A Breakout Game Created in Scratch

http://cs.oregonstate.edu/~mjb/scratch

Mike Bailey
mjb@cs.oregonstate.edu

Oregon State University

Events

- when green clicked
- when space key pressed
- when this sprite clicked
- when backdrop switches to backdrop1
- broadcast message1
- when I receive message1
**Data**

- **Pen**
- **Operators**
- **Data**
- **Make a Variable**
  - **Speed**
  - `set Speed` to 0
  - `change Speed` by 1

**Control**

- **wait 1 secs**
- **repeat 10**
- **forever**
- **when I start as a clone**
- **create clone of myself**
- **if** then **delete this clone**
- **else**
- **wait until**
- **repeat until**
Sensing

- touching mouse-pointer
- touching edge
- touching color
- distance to mouse-pointer
- key space pressed?
- mouse down?
- mouse x
- mouse y
- x position of Sprite
- y position of Sprite
- direction of Sprite
- size of Sprite

Operators

- +
- -
- *
- /
- pick random 1 to 10
- <
- =
- >
- and
- or
- not
- sin of 9
- cos of 9
Motion

- move 10 steps
- turn (-15 degrees)
- turn (+15 degrees)
- point in direction 90°
- point towards mouse-pointer
- go to mouse-pointer
- go to random position
- change x by 10
- change y by 10
- set x to 0
- set y to 0
- if on edge, bounce

Make a Variable
- Speed
  - set Speed to 0
  - change Speed by 1

when clicked
- when space key pressed
- broadcast message1
- when I receive message1

- touching mouse-pointer
- key space pressed?
- mouse x mouse y

when I start as a clone
- create clone of myself
- delete this clone

move 10 steps
- turn (-15 degrees)
- turn (+15 degrees)
- point in direction 90°
- if on edge, bounce

pick random 1 to 10
Scratch Handles the Directions you are Going Like a Compass Does

Three Actors
Paddle

When the program starts, set some good values into the variables, get everyone else going, then have the Paddle continuously follow the mouse pointer.

```
when clicked
set PaddleX to -140
set Speed to 0
set BallX to 5
set BrickX to 50
broadcast CreateBrick
broadcast StartGame
forever
go to x: mouse x: y: PaddleY
```

The 'q' key can end the game.

Bricks

Create the bricks to start with.

```
when I receive CreateBrick:
  where
  repeat BrickX
    create clone of Brick
    hide
```

Test to see if you're won.

```
when clicked
  wait until key q pressed?
  stop all
```

Position each brick in a random location. Then, wait for the ball to hit the brick. When it does, decrease the brick count, bounce the Ball (which will result in a pop sound), and delete this brick.

```
when I start as a clone
go to x: pick random -240 to 240 y: pick random 50 to 180
forever
  wait until touching Ball
  set BrickX to BrickX + 1
  broadcast SoundClash
  delete this clone
```

Position each brick in a random location. Then, wait for the ball to hit the brick. When it does, decrease the brick count, bounce the Ball (which will result in a pop sound), and delete this brick.
Ball -- top

when clicked
set rotation style all around:

when clicked
Handle the ball getting by the paddle

when clicked
Move the ball

when I receive "ball off the paddle"
point in direction 120 - direction
turn 5 - pick random 20 to 60 degrees
play sound pop

when I receive "winner"
play sound happy until done

Ball -- bottom

when I receive "ball off the paddle"
point in direction 120 - direction
turn 5 - pick random 20 to 60 degrees
play sound pop

when clicked
Make the Ball move faster