

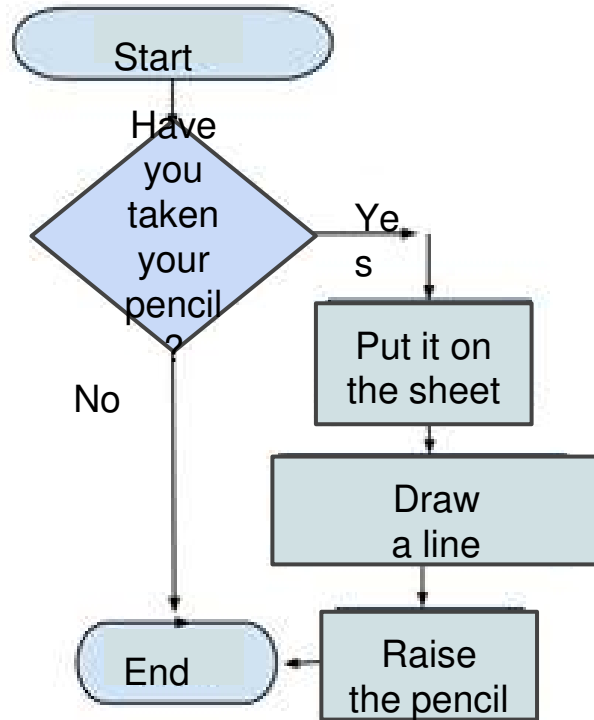
D·BIC

Code Their Dreams

Unit 1: Our First Game



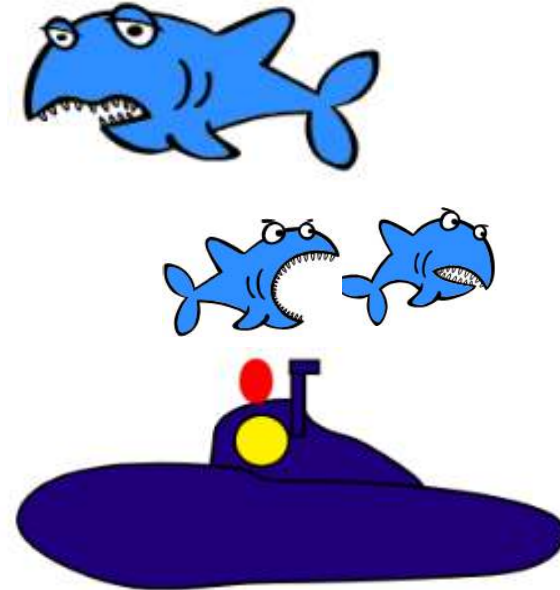
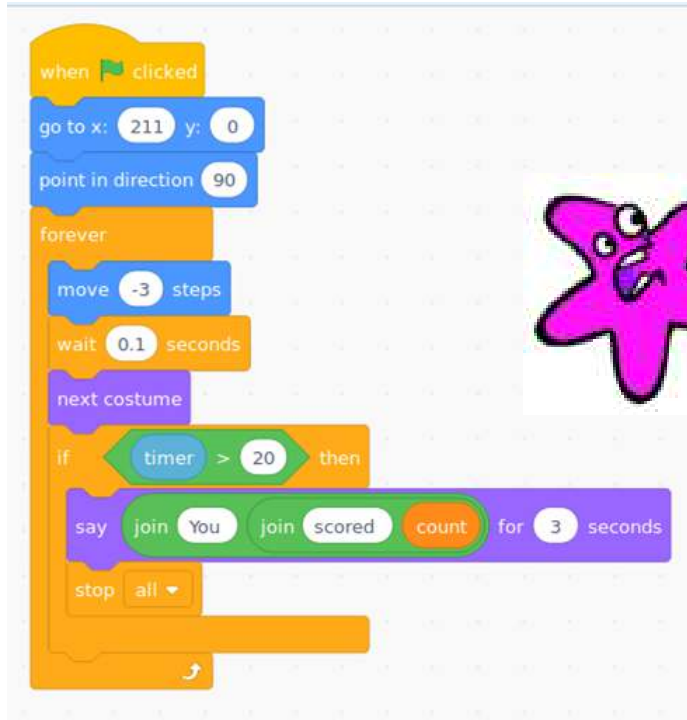
Algorithm and Program (Code)



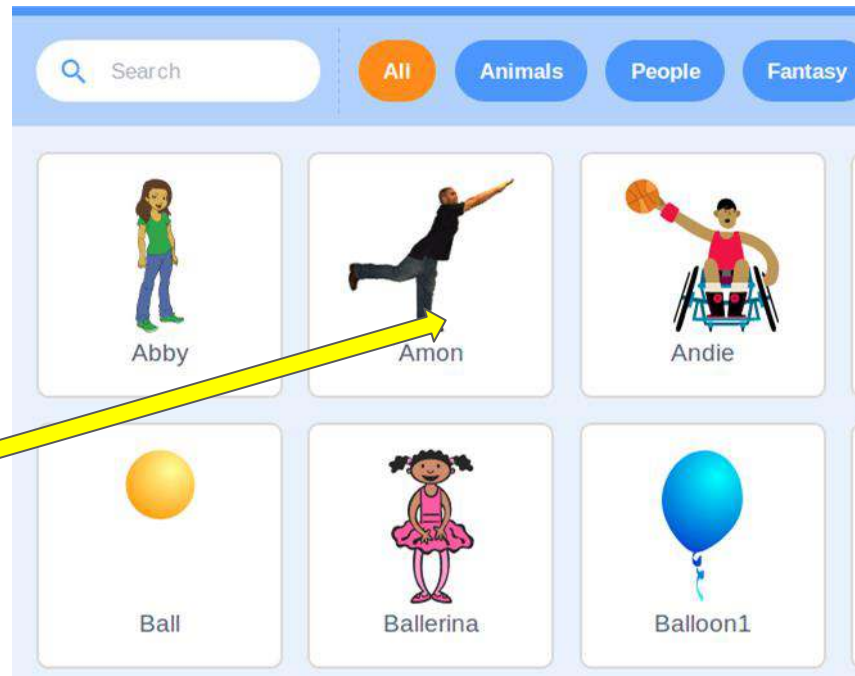
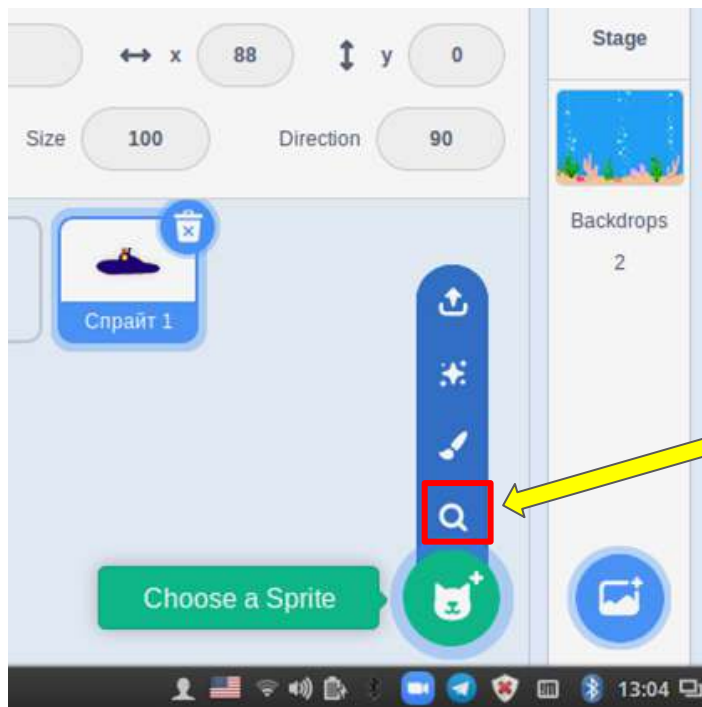
```
char incomingByte;      // пер
int LED = 13;           // LED
void setup() {
  Serial.begin(9600);    // ИНИЦИАЛИ
  pinMode(LED, OUTPUT); // ВЫВОД
}
void loop() {
  if (Serial.available() > 0) {
    incomingByte = Serial.read(); /
    if(incomingByte == '0')
      digitalWrite(LED, LOW);
    if(incomingByte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



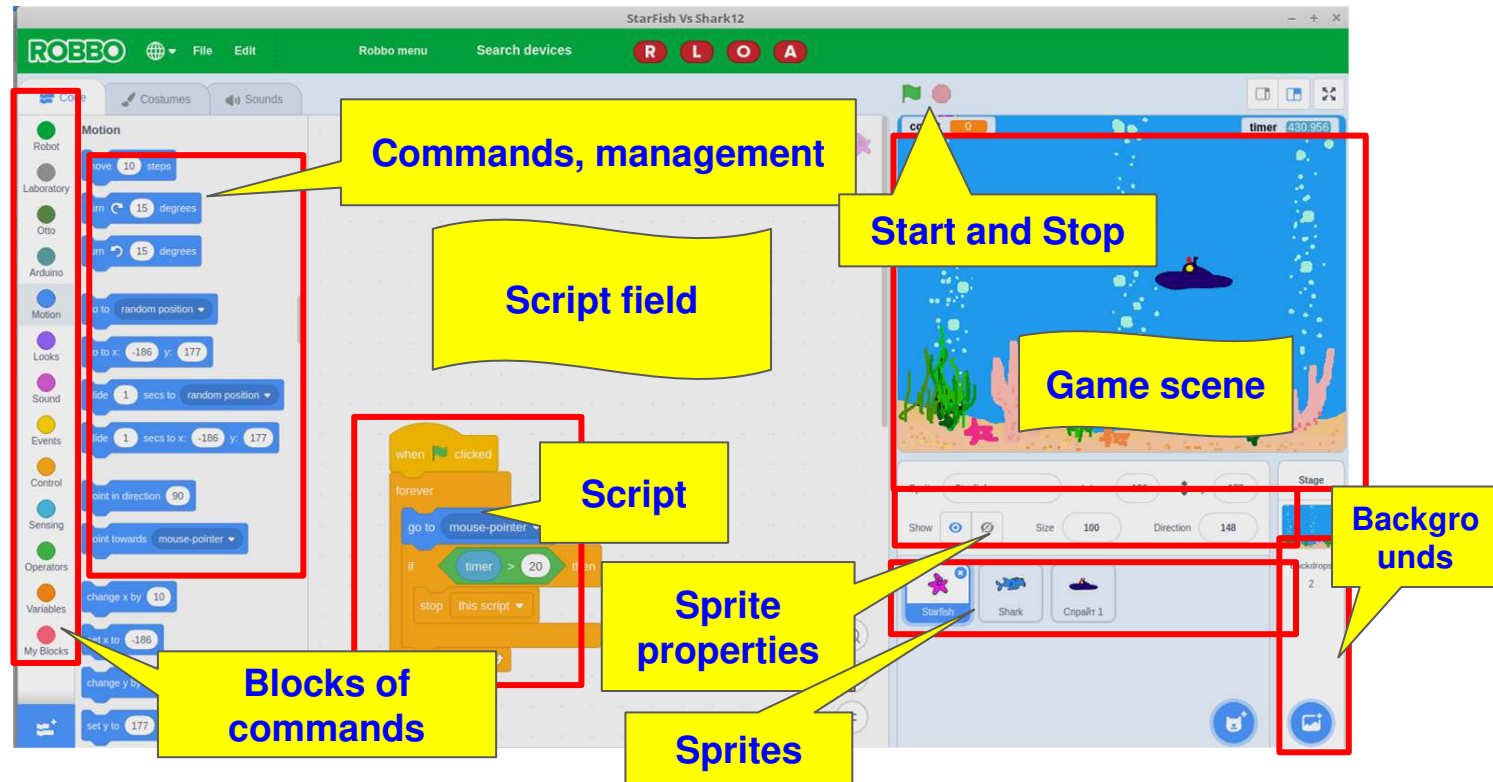
Sprite and Script (Code)



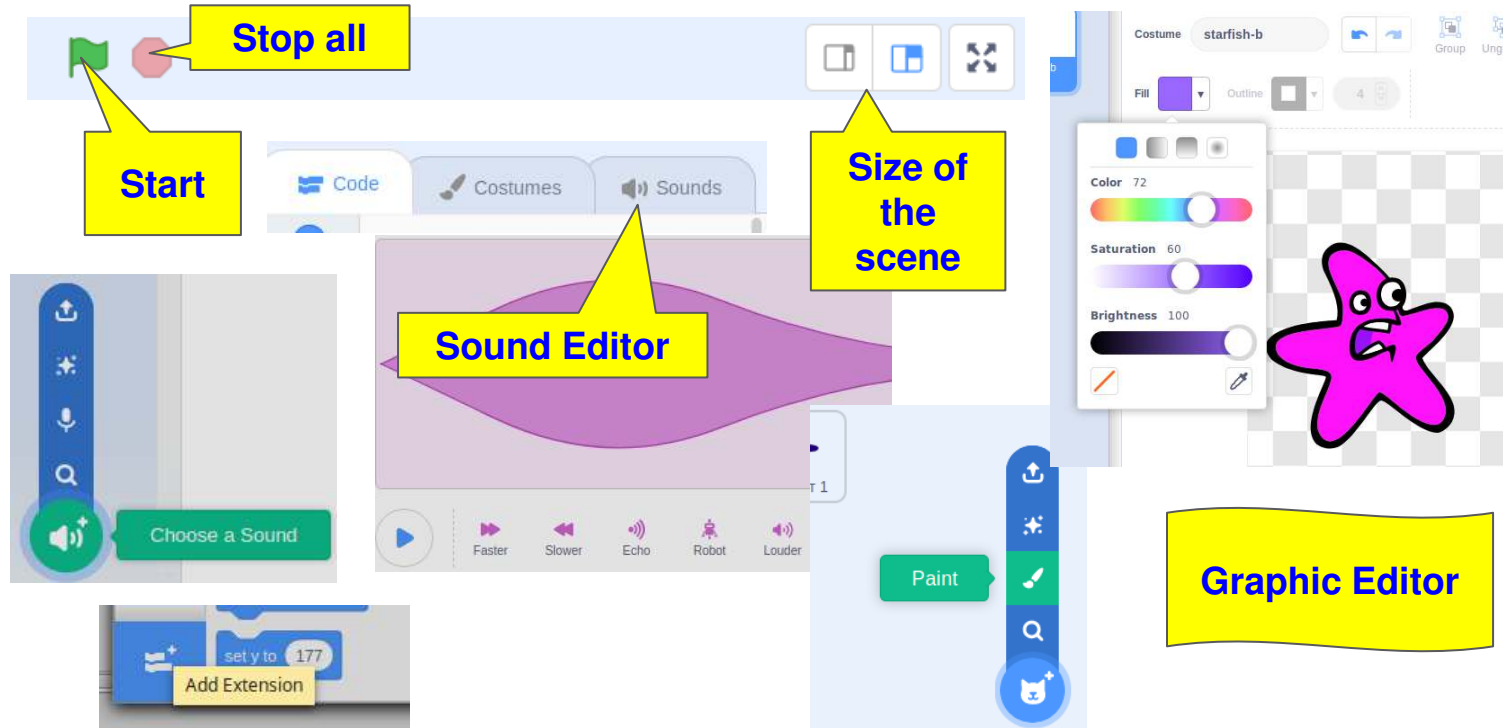
Choose Sprite



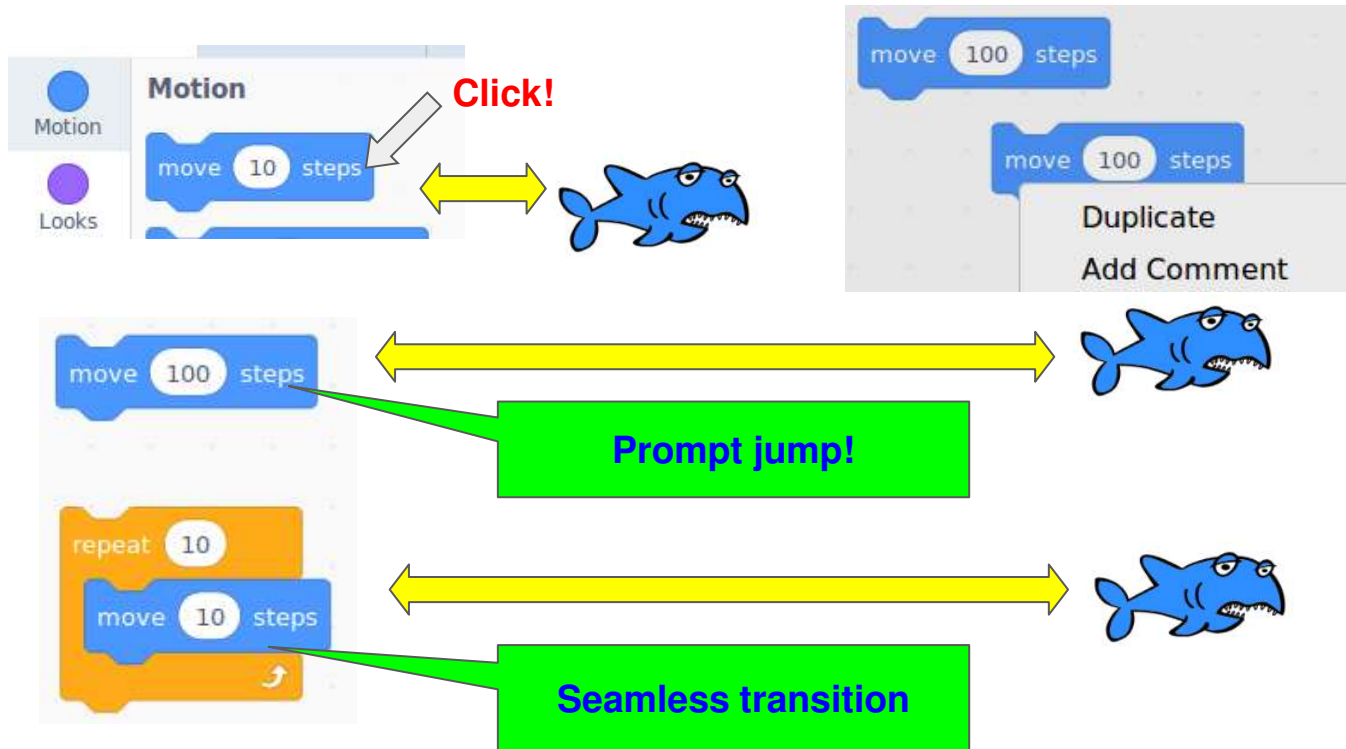
Scratch Interface (RobboScratch3)



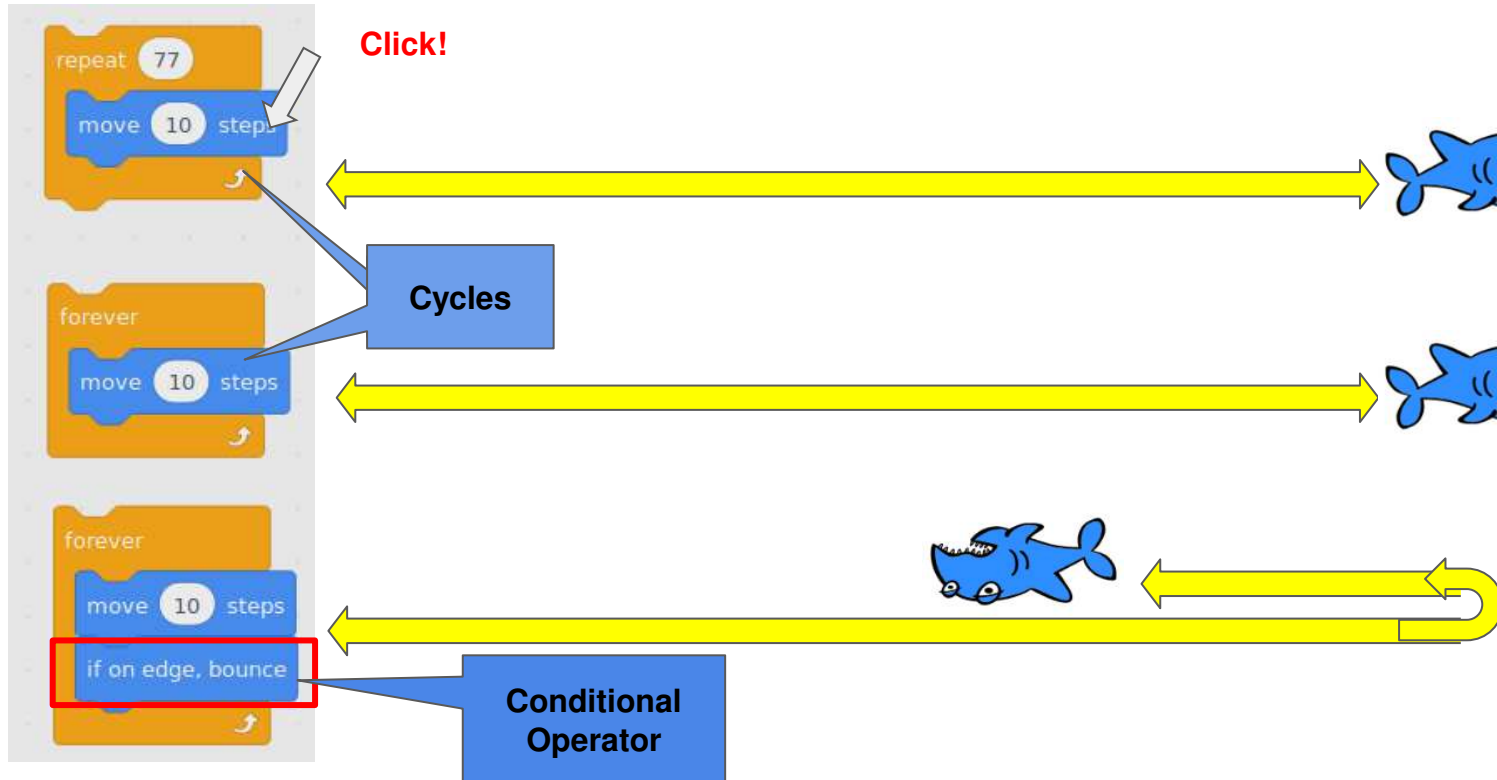
Scratch Interface (RobboScratch3)



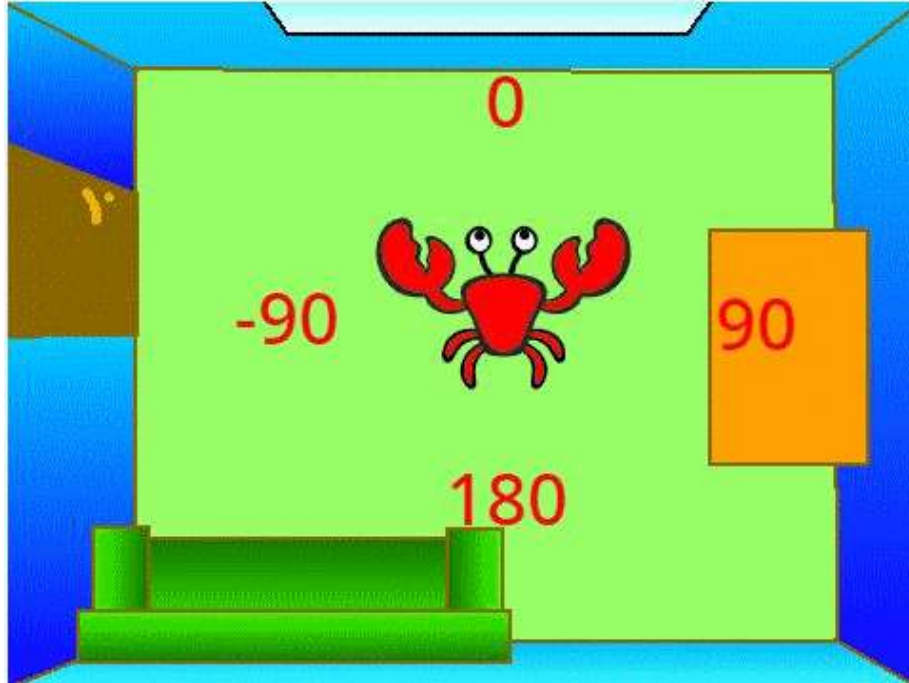
Commands. Motions. Cycle.



Commands. Cycles. Conditional Operator.



Commands. Direction in degrees



0-up

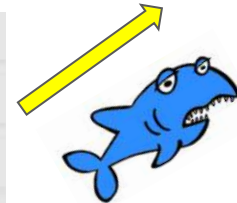
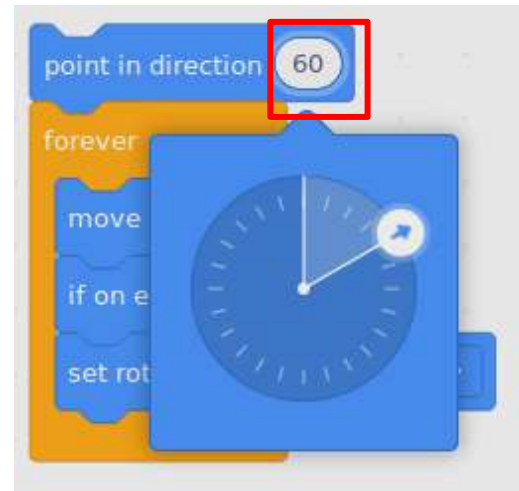
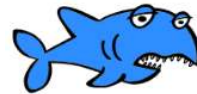
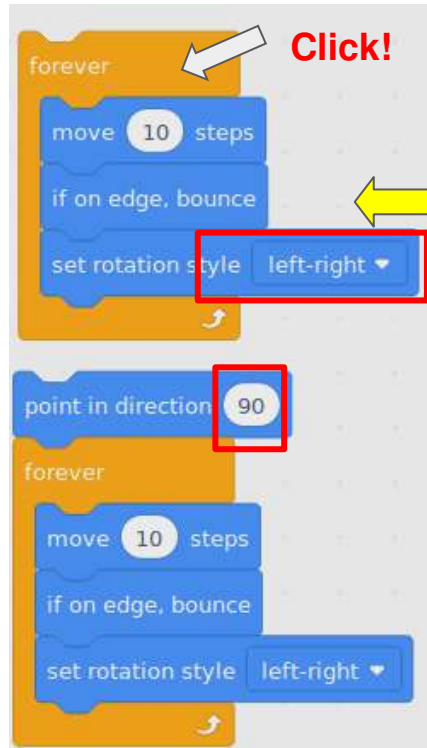
90-right

180-down

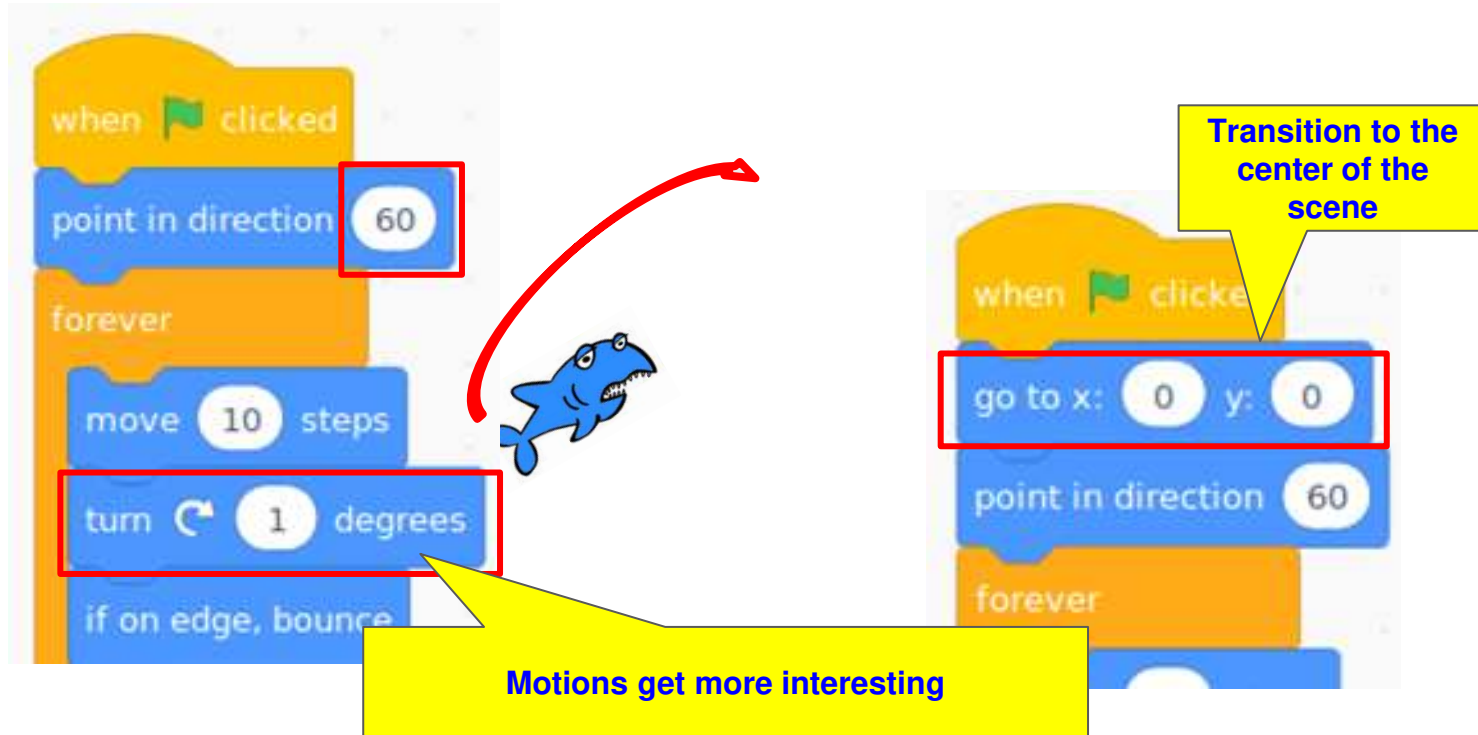
-90-left



Commands. Direction. Scoping



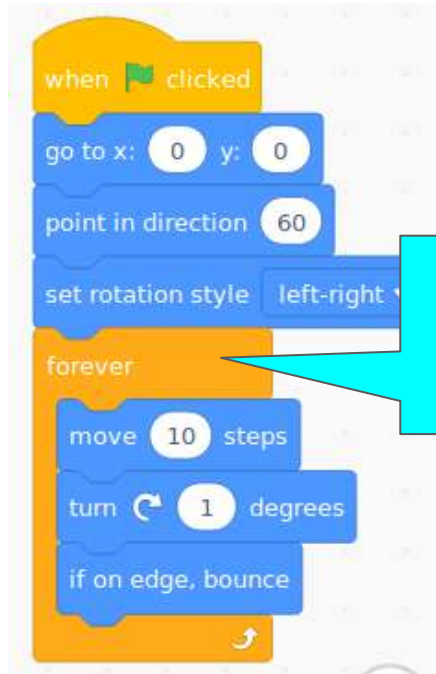
Commands. Rotation. Center, X and Y.



Background



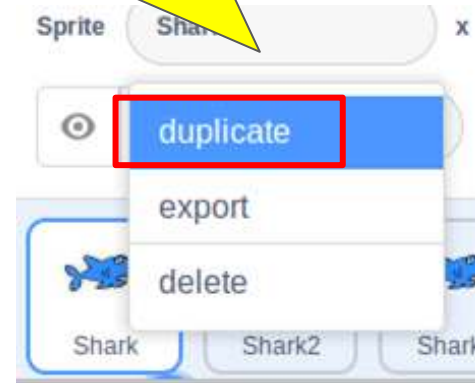
The program works!



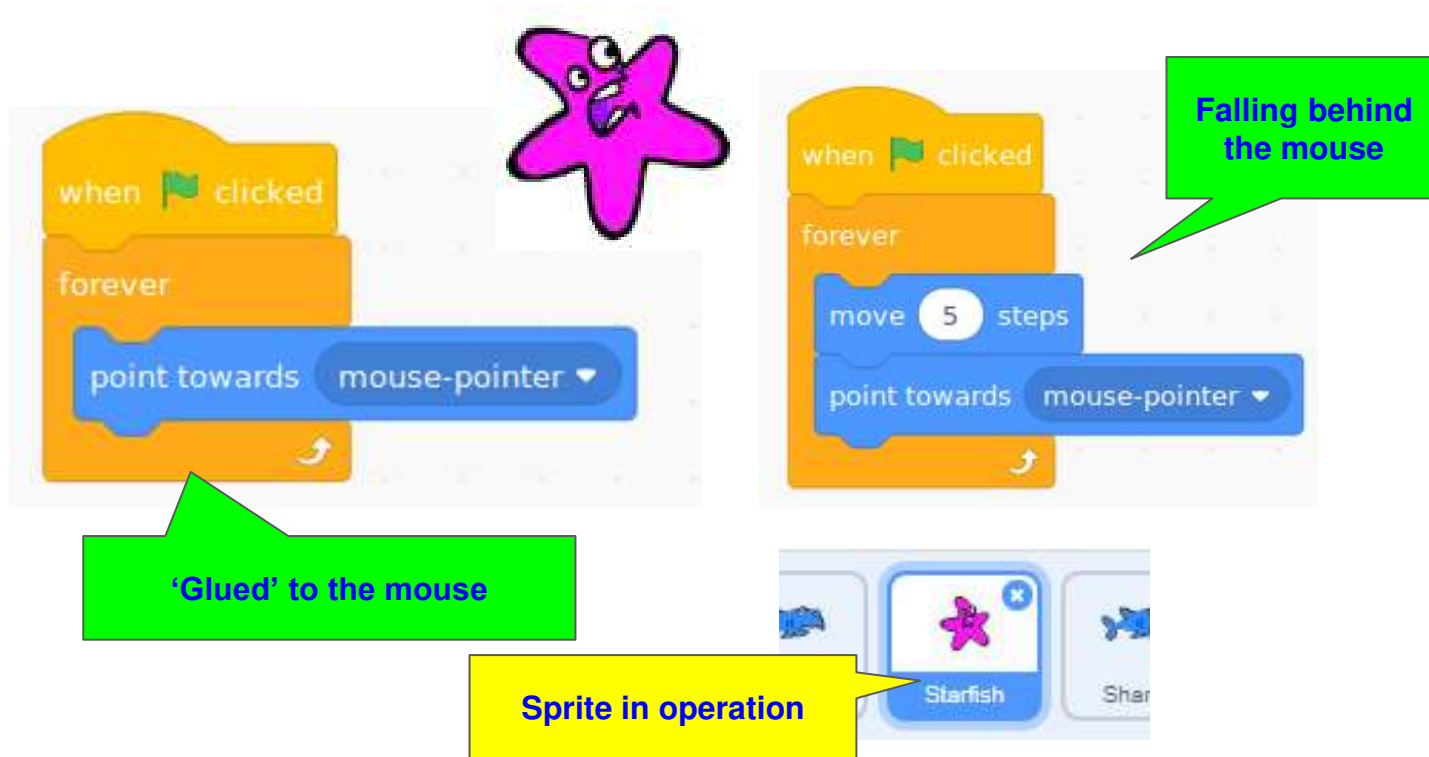
You first
program that
fully works

Launch of all sprites
with check marks

Let's make a whole shiver of
Sharks.



Commands. Any movement depends on others.



The image displays two Scratch code blocks for a starfish sprite. The left block is a 'when clicked' event followed by a 'forever' loop containing a 'point towards mouse-pointer' block. A green callout bubble points to this block with the text 'Glued' to the mouse. The right block is also a 'when clicked' event followed by a 'forever' loop containing a 'move 5 steps' block and a 'point towards mouse-pointer' block. A green callout bubble points to this block with the text 'Falling behind the mouse'. Below these, a yellow callout bubble points to a 'Starfish' sprite icon in a selection menu with the text 'Sprite in operation'.

when clicked

forever

point towards mouse-pointer

when clicked

forever

move 5 steps

point towards mouse-pointer

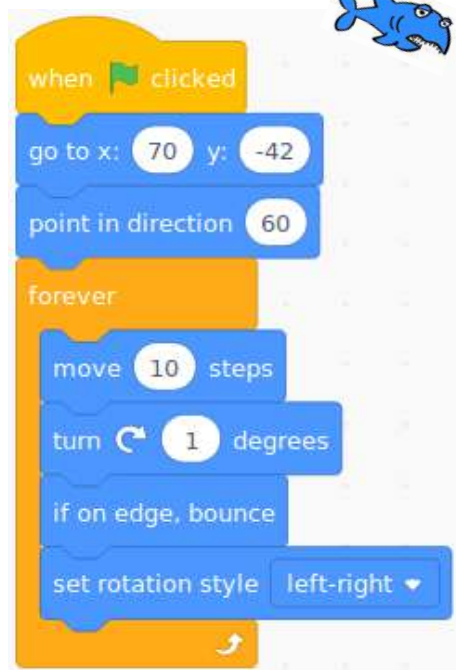
Falling behind the mouse

Glued' to the mouse

Sprite in operation



Interactive cartoon



when green flag clicked

go to x: 70 y: -42

point in direction 60

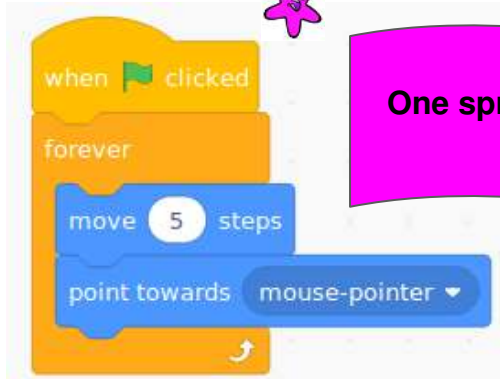

forever

move 10 steps

turn 1 degrees

if on edge, bounce

set rotation style left-right



when green flag clicked

forever

move 5 steps

point towards mouse-pointer

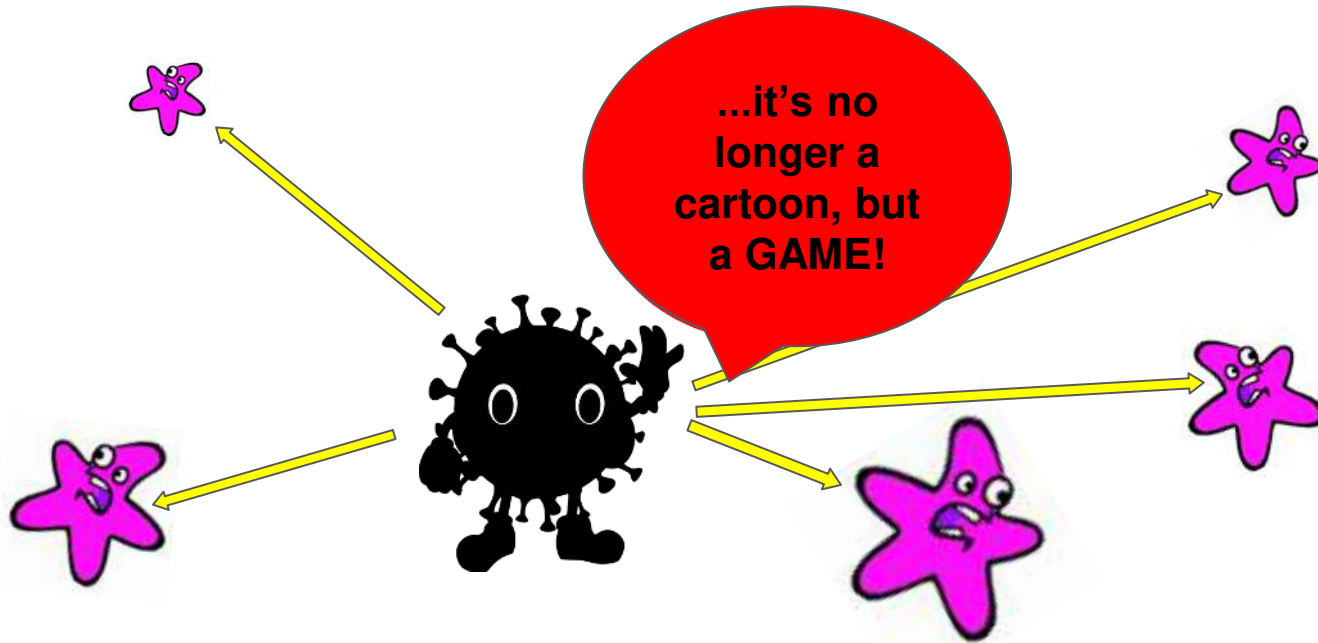
One sprite. Managed by a gamer with the mouse

Sprites don't see each other!

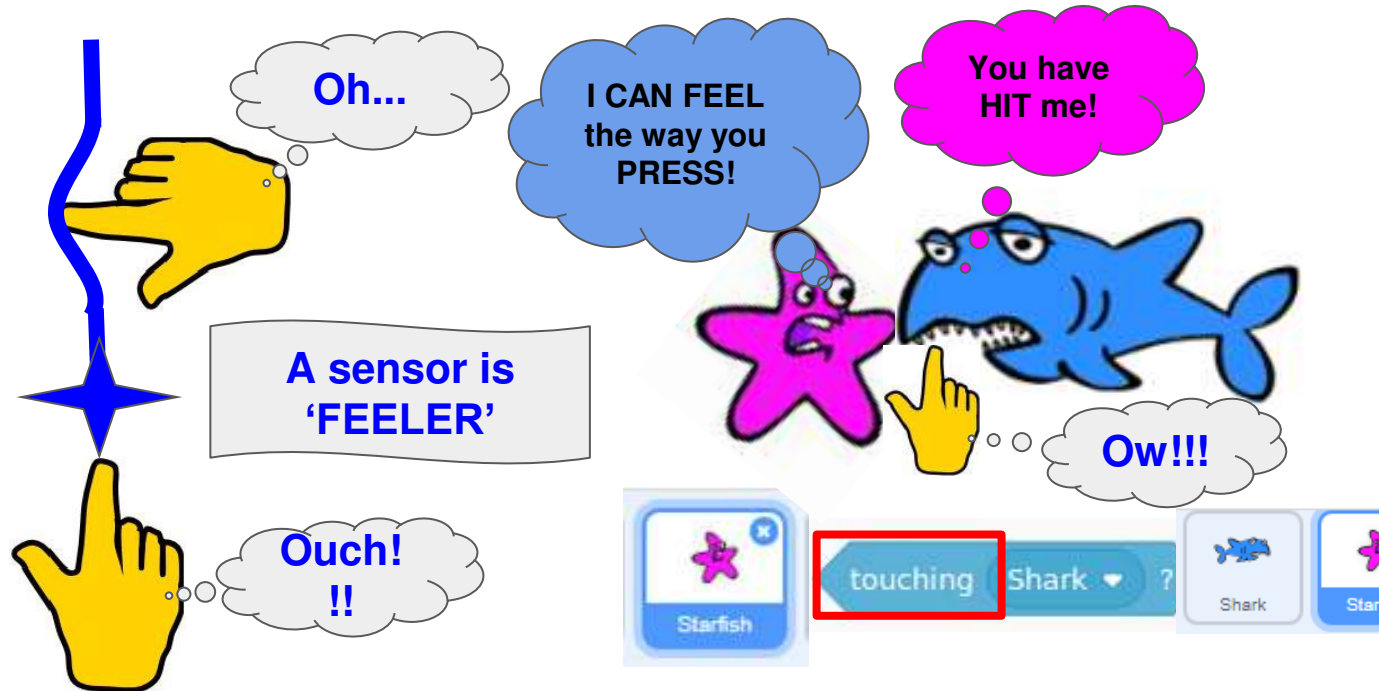
A lot of identical sprites. Managed by the computer



If you have an influence on the characters of the cartoon...

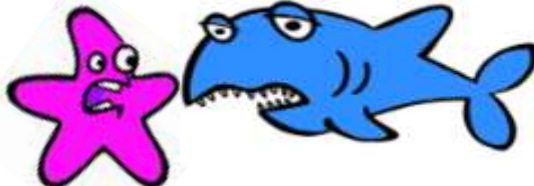


Sprite Sensors.



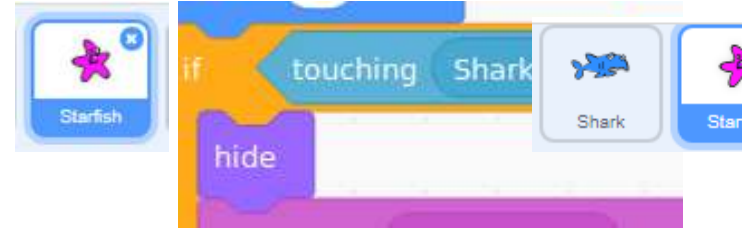
Who has sensors?

Sprites touch.
Who touches whom? Does it
matter? Yes!

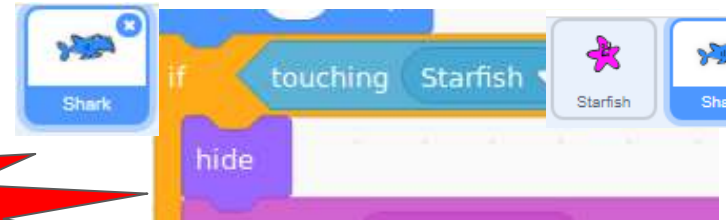


Be careful!

1. The Starfish will disappear



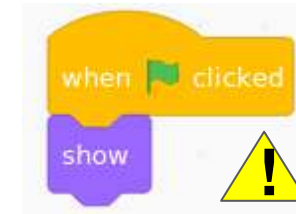
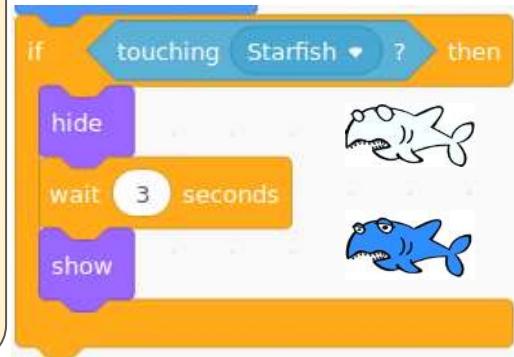
2. The Shark will disappear



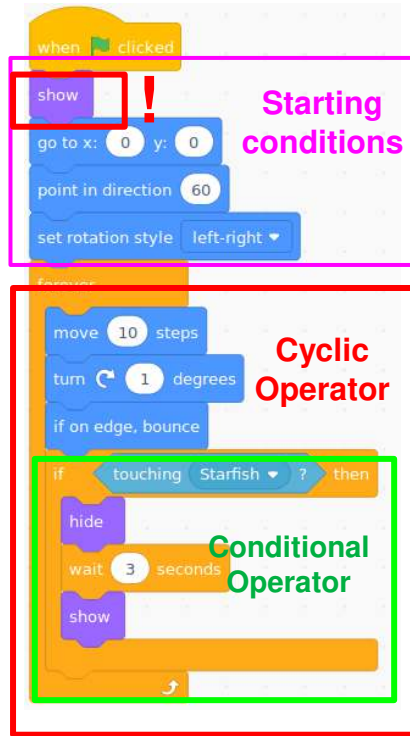
Create YOUR world!

LAW
of MY game: if a
Starfish and a Shark
meet, the Shark will
go away.

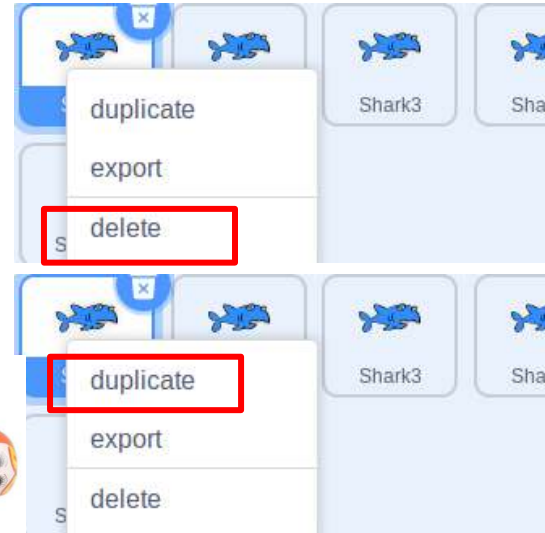
I
said so



The Program for the Shark is Getting More Complicated.

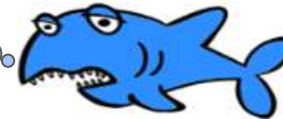
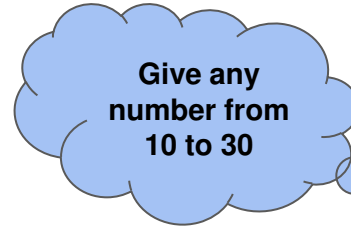


And... the secret operation!



Random Numbers. Size.

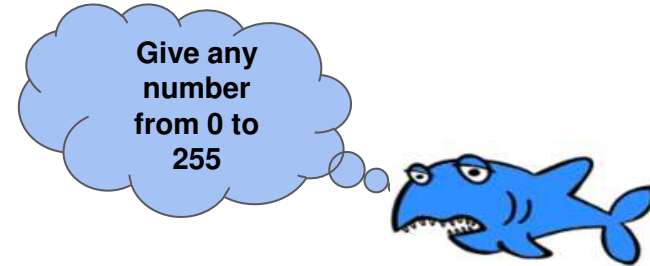
We have a lot of Sharks, but they are identical. Let's change it!
Let each of them has it own weight, color and personality.



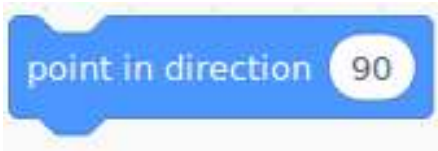
The 1st Shark only



Random Numbers. Color.



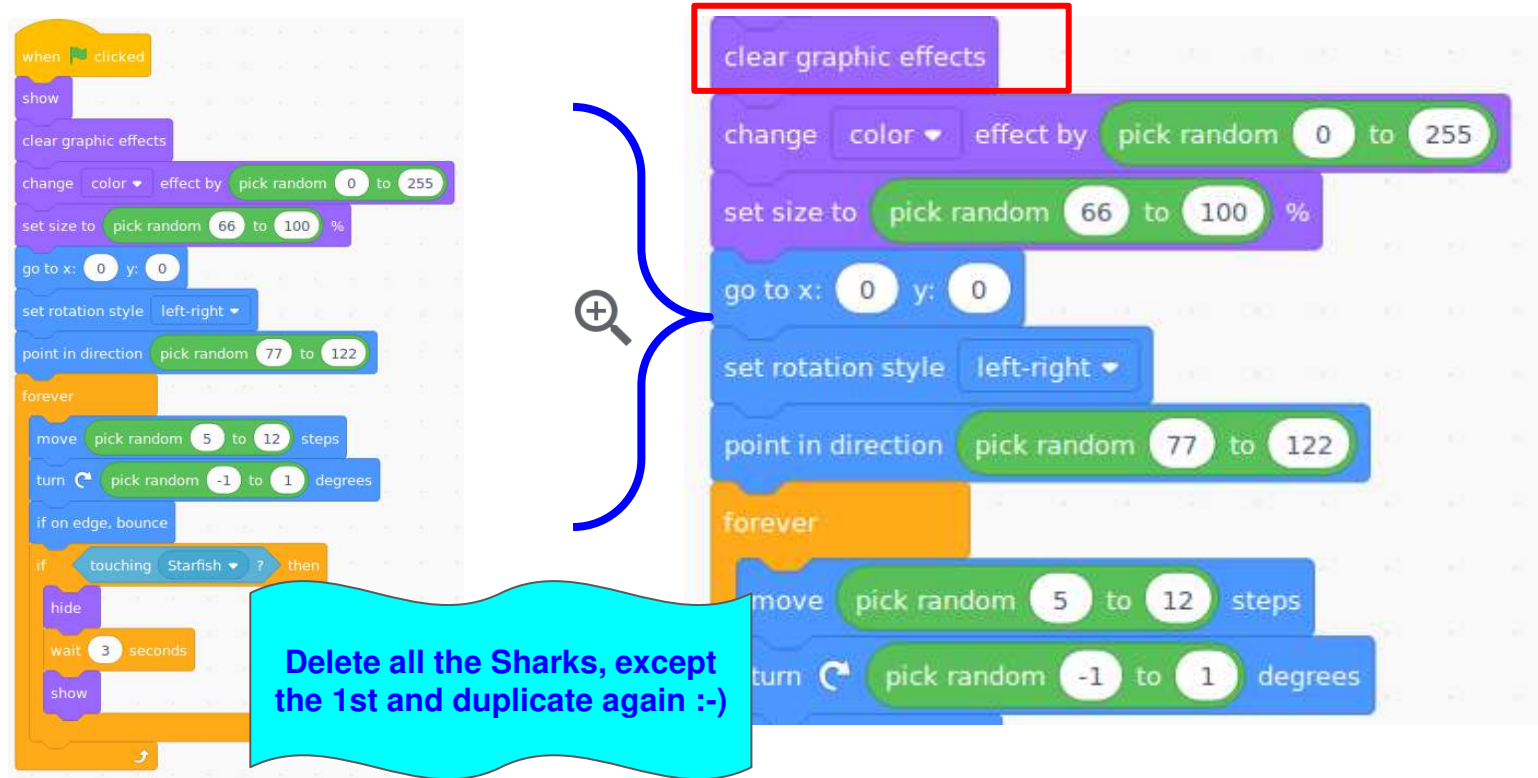
Random Numbers. Direction.



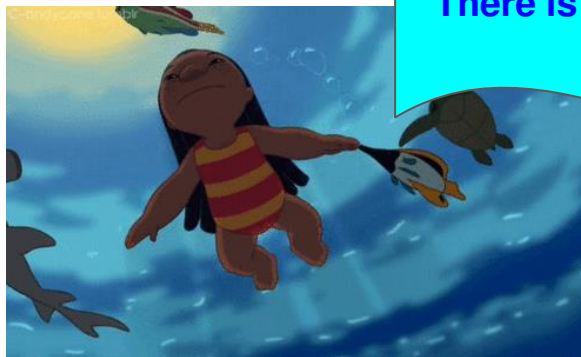
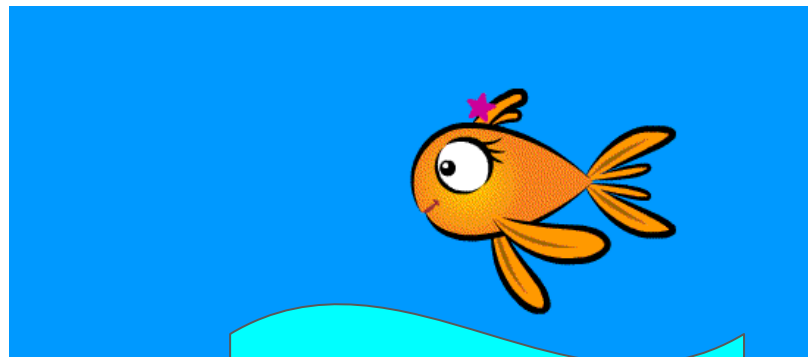
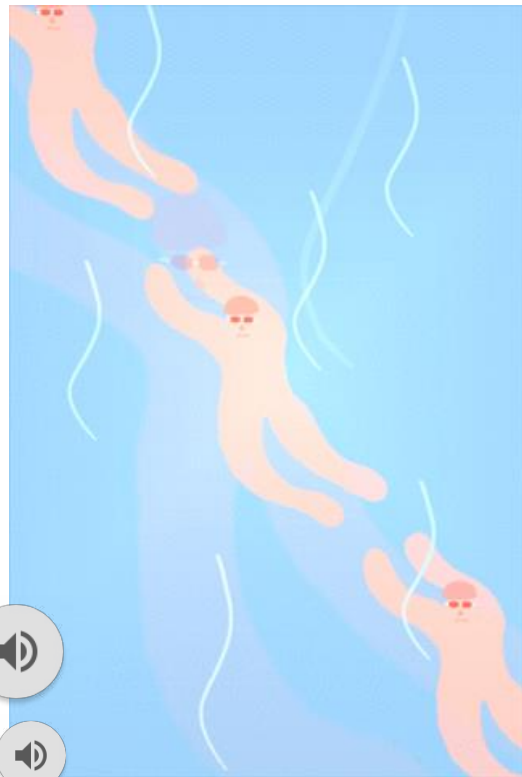
Random Numbers. 'Personality'.



The game has become more spectacular.



Physical Activity Breaks



**There is a great strength
in water**

