

Code Creator

Learn

1. Initialize();
2. Code();
3. sequentialSeach();

Do

1. Plan();
2. Debug();
3. Run();
4. Explore();

Share

.....

Purpose

To teach girls about the development of programming over time and how very complex programs are always composed of fundamental concepts.

Constructor ();

Think about what programming is and how we use it every day in daily activities.

Discuss these questions with your troop before starting the badge:

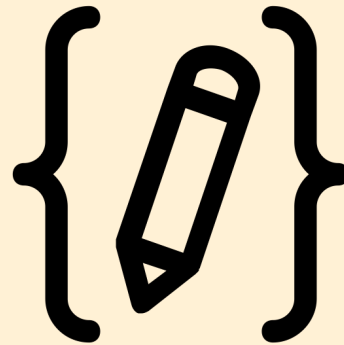
What is programming?

Who was the first programmer?

Why is programming important?

How is programming used?

What is a programming language?



programming (n.) - the act or job of creating computer programs (Merriam Webster Online).

Programming Languages:

- Java
- Python
- C
- C++
- Ruby
- Perl
- C#
- HTML

Learn

Initialize ();

Option 1: The Olden Days of a New Age

The Olden Days of a New Age. Learn the history of programming. Describe the first programming language and the story of how it was created. Why did we need programming languages? What were the first computers that used programming? Computer programming exists all around us. Find technology that you use everyday and then think about how it was developed over time. Go back in time and look at past technology such cars, kitchen appliances or computing machines and think about the progress we have made. Find out about how one piece of technology has developed and changed over a century. How do you think today's version of this technology uses programming?





Learn

Code();

Option 2: Parts of a Computer Program

Parts of a Computer Program. Learn about different types of variables (integers, strings, characters, etc.). How are variables used in programming?

Learn about the basics of conditionals and their importance to more complicated programs. Learn about how to use “if”, “else”, “and”, and “or” statements to direct an activity. Conditionals are used in everyday life.

Think of driving a car from home to school.

Every time you encounter a STOP sign, stop lights or other cars, you use conditionals to determine what to do. Self-driving cars use conditionals every time they move!

sequentialSearch();

Option 3: Programming Her-Story

Learn about famous female programmers. Have you ever heard of Ada Lovelace, Anita Borg, Grace Hopper, or Frances Spence? How have they changed the world? What obstacles did they face? How do they inspire you? Check with your school or a school nearby if they have a Hack Club, an after school coding club where you can learn how to build awesome apps and games!

Do

Option 3: Cont.

Go to hackclub.com to find club locations if you're interested. Also check out girlgeeks.org, which is a wonderful website chock full of information about programming and resources for future careers.

Plan();

Option 1: Pseudo-Go!

Learn how real programmers plan out their projects! Use pseudocode (simple notation to represent the object of the code) to design your own project on paper. If you have time, start coding your project!

Task: Get a jellybean to eat

<u>Pseudocode:</u>	<u>Real Code:*</u>
Move arm to bag	grabJellyBean() {
Open bag	arm.reachBag();
Pick up jellybean	arm.openBag();
Put jellybean in mouth	arm.pickBean();
Chew jellybean	arm.pullOutOfBag();
	}
	eatJellyBean() {
	arm.handToMouth();
	arm.beanInMouth();
	arm.removeHand();
	arm.chew();
	arm.swallow();
	}

*Made up jellybean control language

Do

Debug();

Option 2: Analytical Adventure!

Think of a scavenger hunt. Every clue leads you to the next in a specific order, and if you interpret the clues wrong, you have to go back and do it again. In this way, it's almost like a computer program. Programs require specific, thorough code in the correct order and can have no mistakes if you want them to run properly. Think about how you would write a computer program to assemble a bicycle.

What steps come first? Would you put the wheels on first or last? What happens if you do something in the wrong order?



Do

Run();

Option 3: Javascript Jam!

Try out this game coding activity created by GSUSA and Dell for Girl Scouts like you! Go to <http://forgirls.girlscouts.org/makeagame/> and pick an activity: Make a Game or De-Bug a Game. Make a Game is easier and will get you started with the basics of game creation. For more of a challenge, try De-Bug a Game. The activities both have clear instructions and will lead you from there, giving you a start at the programming language, JavaScript.



Explore();

Option 4: Let's dive in!

Try programming on a computer with internet access! If you want to learn Python, a more challenging programming language, use this free website: <https://www.codecademy.com/learn/python>. It'll teach you python syntax, and you can build more complex programs! Write a program that prints out "Hello World" to get yourself started.

Time to

SHARE!

System.out.println ("SHARE!");

Option 1: Inspire Her!

Dress up like a famous woman computer programmer and give a presentation about her to your troop. Make sure you include key information about your female scientists' achievements and how she found success. Your presentation might inspire someone!

.....

Option 2: Got Any Advice?

Take a computer program you worked on and share it with your troop. Talk about your successes, your challenges, and what you learned from working on this program. Make sure you explain your code to your troop members so they know what you're talking about, and so you can show off your coding prowess! Encourage other girls in your troop to code by talking about what was satisfying while you were coding your program. What advice would you give to other beginning programmers?

.....

Option 3: Reach for the Stars!

Attend a computer club and share what you've learned about programming! See what else you can do as part of the club. Present a project you've created and any ideas about other projects you want to work on. Try to learn a new programming language. Find which language you like best and try to code a whole program using it.

Resources:

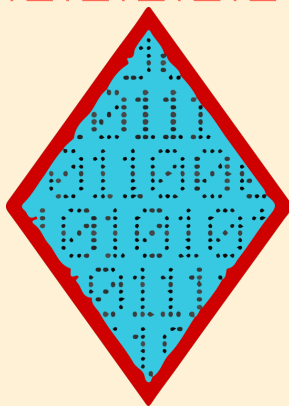
Made with Code:

<https://www.madewithcode.com/projects/>

Snap: <http://snap.berkeley.edu/>

MIT App Inventor: <http://appinventor.mit.edu/explore/>,
<http://ai2.appinventor.mit.edu/Codecademy>

Python: <https://www.codecademy.com/learn/python>



I learned about the
fundamental concepts
and importance of
programming!

I am inspired to:

Badge created by the Space Cookies,
Troop 62868//FIRST FRC Team 1868

FIRST Robotics has a formal alliance with Girl Scouts, giving girls opportunities to explore fields such as robotics and information technology. Learn more at www.firstinspires.org.

