

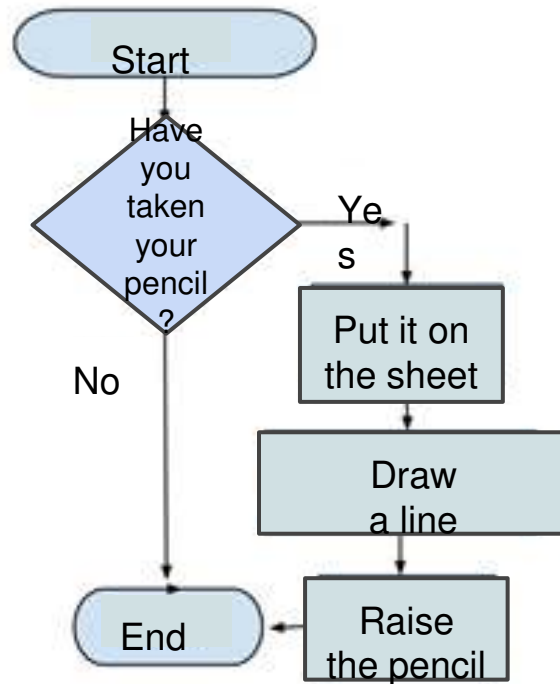
D·BIC

Code Their Dreams

Unit 2: Our First Game



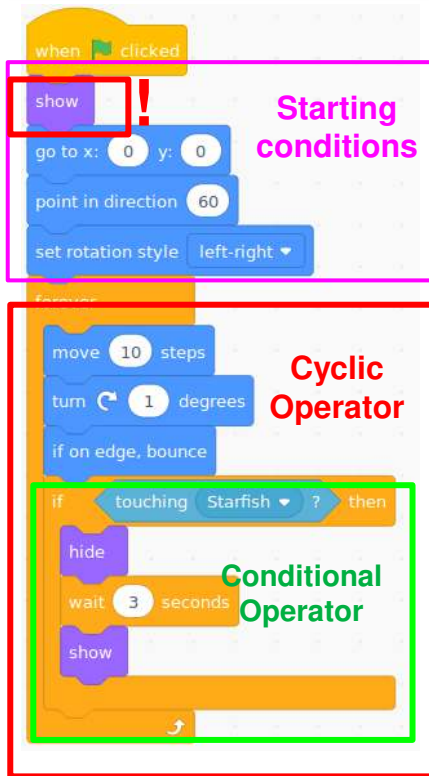
Algorithm and Program (Code)



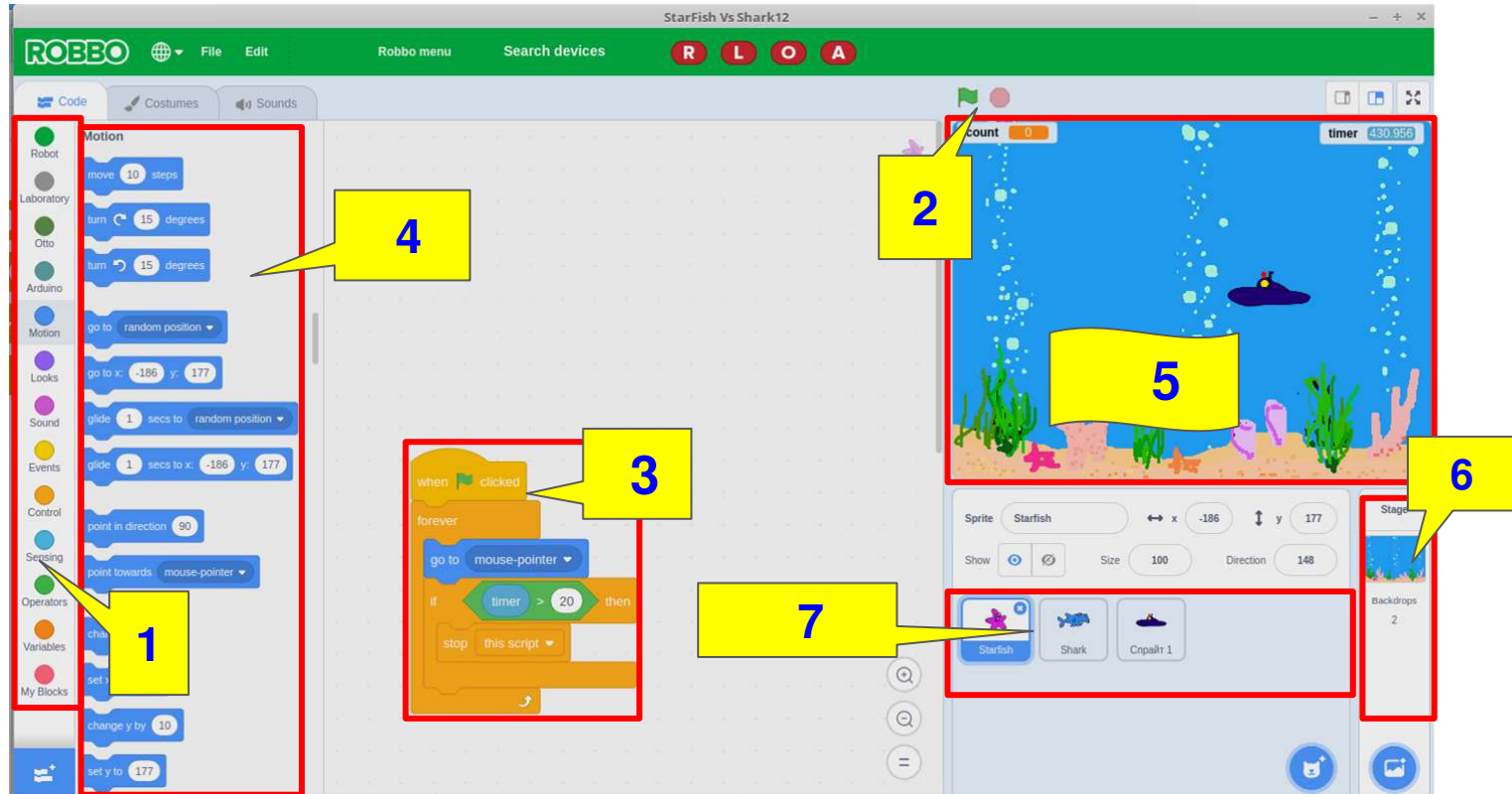
```
char incomingByte;
int LED = 13;
void setup() {
  Serial.begin(9600);
  pinMode(LED, OUTPUT);
}
void loop() {
  if (Serial.available() > 0) {
    incomingByte = Serial.read(); /
    if(incomingByte == '0')
      digitalWrite(LED, LOW);
    if(incomingByte == '1')
      digitalWrite(LED, HIGH);
```



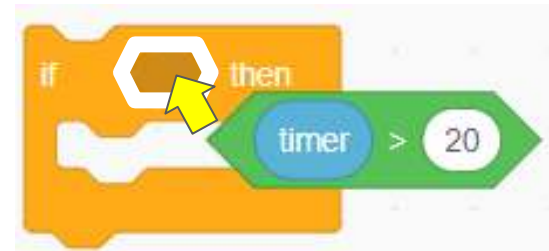
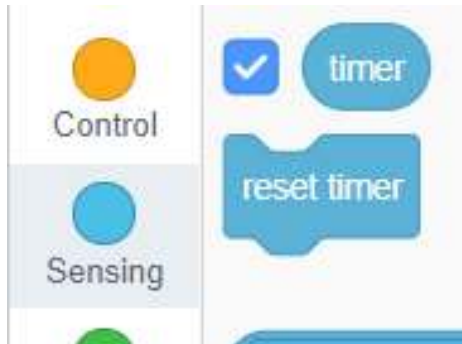
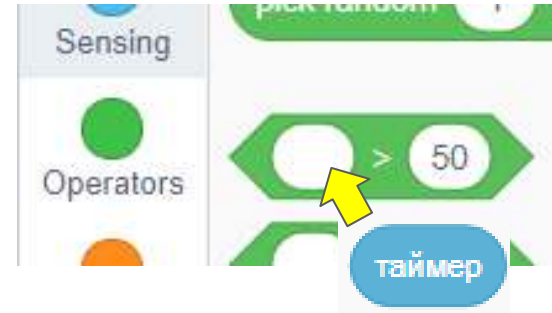
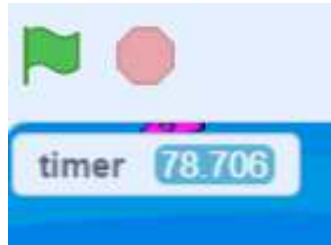
The Program for the Shark is Getting More Complicated.



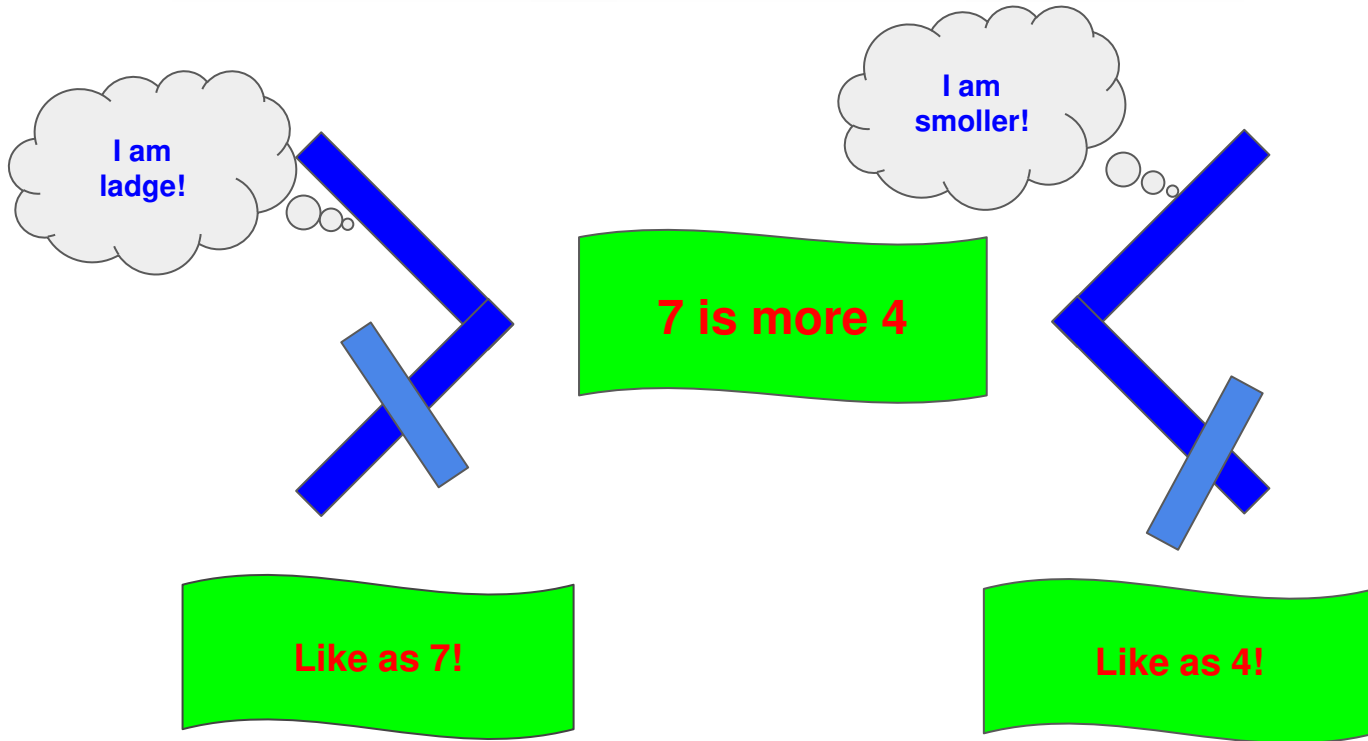
Scratch Interface (RobboScratch3)



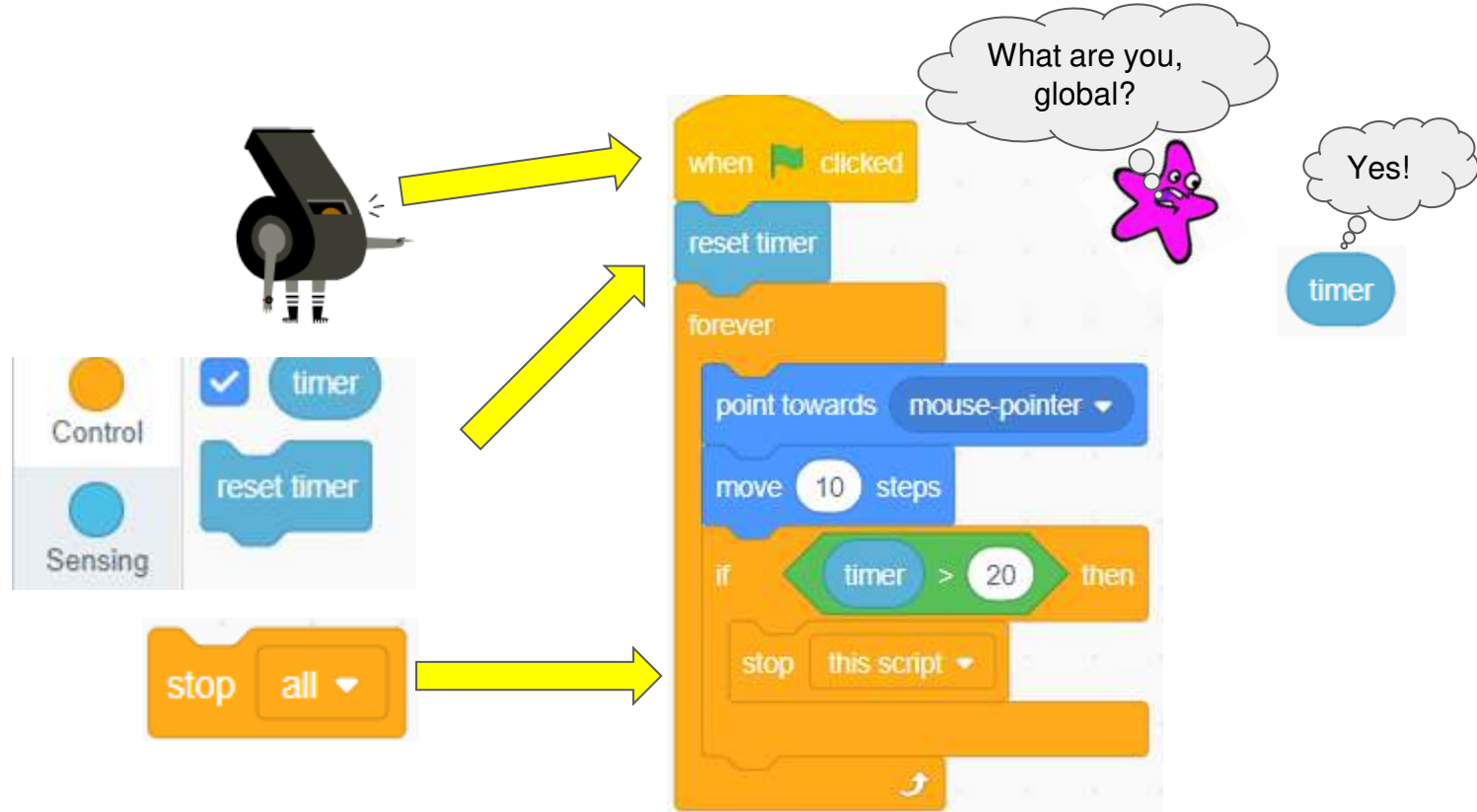
Sensors. Timer



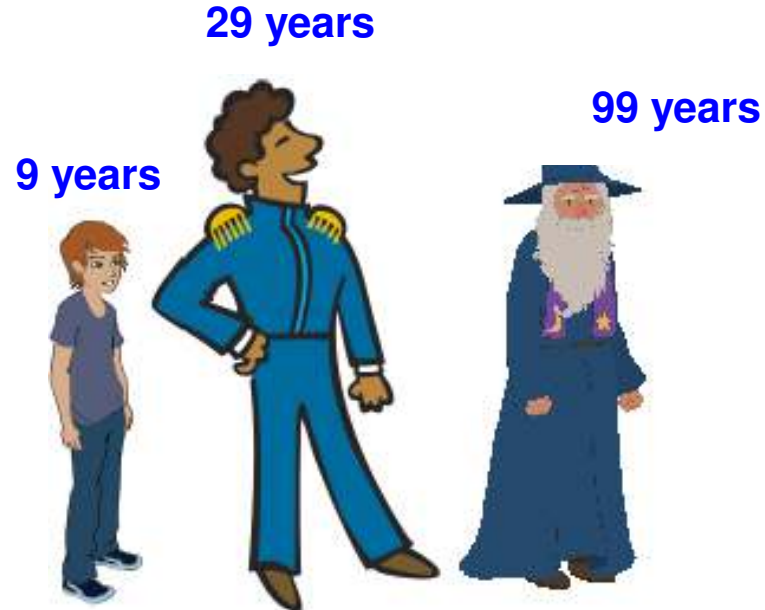
Where is less-than and greater-than ?



Starfish script in the 20 second game



Variables



Age Variable



Working with a Variable 1

The image shows the Scratch 'Variables' panel on the left and the 'New Variable' dialog on the right. In the 'Variables' panel, the 'Make a Variable' button is highlighted with a hand icon and the text 'Click!'. Below it, the 'points' variable is selected with a checkmark. The 'set points to 0' block is visible, and the 'change points by 1' block is highlighted with a red rectangle. The 'show variable points' and 'hide variable points' blocks are also visible. The 'New Variable' dialog on the right has a title bar with a close button. It contains a text field for 'New variable name:' with 'Points' entered. Below this, the 'For all sprites' radio button is selected and highlighted with a red rectangle, with a yellow callout bubble labeled 'Global' pointing to it. The 'For this sprite only' radio button is unselected. At the bottom are 'Cancel' and 'OK' buttons.

Variables

Make a Variable

points

set points to 0

change points by 1

show variable points

hide variable points

New Variable

New variable name:

Points

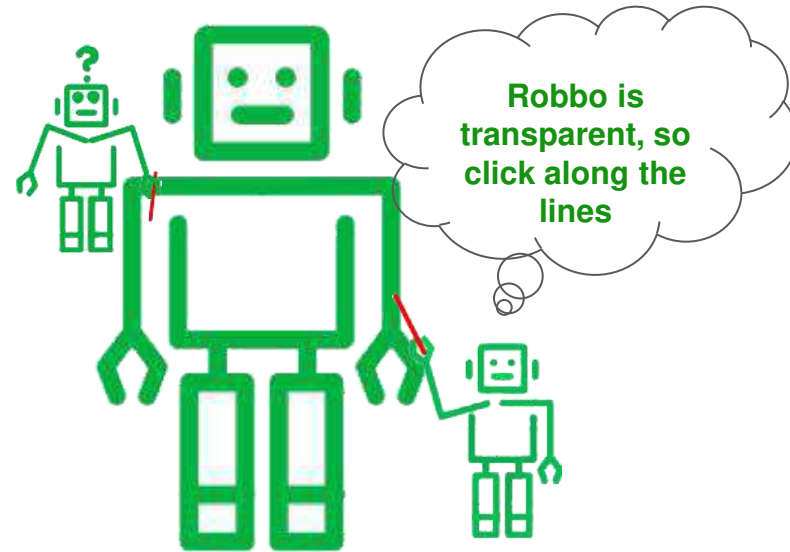
☒ For all sprites ☐ For this sprite only

Global

Cancel OK



Program for counting clicks



Working with a Variable 2

The image displays the Scratch interface with a variable named 'points'. On the left, a callout box titled 'Click with a RMB' points to the 'points' variable block. Below it, a white box lists three options: 'normal readout', 'large readout', and 'slider'. The 'points' variable is currently set to 8. On the right, a script area shows a sequence of blocks: 'when green flag clicked', 'go to x: 0 y: 0', 'point in direction 90', 'reset timer', 'set points to 0' (highlighted with a red box), 'show', 'clear graphic effects', and 'set rotation style left-right'. A yellow callout box at the bottom points to the 'set points to 0' block with the text 'Initialization of the Variable'.

Click with a RMB

normal readout
large readout
slider

points 8

when green flag clicked
go to x: 0 y: 0
point in direction 90
reset timer
set points to 0
show
clear graphic effects
set rotation style left-right

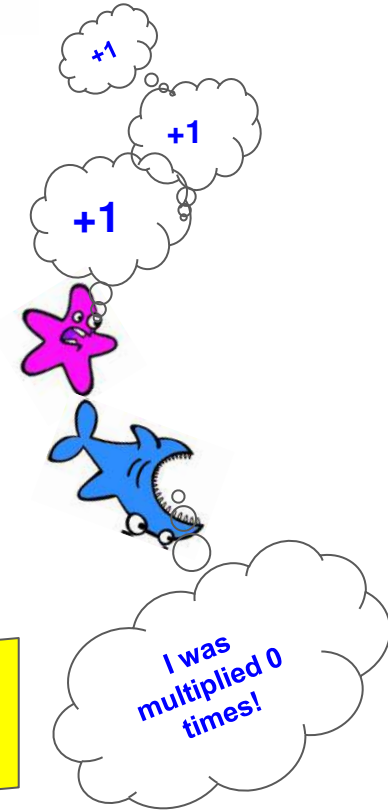
Initialization of the Variable



Working with a Variable 3



**At each touch of the Shark and the Starfish
the Point variable increases by 1**



Sounds and Their Commands

The image displays a Scratch script and the sound library interface. The script on the left is as follows:

- if on edge, bounce
- if touching Starfish ? then
 - hide
 - start sound Finger Snap
 - change points by 1
 - wait 3 seconds
 - start sound pop
 - show

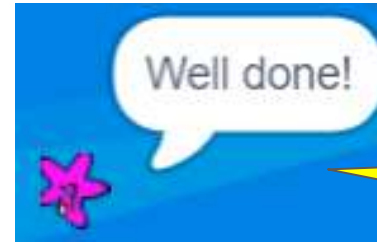
Two pink arrows point from the 'start sound' blocks in the script to the sound library interface on the right. The library shows two sounds: 'finger snap' (0.15) and 'pop' (0.02). A pink callout box points to the 'finger snap' sound with the text 'Selected in the Sound Library'. Below the library, another script is shown:

- when clicked
- forever
 - play sound Bubbles until done



Announcement of Results, Part 1

say Hello! for 2 seconds



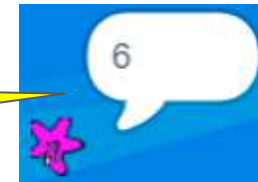
How good?

if timer > 5 then
say Well done! for 2 seconds
stop all

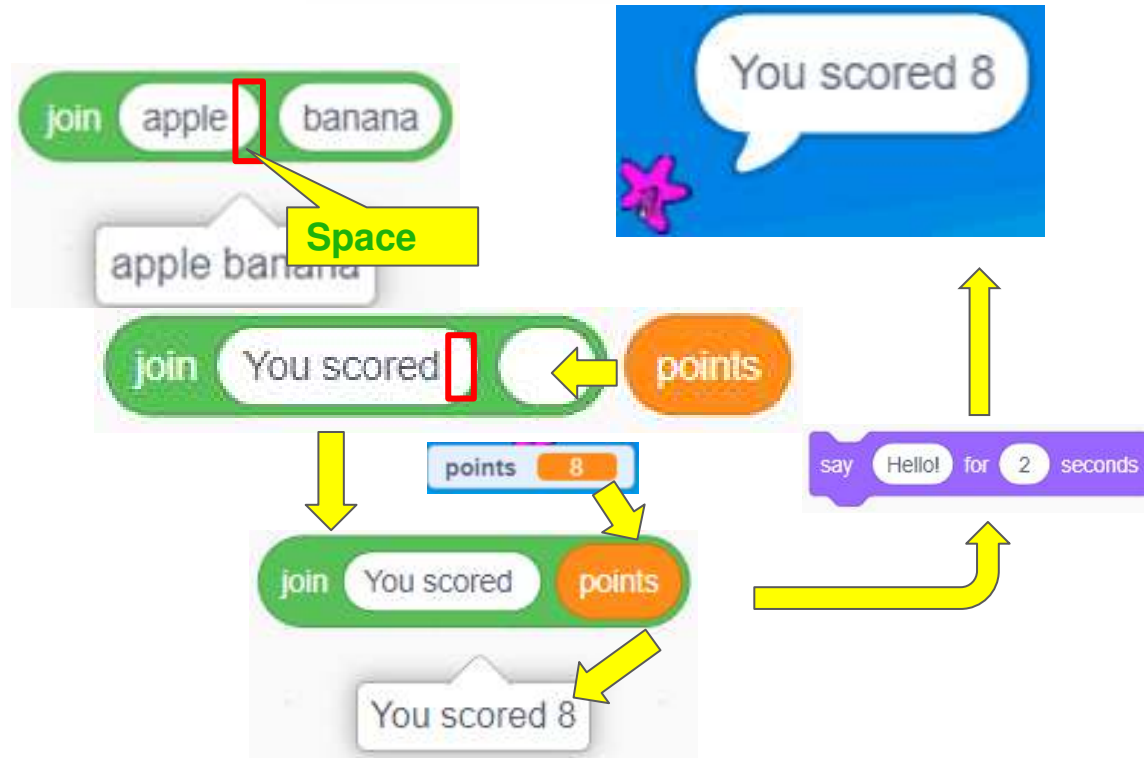
points 8

say points for 11 seconds

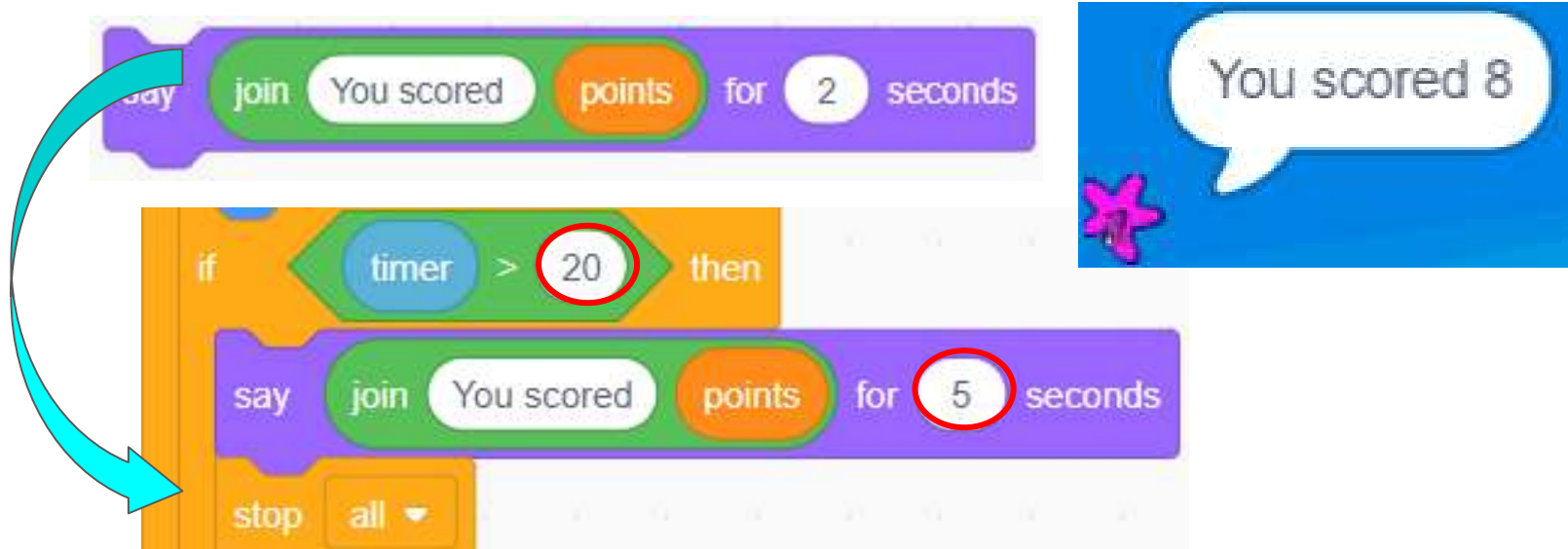
What is 6???



String operator



Announcement of Results, Part 2

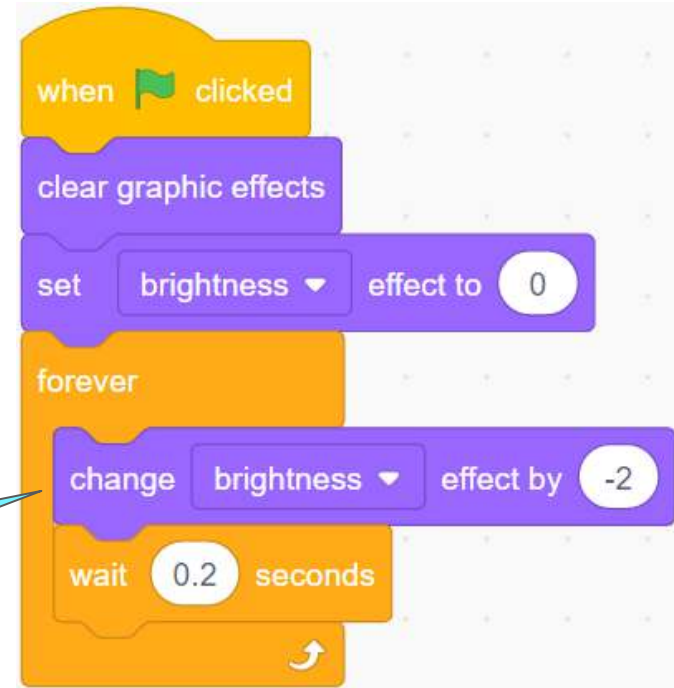


Clean-up of the Game

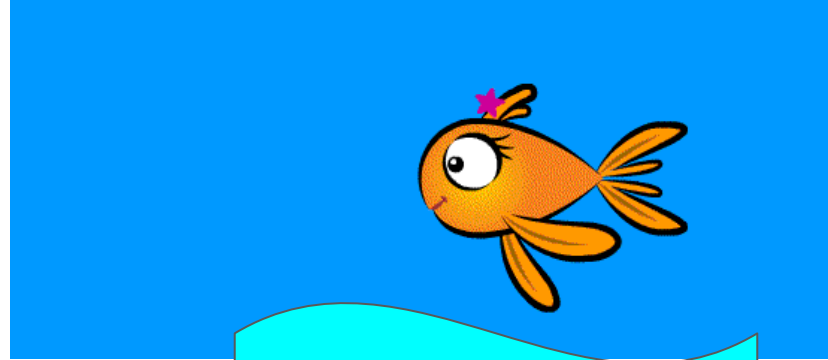
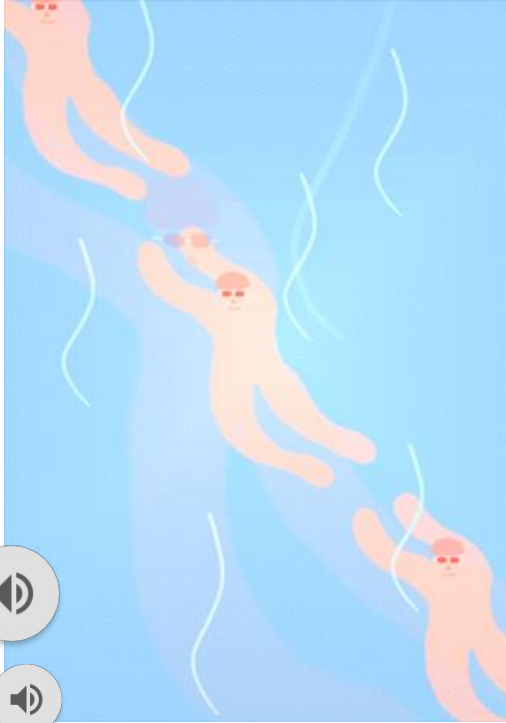
Will stop its sprite only



It darkens gradually



Physical Activity Breaks



**There is a great strength
in water**

