



**Logic**

**Space**



**Coding**



**Focus**



# Classroom Discipline

**01**

Please sit down and keep quiet in class.

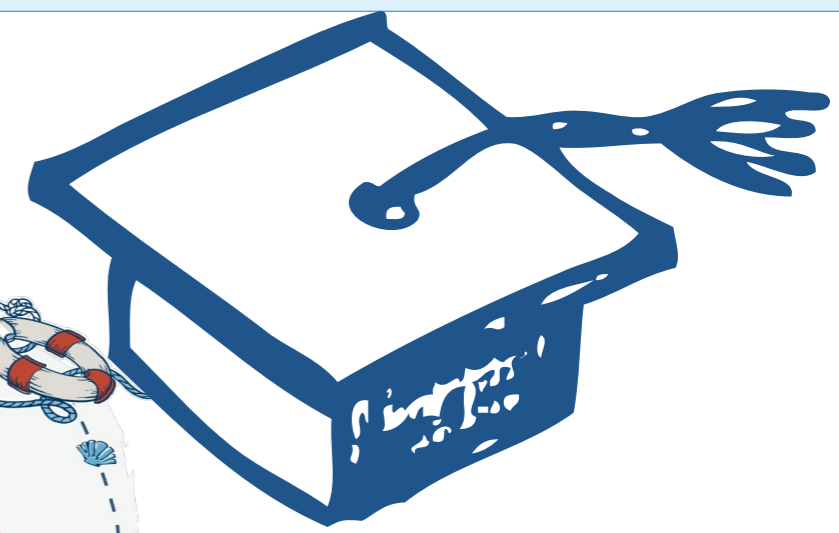
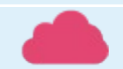
**02**

Please raise your hand if you have any questions.

**03**

Please observe carefully when the pictures are played.





# Color Sorting Machine 02



# Course Goals



Thinkidea

1

Learning goals

2

Project Discussion

3

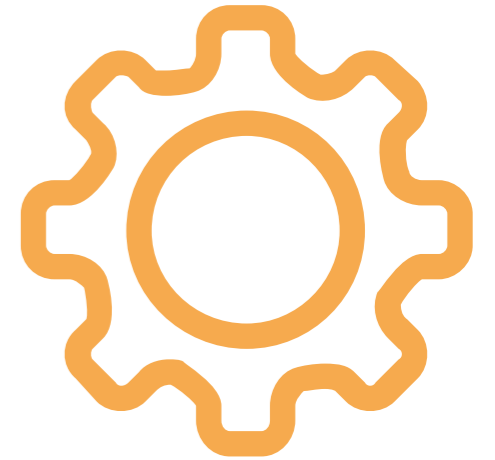
Logic Programming

4

Have a try

5

Consolidate and extend





1

Build a sorting machine and let it recognize different colors.

2

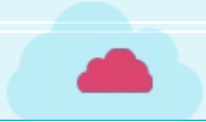
Consolidate the modules like **"if...then..."** 、 **" Operators <"** 、 **" Sense"** .

3

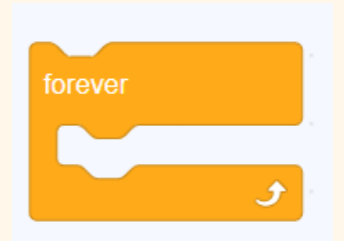
Learn new modules **"if...then...elsr"** 、 **" light"** .

4

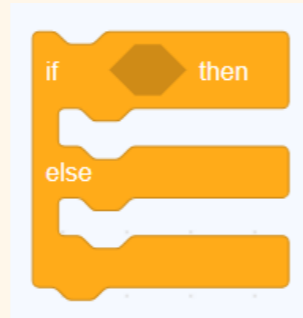
Comprehensively apply the learned modules to complete programming projects and expand.

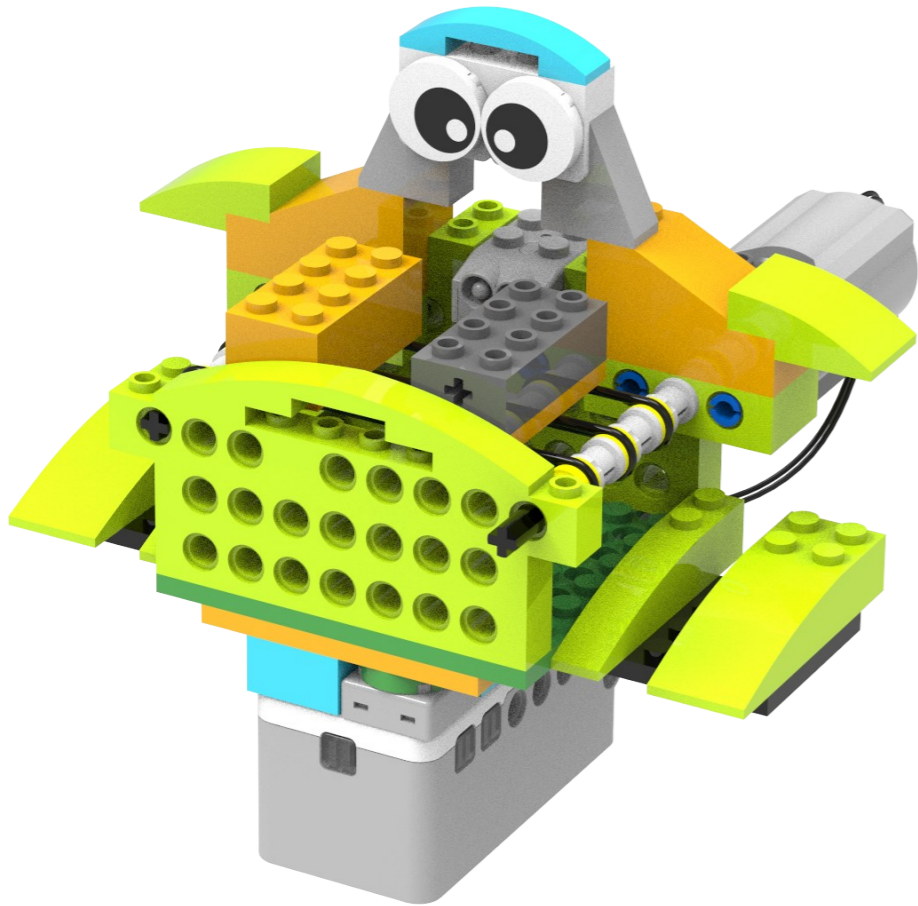


Consolidate modules:



New modules:

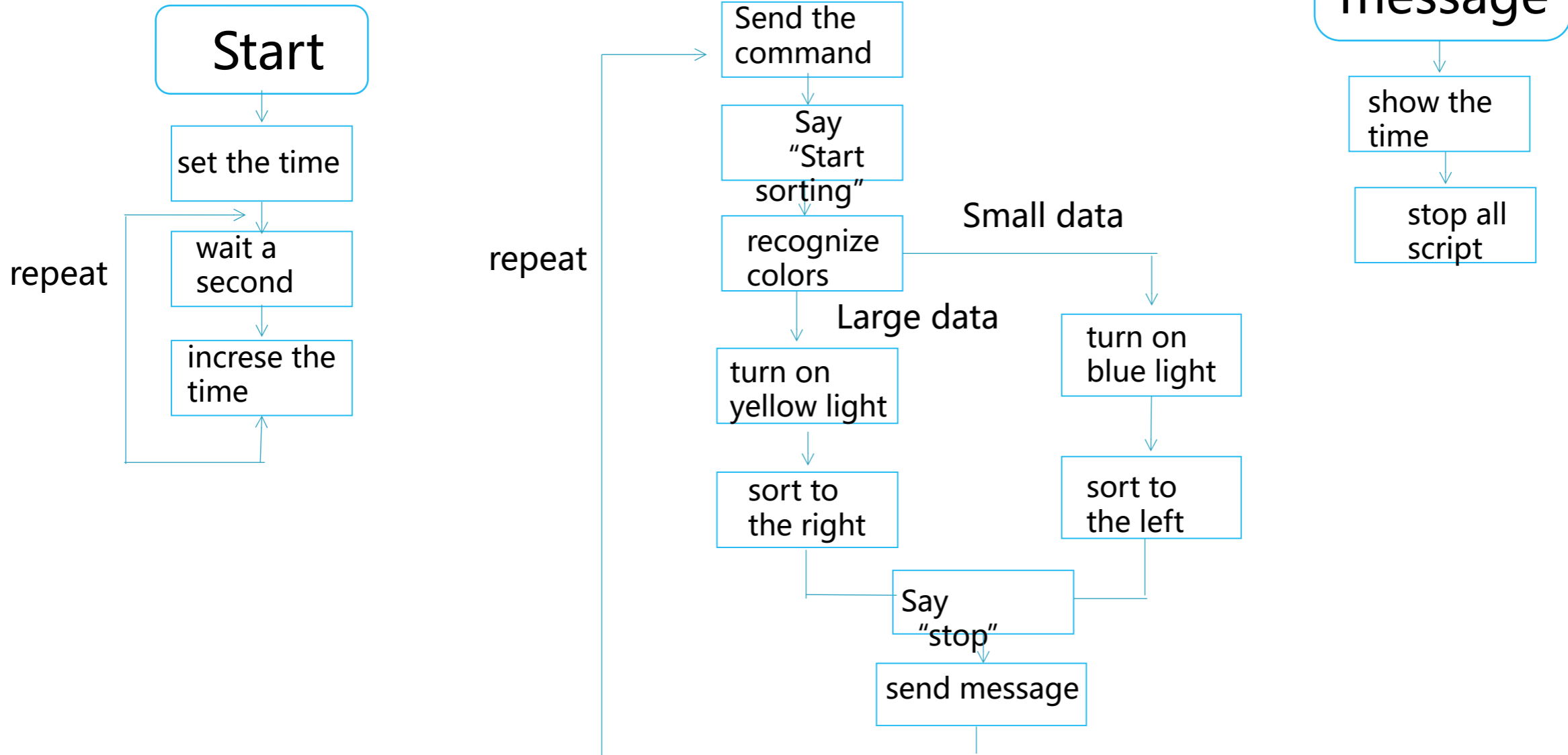




## Project Discussion

1. After receiving the command.
2. The sorting machine says: "Start sorting" .
3. Light colors turn on the yellow light and move to the left.
4. Dark colors turn on the blue light and move to the right.
5. Finally, show the sorting time.

## 1. Programming logic

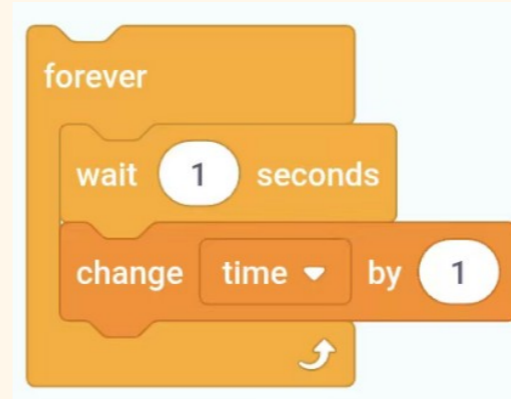
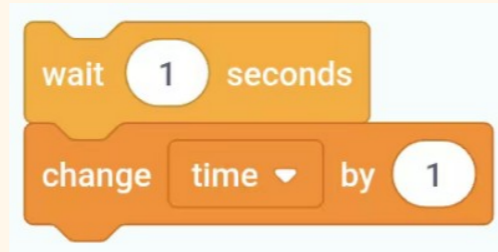


# 1. Programming logic

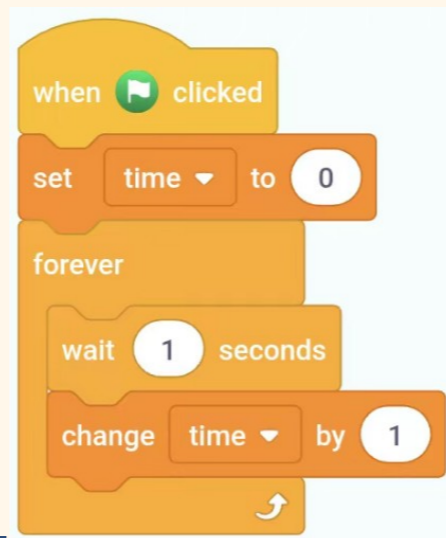
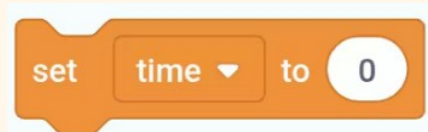
## 1. Calculate the time

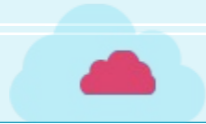
time

create a variable



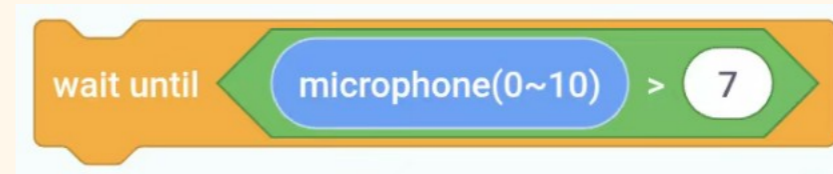
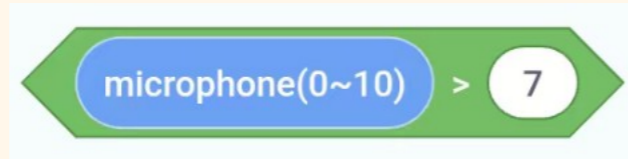
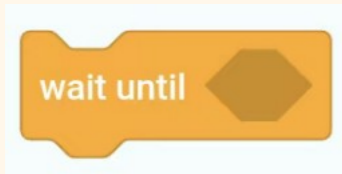
## 2. Set the time to 0 first.



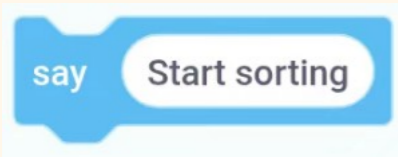


# 1. Programming logic

## 1. Send the command



## 2. Say



# 1. Programming logic

1. Start recognizing, light colors turn on the yellow light and move to the left.

```
if distanceSensor(0~6) sensor1 < 3 then
```

```
if distanceSensor(0~6) sensor1 < 3 then
  set all to yellow
  motor port1 direction anticlockwise speed(0~12) 6
```

2. Start recognizing, Dark colors turn on the blue light and move to the right.

```
if distanceSensor(0~6) sensor1 > 3 then
```

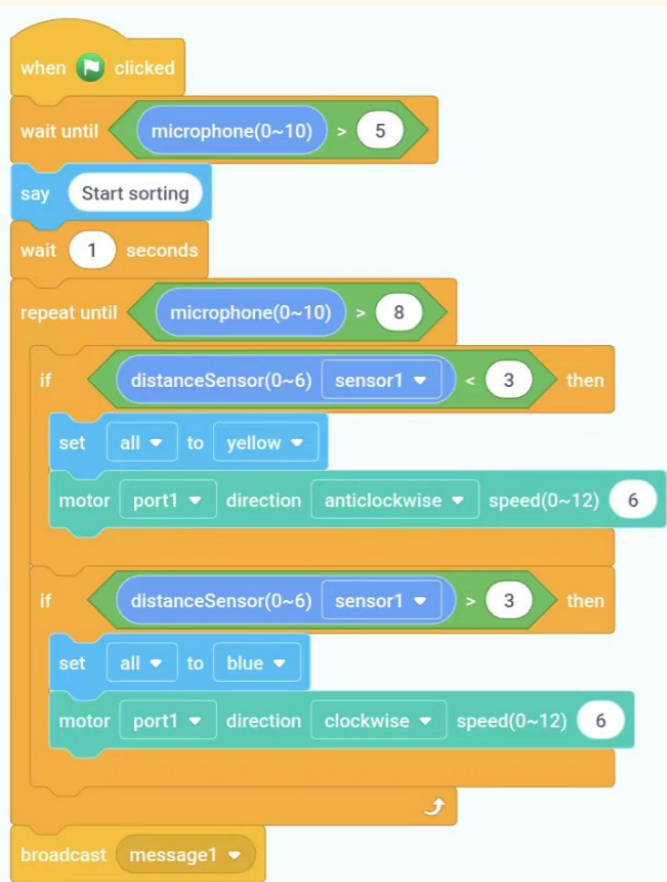
```
if distanceSensor(0~6) sensor1 > 3 then
  set all to blue
  motor port1 direction clockwise speed(0~12) 6
```

# 1. Programming logic

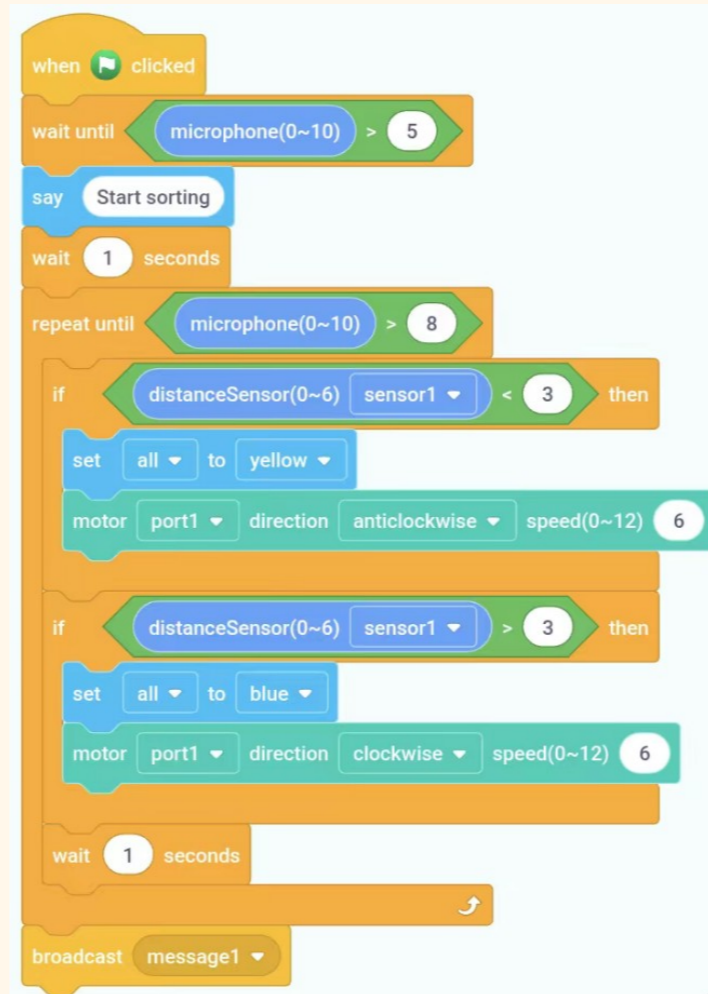
## 1. Show the time




```
repeat until microphone(0~10) > 8
```



```
when clicked  
wait until microphone(0~10) > 5  
say Start sorting  
wait 1 seconds  
repeat until microphone(0~10) > 8  
if distanceSensor(0~6) sensor1 < 3 then  
set all to yellow  
motor port1 direction anticlockwise speed(0~12) 6  
if distanceSensor(0~6) sensor1 > 3 then  
set all to blue  
motor port1 direction clockwise speed(0~12) 6  
broadcast message1
```



```
when clicked  
wait until microphone(0~10) > 5  
say Start sorting  
wait 1 seconds  
repeat until microphone(0~10) > 8  
if distanceSensor(0~6) sensor1 < 3 then  
set all to yellow  
motor port1 direction anticlockwise speed(0~12) 6  
if distanceSensor(0~6) sensor1 > 3 then  
set all to blue  
motor port1 direction clockwise speed(0~12) 6  
wait 1 seconds  
broadcast message1
```



```
when I receive message1  
showText time  
motorStop all ports  
stop all
```



## 1. Have a try

**Use your imagination to make your own version!**



# Consolidate and extend

**Q1 :** Alex wrote a program for the sorting machine. What happens when it runs?

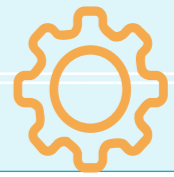


**Q &  
A**

```

when clicked
wait until microphone(0~10) > 5
say Start sorting
wait 1 seconds
repeat until microphone(0~10) > 8
  if distanceSensor(0~6) sensor1 < 3 then
    set all to yellow
    motor port1 direction clockwise speed(0~12) 6
  if distanceSensor(0~6) sensor1 > 3 then
    set all to blue
    motor port1 direction anticlockwise speed(0~12) 6
broadcast message1
  
```

**A1 :** The sorting machine will swap the positions of light and dark colors.



# Knowledge Review

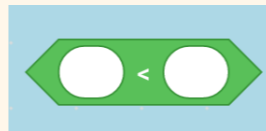


(1)



The “if...then...” command is a commonly used logic block, and it is usually used together with a repeat loop.

(2)



The compare block is used to check which of the two values is greater or smaller.



# Knowledge Review



(3)

microphone(0~10)

Sound sensor module

(4)

wait 1 seconds

The program runs in sequence, with a waiting interval between the two scripts.

Alex wrote a program for the sorting machine, but the machine shows 0 for the time. Why is that?

```

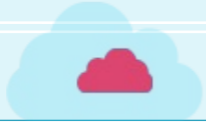
when clicked
  set time to 0
  forever
    wait 1 seconds
    set time to 0

when clicked
  wait until microphone(0~10) > 5
  say Start sorting
  wait 1 seconds
  repeat until microphone(0~10) > 8
    if distanceSensor(0~6) sensor1 < 3 then
      set all to yellow
      motor port1 direction anticlockwise speed(0~12) 6
    if distanceSensor(0~6) sensor1 > 3 then
      set all to blue
      motor port1 direction clockwise speed(0~12) 6
  broadcast message1

when I receive message1
  showText time
  stop all
  
```

- A** The motor direction is set incorrectly.
- B** Because the variable module was set as a set module.
- C** Because there is no repeat module.
- D** Because it finished sorting in a very short time.





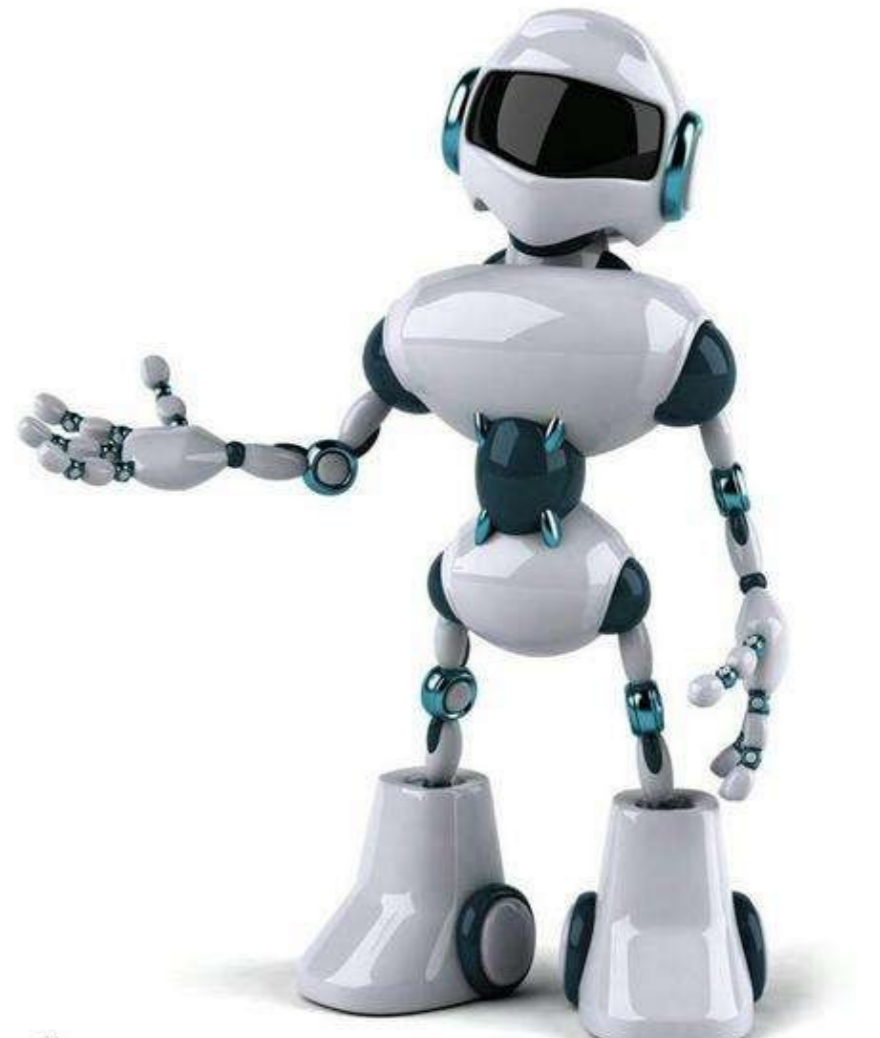
Answer **B**

Analysis **Because the variable module was set as a set module.**

```
when clicked
  set time to 0
  forever
    wait 1 seconds
    change time by 1

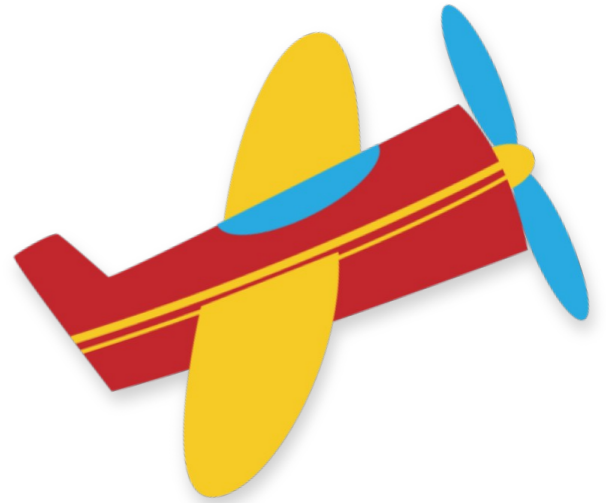
when clicked
  wait until microphone(0~10) > 5
  say Start sorting
  wait 1 seconds
  repeat until microphone(0~10) > 8
    if distanceSensor(0~6) sensor1 < 3 then
      set all to yellow
      motor port1 direction anticlockwise speed(0~12) 6
    if distanceSensor(0~6) sensor1 > 3 then
      set all to blue
      motor port1 direction clockwise speed(0~12) 6
  broadcast message1

when I receive message1
  showText time
  stop all
```





**Talk**





**THANKS**

