Geek Squad Academy Online Learning

Tech courses that kids will love and anyone can teach.

Geek Squad Academy Online Learning is a free educational program that shows young learners the wonders and opportunities that technology holds. We're excited to provide resources to youth aged 10 to 16 for a variety of STEM topics.

Geek Squad Academy

BEST BUY | Geek SQUAD

Free Tech Courses for Kids 10 to 16

Picture Perfect Mobile

Did you know you can take amazing photos, even from a mobile device? This course will show you and your learner how to get the most out of the camera features on a smartphone or tablet, and teach you some easy picture taking techniques. Get ready to strike a pose and snap some shots!

Together you'll learn:

- The different elements of photo exposure: Aperture, Shutter Speed, and ISO
- Various techniques to compose a great photo: The Rule of Thirds, Landscapes, and Portraits
- How to use mobile editing software to enhance a photo: Brightness, Cropping, and Sharpening
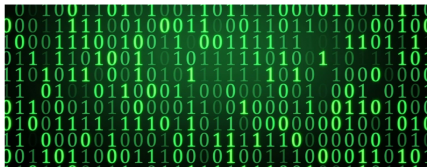
Preview course

Bending Binary

Binary is a number system that provides a solid foundation for understanding how computers, and even our own brains, function. Binary is based off something called a "base-2 numbering system". We'll get into that later, but don't worry - if you can count to ten, you're well on your way. It's time to get busy with binary!

Together you'll learn:

- What binary is and what it can be used for
- How to convert a decimal number into binary
- How to convert words and names into binary using ASCII
- How to convert binary numbers into hexadecimal
- How to write and decode your own secret message using binary and hexadecimal

Preview course

Web Know-How

In this course, you and your learner will discover the hidden code behind websites. You will learn about HTML, tags, CSS, and how they come together to create the websites you use every day. Let's dive into HTML coding!

Together you'll learn:

- What HTML and HTML tags are
- How HTML tags can affect elements on a webpage
- How CSS and HEX codes impact the design of a webpage

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Game Development with Godot

Godot is a free, open-source game engine that allows users to create video games from scratch. This course will introduce you to some of the basic tools of Godot, help you understand how games can be made, and allow some time for your learner to create their own game. Let's get going with Godot!

Together you'll learn:

- How to use the basic tools of Godot to build a video game
- How to write some basic game code
- How to create different objects that interact with each other
- How to include constants in your code

Preview course

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Picture Perfect Mobile

Welcome to Picture Perfect Mobile

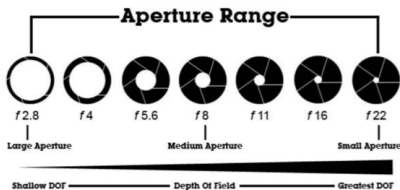Discover photo techniques to take amazing shots with your smartphone or tablet.

Together you'll learn:

- The different elements of photo exposure: Aperture, Shutter Speed, and ISO
- Various techniques to compose a great photo: The Rule of Thirds, Landscapes, and Portraits
- How to use mobile editing software to enhance a photo: Brightness, Cropping, and Sharpening

What you'll need to get started:

- A fully charged mobile device (smartphone or tablet)
- The following photo apps downloaded and installed:
    - "Manual Cam" for Apple devices and "ProCamX-Lite" for Android
    - "Snapseed" photo editor
- A couple of photographs you like set aside. Let's see if you can identify how they took the picture at the end!

What you'll be teaching

Module #1 - Elements About Exposure

In this module, we'll go over the basics of photo exposure and how to take pictures with the perfect balance of light. Your learner will experiment by taking photos with different camera settings such as aperture, shutter speed, and ISO and compare the results. By the end, they'll learn how these elements work together to create cool effects like blur, motion, and brightness.

Estimated time: 20 minutes

Download PDF (629 KB)

Module #2 - Photo Composition

Next, we'll cover photo composition, or the best ways to frame your subjects within the picture. Your learner will discover the rule of thirds and put it into practice to easily create more visually interesting images. They'll discover techniques for taking great portraits and landscapes, while using fun tools like panorama mode. Afterwards, your learner will know how to frame a great shot, and come away with a bunch of new pics.

Estimated time: 15 minutes
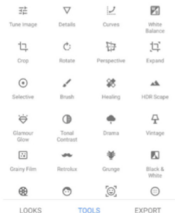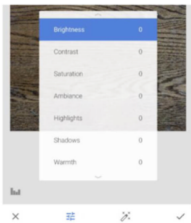
Download PDF (333 KB)

Module #3 - Photo Editing

Not every photo can be perfect, and that's why we have photo editing. In this module, we'll cover a few editing techniques to bring the life to any photo. Your learner will make pictures look their best by adjusting brightness, increasing sharpness, and more. By the end, they'll learn everything they need to improve their favourite photos and snap their own masterpieces!
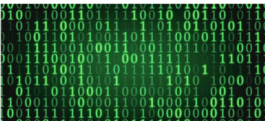
Estimated time: 15 minutes

Download PDF (314 KB)
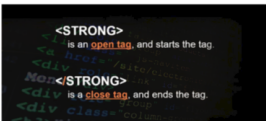
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Home › Bending Binary

Bending Binary

Welcome to Bending Binary

Get a solid foundation in binary, the numbering system at the core of how computers "think".

Together you'll learn:

- What binary is and what it can be used for
- How to convert a decimal number into binary
- How to convert words and names into binary using ASCII
- How to convert binary numbers into hexadecimal
- How to write and decode your own secret message using binary and hexadecimal

What you'll need to get started:

- A pencil
- Paper
- The Binary Charts appendix - Download (PDF)

What you'll be teaching

How to Count to 10 in Binary		11 to 20 in Binary	
Decimal	Binary	Decimal	Binary
1	1	11	1011
2	10	12	1100
3	11	13	1101
4	100	14	1110
5	101	15	1111
6	110	16	10000
7	111	17	10001
8	1000	18	10010
9	1001	19	10011
10	1010	20	10100

Module #1 - Intro into Binary

In this module, you'll introduce your learner to the basics of the binary system and how computers use it to "think". Your learner will get hands-on practice counting and converting numbers 1 to 20 into binary.

Estimated time: 5 minutes

Download PDF (319 KB)

Module #2 - Building numbers with blocks

Next, you and your learner will discover how to convert larger numbers into binary using the block method. Test your new binary skills with a short quiz at the end.

Estimated time: 10 minutes

Download PDF (136 KB)

128	64	32	16	8	4	2	1

Converting ASCII to Binary

A	0100 0001	Q	0101 0001
B	0100 0010	R	0101 0010
C	0100 0011	S	0101 0011
D	0100 0100	T	0101 0100
E	0100 0101	U	0101 0101
F	0100 0110	V	0101 0110
G	0100 0111	W	0101 0111
H	0100 1000	X	0101 1000
I	0100 1001	Y	0101 1001
J	0100 1010	Z	0101 1010
K	0100 1011	!	0010 0001
L	0100 1100	?	0011 1111
M	0100 1101	.	0010 1110
N	0100 1110	,	0010 1100
O	0100 1111	(	0010 1000
P	0100 0000	)	0010 1001

Module #3 - ASCII

Now that we have our numbers down, it's time to try out some letters. In this module, your learner will practice converting letters into binary. By the end, they will learn to spell words and their name using the same ASCII standard used in computers.

Estimated time: 15 minutes

Download PDF (136 KB)

Module #4 - Hexadecimal Numbering System

Binary can get pretty long, so next you'll introduce your learner to the hexadecimal numbering system, which lets you express large numbers in a smaller space. Your learner will practice breaking up binary into smaller pieces called bits, nibbles, and bytes (yum!) and then converting them into hexadecimal.

Estimated time: 15 minutes

Download PDF (167 KB)

Converting Hexadecimal to Binary	
Hexadecimal	Binary
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

Module #5 - Final Challenge

Now that your learner has their binary down, it's time to put them to the test! Your learner will test their new skills by writing a secret message in binary and hexadecimal and seeing if someone else can decode it (maybe it will be you!)

Estimated time: 10 minutes

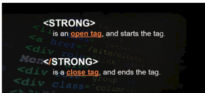Download PDF (108 KB)

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Home › Web Know-How

Web Know-How

Welcome to Web Know-How

Learn about HTML, the hidden code behind the websites you use every day.

Together you'll learn:

- What HTML and HTML tags are
- How HTML tags can affect elements on a webpage
- How CSS and HEX codes impact the design of a webpage

What you'll need to get started:

- HTML puzzle pieces (included in Module 1)
- A printer (or a pen and paper)
- Scissors

What you'll be teaching

Most real tags have a beginning and an end, and change the content inside them.

<STRONG> is an open tag, and starts the tag.

</STRONG> is a close tag, and ends the tag.

Module #1 - HTML Basics

In this module, you'll introduce your learner to HTML, the standard programming language used to create websites. You'll explore different HTML tags and the effects they have on a website. By the end, your learner will be able to unscramble pieces of HTML code into the correct order.

Estimated time: 20 minutes

Download PDF (659 KB)

Module #2 - HTML + CSS

Next, we'll cover how you can use HTML and CSS (another language) together to change the style of a website, such as colours and fonts. We'll also learn about HEX codes and how to combine them to create different text colours.

Estimated time: 10 minutes

Download PDF (235 KB)

CSS example
(just a little sample)

```
<style>
h1 {
color:#FF0000;
font-family:arial;
}
</style>
```

HTML Puzzle

file:///C:/Users/Academy/Documents/webpage.html

Coding is awesome!

I can learn to program with fun challenges like:

- Tutorials on Code.org
- Remix my own game with Scratch
- I can even make my own webpage for my friend Edna!

Optional Activity 1

In this activity, your learner will use HTML to build their own webpage and display it in their internet browser.

Estimated time: 20 minutes

Download PDF (127 KB)

Optional Activity 2

In this activity, your learner will complete a series of coding challenges to update a webpage with their own creative ideas.

Estimated time: 30 minutes

Download PDF (270 KB)

BABY SLOTH VS. ZOMBIES

Once upon a time, there was a baby sloth named Edna.

EDNA

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Game Development with Godot

Welcome to Game Development with Godot

Introduce your learner to Godot, a free game engine where they can create their own video games from scratch.

Together you'll learn:

- How to use the basic tools of Godot to build a video game
- How to write some basic game code
- How to create different objects that interact with each other
- How to include constants in your code

What you'll need to get started:

- A computer with Microsoft Windows or Mac OSX
- Internet access
- The Godot software (free download)
- Optional: Watch the "Game Development with Godot" tutorial video on YouTube

What you'll be teaching
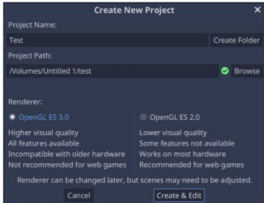
Module #1 - Intro to Godot

In this module, we'll go over the basics of the Godot game engine and the first steps of creating your own game. Your learner will build their game's foundation by using nodes to apply a 2D scene and add a sprite (or character) to their game world.
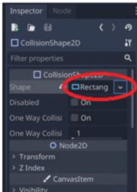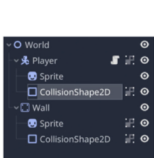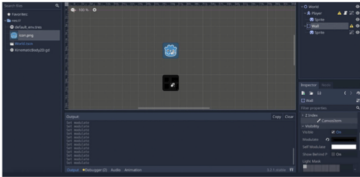
Estimated time: 20 minutes

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Module #2 - Creating the Code

Next, your learner will practice adding scripts (pieces of code) to their game to allow their sprite to move left and right. They'll also learn how to add walls and a second sprite. At the end, they'll be able to play the game a bit to test out their code!

Estimated time: 20 minutes

Download PDF (398 KB)

Module #3 - Time to Collide

We have our sprite and walls, but now we need to tell them how to interact with each other. In this module, your learner will add code to prevent their sprites from falling through walls.

Estimated time: 15 minutes

Download PDF (184 KB)

Module #4 - Jumping and Constants

Let's jump into it! Next, your learner will add code to let their sprite "jump", or move up and down. They'll also learn about constants, and how to apply them to their character's motion. At the end, your learner will have a simple game that they can play and expand by exploring more of Godot.

Estimated time: 15 minutes

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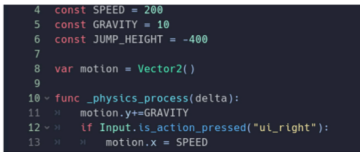
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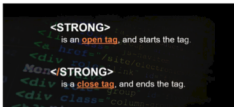
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