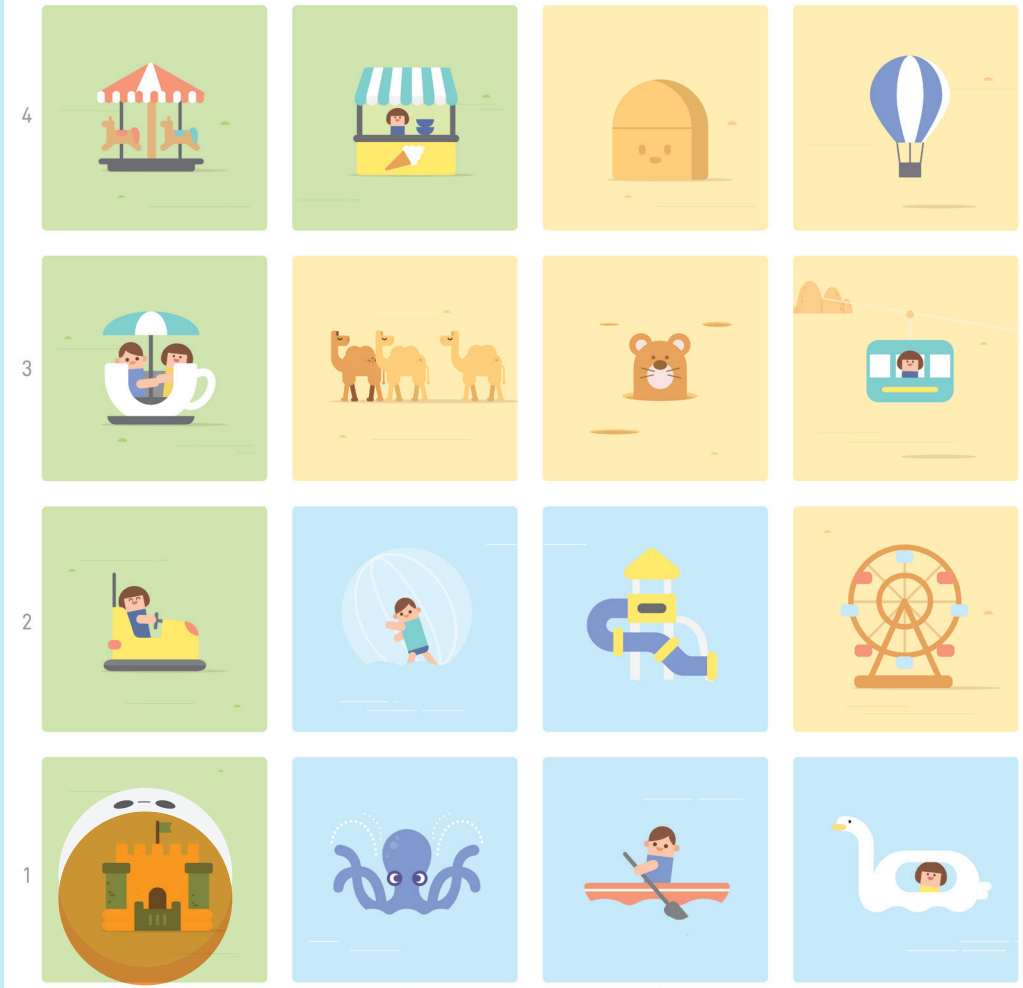
Come to try more solutions!

The answer is on page 48

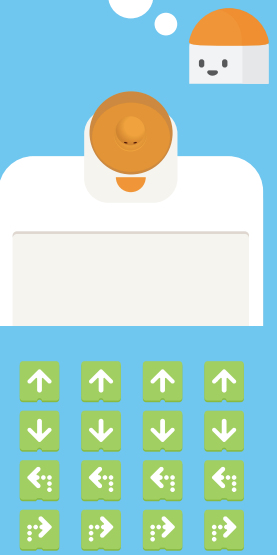
Program MatataBot to reach , and when passing the , add the corresponding command.

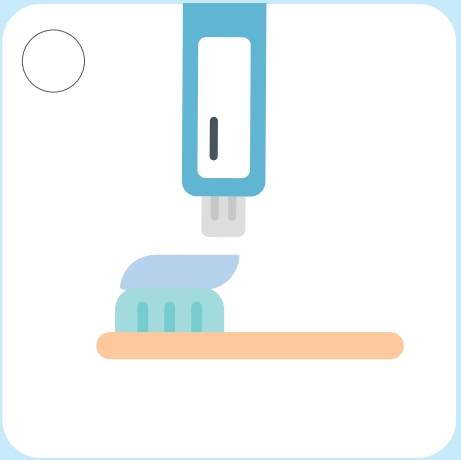
Come to try more solutions!

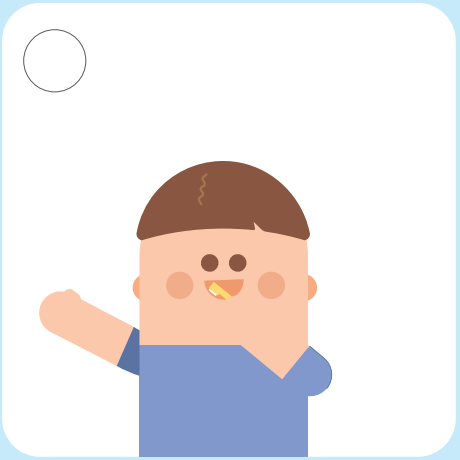
The answer is on page 48

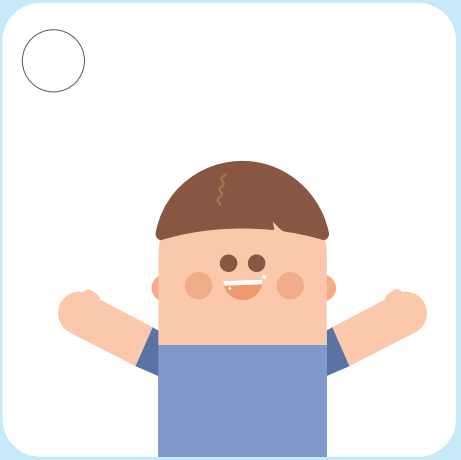


Create a long program and let MatataBot pass more squares. Make a note of the maximum number of squares it can pass at a time.



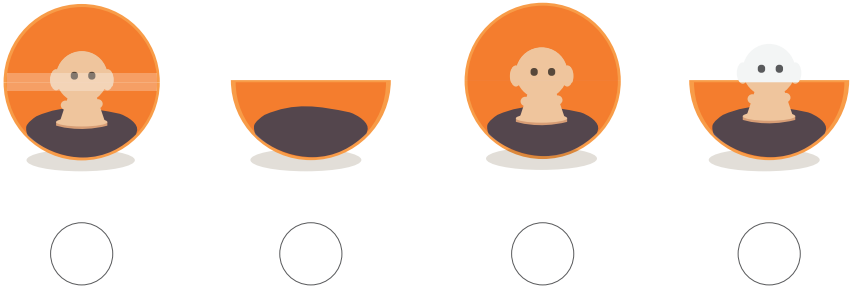






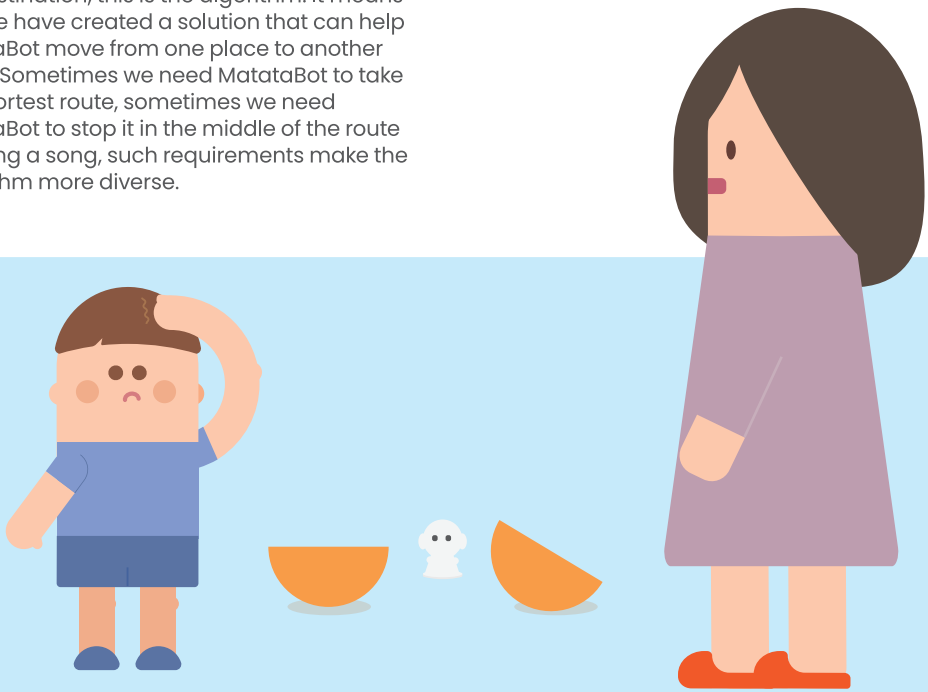
Put these activities in the right sequence by writing down the serial number in the ◯.

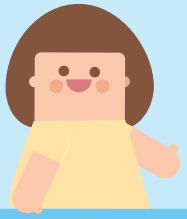
Think about the steps for making a tumbler and write the correct serial number in the ◯.



Please tell about what things in life can't be done if the sequence is disrupted.

Algorithm: the way to solve problems. When we use the coding blocks to let MatataBot move to the destination, this is the algorithm. It means that we have created a solution that can help MatataBot move from one place to another place. Sometimes we need MatataBot to take the shortest route, sometimes we need MatataBot to stop it in the middle of the route and sing a song, such requirements make the algorithm more diverse.





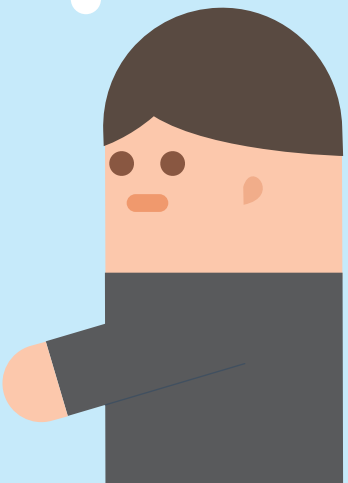
Unit Goals

Create a program in a sequential structure:
Sequential Structure is the most basic structure in the algorithm, which means that the commands are executed one by one according to the arranged order. A program refers to a series of commands ordered by rules, it can tell the computer what to do.

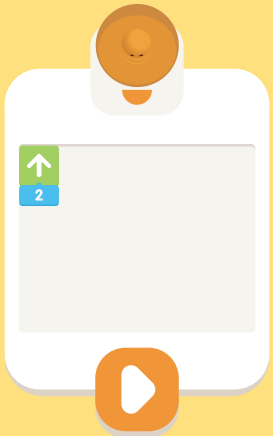
Difficulties

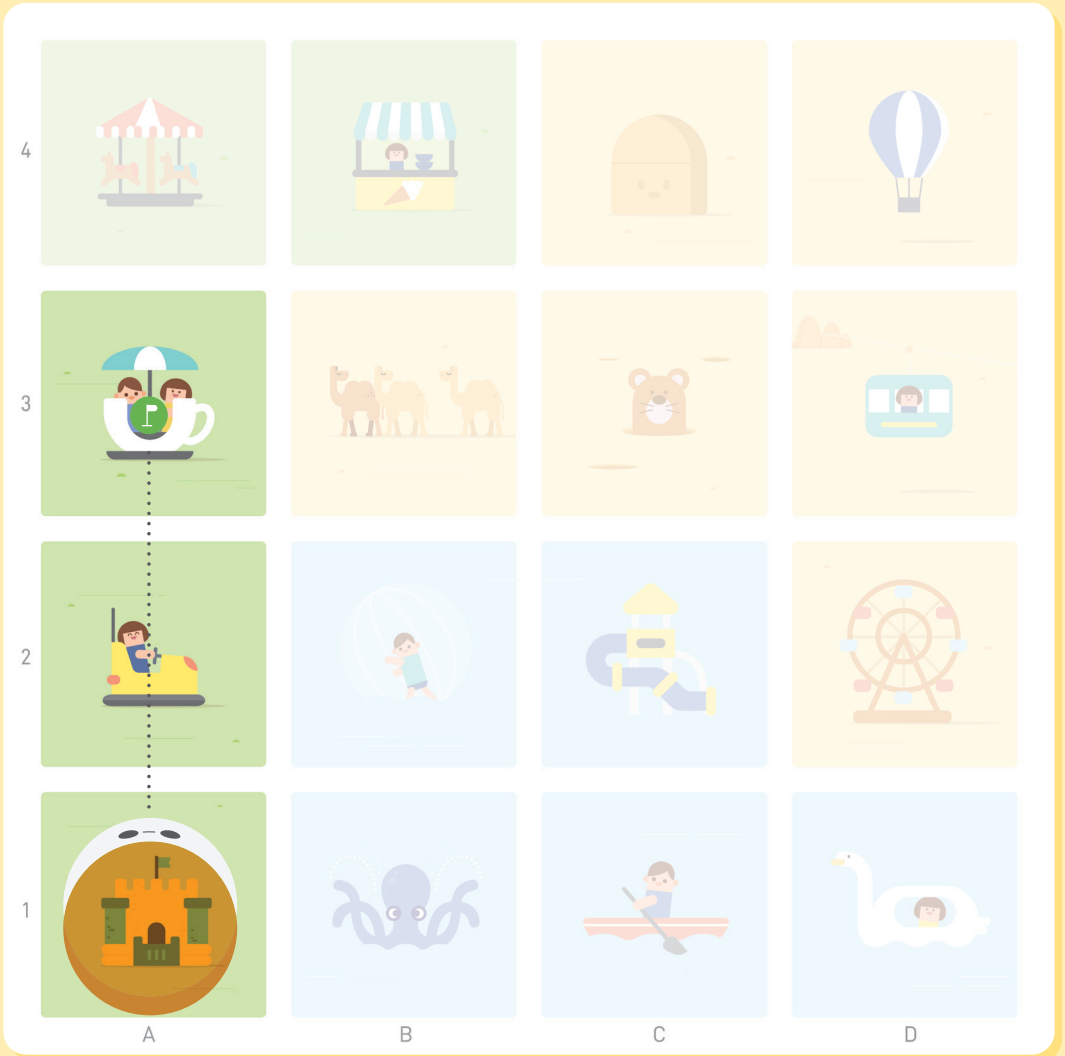
- Sequencing: When creating a program, the seuence is important. MatataBot cannot make the correct actions with the commands placed in wrong sequence. There are many things in life also need to be finished in sequence.
- Decomposition: Patiently help children plan the route and disassemble it into each specific command, place the coding blocks one by one to complete a complete program.
- Multiple strategies to solve problems:Encourage children to freely explore the results of different sorting methods.
- Expression:Encourage children to compile a story according to MatataBot’ s movements.

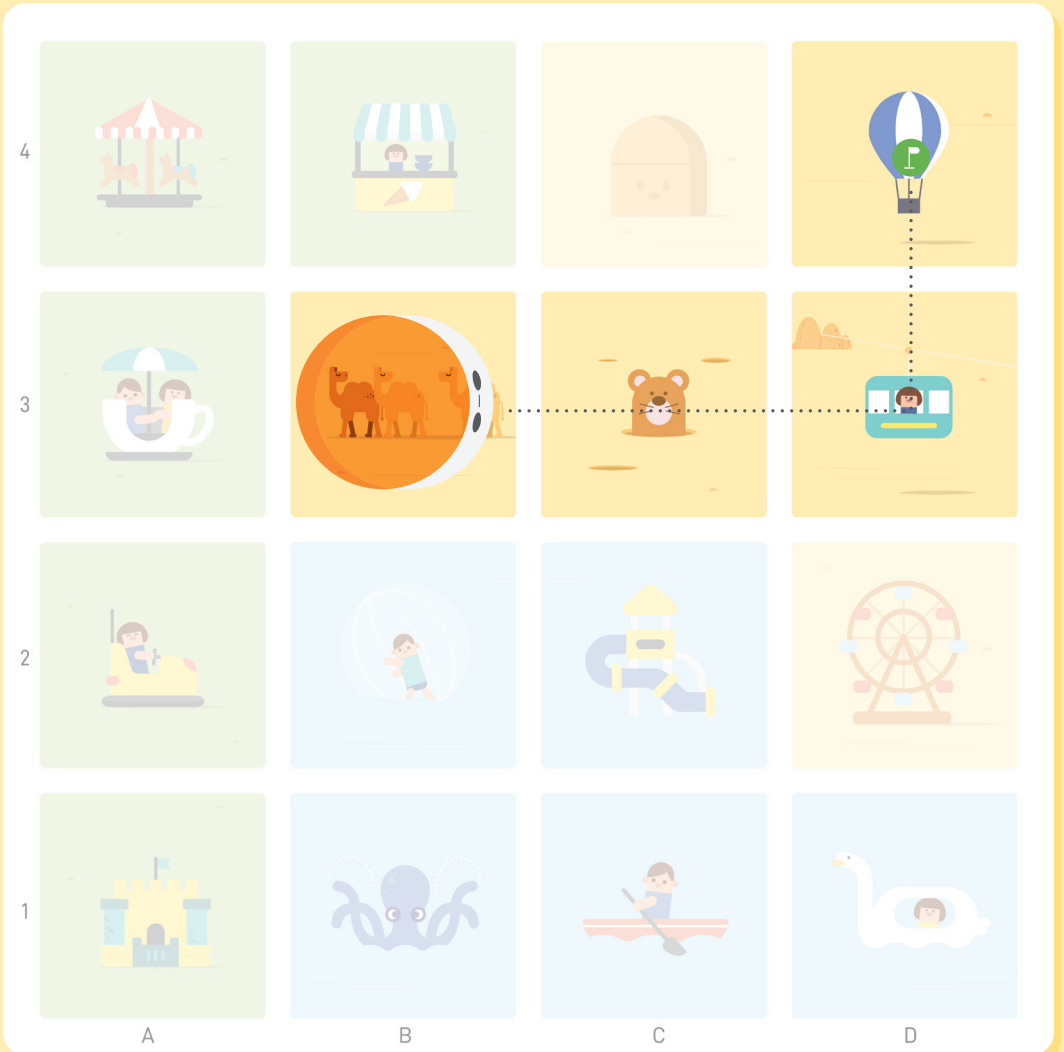
Parent's Guide



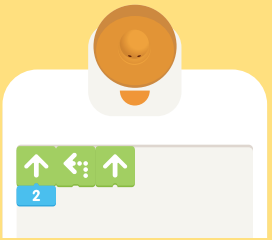
Do you know how to make MatataBot move forward 2 steps with 2 ?





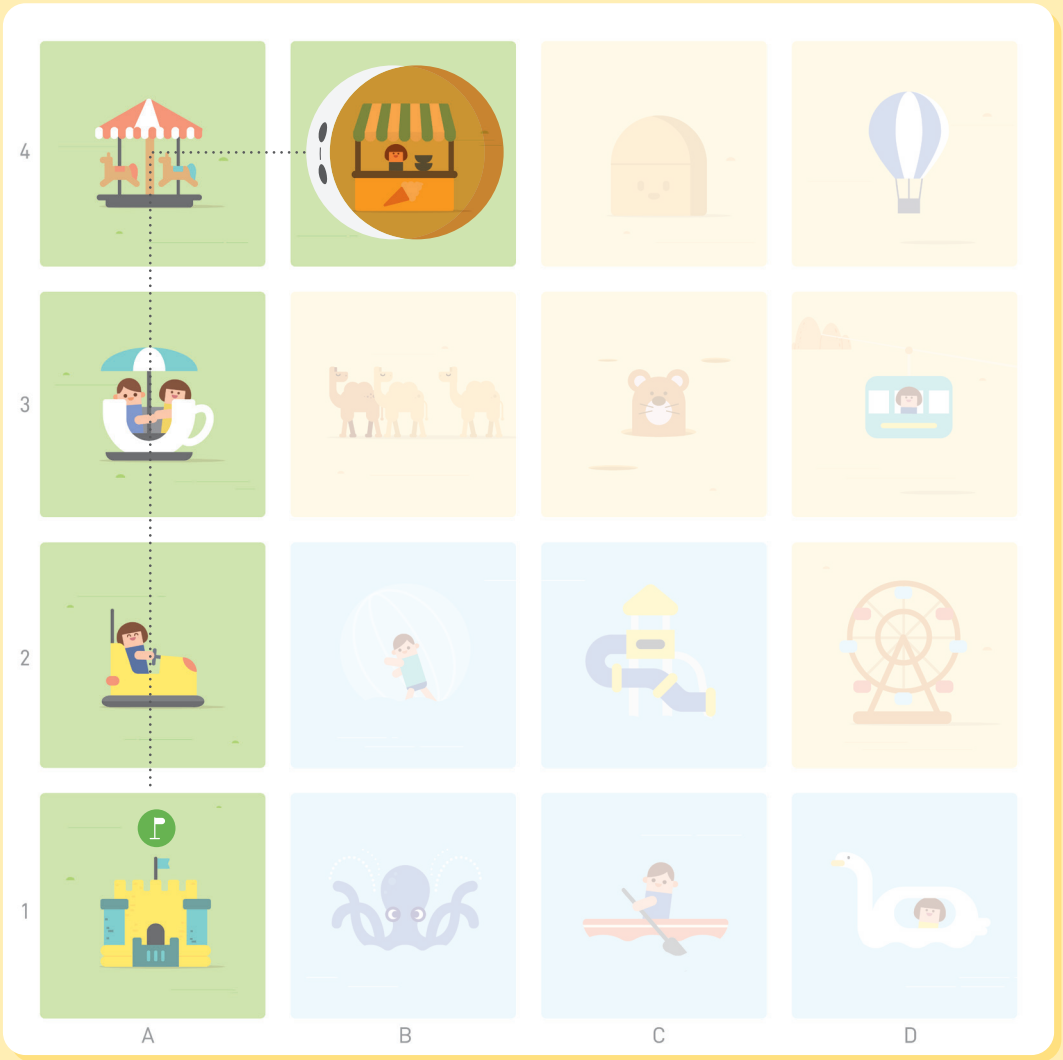


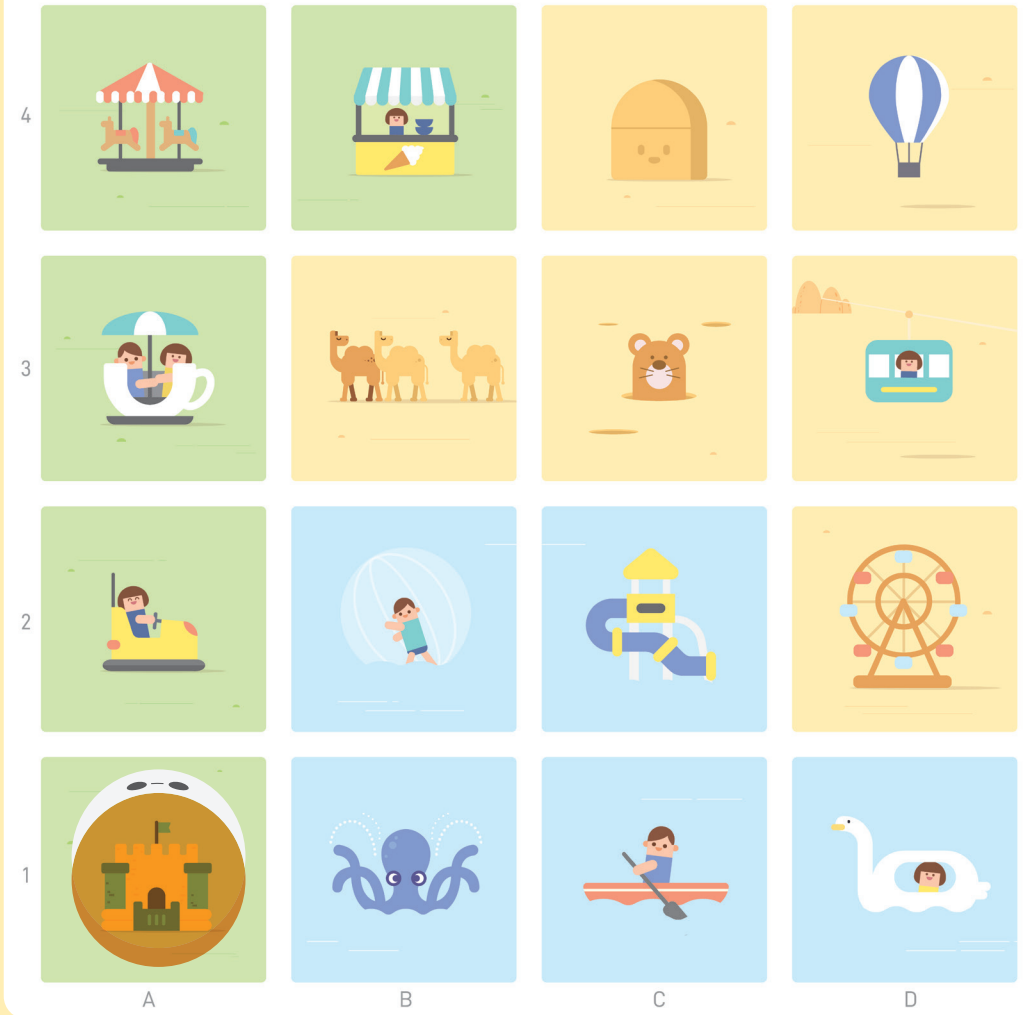
Use 2 to create a program that can help MatataBot move to the hot air balloon.



Line the coding blocks can let MatataBot make the same movements.

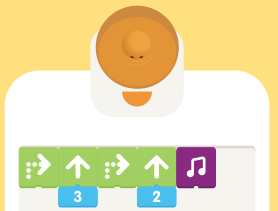
Use 3 in the program to make MatataBot walk to the gate.



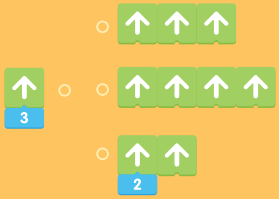


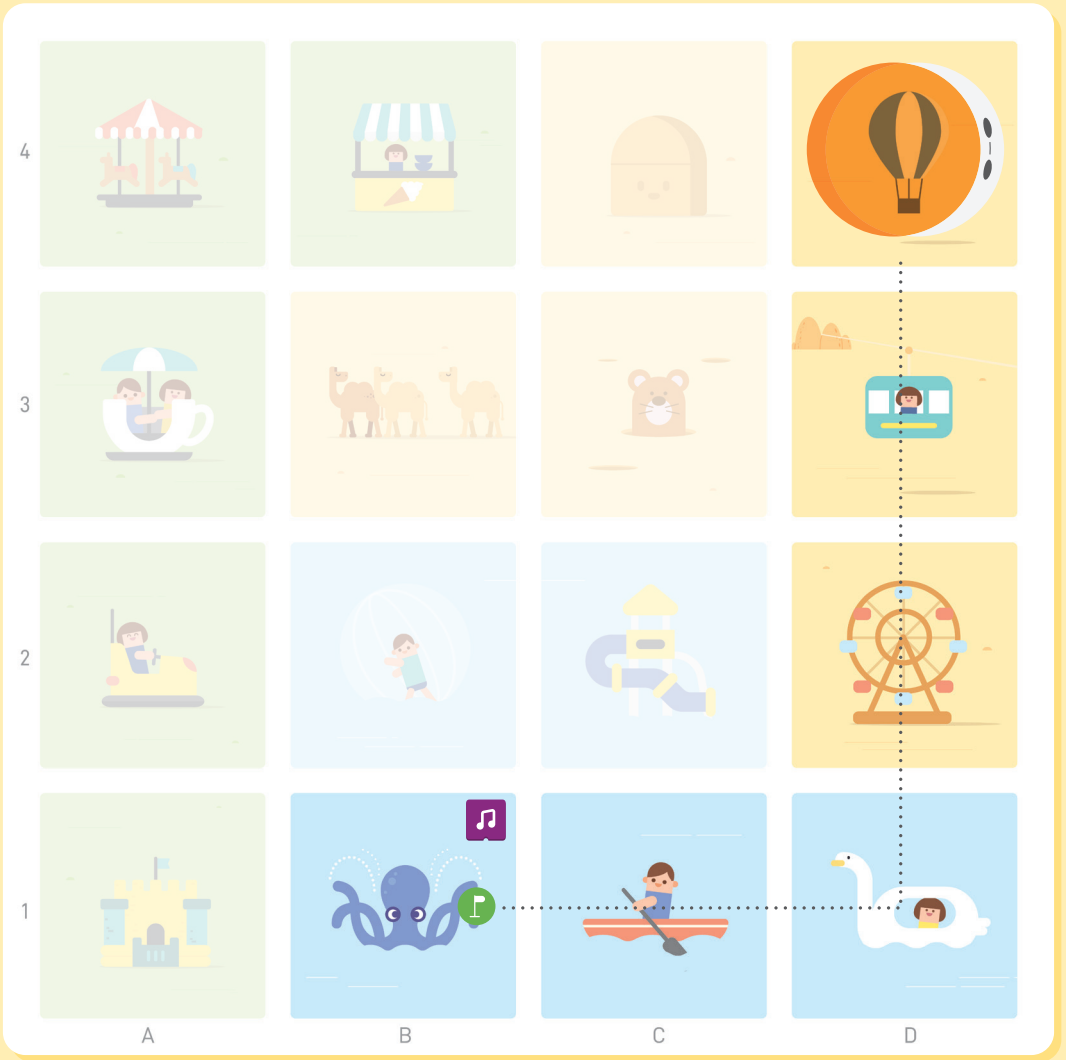
Use to make MatataBot move forward or backward, how many squares could it move at most?

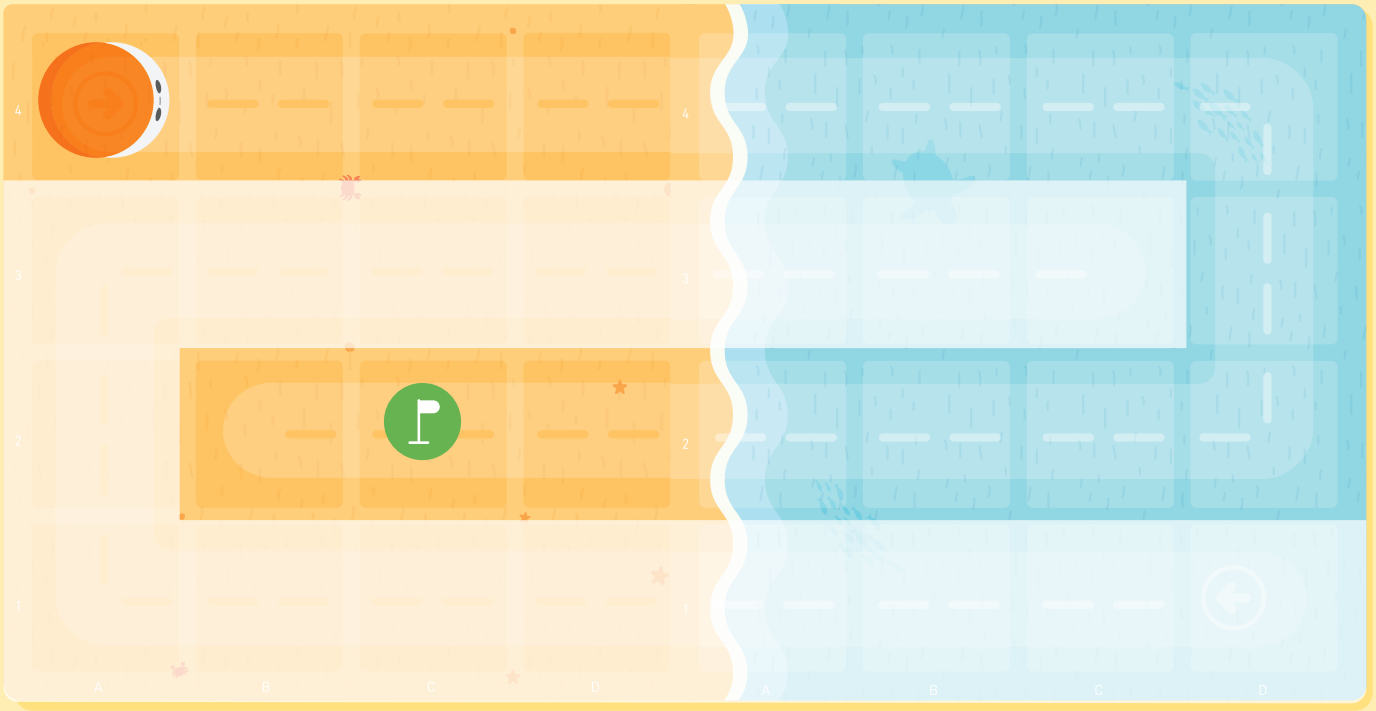
Use 2 and 3 to create a program that can help MatataBot move from the hot air balloon to the music fountain.

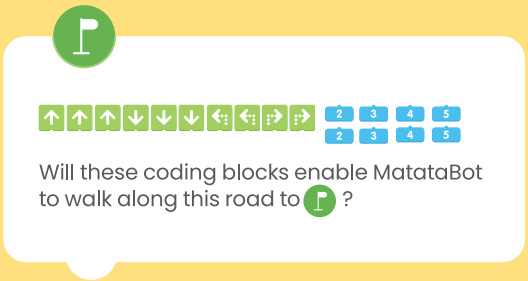


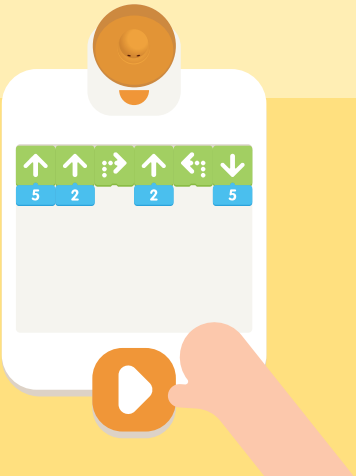
Line the coding blocks can let MatataBot make the same movements.

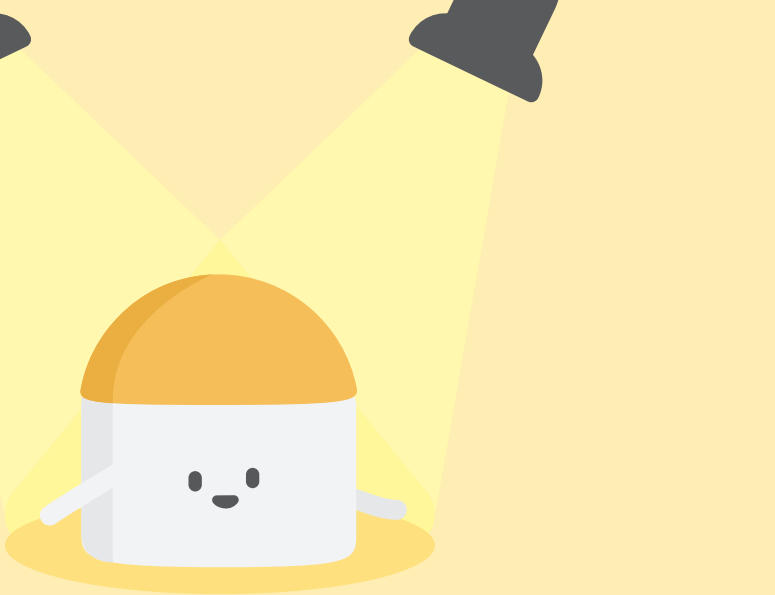


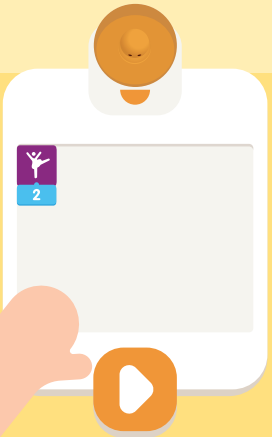



4
3
2
1
A
B
C
D

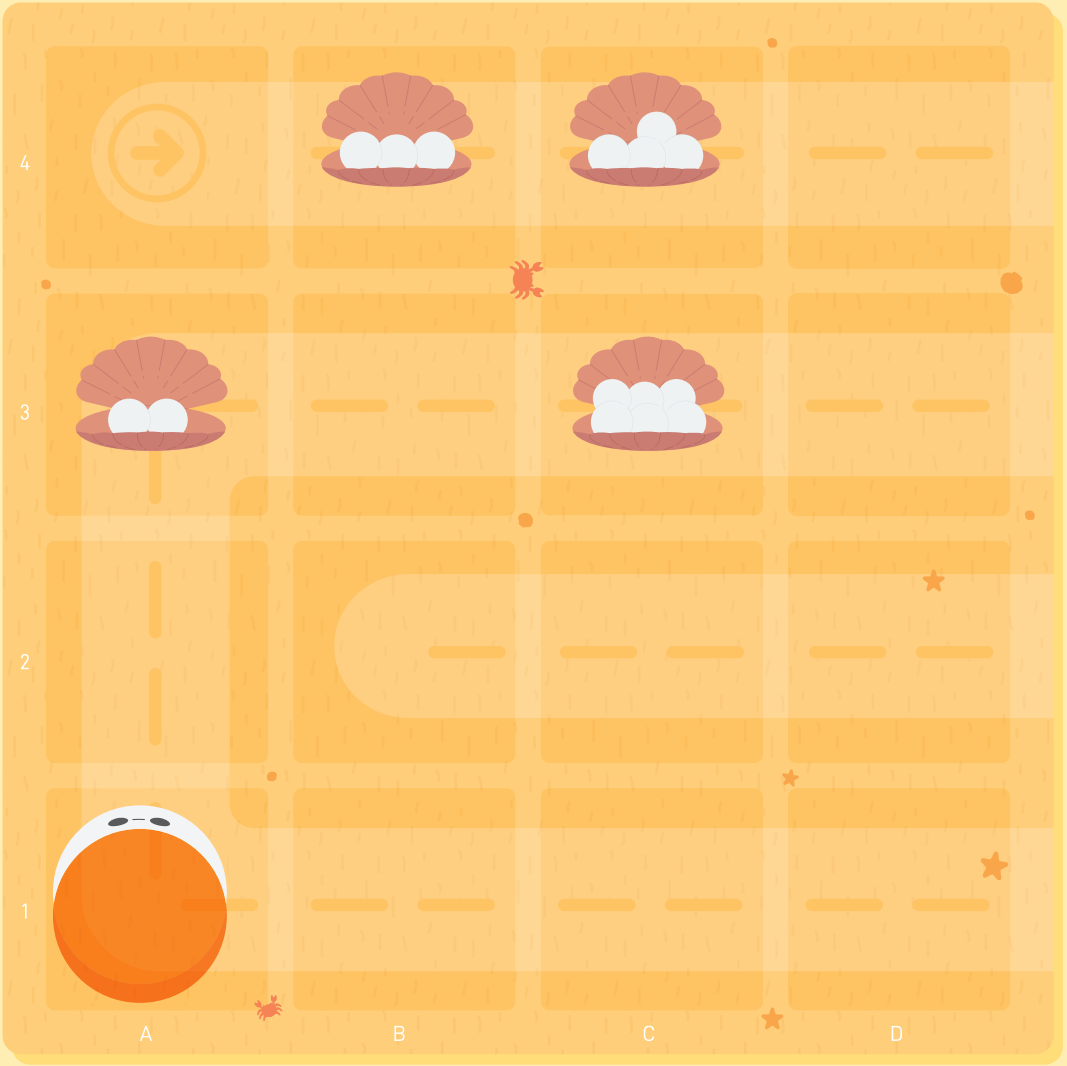

2 3 4 5
2 3 4 5
Will these coding blocks enable MatataBot to walk along this road to ?


5 2 2 5

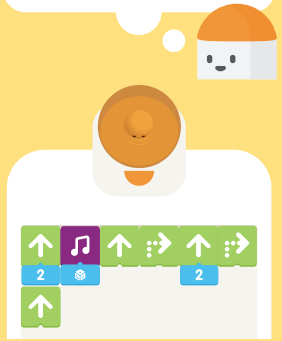




Combine these coding blocks together and see what will happen.



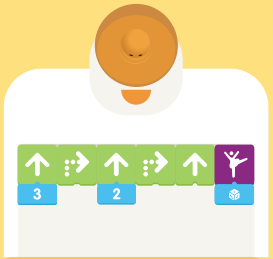
Program MatataBot to collect pearls and play a random song when it reaches the shell with the fewest pearls.



If you want to bring up the third song, how would you modify this program?

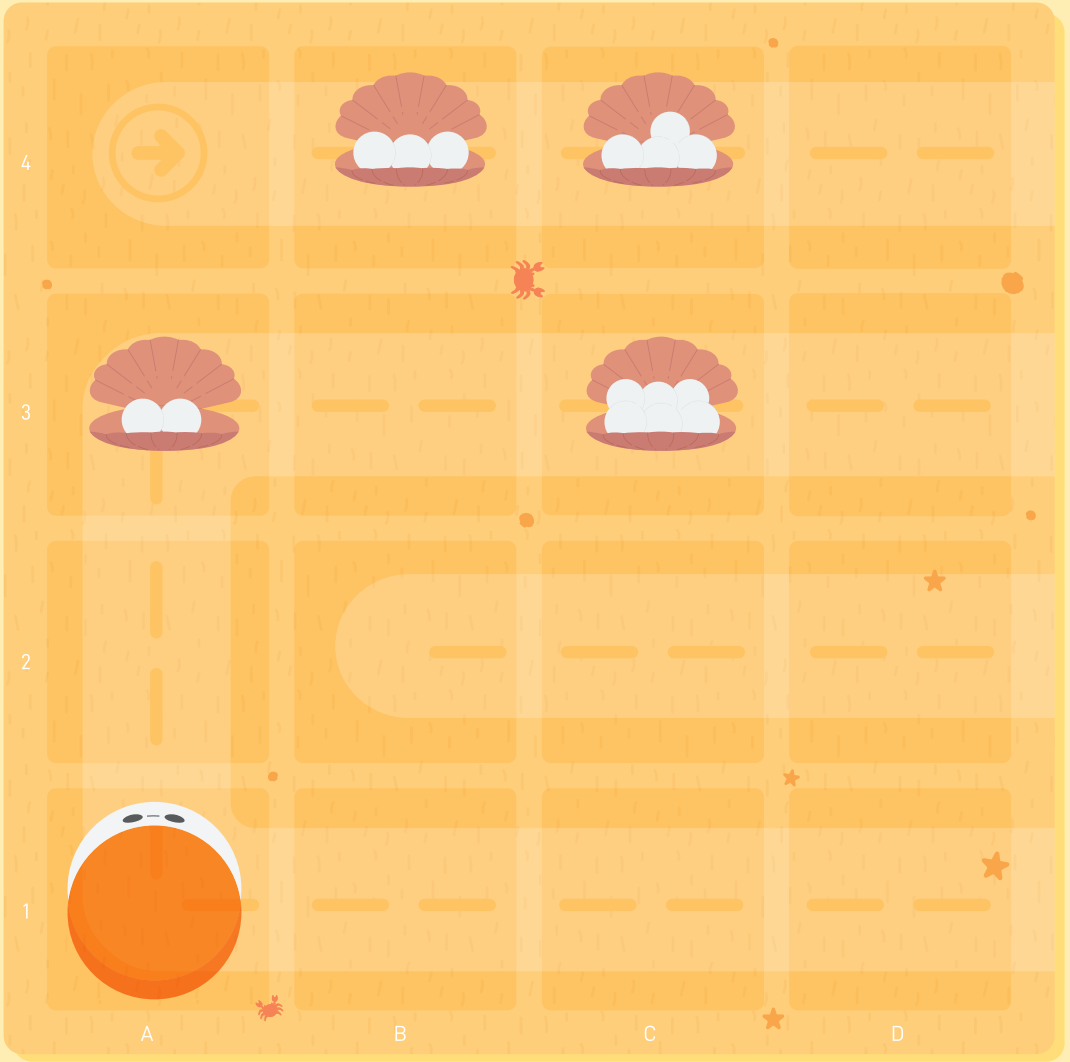
The answer is on page 48

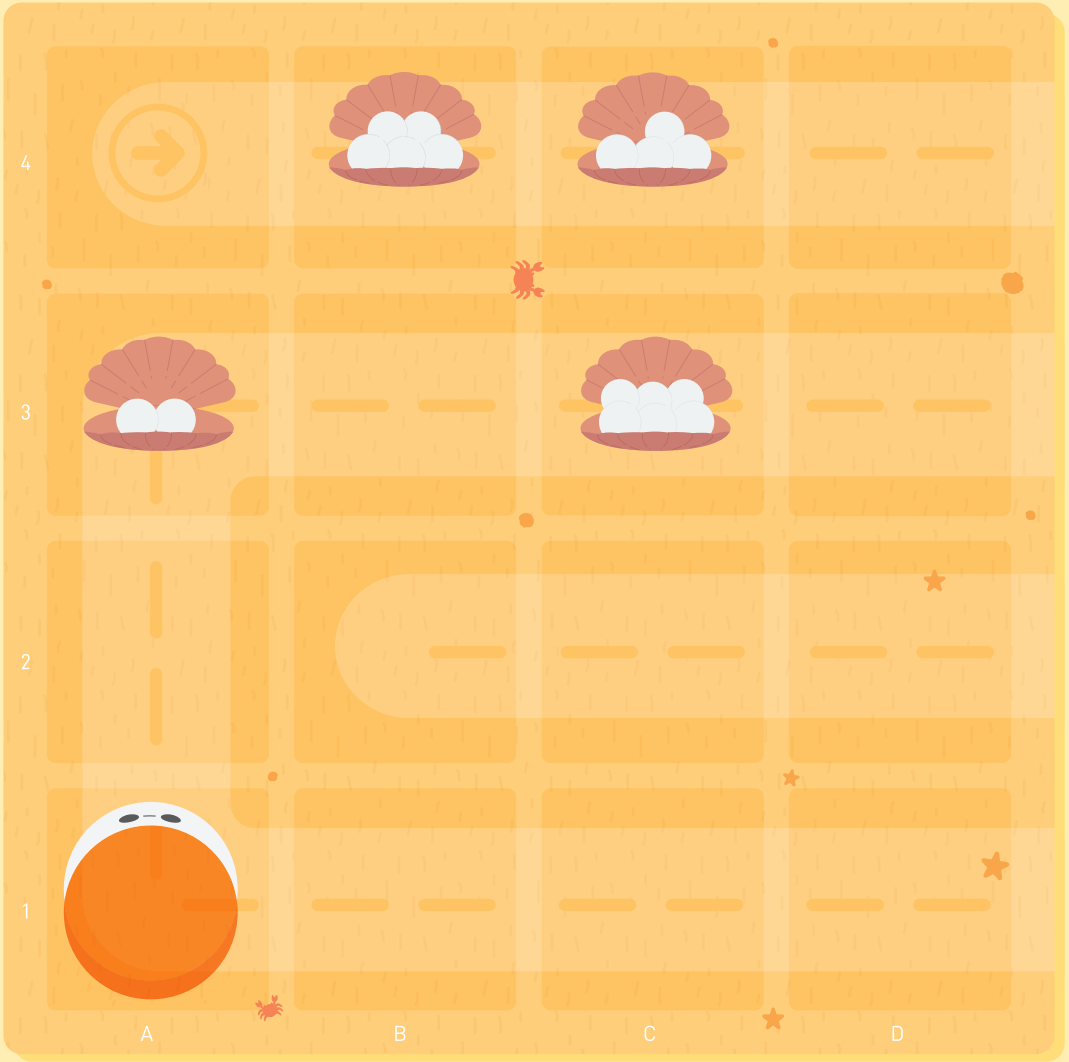
Program MatataBot to perform a random dance when it reaches the shell with the most pearls.



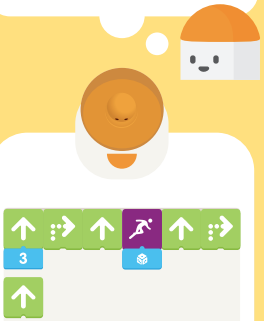
If you want MatataBot perform the third dance, how would you modify this program?

The answer is on page 48





Program MatataBot to collect all the pearls and perform a random set of actions when it reaches the shell with 5 pearls.



If you want MatataBot to perform the fifth action, how would you modify this program?

The answer is on page 48

1 2

Use number coding blocks to move MatataBot to the mole.

2 3

Use number coding blocks to move MatataBot to the hot air balloon.

3 2

Use number coding blocks to move MatataBot to the flag.

4 3

Use number coding blocks to move MatataBot to the flag.

Come to try more solutions!

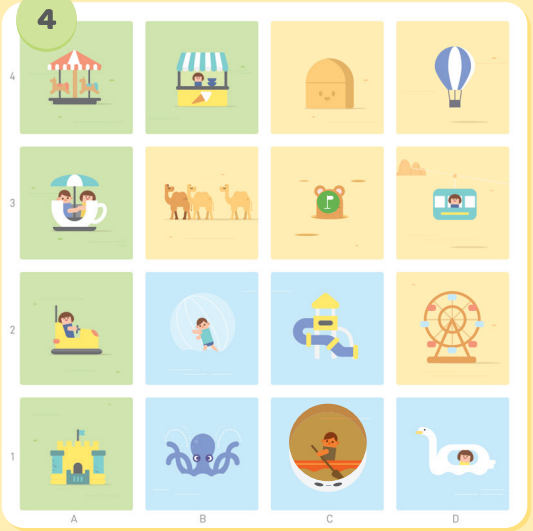
The answer is on page 48

1

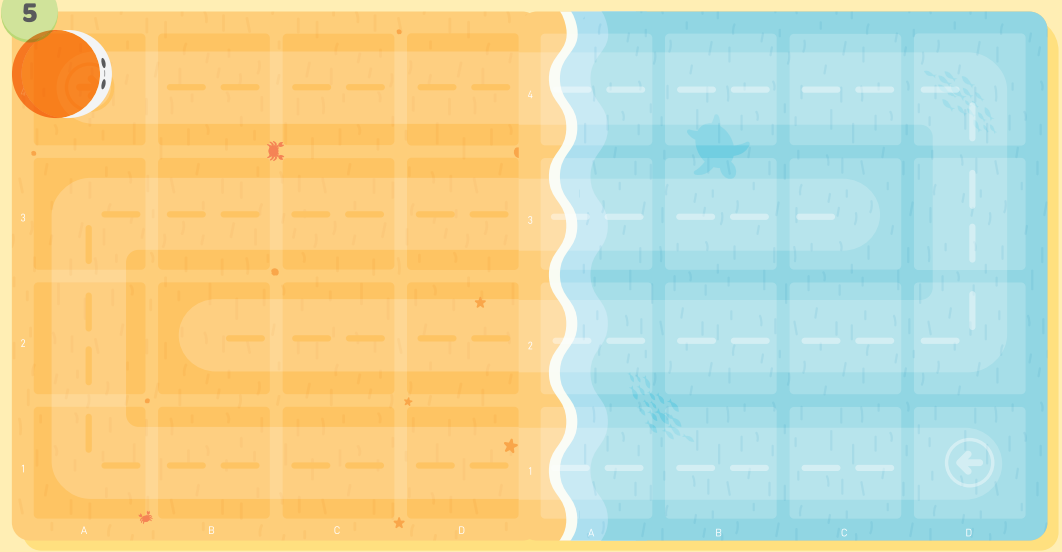
2

3

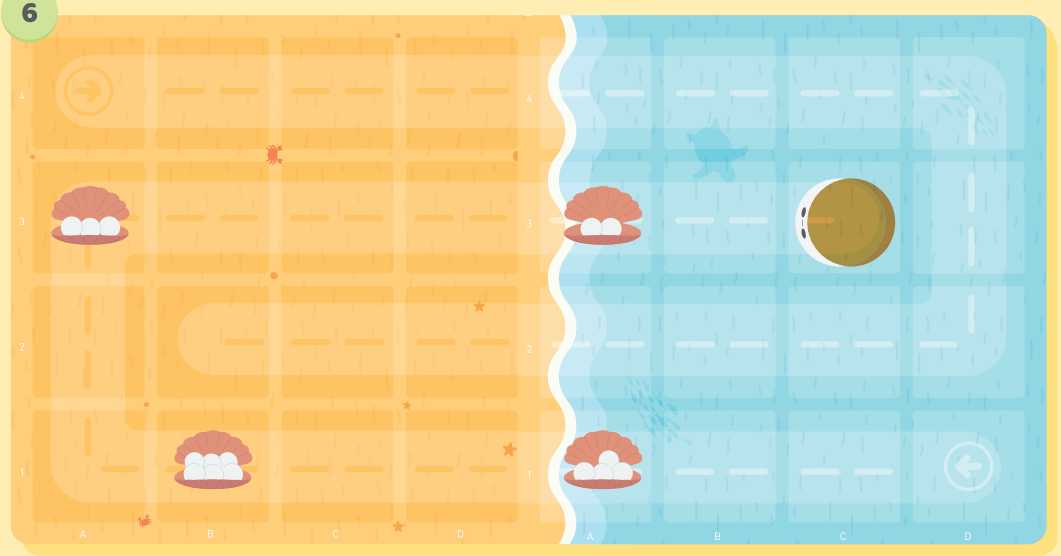
4



5



6



5 

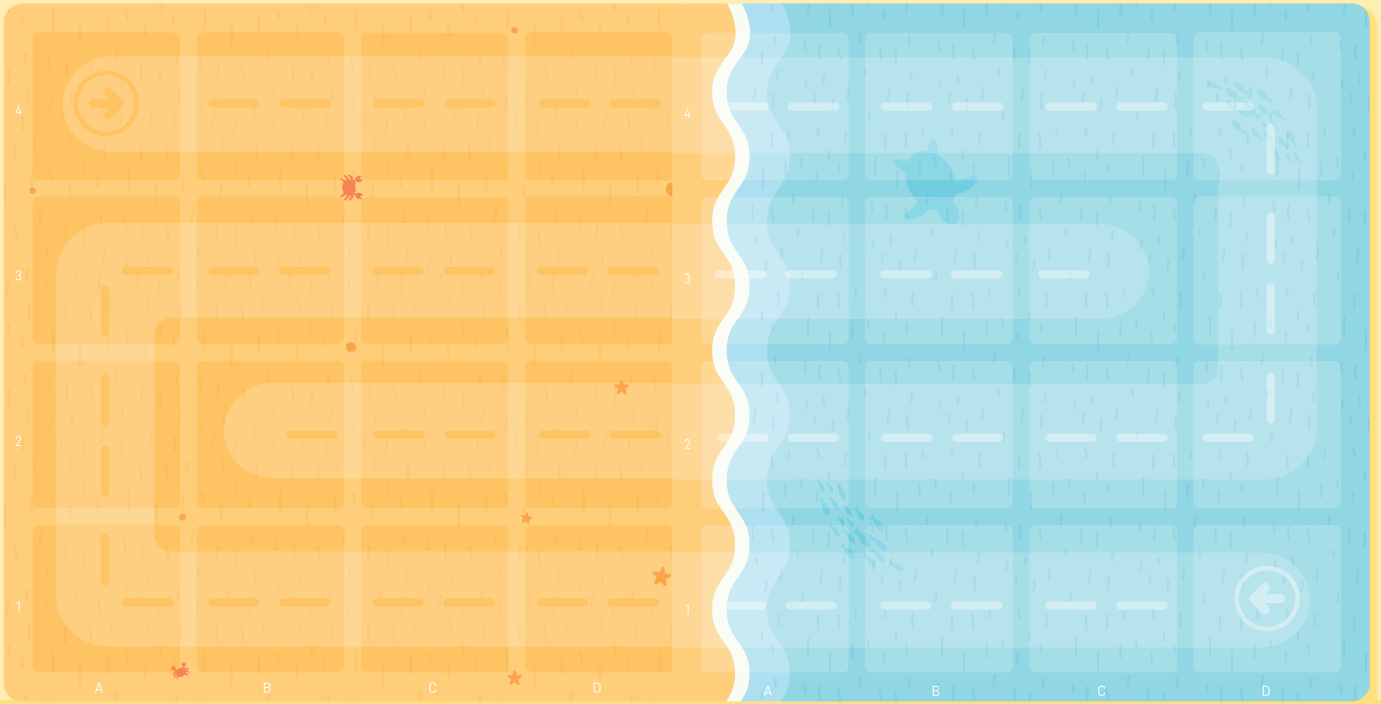
What are the maxium number of squares can MatataBot walk along the path using these coding blocks?

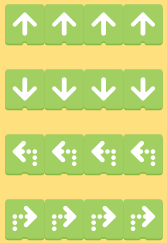
6 

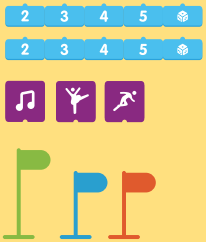
What are the maxium number of squares can MatataBot walk along the path using these coding blocks?

Come to try more solutions!

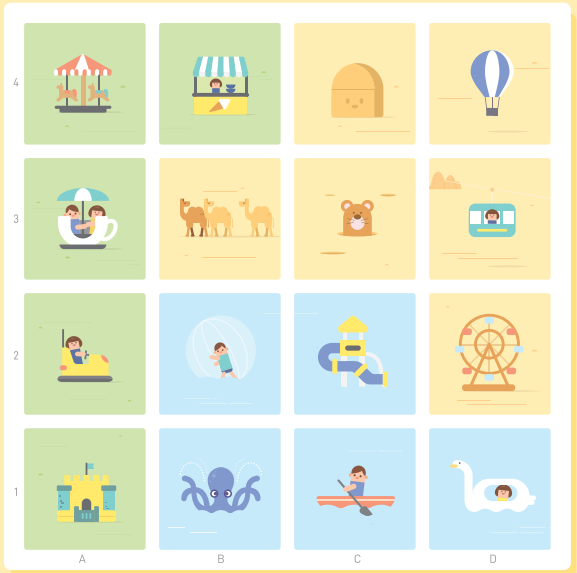
The answer is on page 48







Use these materials to create your programming game and invite friends to play.

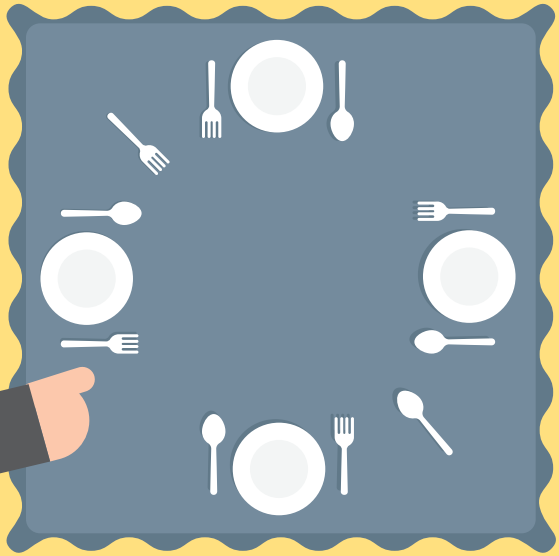


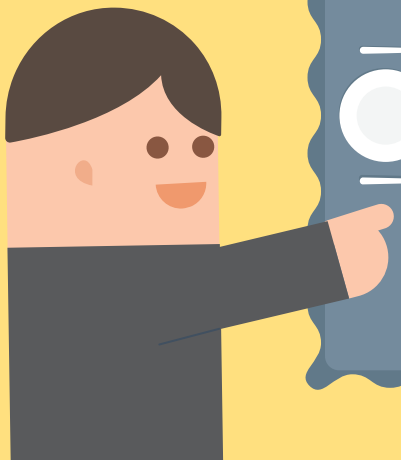
Can you tell exactly where each attraction is?

Location D2

Location

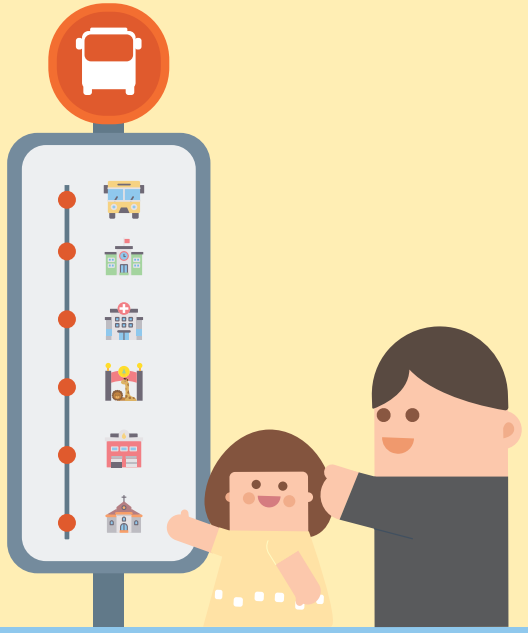
Location



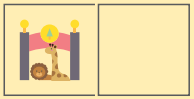


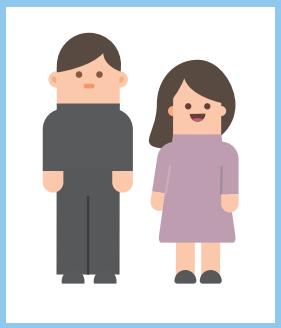
There are a lot of tableware. Come and count how many of each.

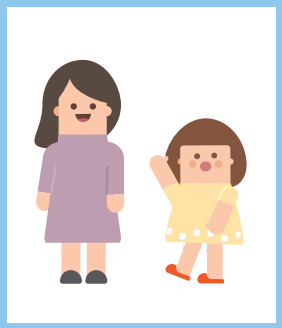
The answer is on page 48



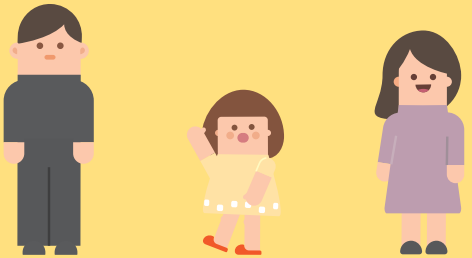
From the bus station, how many stops we will go by to arrive at the zoo?





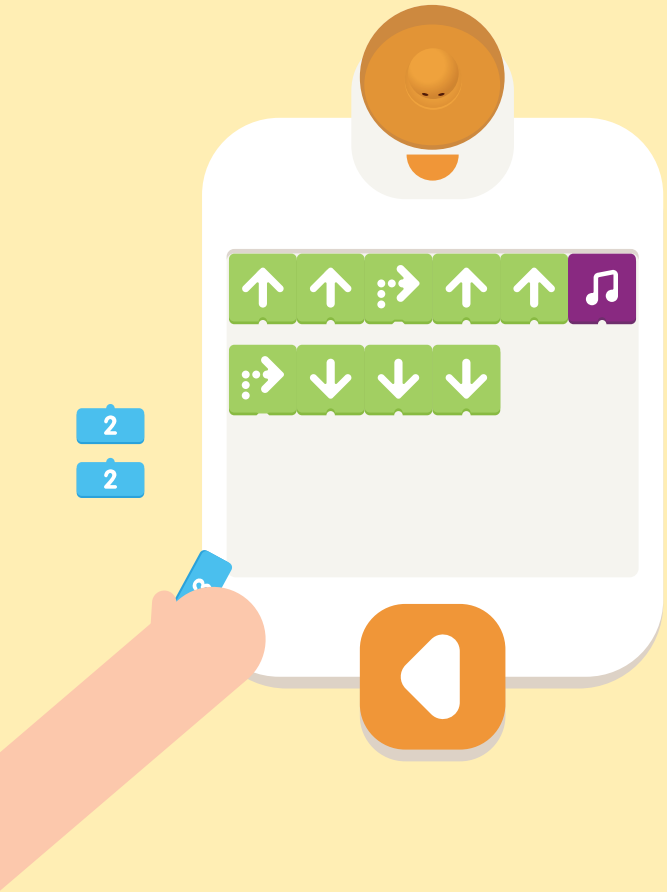


Observe the two pictures above and draw a ★ for the taller people in each picture.



Please label them with serial numbers 1 to 3 in order from tall to short.

The answer is on page 48



Computer and Computer Language

Computers are built into various tools, such as washing machines, microwave ovens and robots. The commands we give the robot actually go to the built-in computer. Therefore, we must learn to use the computer language that a computer can understand.

Graphical programs, such as  is also a kind of computer language that is simple and intuitive. If we want to make MatataBot understand the command to "move two steps forward", just compose  .

Try to use number coding blocks to make this program more concise.

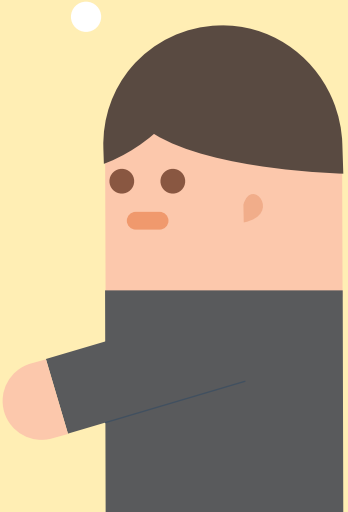
Unit Goals

Use numbers to optimize the program: You can use number coding blocks to save time in completing an algorithm. For example, with , you don't need to place moving forward coding blocks for 4 times.

Difficulties

- Number coding blocks: Coding blocks printed with numbers 2,3,4,5. Number coding blocks can be used in combination with other coding blocks with semicircle notch. However, it cannot be combined with left-turn or right-turn coding blocks that do not match the notch shape.
- Program understanding: Encourage children to explore and discover the different meanings of numbers when combined with different coding blocks. For example, when you place the number coding blocks below the move forward, move backward, and loop coding blocks, MatataBot will repeatedly execute the commands corresponding to the number of times. Combining number coding blocks with can let MatataBot perform one of the preset music, dance or movements. A combination with music coding blocks can change the music length.

Parent's Guide

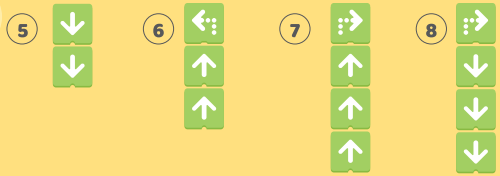


P7

1 2 3 4

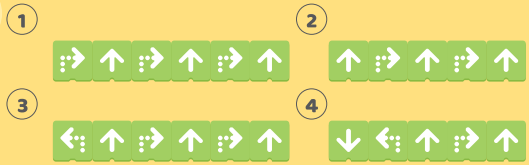
P8

5 6 7 8



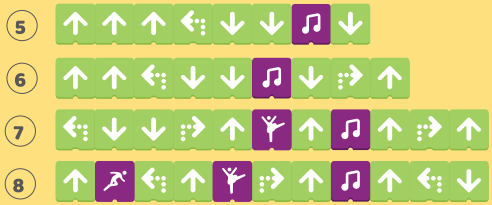
P24

1 2 3 4



P25

5 6 7 8



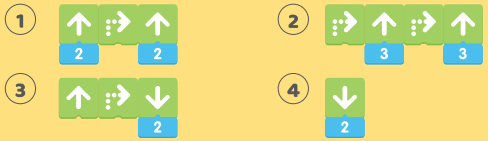
P38

P39

P40

P41

1 2 3 4



P42

5 7 squares

7 格

6 Yes

能

P44

D4 B1 5 5 4

P45

3 1 3 2

Tips: Those answers are only suggested, use your creativity to find out other possible answers!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