



**Logic**

**Space**



**Coding**



**Focus**



# Classroom Discipline

**01**

Please sit down and keep quiet in class.

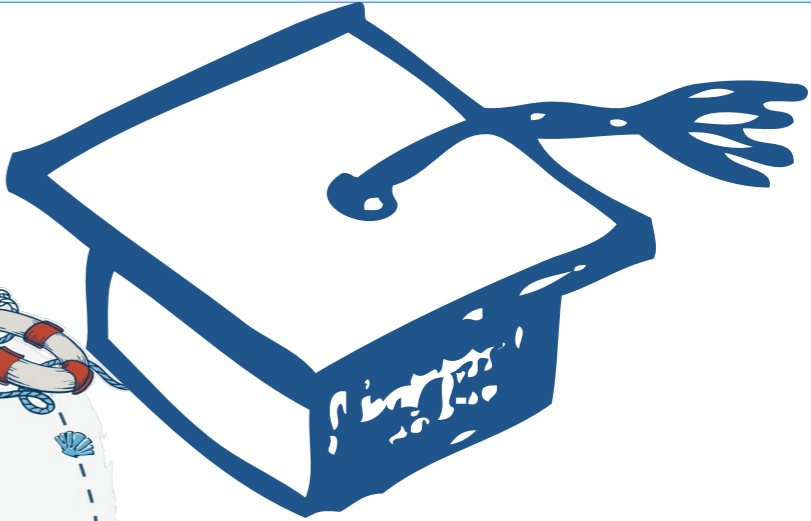
**02**

Please raise your hand if you have any questions.

**03**

Please observe carefully when the pictures are played.





# Crocodile 02



# Course Goals



Thinkidea

1

Learning goals

2

Project Discussion

3

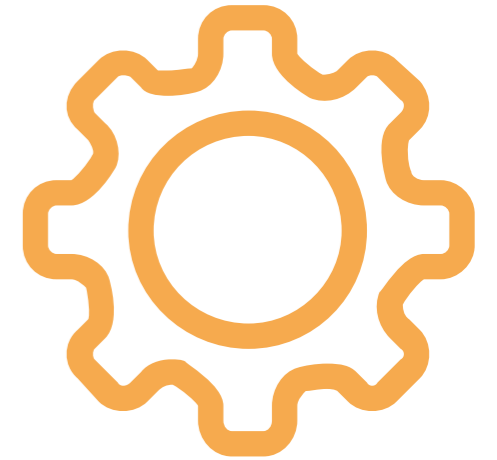
Logic Programming

4

Have a try

5

Consolidate and extend





1

Get to know the fierce crocodile, learn about its habits, and make the crocodile open its mouth to bite — faster and faster!

2

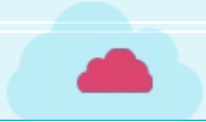
Consolidate the modules like **“Move”** 、 **“sensor”** .

3

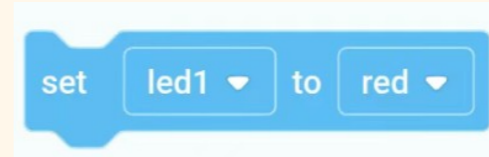
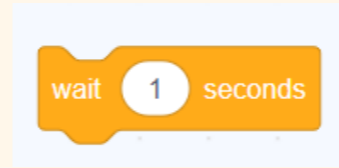
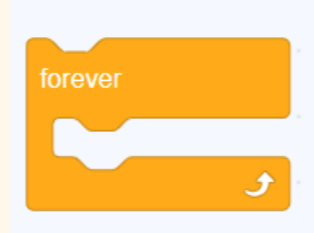
Learn new modules **“Variable”** .

4

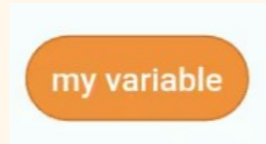
Comprehensively apply the learned modules to complete programming projects and expand.



Consolidate modules:



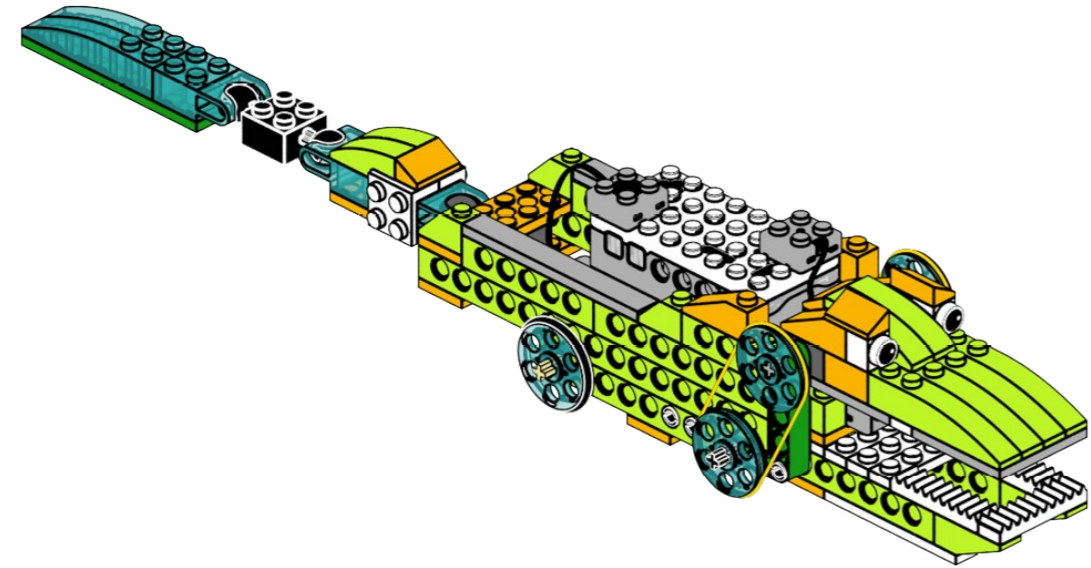
New modules:





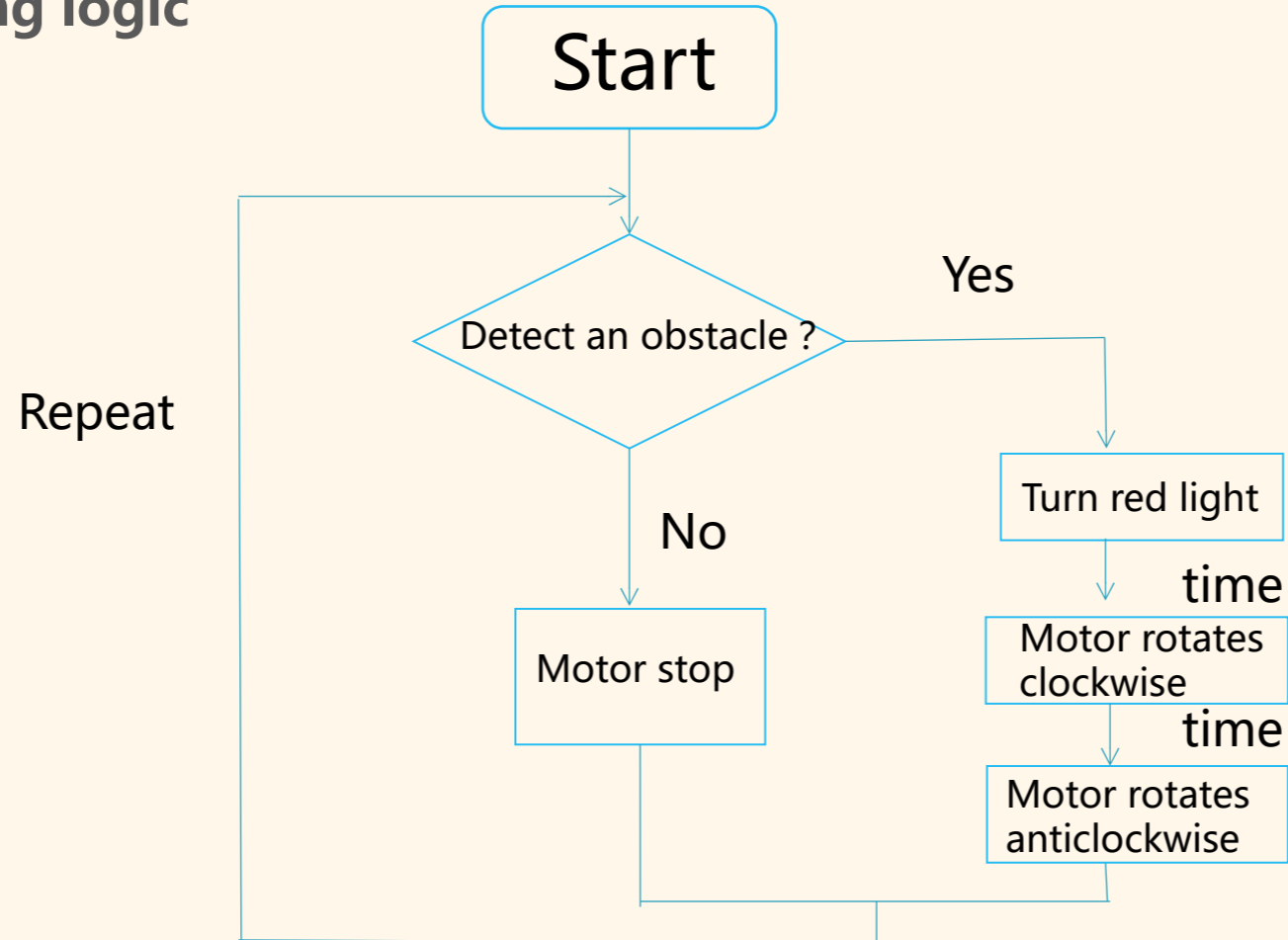
## Project Discussion

- 1. The crocodile opens its mouth.**
- 2. When a hand comes close, the light turns red.**
- 3. Then it bites down.**
- 4. Then open mouth again.**
- 5. The speed gets faster and faster.**



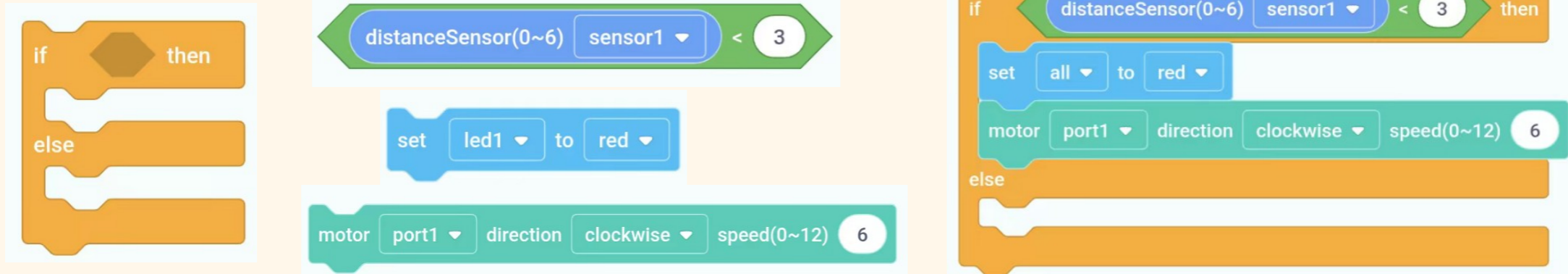


## 1. Programming logic



# 1. Programming logic

1. The crocodile opens its mouth when it sees the food.

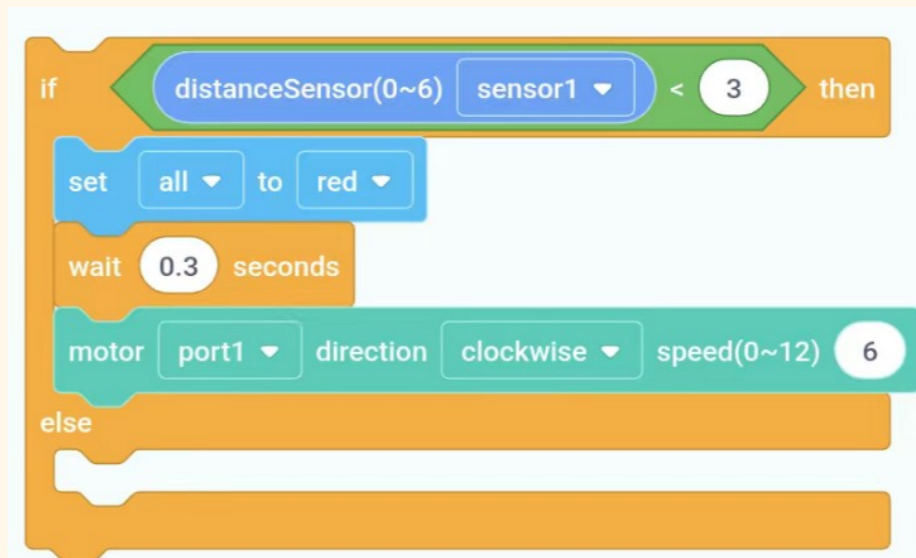


The image shows the components for programming the crocodile's logic. On the left, an orange 'if-then-else' control block is shown. In the center, three individual blocks are displayed: a green 'if' block with the condition 'distanceSensor(0~6) sensor1 < 3', a blue 'set' block for 'led1' to 'red', and a green 'motor' block for 'port1' in 'clockwise' direction at speed '6'. On the right, these blocks are assembled into a complete script within an 'if-then-else' structure.

2. Thinking: Why do we add such a short waiting time?



A single orange 'wait' block is shown, set to '0.3 seconds'.



The image shows the updated script for the crocodile logic. It is an 'if-then-else' structure. The 'then' branch contains three blocks: 'set all to red', 'wait 0.3 seconds', and 'motor port1 clockwise speed(0~12) 6'. The 'else' branch is currently empty.

# 1. Programming logic

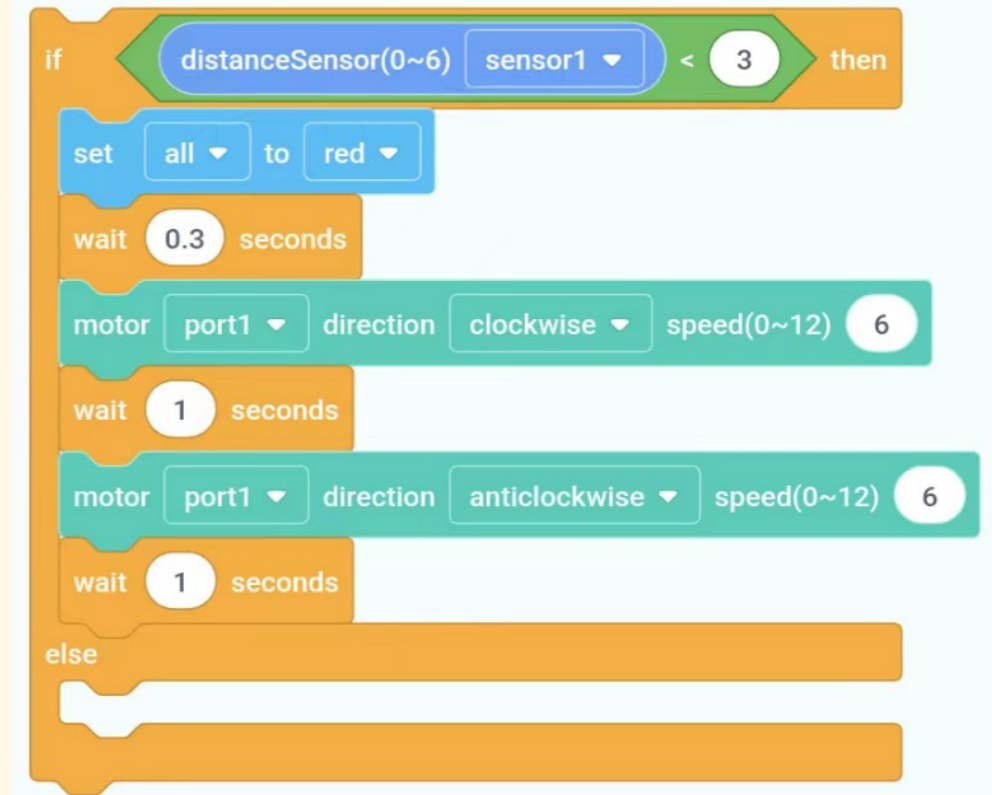
1. After biting, open the mouth.



```
motor port1 direction clockwise speed(0~12) 6
```



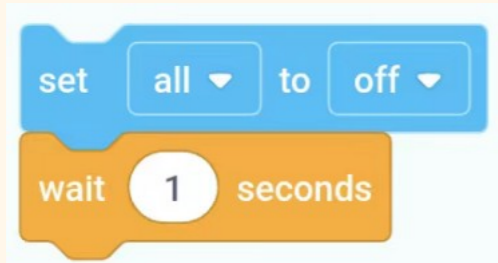
```
wait 1 seconds
```



```
if distanceSensor(0~6) sensor1 < 3 then
  set all to red
  wait 0.3 seconds
  motor port1 direction clockwise speed(0~12) 6
  wait 1 seconds
  motor port1 direction anticlockwise speed(0~12) 6
  wait 1 seconds
else
```

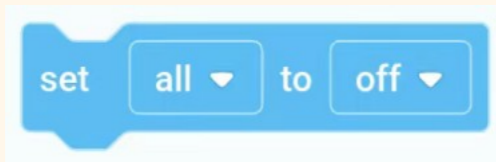
# 1. Programming logic

1. Thinking: Do we need to add a delay to turn off the red light? Why?

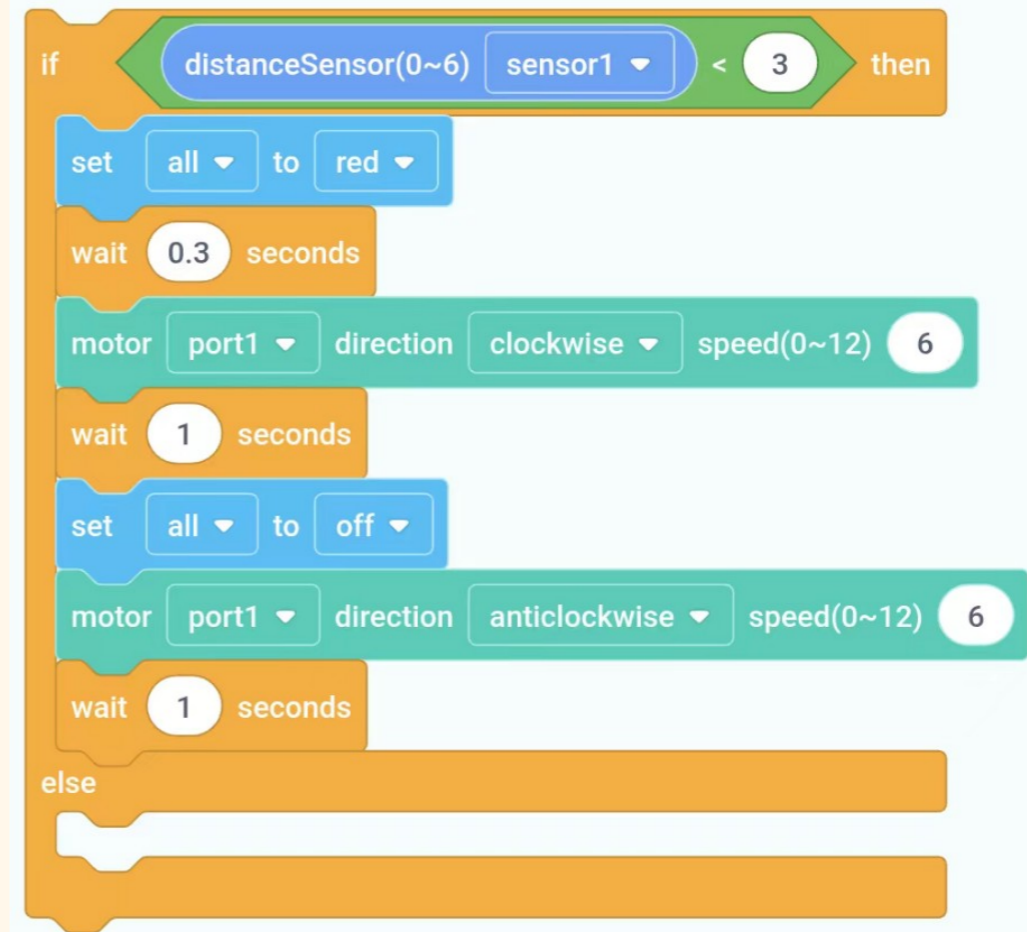


```
set all to off
wait 1 seconds
```

or



```
set all to off
```

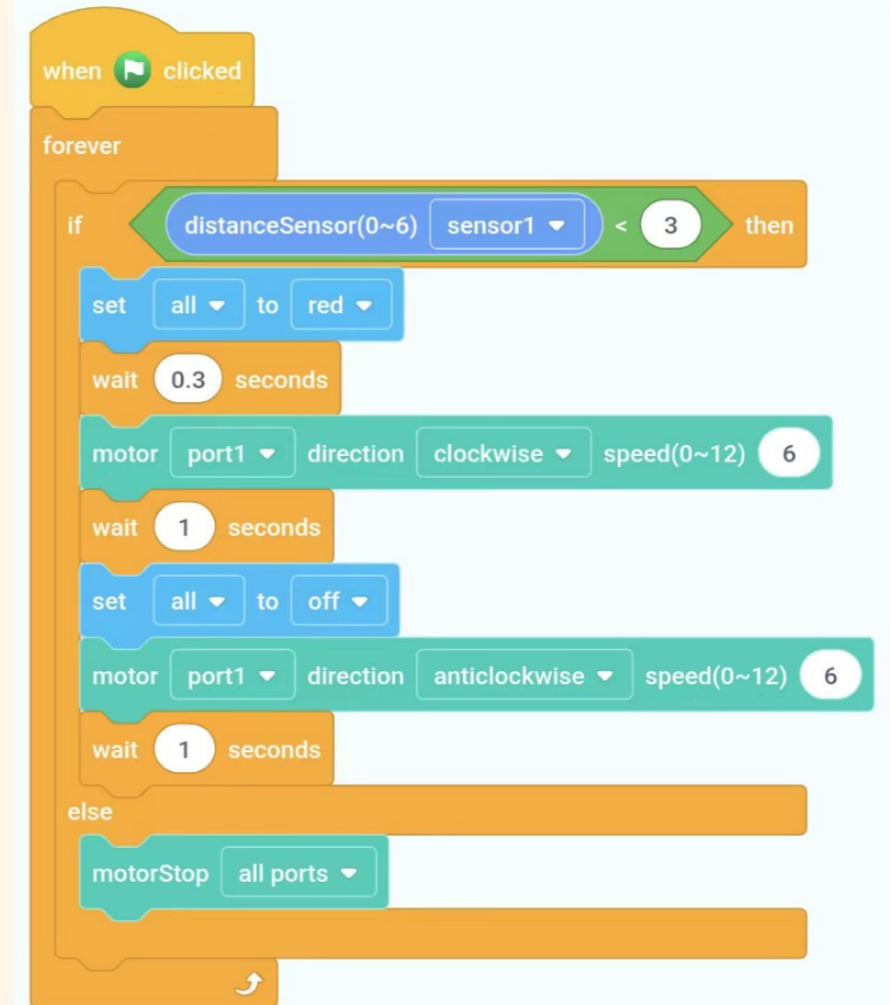
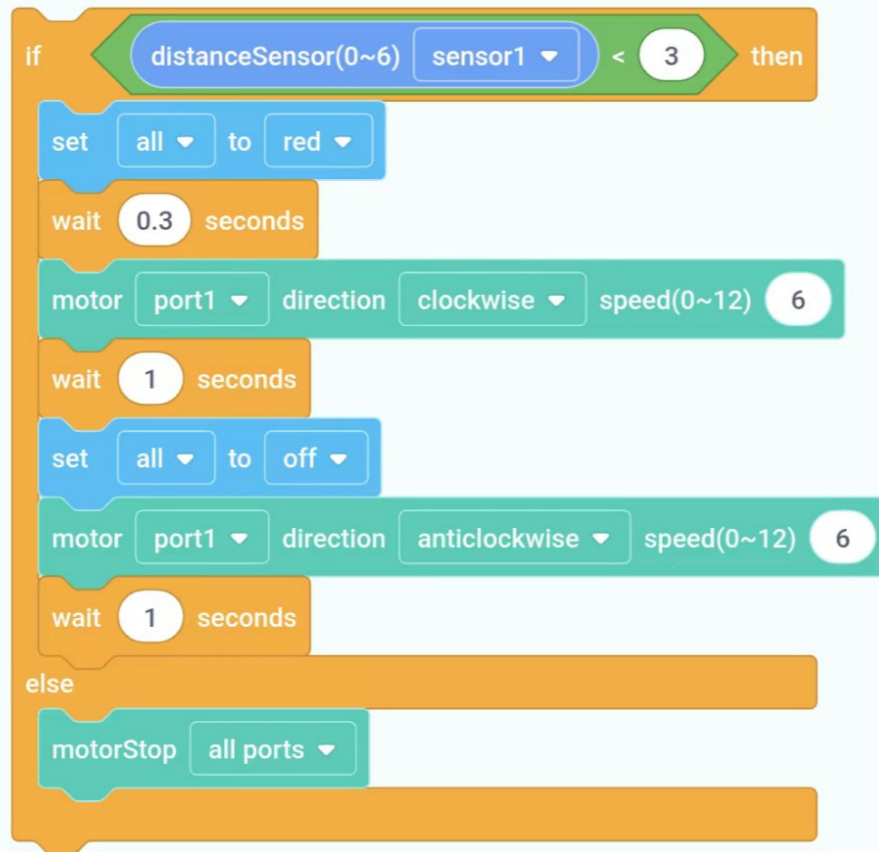


```
if distanceSensor(0~6) sensor1 < 3 then
  set all to red
  wait 0.3 seconds
  motor port1 direction clockwise speed(0~12) 6
  wait 1 seconds
  set all to off
  motor port1 direction anticlockwise speed(0~12) 6
  wait 1 seconds
else
```

# 1. Programming logic

1. Programming for the situation when the crocodile does not detect any obstacles.

motorStop all ports

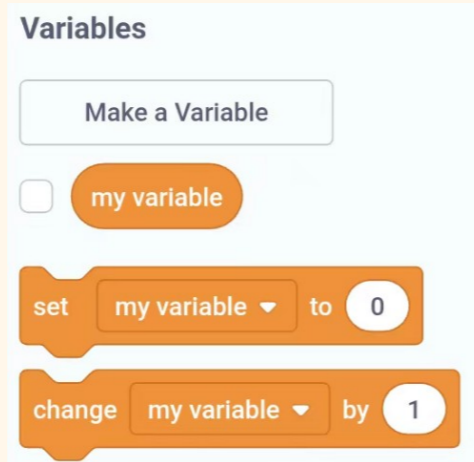


# 1. Programming logic

## 1. How can we add more challenge to the game?

my variable

Learn about “Variable”



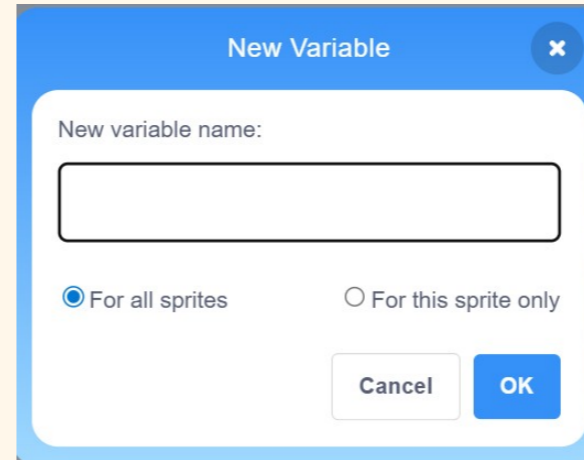
Variables

Make a Variable

my variable

set my variable to 0

change my variable by 1



New Variable

New variable name:

For all sprites  For this sprite only

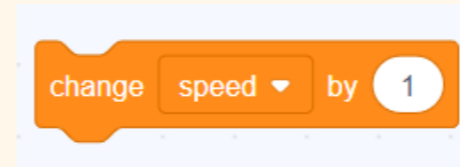
Cancel OK

## 2. “Variable” module

speed



set speed to 0



change speed by 1

# 1. Programming logic

## 1. Have a try.

```
if distanceSensor(0~6) sensor1 < 3 then
  motor port1 direction clockwise speed(0~12) 6
  change speed by 1
  showText speed
```

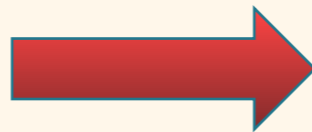


```
if distanceSensor(0~6) sensor1 < 3 then
  motor port1 direction clockwise speed(0~12) speed
  change speed by 1
  showText speed
```

```
forever
  if distanceSensor(0~6) sensor1 < 3 then
    motor port1 direction clockwise speed(0~12) speed
    change speed by 1
    showText speed
```

What have you noticed?

```
set speed to 0
forever
  if distanceSensor(0~6) sensor1 < 3 then
    motor port1 direction clockwise speed(0~12) speed
    change speed by 1
    showText speed
```



How are these two different?

```
forever
  set speed to 0
  if distanceSensor(0~6) sensor1 < 3 then
    motor port1 direction clockwise speed(0~12) speed
    change speed by 1
    showText speed
```

# 1. Programming logic

## 1. How can we add more challenge to the game?

motor port1 direction clockwise speed(0~12) speed

set speed to 3

forever

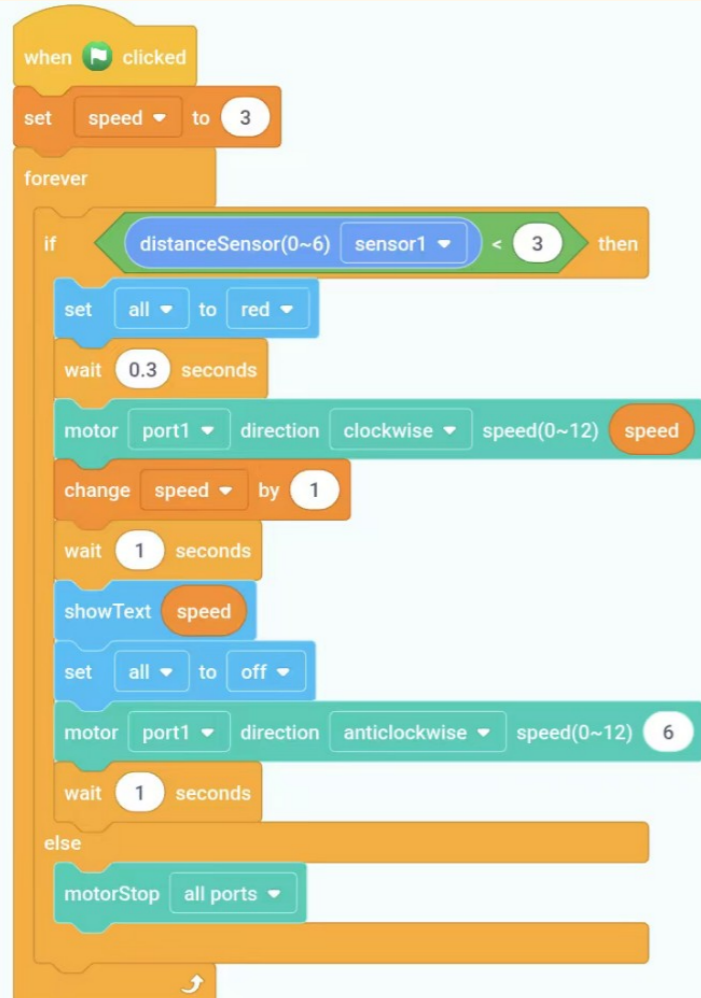
```
if distanceSensor(0~6) sensor1 < 3 then
  set all to red
  wait 0.3 seconds
  motor port1 direction clockwise speed(0~12) speed
  change speed by 1
  wait 1 seconds
  set all to off
  motor port1 direction anticlockwise speed(0~12) 6
  wait 1 seconds
else
  motorStop all ports
```

```
set speed to 3
if distanceSensor(0~6) sensor1 < 3 then
  set all to red
  wait 0.3 seconds
  motor port1 direction clockwise speed(0~12) speed
  change speed by 1
  wait 1 seconds
  set all to off
  motor port1 direction anticlockwise speed(0~12) 6
  wait 1 seconds
else
  motorStop all ports
```

```
when clicked
  set speed to 3
  forever
    if distanceSensor(0~6) sensor1 < 3 then
      set all to red
      wait 0.3 seconds
      motor port1 direction clockwise speed(0~12) speed
      change speed by 1
      wait 1 seconds
      set all to off
      motor port1 direction anticlockwise speed(0~12) 6
      wait 1 seconds
    else
      motorStop all ports
```

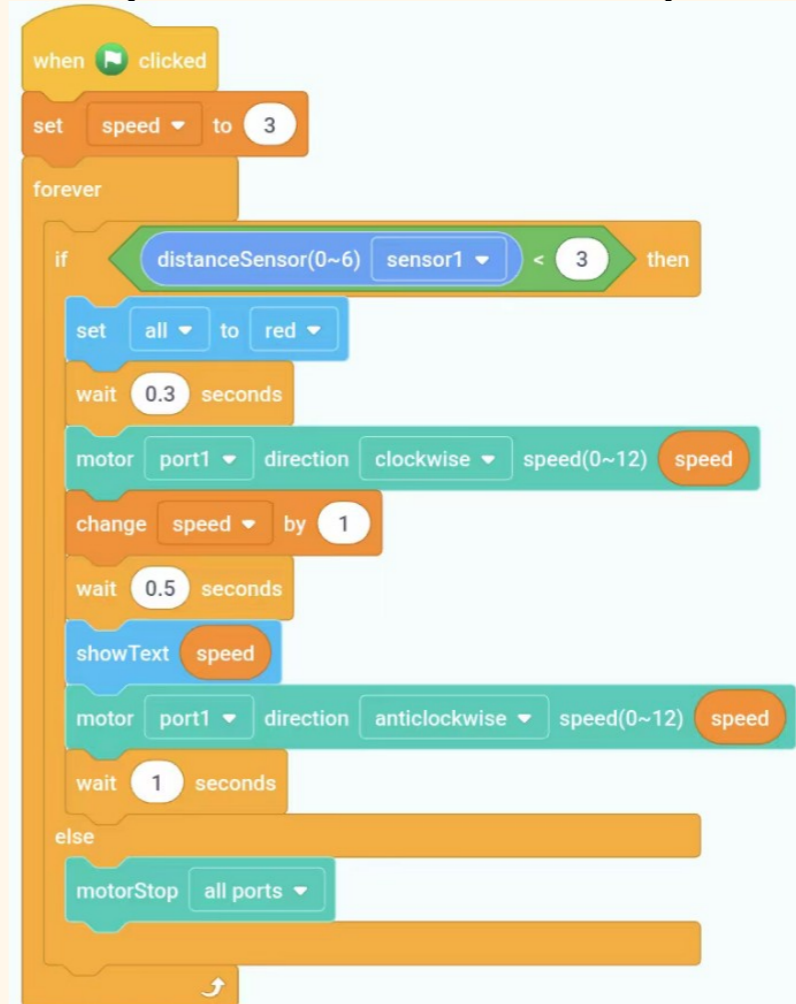
# 1. Have a try.

**Task 1: How can you make the change in speed visible?**



```
when clicked
  set speed to 3
  forever
    if distanceSensor(0~6) sensor1 < 3 then
      set all to red
      wait 0.3 seconds
      motor port1 direction clockwise speed(0~12) speed
      change speed by 1
      wait 1 seconds
      showText speed
      set all to off
      motor port1 direction anticlockwise speed(0~12) 6
      wait 1 seconds
    else
      motorStop all ports
```

**Task 2: How can you also make the mouth open faster and faster?**

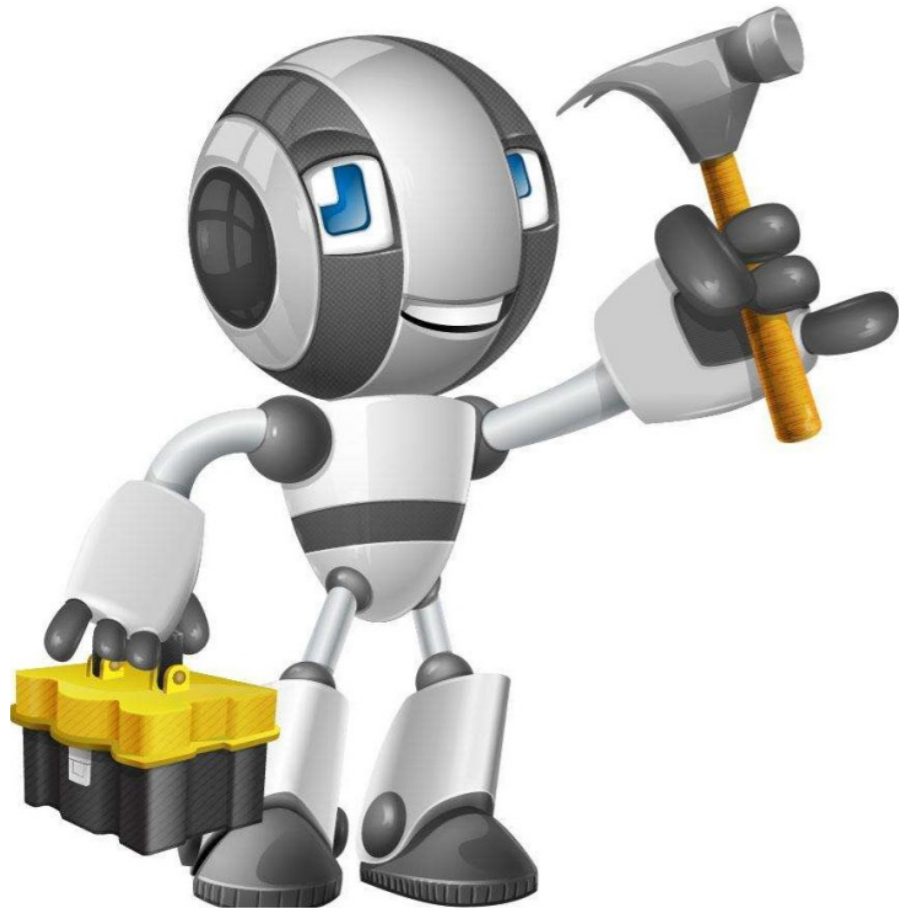


```
when clicked
  set speed to 3
  forever
    if distanceSensor(0~6) sensor1 < 3 then
      set all to red
      wait 0.3 seconds
      motor port1 direction clockwise speed(0~12) speed
      change speed by 1
      wait 0.5 seconds
      showText speed
      motor port1 direction anticlockwise speed(0~12) speed
      wait 1 seconds
    else
      motorStop all ports
```



# Consolidate and extend

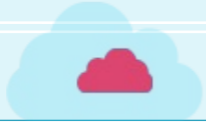
**Q1 :** Alex programmed the crocodile like this.  
What will happen?



```
when clicked
  set speed to 3
  forever
    if distanceSensor(0~6) sensor1 < 3 then
      set all to red
      wait 0.3 seconds
      motor port1 direction clockwise speed(0~12) speed
      change speed by 1
      showText speed
      motor port1 direction anticlockwise speed(0~12) 6
      wait 1 seconds
    else
      motorStop all ports
```

**Q &  
A**

**A1 :** The variable will suddenly increases a lot.



# Knowledge Review



(1)

my variable

A variable

(2)

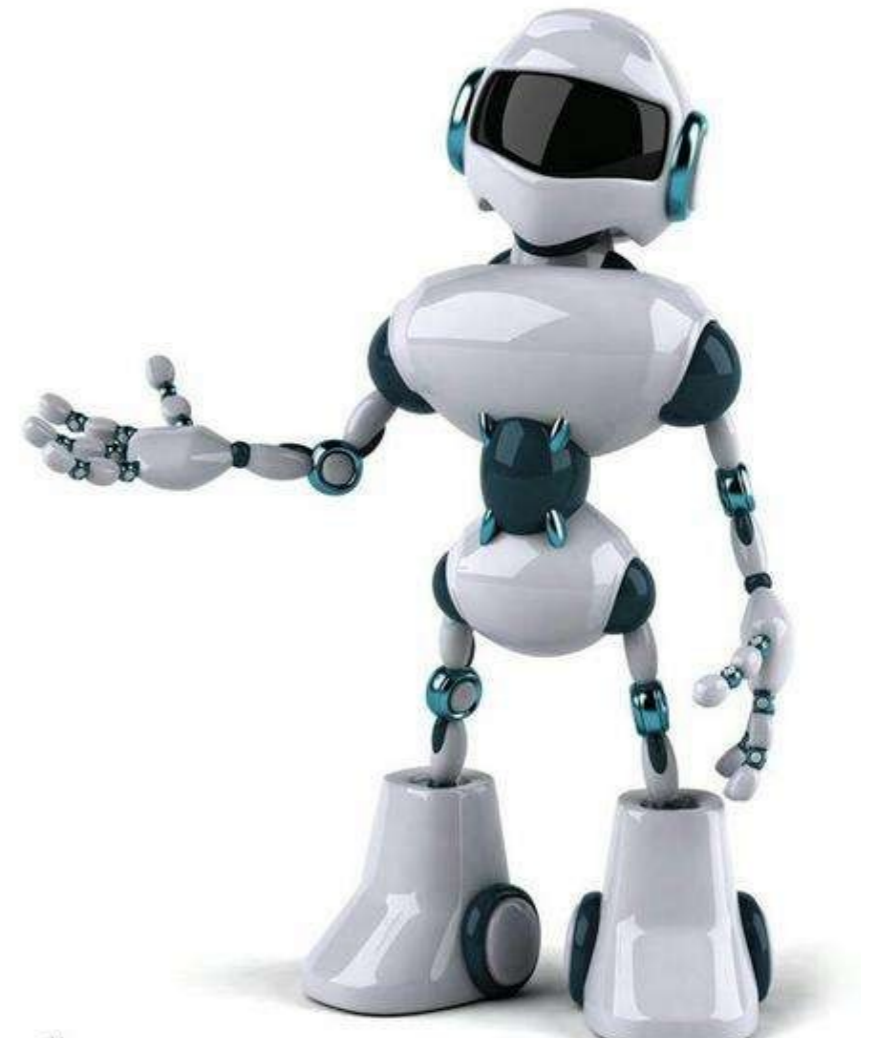


Compare the values on both sides.

Alex programmed the crocodile like this. What will happen? ( )

```
when clicked
  set speed to 3
  forever
    if distanceSensor(0~6) sensor1 < 3 then
      set all to red
      wait 0.3 seconds
      motor port1 direction clockwise speed(0~12) 6
      change speed by 1
      wait 0.5 seconds
      showText speed
      motor port1 direction anticlockwise speed(0~12) 6
      wait 1 seconds
    else
      motorStop all ports
```

- A Nothing happen.
- B The speed will not increase.
- C The variable does not change.
- D The crocodile will not move.



Answer **B**

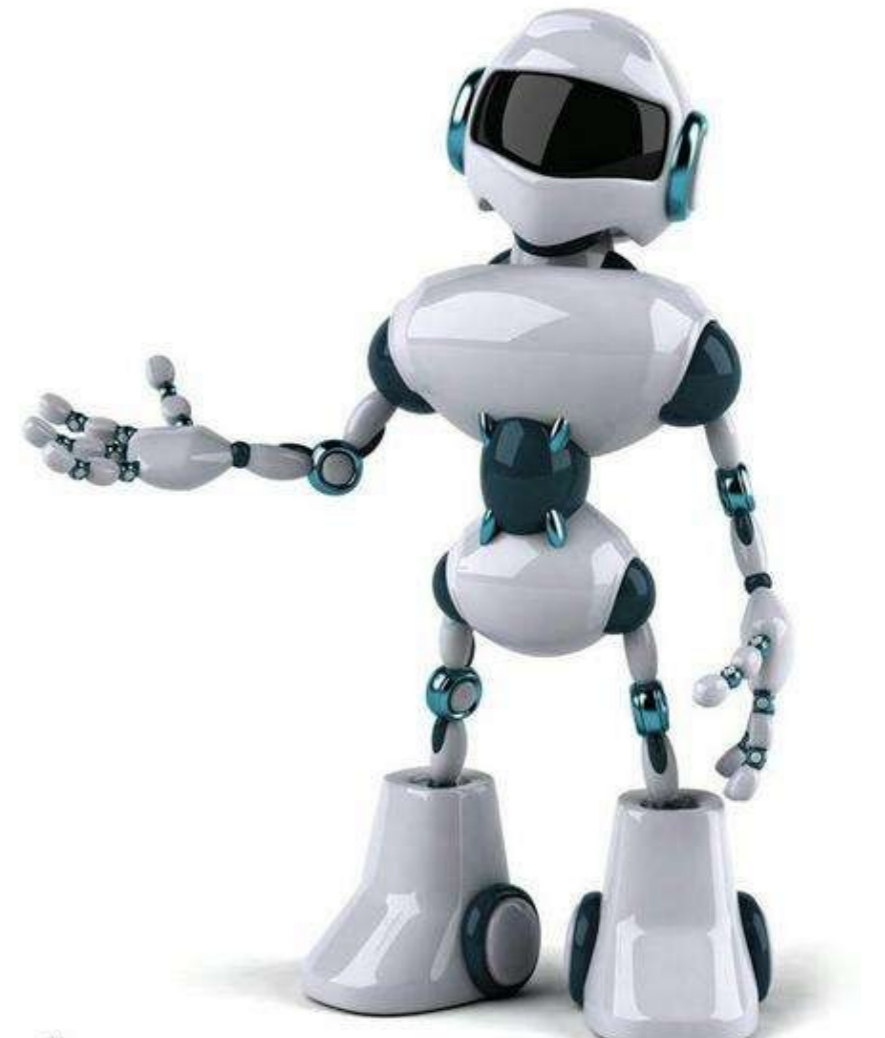
:

Analysis

:

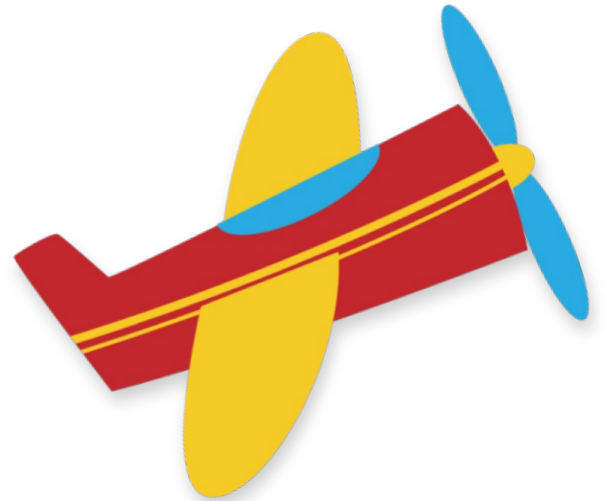
**Because the variable isn't added to the speed, the crocodile doesn't get any faster.**

```
when clicked
  set speed to 3
  forever
    if distanceSensor(0~6) sensor1 < 3 then
      set all to red
      wait 0.3 seconds
      motor port1 direction clockwise speed(0~12) speed
      change speed by 1
      wait 0.5 seconds
      showText speed
      motor port1 direction anticlockwise speed(0~12) speed
      wait 1 seconds
    else
      motorStop all ports
```





**Talk**





**THANKS**

