# Educational Technology (/)

## Scratch Challenges

The following are a set of challenges designed to help people learn the basics of Scratch and programming in general. They teach one how to make some video games and animations. Try complete the as many of the following challenges as you can in order. It is important that you take your time and really understand the basics.

**IMPORTANT NOTES:**
The videos are all done in Scratch 1.4, but still can be applied to Scratch 2.0
The videos might take a little while to load please be patient.

## Level 1                                                      Hints

### Challenge 1 - Glide Around the Screen

Make the Cat glide around the edge of the screen using just the :glide block and turn block
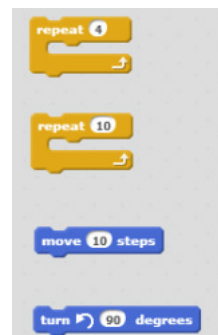


### Challenge 2 - Move in a Rectangle                          Hints

Make the cat move in a rectangle using the following blocks:
- Move
- Turn
- Repeat

## Challenge 3 - Walking Cat

Make the Cat "Walk" across the screen and say things using the
speech bubble.

## Hints

## Challenge 4 - Hitting a Wall

Make the cat move across the screen and if it hits a wall say ouch and fall down.

## Hints



**Level 2**

## Challenge 5 - Pattern Studio

Make the cat draw neat designs on the screen. Be creative and experiment with different blocks.

## Hints

Here are some blocks you can use:

## Challenge 6 - Collect the Coins Game

Make the cat move with arrow keys and collect the coins.

**Part A:** Make the Cat controlled with the arrow keys

**Part B:** Detect if the Coin is touching the cat and make it hide

**Extra Challenge:** See if you can keep track of how many coins the player has collected in a variable.

## Challenge 7 - Cat and Mouse Game

Make the cat controlled by the arrow keys chase a mouse around the screen and collect points for catching the mouse.

**Part A:** Make the Cat controlled by the arrow keys

**Part B:** Make a mouse move randomly around the screen

**Part C:** Make it so if the cat touches the mouse it eats it

## Challenge 8 - Maze Game

Make the ball navigate through the maze with different levels. Add lives to your game too.

**Extra Challenge:** Add moving obstacles to your maze

## Hints



## Challenge 9 - Magic 8 Ball

Magic 8 ball: Make an all knowing cat or magic 8 ball so that when you click it gives you a random answer.
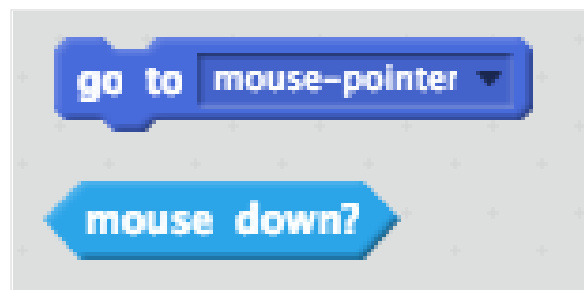
## Hints

Use a list to store the options for the magic 8 ball.

## Level 4

### Challenge 10 - Drawing Program

Make your very own drawing program. Have a pen which you can draw with the mouse and change colors. Create buttons to control your drawing program.

### Hints



### Challenge 11 - Pong

Make the classic game of pong.

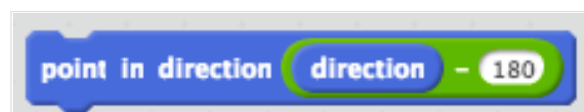**Part A:** Make a ball bounce around the screen
**Part B:** Make a paddle move back and forth with the mouse or arrow keys
**Part C:** Make the ball bounce off the paddle
**Part D:** If you miss the ball make sure a life is lost

### Hints

Use the following code to make the ball change directions when it hits the paddle.



### Challenge 12 - Bricks

Make the game of bricks. Be Creative.

**Extra Challenge:** Make different Levels

### Hints

Have the bricks detect whether the ball hits it and broadcast message to the ball to bounce

## Challenge 13 - Bowling

Make a player bowl a ball and knock over pins. Use the arrow keys to aim the ball and space to fire. Keep score.

## Hints



## Level 5

## Challenge 14 - Make your own game or animation

Create your own Scratch game or animation. Look at other projects on the scratch website for inspiration and code examples. Looking at other's code is one of the best way to learn new coding strategies.

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