CoderDojo Athenry

EXPLORERS

Code and Notes by Martha Fahy, 2020

CoderDojo Athenry
"Above all, be cool"

Every week:
- ✓ Sign in at the door

If you are new:
- ✓ Fill in Registration Form
- ✓ Ask a Mentor how to get started

Make sure you are on the Athenry Parents/Kids Google Group: email coderdojoathenry@gmail.com

Weekly Reminders

- **Fire exit doors/main doorways must be kept clear AT ALL TIMES**

- **In the case of an emergency , please proceed in a calm and orderly manner to the nearest Exit and go to your Assembly Point**

Fire assembly point

Do NOT take anything with you
If you have a child in another room, do NOT go to them, a Mentor will look after them

- **Please leave passageways between desk and keep CLEAR at all times**

THINK SAFETY FIRST!

- **If power cable goes across passageways – must be TAPED DOWN ask mentor for tape**

- **ONLY NINJAS** need a table - parents, please only use a chair

- **If FIRST AID is required please alert a Mentor**

There are a number of trained first responders on site every week

€2

Coffee / Tea +

Help us cut down on Single Use Cups
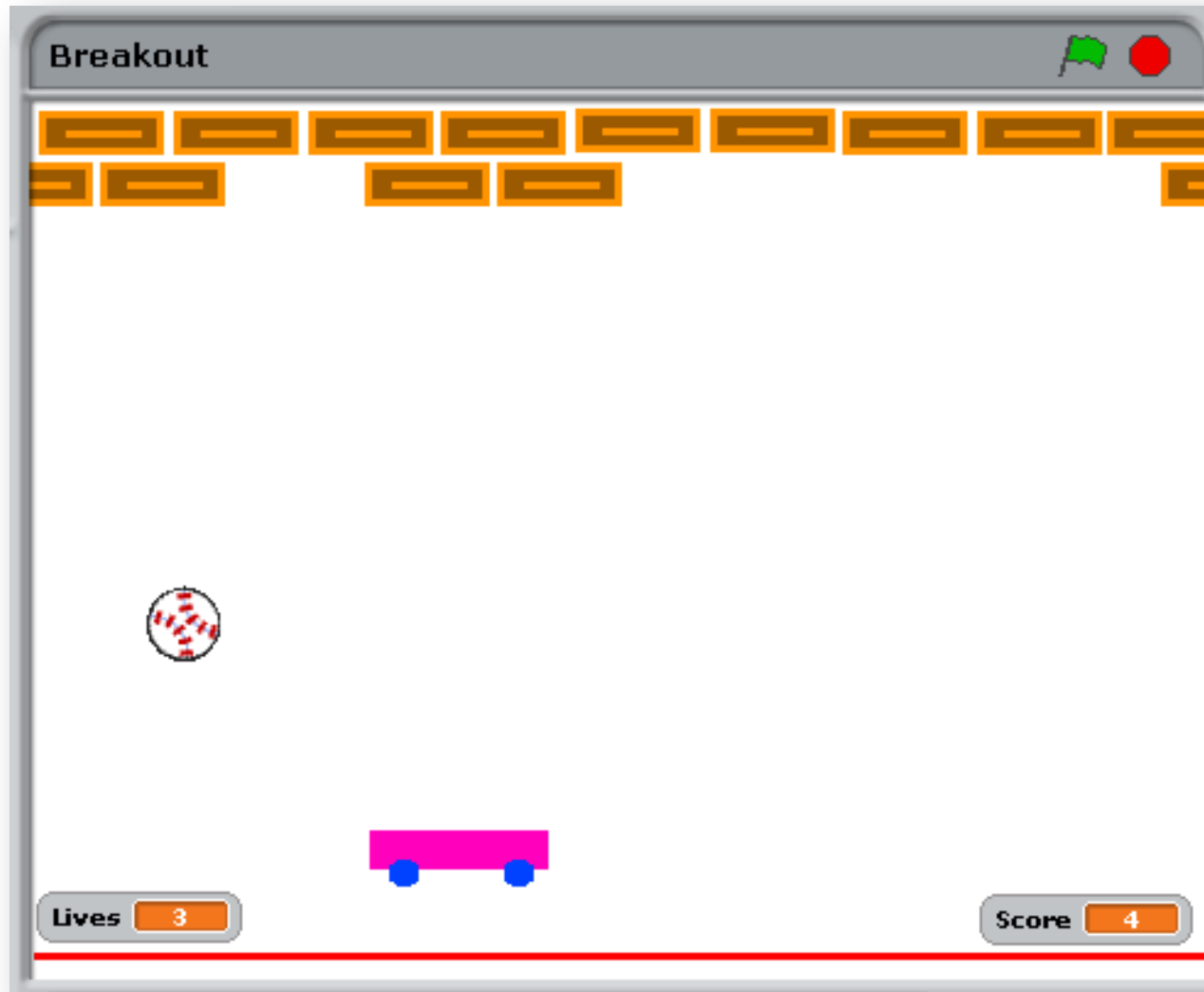
Bring your own cup (must have lid)

€1.50

 +

Today's Ninja Challenge:
Make a Game Like Breakout

Important concepts we will use today.
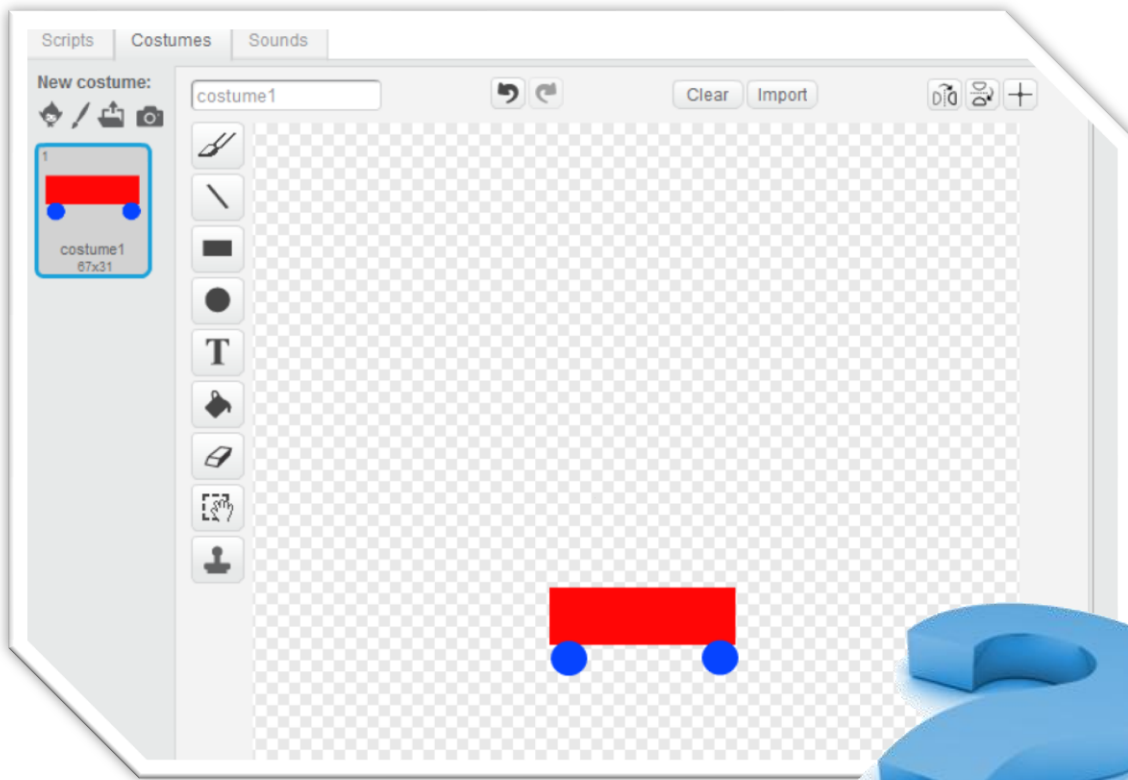
Making Sprites Move

Loops & Decisions
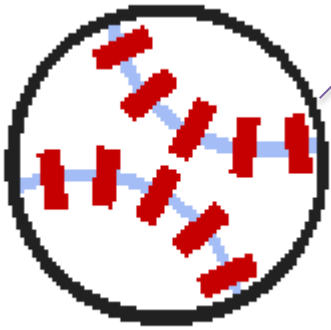
Animation & Sound

Variables & Broadcasts
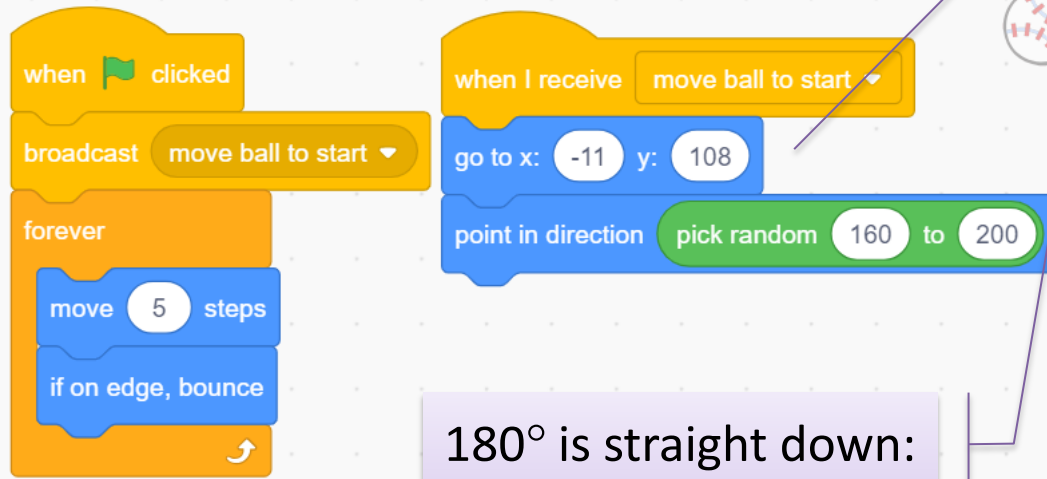
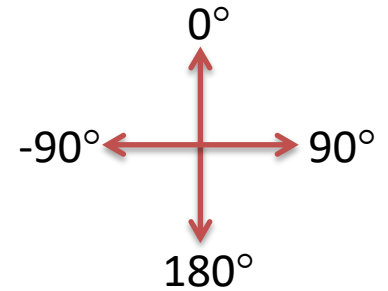# Design the Bat Sprite
& Code So You Control it

How would you control it with arrows instead?

Make the Ball Sprite
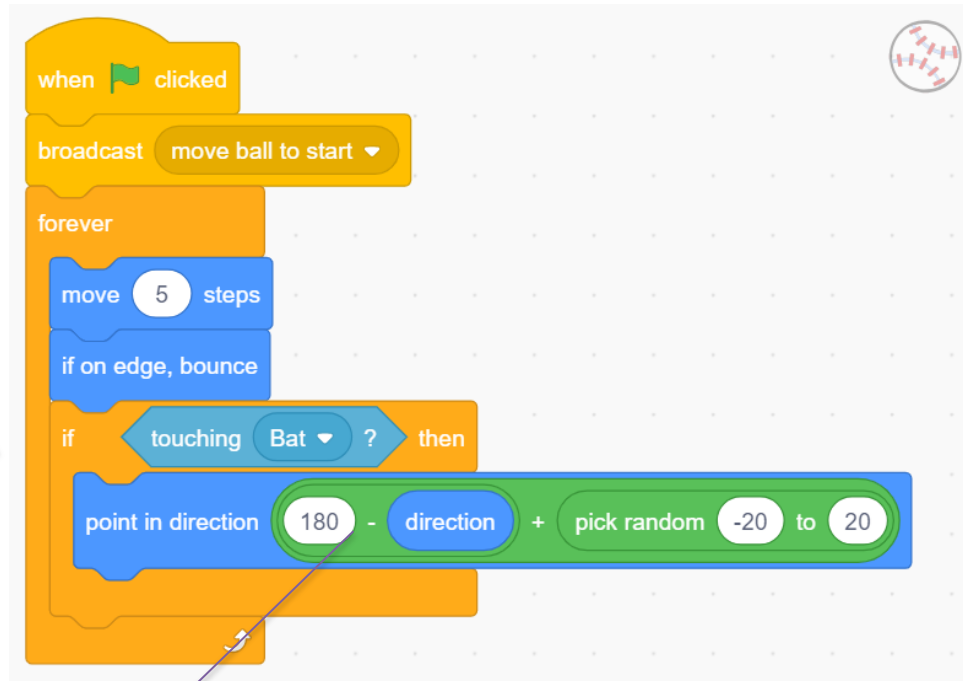# & Basic Code to Move it

I used a standard image

0°

-90° ←→ 90°

180°

Will use this to reset position after losing a life

```
when 🏳 clicked
broadcast  move ball to start ▾
forever
    move 5 steps
    if on edge, bounce
```

```
when I receive  move ball to start ▾
go to x: -11  y: 108
point in direction  pick random 160 to 200
```

180° is straight down: pick direction in range 180 ±20

Code for the Ball Sprite to Bounce off the Bat

New block of code to bounce off bat

```
when [flag] clicked
broadcast (move ball to start ▼)
forever
    move (5) steps
    if on edge, bounce
    if < touching (Bat ▼) ? > then
        point in direction (180 - direction + (pick random (-20) to (20)))
```

180° – Direction is opposite direction; add some randomness
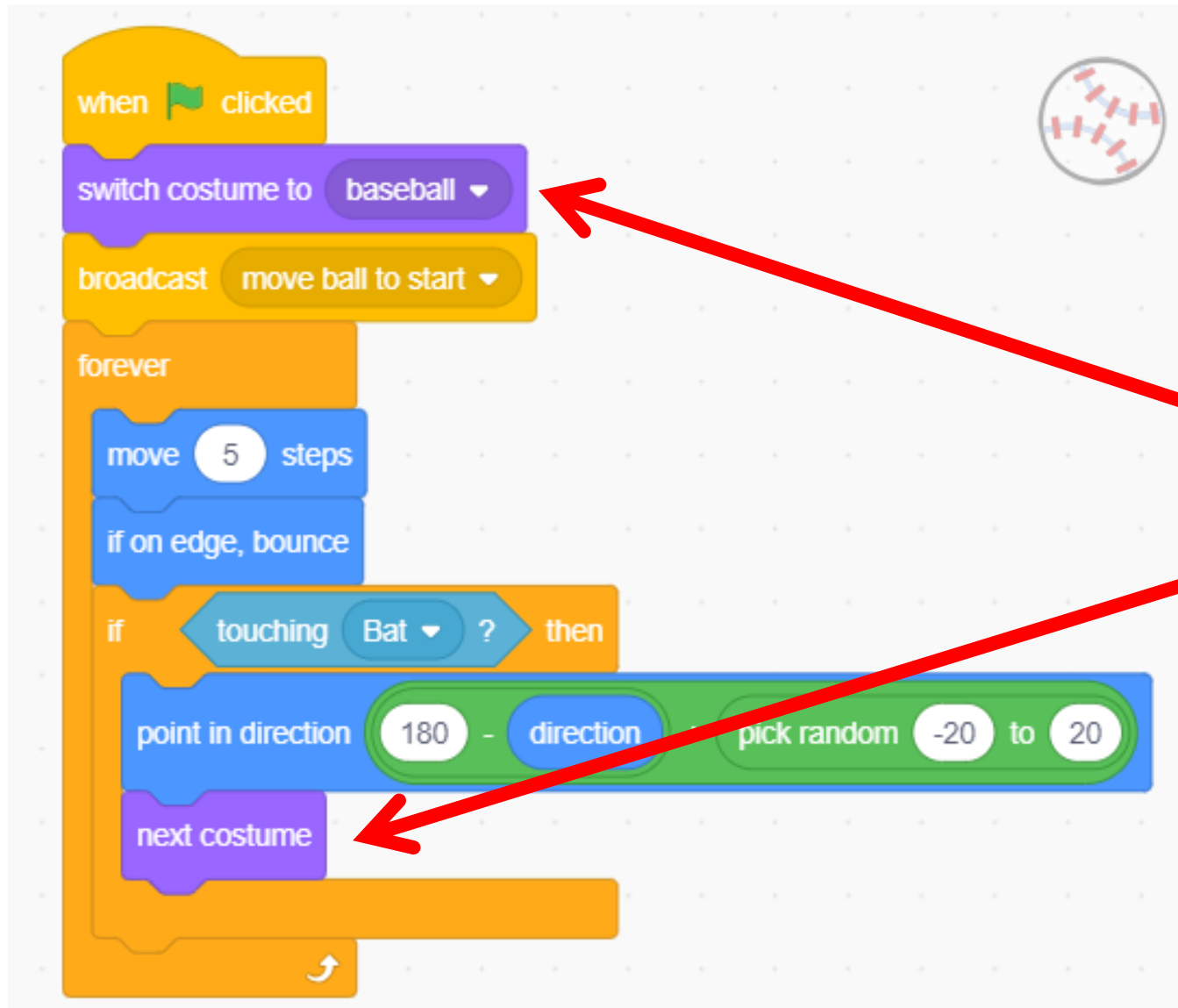
Animate the Ball
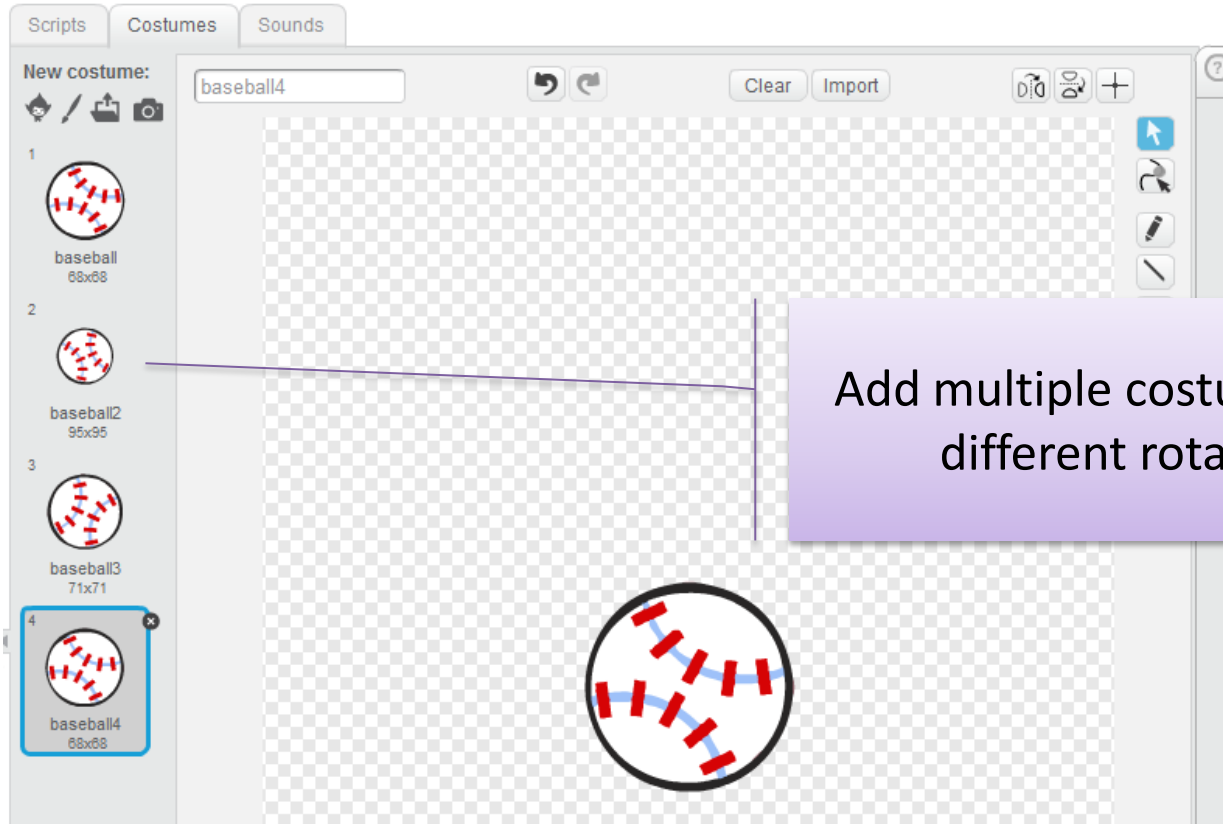
Add multiple costumes with different rotations

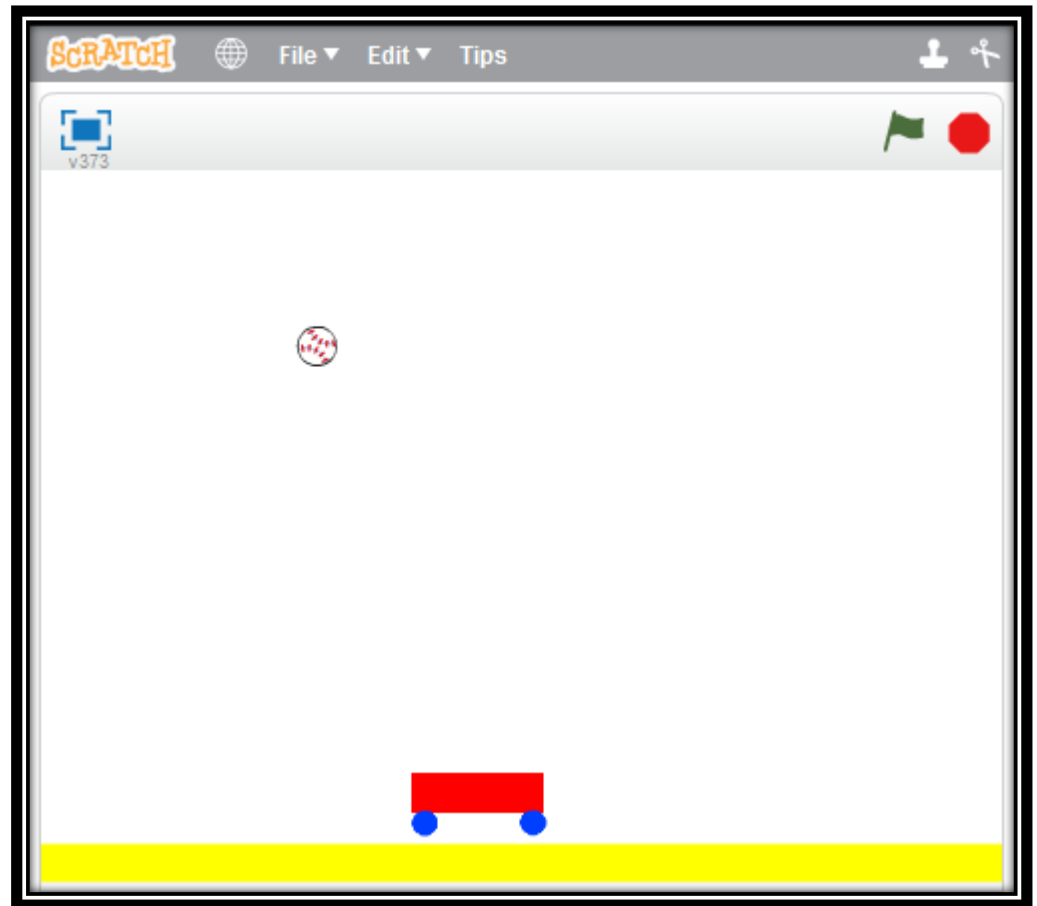Keep switching between costumes: how can you do this?
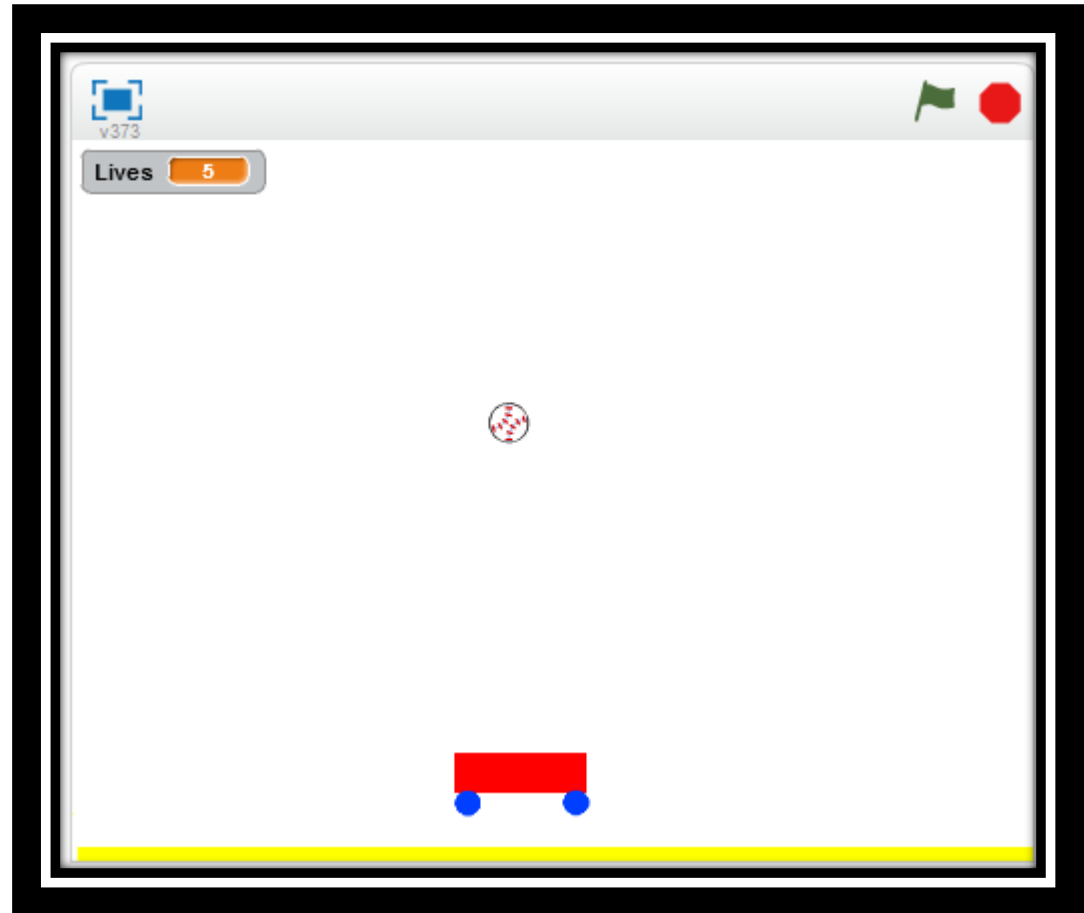
Code to animate the Ball

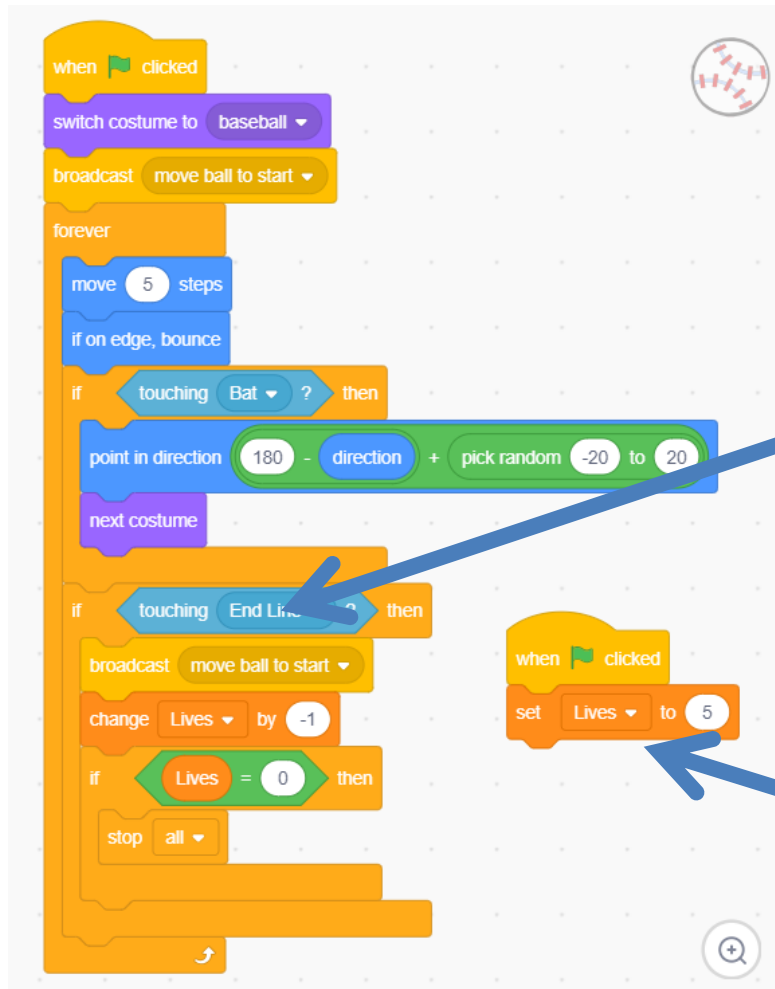# Add an End Line
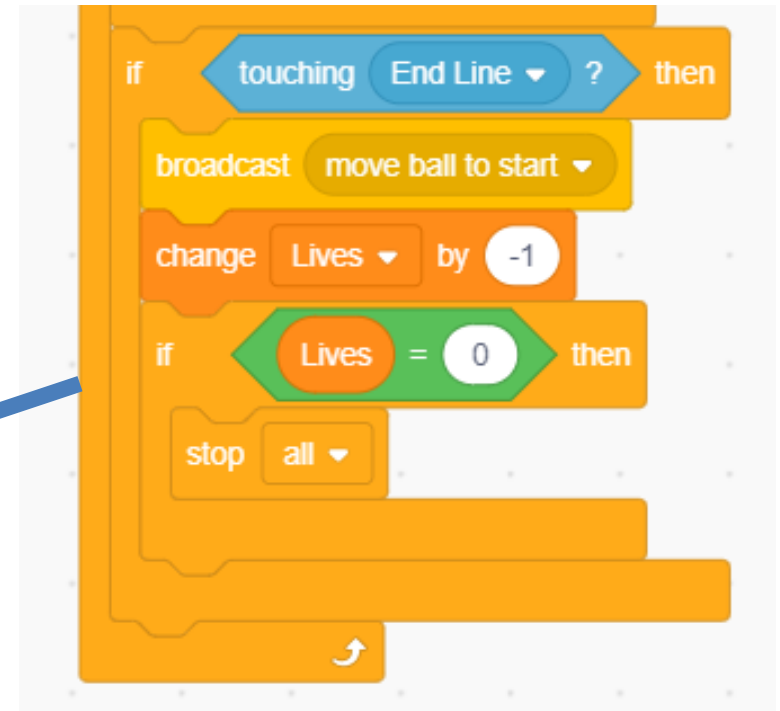
End Line:
Add Sprite
Or
Draw on Stage

Keep Track of Lives

- Variables for Lives

- Start with Lives =5
- Stop if Live = 0

- Reduce Lives by 1
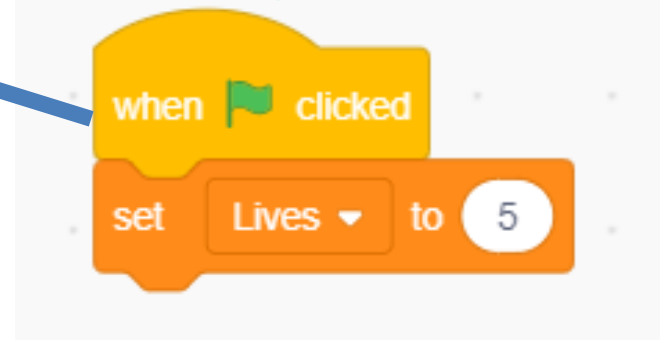- If Ball touches End Line

- Reset position of ball

Lives 5

Code

Touching End Line

```
if  touching  End Line ▼  ?  then
    broadcast  move ball to start ▼
    change  Lives ▼  by  -1
    if  Lives = 0  then
        stop  all ▼
```

Setting Lives

```
when ⚑ clicked
set  Lives ▼  to  5
```

Code blocks (left panel)

```
when ⚑ clicked
switch costume to  baseball ▼
broadcast  move ball to start ▼
forever
    move  5  steps
    if on edge, bounce
    if  touching  Bat ▼  ?  then
        point in direction  180 - direction + pick random -20 to 20
        next costume
    if  touching  End Line  ?  then
        broadcast  move ball to start ▼
        change  Lives ▼  by  -1
        if  Lives = 0  then
            stop  all ▼
```

```
when ⚑ clicked
set  Lives ▼  to  5
```
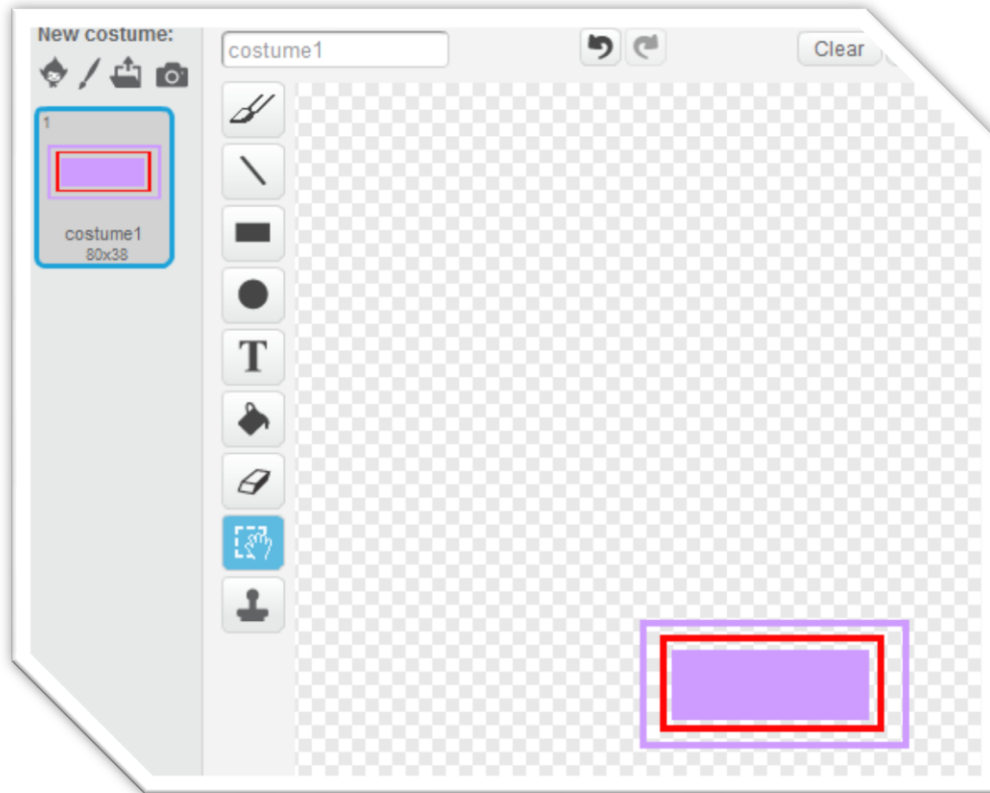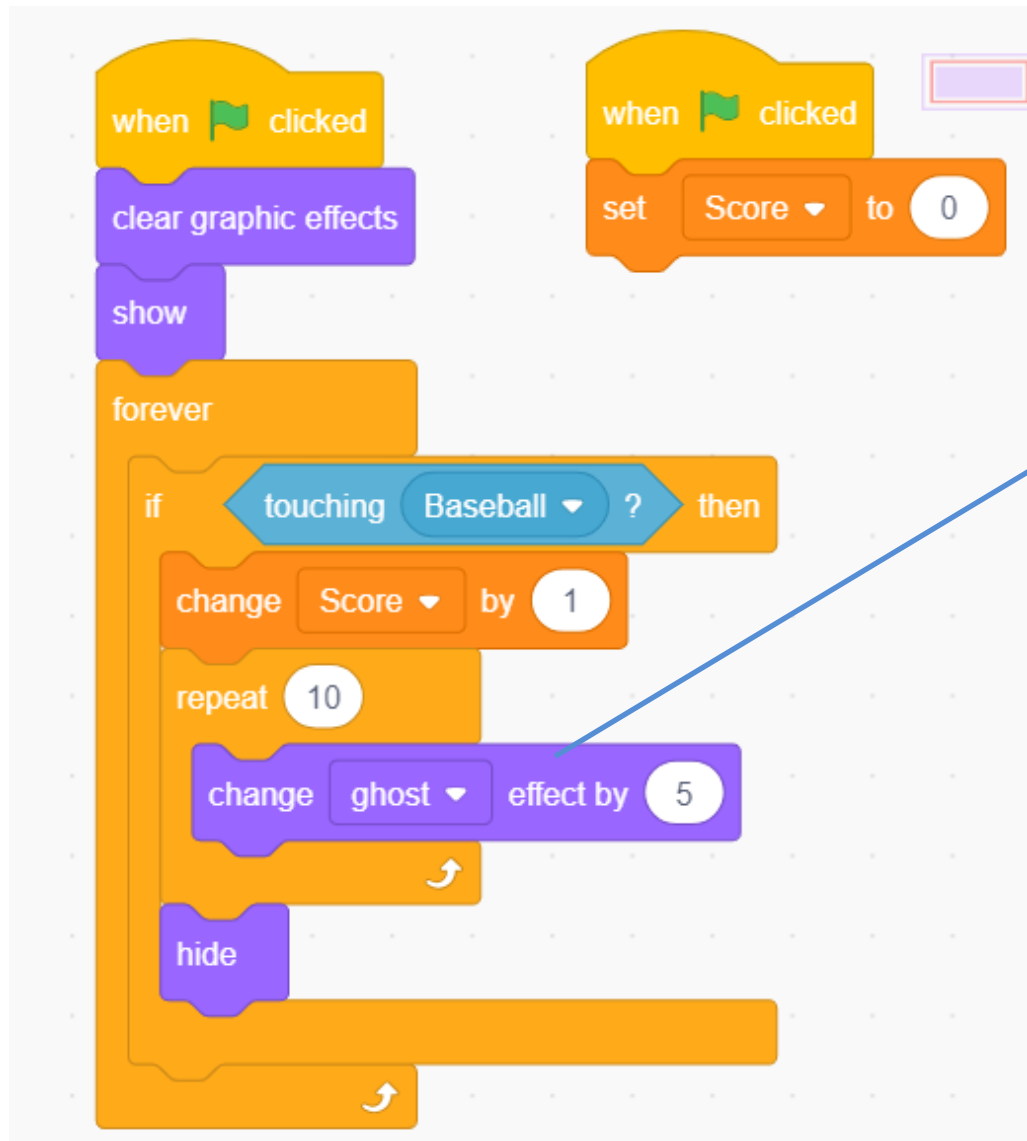
Add a Music Loop

Design & Code a Single Brick

Need a variable for Score

Need code for **Ball** when it receives broadcast:

Make a sound effect, Bounce off brick (copy code for bouncing off bat)

Design & Code a Single Brick

when 🚩 clicked
clear graphic effects
show
forever
  if ⟨ touching Baseball ? ⟩ then
    change Score by 1
    repeat 10
      change ghost effect by 5
    hide

when 🚩 clicked
set Score to 0

Make it fade slowly

Test the Single Brick & Duplicate it When You're Sure it Works