

# Learn Programming with Scratch

## What is Scratch?

Scratch is a programming environment designed to teach programming skills without worrying about typing mistakes.



You program by using your mouse to connect *actions* together (that look like Lego blocks). This means that you can never type an error!

## What is Good about Scratch?

Scratch is great for **making games** and graphical **animations**. Has a built-in drawing system, but you can upload your photos and record your voice.

The Scratch website lets you share your creations with your friends.

## How to Learn Scratch?

Use a web browser (like Safari, Firefox or Chrome) and create two side-by-side browser windows.

- In the smaller window, go to <http://is.gd/startscratch>
- In the larger window, go to <http://scratch.mit.edu>

Follow along with the lecture. Once you are done with this one lecture, you are probably good enough to work on your own creations.

## How to Use Scratch at Home?

To continue your projects at home, simply open a web browser to <http://scratch.mit.edu> and log in with your account.

# Making Web Pages

## What are Web Pages?



Most everything you see on the Internet is a “web page”. These pages can be *static* (meaning pages with words, pictures and even movies) and *dynamic* (meaning the stuff on the page changes with some programming).

## What’s Good about Web Pages?

Perhaps it should be obvious, but you can do some amazing things with web pages (once you learn to program with JavaScript):

- Newsletter for your club
- Writing an interactive children’s book
- Constantly changing art or designs
- Flash cards for learning something new

## How to Learn Web Pages?

Use a web browser, and follow the lectures and exercises at CodeAcademy at:  
<http://www.codecademy.com/skills/make-a-website>

Then, learn advanced web page skills: <http://www.codecademy.com/tracks/web>

Make *interactive* web pages by learning some JavaScript:  
<http://www.codecademy.com/skills/make-an-interactive-website>

## How to Use Web Pages at Home?

Try out new web page ideas with: <http://jsbin.com/> When you are done with your creation, click the “Bin Info” button on the bottom right corner, and select **Download**.

# Programming with Python

## What's Python?

Python is an easy-to-learn, but real-world programming language. It is used by engineers around the world, and is one computer language you'll learn when you get to college.



## What's Good about Python?

Python is a good way for programming larger applications, including solving your homework problems! For instance, if you raise 2 to the 100th power,  $2^{100}$ , on your calculator, you will get an *approximation* in exponential notation, like  $1.267650600E30$  (the calculator's way of saying  $1.267650600 \times 10^{30}$ ).

But what happened to the rest of the numbers? If I put that problem in Python (typing: `2 ** 100`), I get all the numbers:

```
1267650600228229401496703205376
```

## How to Learn Python?

Use a web browser (like Safari, Firefox or Chrome) and follow the lectures and exercises at CodeAcademy at: <http://www.codecademy.com/skills/python>

## How to Use Python at Home?

Once you've learned Python, go to: <http://www.python.org> and download Python 3.4.2 for your computer system.

Next go to: <https://www.jetbrains.com/pycharm/> And download **PyCharm**, a way to write and run Python programs.

# Creating Interactive Fiction

## What's Interactive Fiction?

Interactive Fiction (IF) is a better, computerized version of a "Choose Your Own Adventure" story. The best way to understand what it is, is to play one, like this game:

<http://is.gd/ifexample>



## What's Good about Interactive Fiction?

While we have written many different IF programs, they all do only one thing... create IF games, and you can't do much else with them.

That said, if you like telling stories and creative writing, then you may have a great time making these stories with multiple endings and plot branches.

## How to Learn Interactive Fiction?

Use a browser (like Safari, Firefox or Chrome) to connect to **InkleWriter** at <http://www.inklestudios.com/inklewriter/>

Then click the **Start Writing** button.

Then click the **get started** button.

This will bring the tutorial, if you click the **Click here to continue** link.

## How to Use Interactive Fiction at Home?

Stories you create with InkleWriter can be saved and then shared with your friends. You don't need to install anything at home to use it.