



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.

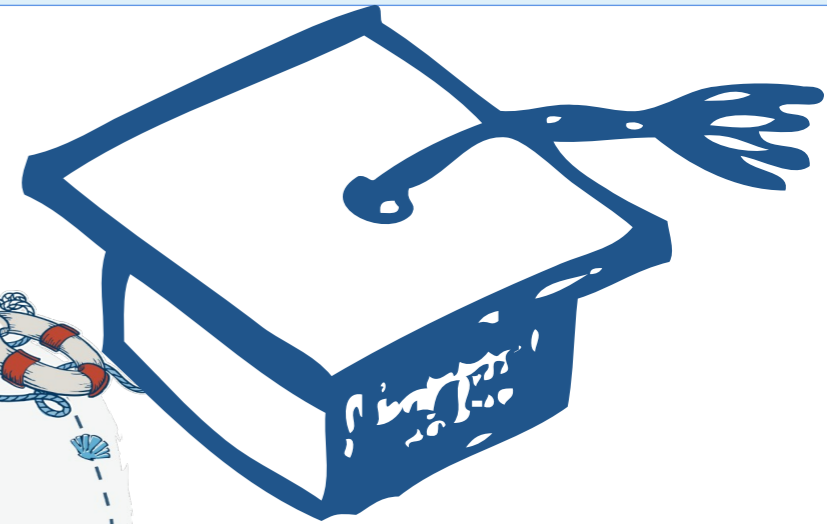
03

Please observe carefully when the pictures are played.



Score Indicator

02



Course Goals



Thinkidea

1

Learning goals

2

Project Discussion

3

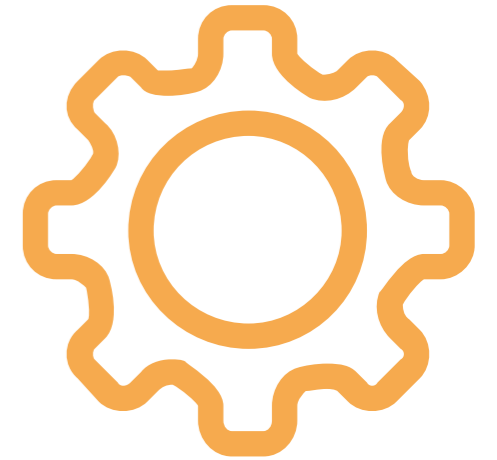
Logic Programming

4

Have a try

5

Consolidate and extend





1

Create a basketball game and implement the scoring commands.

2

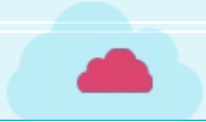
Consolidate the modules like "if...then..." 、 "Operators <" 、 "Sense" .

3

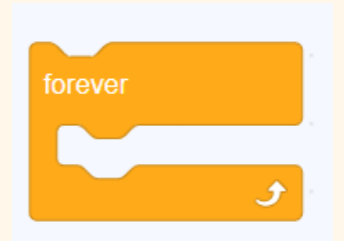
Learn new modules "Variables" 、 "Operators=" .

4

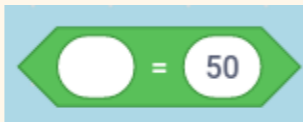
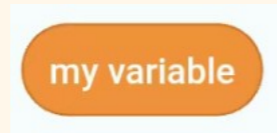
Comprehensively apply the learned modules to complete programming projects and expand.

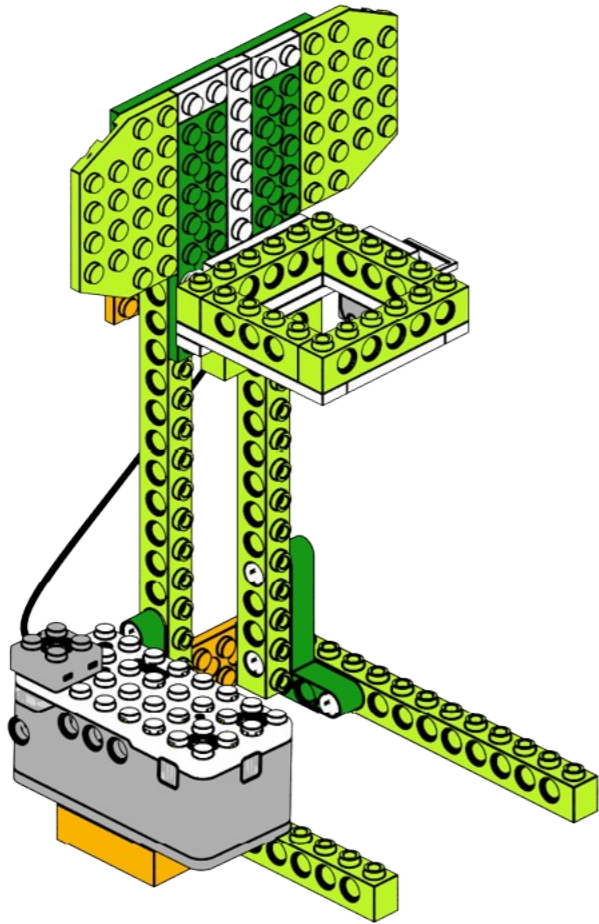


Consolidate
modules:



New
modules:

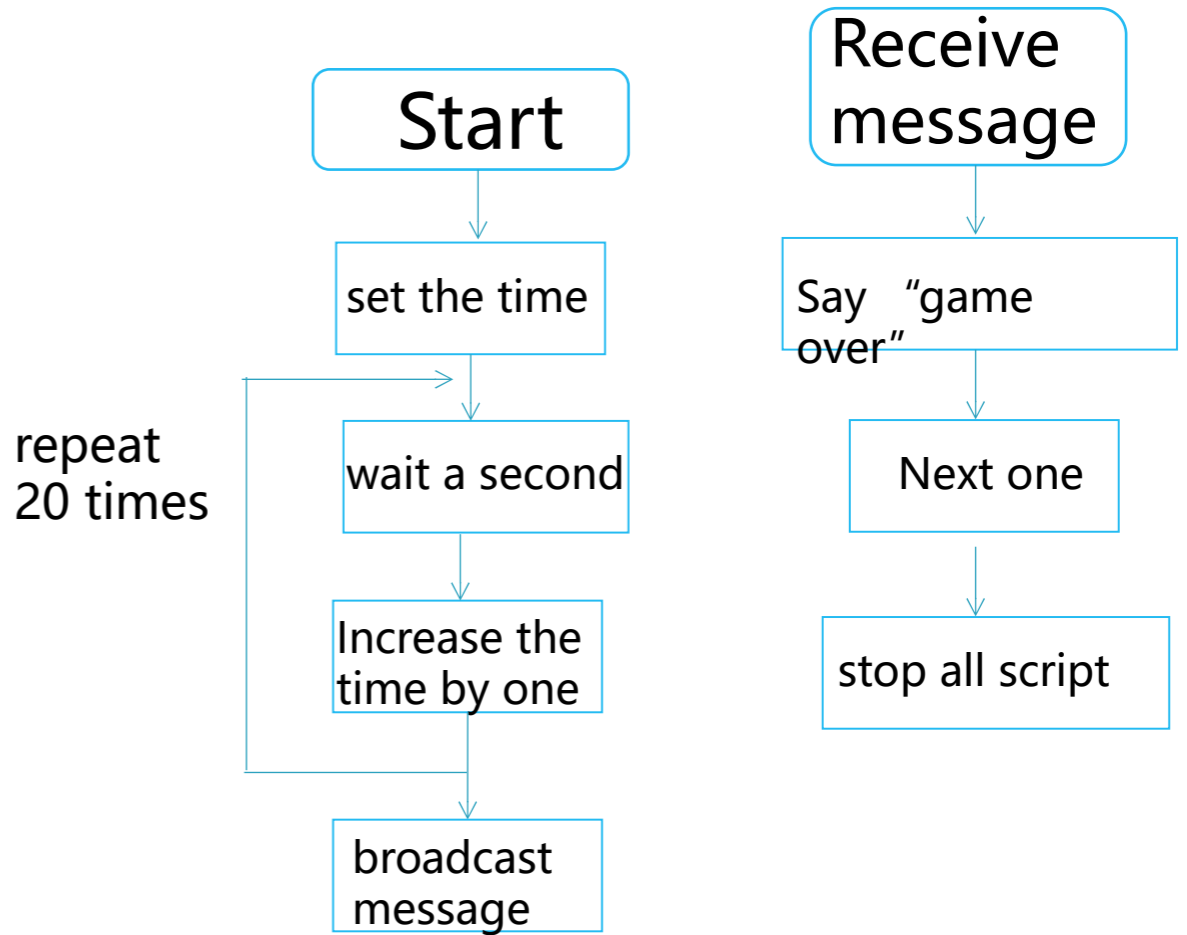
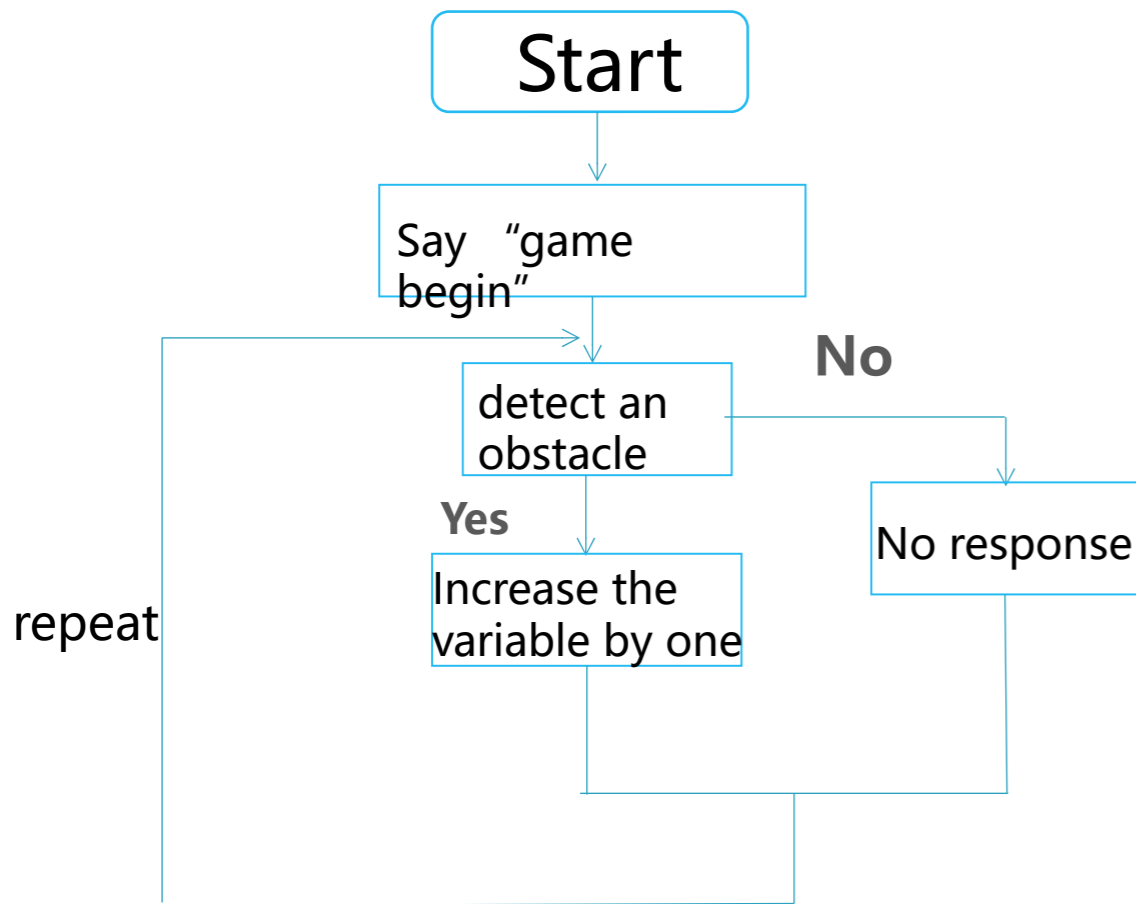




Project Discussion

1. Say "Game Begin", the first player turn on the green light.
2. Score one point for each basket made.
3. Say "Game Over" after 30 seconds.
4. Show the scores of both teams.

1. Programming logic



1. Programming logic

1. Create three variables.

Variables

Make a Variable

my variable

score 1

score 2

time

score 1

score 2

time

2. Game begin

```
when green flag clicked
say "game begin" for 2 seconds
```

2. score

```
if ( ) then
  ( )
```

```
distanceSensor(0~6) sensor1 < 4
```

```
wait 1 seconds
```

```
if distanceSensor(0~6) sensor1 < 4 then
  wait 1 seconds
```

1. Programming logic

1. Calculate scores.

```
change score 1 by 1
```



```
if distanceSensor(0~6) sensor1 < 4 then
  wait 1 seconds
  change score 1 by 1
```

```
repeat until
```

```
repeat until
  if distanceSensor(0~6) sensor1 < 4 then
    wait 1 seconds
    change score 1 by 1
```

```
set score 1 to 0
```



Do the scores need to be placed inside the loop?

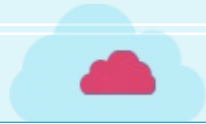
```
when clicked
  say game begin
  set score 1 to 0
  repeat until
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 1 by 1
```

```
score = 50
```



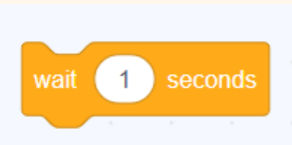
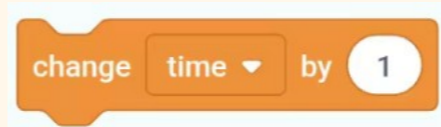
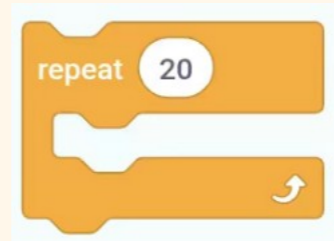
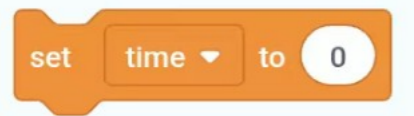
```
time = 20
```

```
when clicked
  say game begin
  set score 1 to 0
  repeat until time = 20
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 1 by 1
```



1. Programming logic

1. How can we calculate 20 seconds?



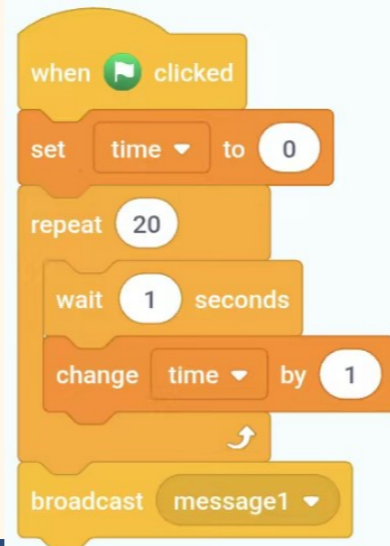
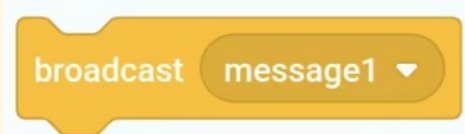
1

2

3

4

2. What happens when the time runs out?



1. Programming logic

1. What happens when the time runs out?

broadcast message1

After receiving the message.

say Time's up, next player.

broadcast Player 2

New Message
✕

New message name:

Cancel
OK

2. Programming for Player 1

```

when clicked
say game begin
set score 1 to 0
repeat until time = 20
  if distanceSensor(0~6) sensor1 < 4 then
    wait 1 seconds
    change score 1 by 1
  
```

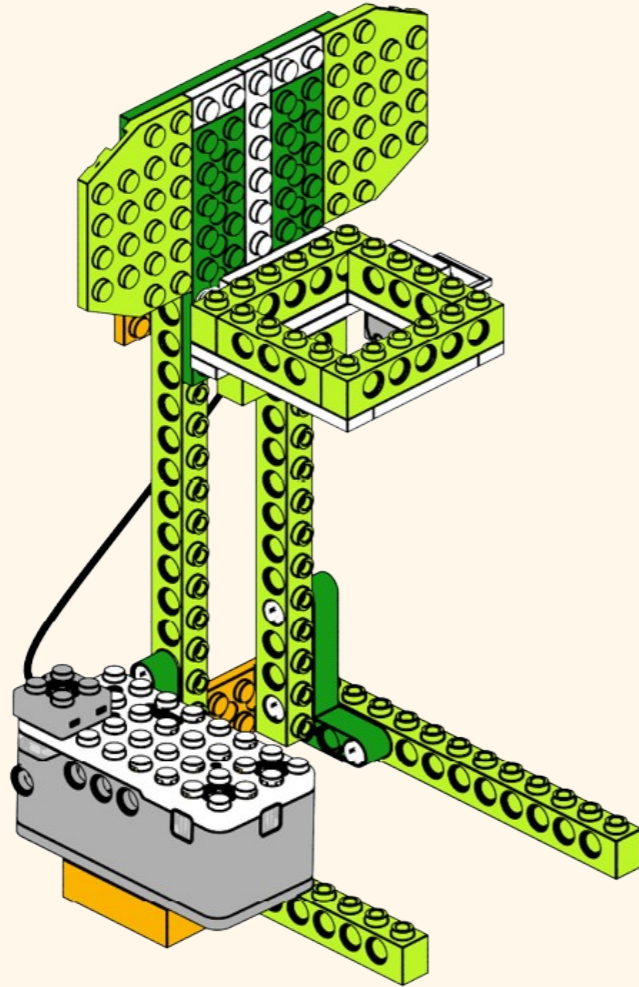
```

when clicked
set time to 0
repeat 20
  wait 1 seconds
  change time by 1
broadcast message1
  
```

```

broadcast message1
say Time's up, next player.
broadcast Player 2
  
```

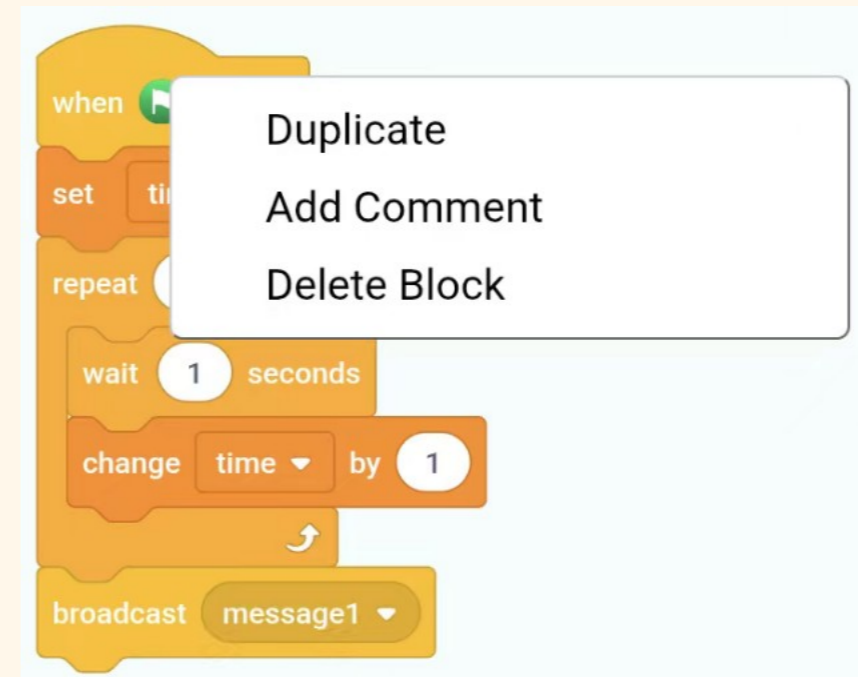
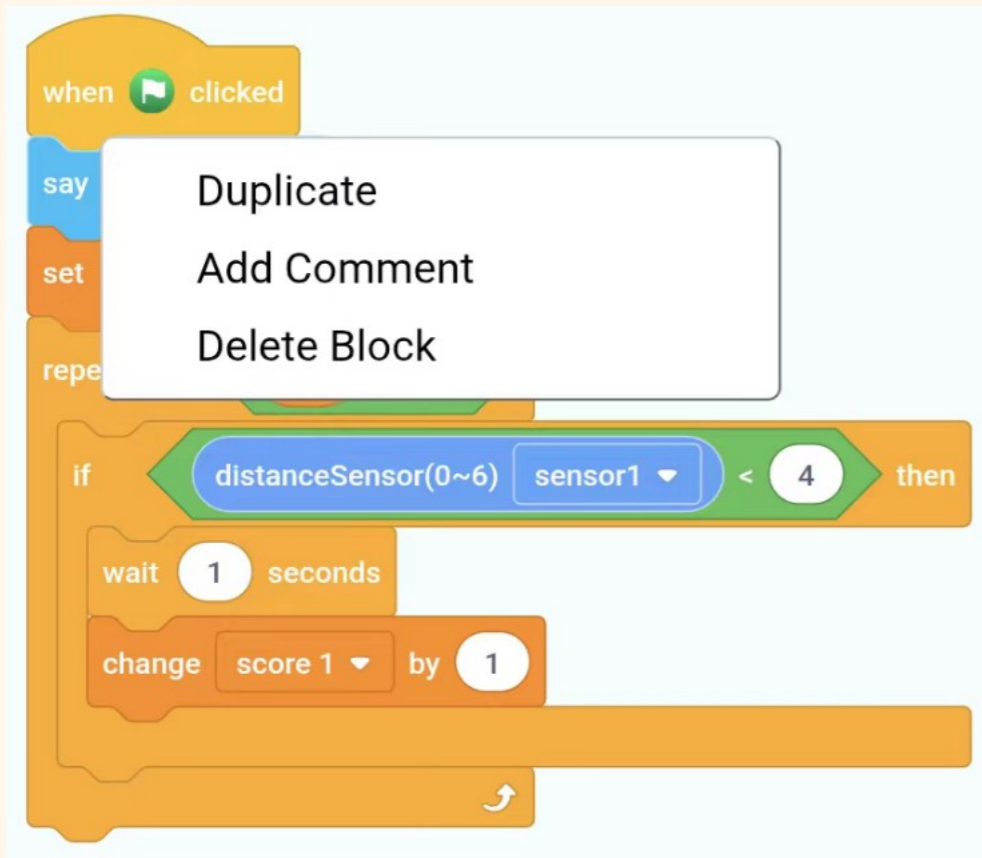
2.Thinking



Think about it! What are the game rules for Player 1 and Player 2? How should we program them?

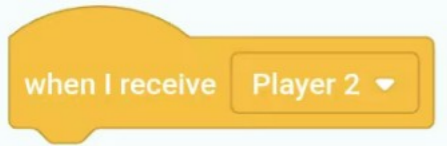
2. Have a try

1. The same rules and the same programming. Try long-pressing the script to copy it!

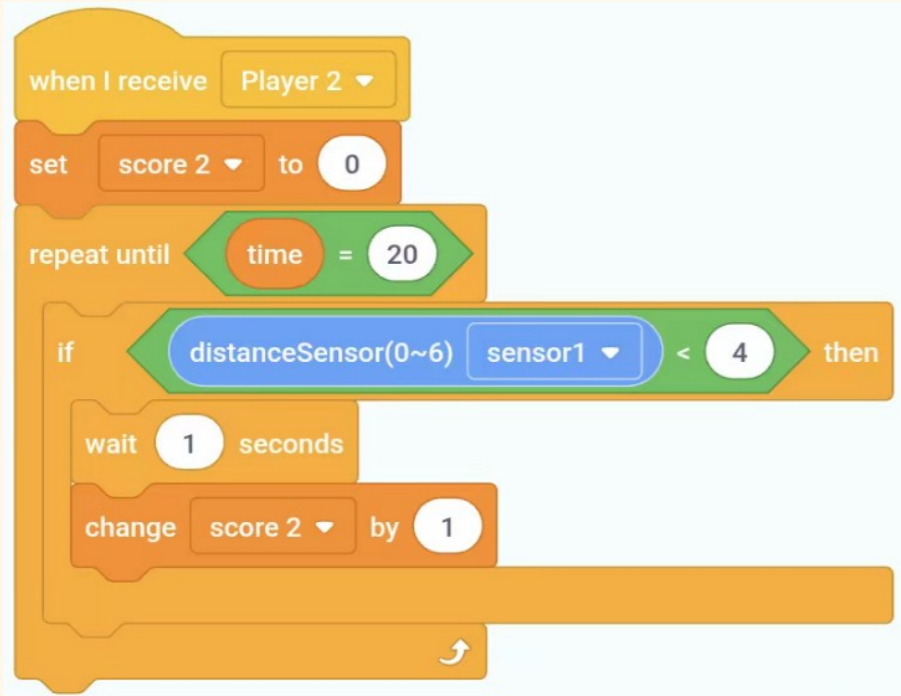


2. Have a try

1. How should Player 2's script be set up?

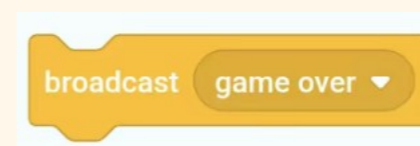


```
when I receive Player 2
```



```
when I receive Player 2
  set score 2 to 0
  repeat until time = 20
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 2 by 1
```

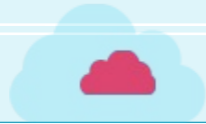
2. How should the game end?



```
broadcast game over
```

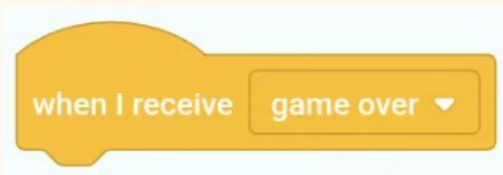
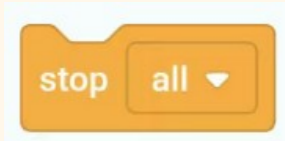
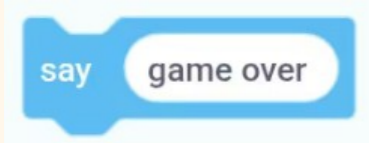


```
when I receive Player 2
  set time to 0
  repeat 20
    wait 1 seconds
    change time by 1
  broadcast game over
```



2. Have a try

1. Game Over !



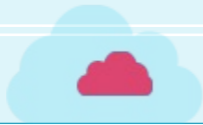
1

2

3

4





1. Programming Summary

```
when clicked
  set time to 0
  repeat 20
    wait 1 seconds
    change time by 1
  broadcast message1

broadcast message1
say Time's up, next player.
broadcast Player 2

when clicked
  say game begin
  set score 1 to 0
  repeat until time = 20
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 1 by 1
```

```
when I receive Player 2
  set time to 0
  repeat 20
    wait 1 seconds
    change time by 1
  broadcast game over

when I receive game over
  say game over
  showScore score 1 : score 2
  stop all

when I receive Player 2
  set score 2 to 0
  repeat until time = 20
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 2 by 1
```

Let's have a shooting contest!

1. Have try

Try it: How can we see the score while playing?

The image displays two Scratch code blocks. The left block starts with a 'when clicked' event, followed by a 'say game begin' block, a 'set score 1 to 0' block, and a 'repeat until time = 20' loop. Inside the loop is an 'if distanceSensor(0~6) sensor1 < 4' condition. If true, it executes a 'wait 1 seconds' block, a 'change score 1 by 1' block, and a 'showText score 1' block. The right block starts with a 'when I receive Player 2' event, followed by a 'set score 2 to 0' block, and a 'repeat until time = 20' loop. Inside the loop is an 'if distanceSensor(0~6) sensor1 < 4' condition. If true, it executes a 'wait 1 seconds' block, a 'change score 2 by 1' block, and a 'showText score 2' block.

```
when clicked clicked
say game begin
set score 1 to 0
repeat until time = 20
  if distanceSensor(0~6) sensor1 < 4 then
    wait 1 seconds
    change score 1 by 1
    showText score 1

when I receive Player 2
set score 2 to 0
repeat until time = 20
  if distanceSensor(0~6) sensor1 < 4 then
    wait 1 seconds
    change score 2 by 1
    showText score 2
```



Consolidate and extend

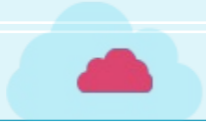
Q1 : Alex programmed the basketball hoop, but Player 1' s score keeps increasing nonstop. What is going on?

```
when clicked
say game begin
set score 1 to 0
forever
  if distanceSensor(0~6) sensor1 < 4 then
    wait 1 seconds
    change score 1 by 1
    showText score 1
```

A1 : Because a loop block was used, Player 2' s score is also being counted.



Q &
A



Knowledge Review



(3)



The results of both conditions need to be equal.

(4)

my variable

a variable value

Alex programmed the basketball hoop like this, but the score can't be displayed. Why is that? ()

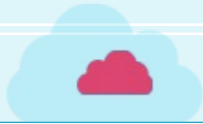
```
when I receive Player 2
  set time to 0
  repeat 20
    wait 1 seconds
    change time by 1
  broadcast game over

when I receive game over
  say game over
  showScore time : time
  stop all

when clicked
  say game begin
  set score 1 to 0
  repeat until time = 20
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 1 by 1
      showText score 1
```

- A** Because the score is set to 30.
- B** The time isn't up yet.
- C** The program has an error.
- D** It's showing the time instead.





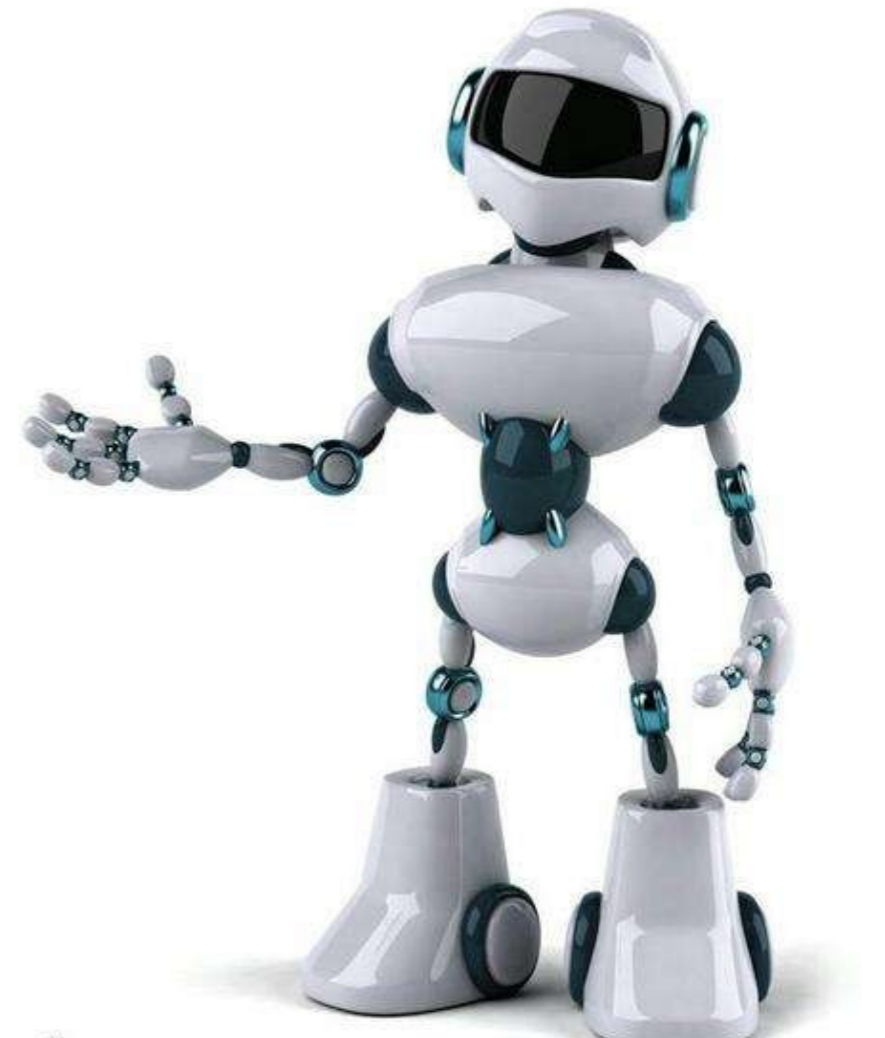
Answer : **D**

Analysis : **In the end, it shows the time.**

```
when I receive Player 2
  set time to 0
  repeat 20
    wait 1 seconds
    change time by 1
  broadcast game over

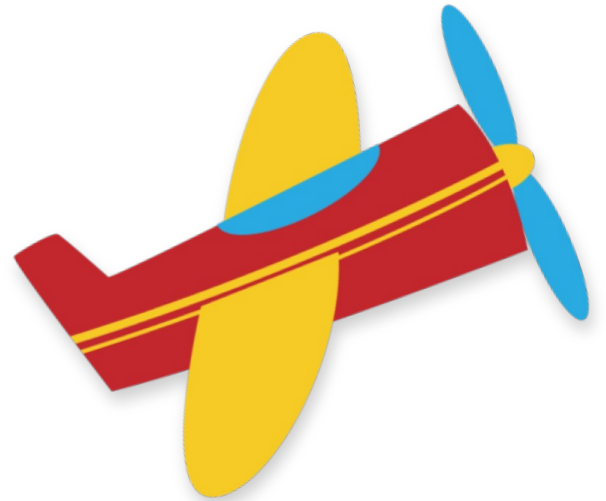
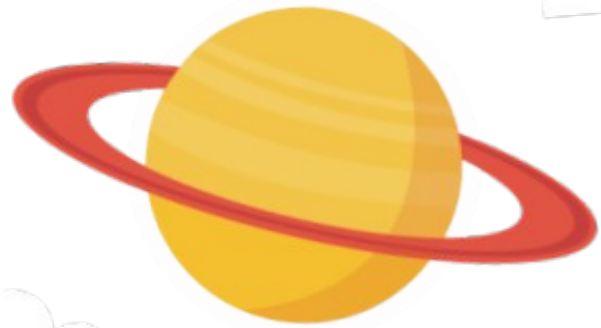
when I receive game over
  say game over
  showScore score 1 : score 2
  stop all

when I receive Player 2
  set score 2 to 0
  repeat until time = 20
    if distanceSensor(0~6) sensor1 < 4 then
      wait 1 seconds
      change score 2 by 1
      showText score 2
```





Talk





THANKS

