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ONLINE SAFETY FOR YOUNGER READERS

Spending time online is great fun!

Here are a few simple rules to help younger fans stay safe and keep the Internet a great place to spend time:

- Never give out your real name — don't use it as your username.
 - Never give out any of your personal details.
- Never tell anybody which school you go to or how old you are.
- Never tell anybody your password except a parent or a guardian.
- Be aware that you must be 13 or over to create an account on many sites.
- Always check the site policy and ask a parent or guardian for permission before registering.
 - Always tell a parent or guardian if something is worrying you.

Stay safe online. Any website addresses listed in this book are correct at the time of going to print. Please be aware that online content can be subject to change and websites can contain content that is unsuitable for children. We advise that all children are supervised when using the Internet.





◀ PRESS START ▶

This book is about coding games. It could be the first step you'll take toward becoming a great coder. And, if you're interested in games, or coding in general, then CoderDojo has lots to offer.

With the help of this book, you're going to make a real video game. You'll create animations for your character and robotic enemies. You'll learn the in-game physics of a 2D platform game. You'll even create scores and game-over screens for a truly awesome gaming experience.

We'll be following along with the Nanonauts, a group of friends who want to make their very own video game too! They'll be learning all about **JavaScript**, a programming language used to create games and programs for web browsers. You can learn these skills too so that you and your friends can make your own awesome games to play and share!

The Nanonauts are part of CoderDojo, a coding club for young people that lets you hang out with other coders, learn new stuff, and generally have fun with computers. Dojos are run by volunteers all around the world. They are free to attend and you work with your friends. If you're lucky, there may be a Dojo near you; you may have even been to one before! To see if there is a Dojo near you, visit coderdojo.com and enter your location.

If there isn't a Dojo near you, don't worry. You can just start your own official mini-Dojo, a Dojo Nano. How? It's easy.

Ingredients for a Dojo Nano:

- 🕒 one or more friends
- 🕒 a computer
- 🕒 this book



IDEAS + FRIENDS + CODE = DOJO NANO

PROGRAM INTRODUCTION

The Nanonauts are a group of friends who love to play video games. They play everything from sports and racers to platformers and adventure games. They always have great ideas for games, so one day they decided to make their own!

In this book, we're going to learn how to write programs using a programming language called **JavaScript**. Our program will be a simple "endless runner" game, and it will run inside your web browser.

We're going to build the program very slowly, almost line by line, so you have a chance to understand why each line is there. At any time, don't be afraid to experiment! Change values, change graphics, put lines in different places, see what happens. Save regular copies of your work, then you can always go back to an earlier version.

If something doesn't work at first, don't get discouraged. Look at your code carefully and see if you can spot where it's not working. Programmers call that **debugging**. If you ever get completely stuck, be sure to check out our website for tips, tricks, and coding examples: scholastic.com/coder-doj

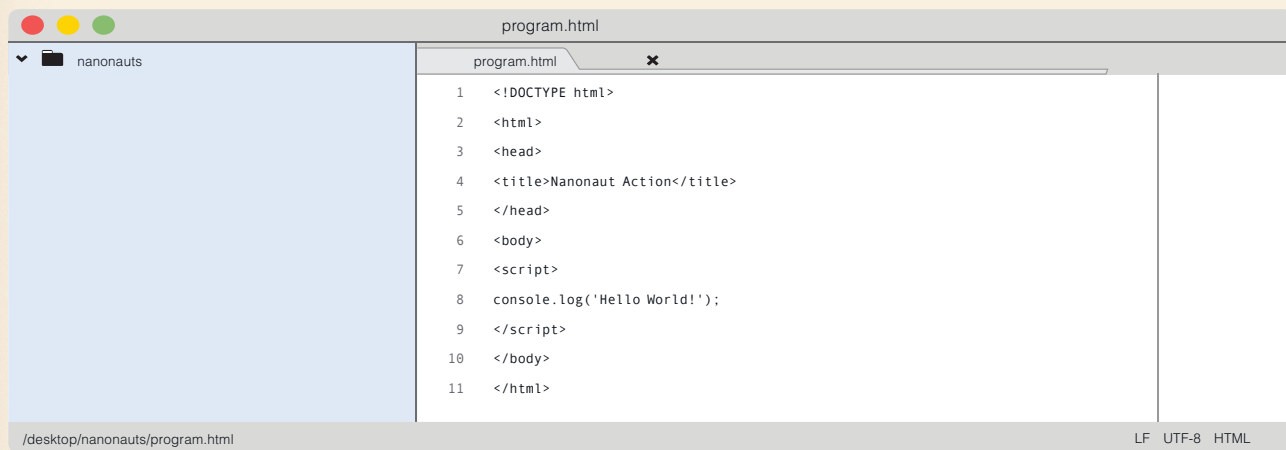


FIRST PROGRAM

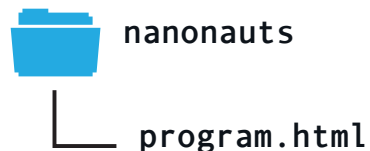
This is the code for our first program. Don't worry if you don't understand it just yet. Type the code into a simple **plain-text editor** such as Notepad (Windows), Caret (Chromebook), or GEdit (Ubuntu), or in a **code editor** such as TextWrangler (macOS) or Notepad++ (Windows). Make sure you type the code exactly as it's written here. If you're not sure how to do this, go to scholastic.com/coder-doj/texteditors. If you're using a code editor, check this out for some useful tips: scholastic.com/coder-doj/codeeditor

```
<!DOCTYPE html>
<html>
<head>
<title>Nanonaut Action</title>
</head>
<body>
<script>
console.log('Hello World!');
</script>
</body>
</html>
```

Your code should look something like this when typed into a text editor.



Make a folder on your computer called **nanonauts** and save the code file as **program.html**.



The code tells a web browser, such as Chrome or Firefox, what to do. Double-click the file to open it up in your web browser. If all goes well, you should see ... nothing.

What? Why? It says something about "Hello World!" in the code, so why can't we see it in the browser? Well, we didn't actually tell the browser to display anything where we can normally see it.



NINJA TIP

Some word-processing programs will automatically turn your quote marks (") into "smart quotes" (" "). Your code won't work! Always use a plain-text editor.



MORE ONLINE

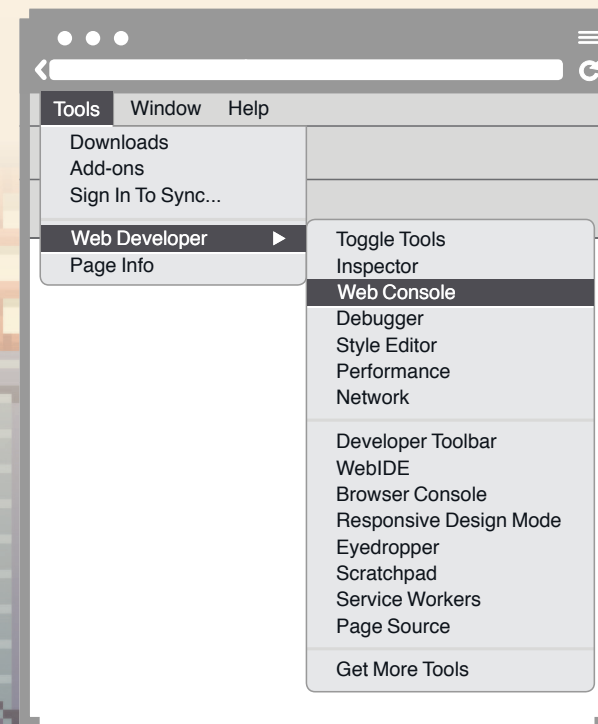
If you need help opening and saving code files, go to scholastic.com/coder-doj/openfiles

OPENING THE CONSOLE

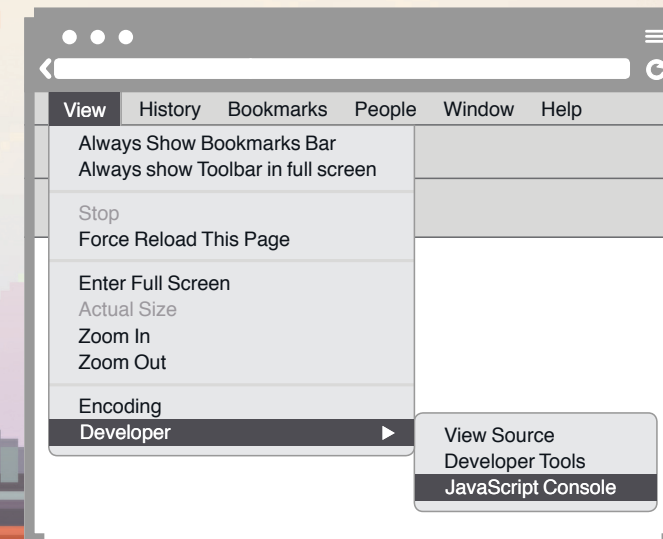
So where can we see it? It's time to look at an extremely important tool when you're programming in the browser: the **console**.

Here are some ways you can open the console in all of the major browsers:

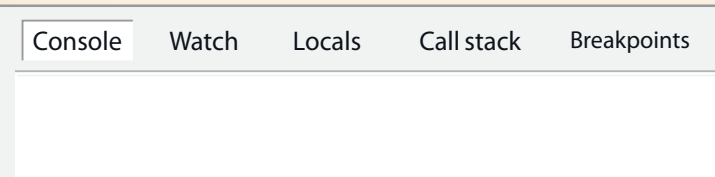
In Firefox, open the **Tools** menu, then under **Web Developer** select **Web Console**.



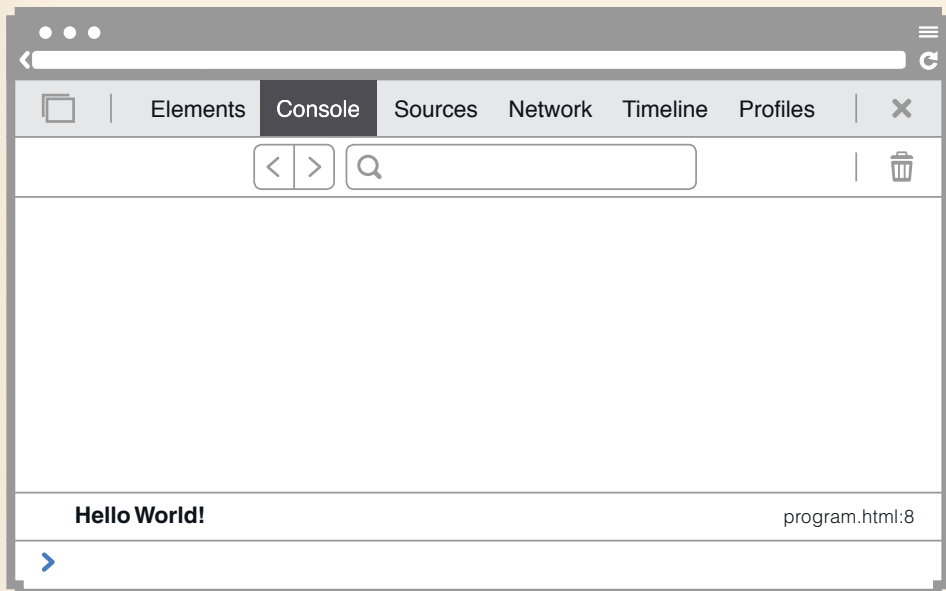
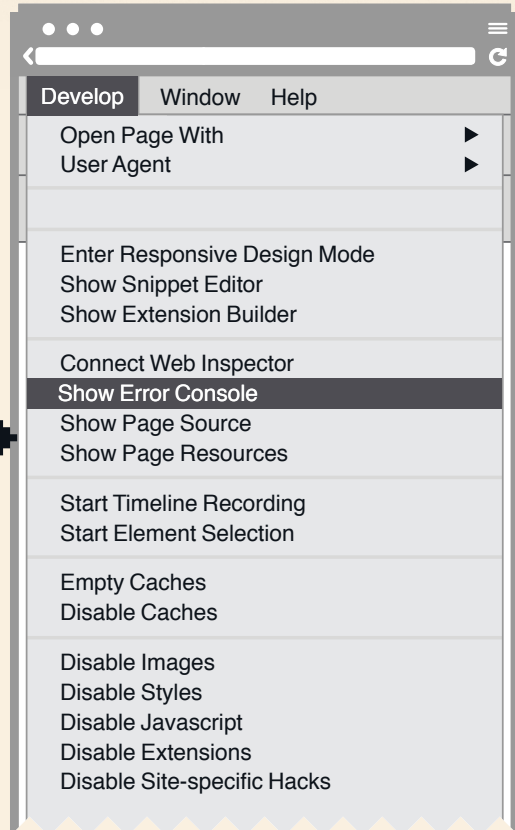
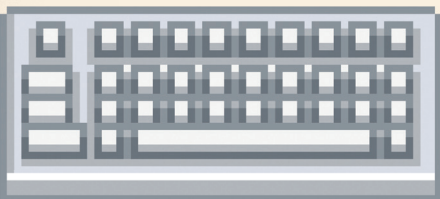
In Chrome, open the **View** menu, then under **Developer** select **JavaScript Console**.



In Microsoft Internet Explorer or Microsoft Edge, press **F12** to open a window with all of the developer tools, then select the **Console** tab in that window.



In Safari on macOS, open the **Safari** menu and select **Preferences**. Under the **Advanced** tab make sure **Show Develop Menu in Menu Bar** is switched on and close the preferences again. Then open the **Develop** menu and select **Show Error Console**.



THERE IT IS!



LEVEL UP!

You created and used your first program!

WORDS TO REMEMBER



Code editor – A program that allows you to edit code. You don't have to use a special code editor – Notepad works just fine – but code editors make it easier by color-coding the markup and providing other helpful features.

Edit – When you make changes to code, you edit it.

File – Whenever you save anything onto your computer or up to the web, it's stored as a file. Files can contain any kind of information – they can be web pages, images, songs, PDF documents, you name it. But programmers refer to all of these things as files.

File name – Files always have a file name. Our file is called **program.html**. File names usually end with a period followed by three or four letters (such as **.png**, **.pdf**, **.html**). This is known as a **file extension**, and it tells the computer what kind of file it is. For example, a **.png** file is an image file.

Folder – When you save a file, it goes into a folder. A folder is a particular storage location on a computer. Folders can contain other folders. You refer to a folder by giving its **path**. For example, **C:\nanonauts** gives the path to the **nanonauts** folder on your computer's **C:** drive that contains **program.html**.

Web browser – Chrome, Firefox, Internet Explorer, Opera, Safari, and other applications that let you browse the web are called web browsers. It's also used to view the JavaScript console.

Console – This is one of the tools to help you develop programs and websites inside your browser. It shows you output from the current web page, and also allows you to enter JavaScript code for immediate execution.



NINJA TIP

Save copies of your code as you work your way through the book. You can check changes, and if something goes wrong, you can load the last saved file and not have to redo the work.

