

# Brownie Cybersecurity

Explore cybersecurity by earning these three badges!

**Badge 1:**  
Cybersecurity Basics

**Badge 2:**  
Cybersecurity Safeguards

**Badge 3:**  
Cybersecurity Investigator



This Cybersecurity badge booklet for girls provides the badge requirements, background information, and fun facts about cybersecurity for all three Brownie Cybersecurity badges. It does not include all the information needed to complete the badges. Volunteers may access the full meeting plans—including detailed activity instructions—on the Volunteer Toolkit (VTK) or by contacting their local council.

# Welcome to the world of cybersecurity!

We use computers every day to send emails, watch videos, and shop online. Computers are also a part of our lives in many other ways that aren't as easy to see. Computers power up skyscrapers and streetlights, keep air conditioners and security systems humming, run medical devices in hospitals, control cars and planes, and much more.

Cybersecurity is the way we protect all those computers—and ourselves—from crime.

When you've earned these three badges, you'll know the basics of cybersecurity, what privacy means, and how to protect yourself when you're on a computer.

Volunteers please see the Volunteer Toolkit (VTK) or contact your local council for the full meeting plans, including detailed activity instructions.



# Badge 1:

# Cybersecurity Basics

**W**e use digital devices such as laptops, tablets, and smartphones to work, shop, and play. Technology is such a big part of our lives that we don't usually stop to think about it. In this badge, you'll find out more about how you use technology and how you can keep your technology safe.

## Steps

1. Find out how you use technology
2. Discover what your technology can do
3. Find out how to create layers of security
4. Find out how to use real-life safety rules when you go online
5. Find out how messages travel on the internet

## Purpose

When I've earned this badge, I'll know the basics of cybersecurity and understand the role technology plays in my life.

## My Smart City

Did you know that traffic lights, elevators, streetlights, fire alarms, and the energy grid can all be run by computers?



### STEP

# 1 Find out how you use technology

## The first step to understanding cybersecurity?

Realizing that technology is all around us and that you use it every day—even in ways that may surprise you! Once you know how you use technology, you can learn more about how to keep yourself and your information safe.

Do you think computers are a big or small part of your life?

**Circle the ways in which you use your computer, mobile phone, or tablet.**

- Play games
- Do homework
- Talk to my family members or friends
- Watch a video, TV show, or movie
- Listen to music
- Learn fun facts about something I'm interested in
- Take a photo or video
- Other \_\_\_\_\_

**Here are some appliances that can be connected to a computer or to the internet. Take a look around your home. Are any of these appliances connected to your computer or the internet?**

- Dryers
- Stoves
- Televisions
- Heaters
- Refrigerators
- Other \_\_\_\_\_

**Did you know that computers are also used in these places?**

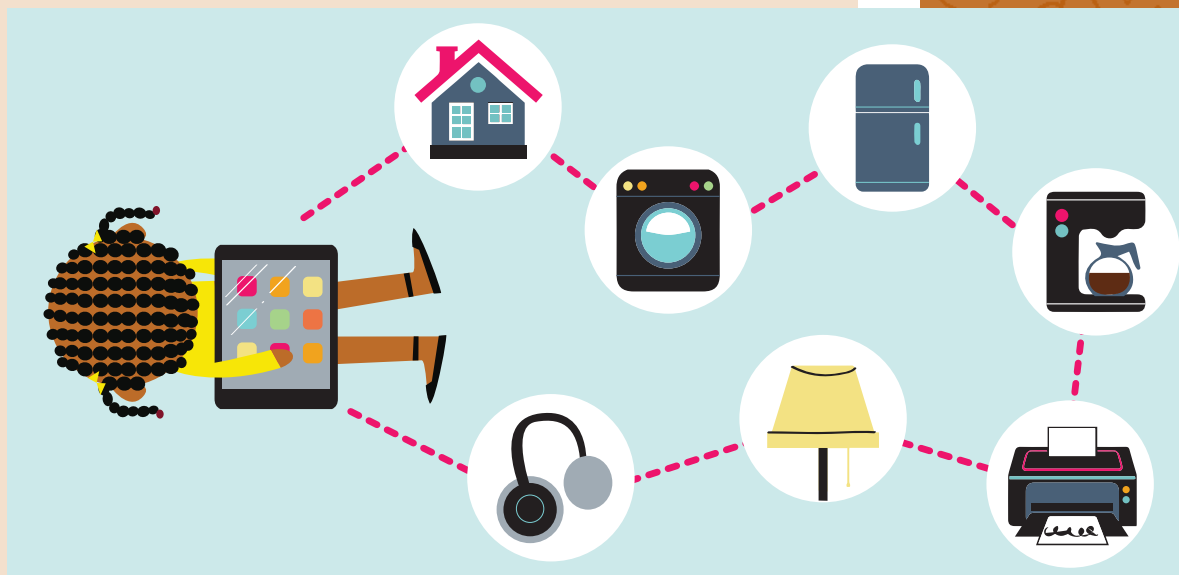
- Banks
- Schools
- Hospitals
- Police stations
- Fire stations
- Trains
- Planes

## The Internet of Things

More and more devices—from coffee makers and washing machines to lightbulbs and headphones—can be connected to the internet.

This network of connected devices is called the **Internet of Things** or IoT for short. It allows objects to be controlled remotely and is getting bigger every day.

Billions of connected devices can make life easier for people, but can also make those devices less secure. That's why cybersecurity experts are working to make the IoT as safe as possible.



## What Does the Word “Cybersecurity” Mean?

The word “cybersecurity” means computer safety. Cyber is another word for computer and security means safety. We all need to protect our computers and ourselves from people who want to know too much about us.



## STEP 2 Discover what your technology can do

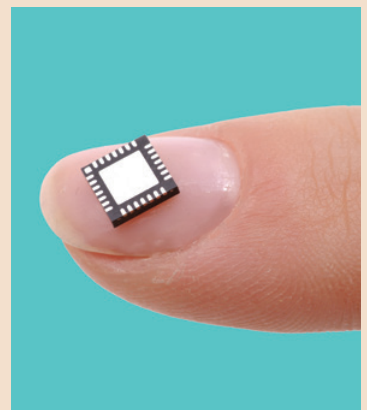
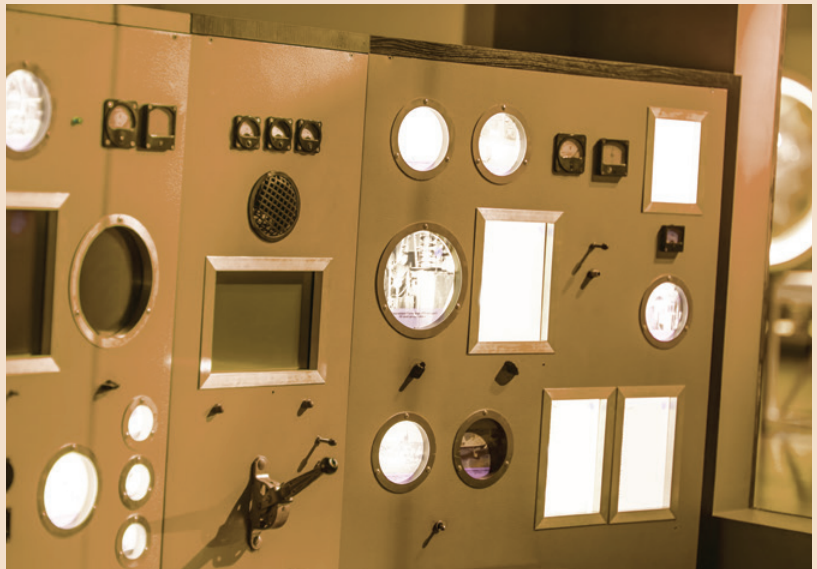
**In Step 1, you found out how you use technology.**

Now you know just how often you use it. You know that you use technology at home and at school. You also use it at the bank, the mall, and the grocery store. In this step, you'll find out how many everyday tasks you can do using your digital devices. Your devices hold all your important information. They also can do important tasks for you. What are some ways you can keep your devices safe?

### The Incredible Shrinking Computer

One of the first digital computers was called ENIAC. That odd name stood for Electrical Numeric Integrator and Computer. It was so big that it filled an entire room. It was built in 1945 with almost 18,000 vacuum tubes. It weighed more than 30 tons—the same as six elephants.

Today, you can put a computer in your pocket! A smartphone is a computer with tiny microchips inside it. Those microchips can hold a lot of information and they are powerful—1,300 times more powerful than ENIAC.



# PUTTING THE PARTS TOGETHER

It's important to know about computer parts so you can understand which parts need protection. Can you identify all of the parts in your computer and the digital add-ons?

Match the parts to the names by looking at the numbers in the boxes.

**1. CPU:** This stands for Central Processing Unit, which is the main chip in a computer responsible for carrying out all the tasks. It is often referred to as the “brain” of the computer. Laptops, phones, and even televisions have CPU chips inside them.

**2. Power supply:** The source that delivers power or energy. In a computer, the cord and plug are the power source that turns it on and off.

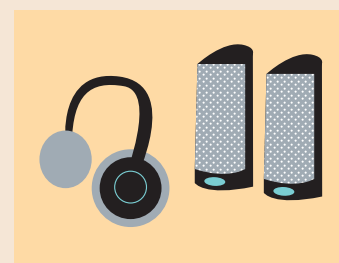
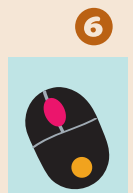
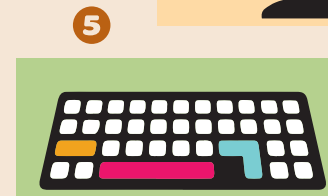
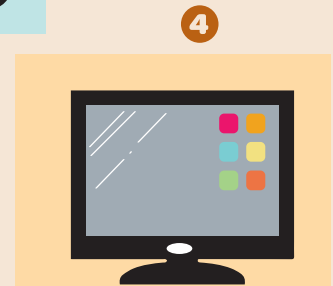
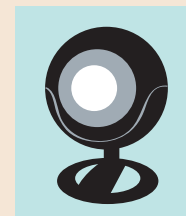
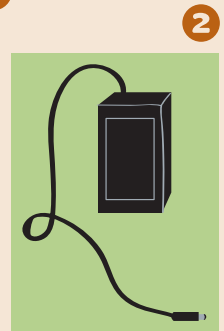
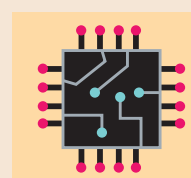
**3. Webcam:** A digital camera that can take and send images. Your webcam might be built into your computer or it might be something separate that you attach to your computer.

**4. Monitor:** A screen that shows pictures and words.

**5. Keyboard:** A panel of keys with letters and numbers that lets you type messages.

**6. Mouse:** A little device that you move with your hand—it helps you move the arrow on the computer screen. (If you have a laptop, you use a trackpad instead of a mouse. A trackpad is a surface you touch with your finger. It helps you move the arrow on the computer screen.)

**7. Speakers or headphones:** Devices that let you hear sounds from your computer.



## Cyber Scramble

Look at the scrambled words below. Each word is a computer part. Unscramble each one. Then read the circled letters in order to answer this riddle: **What is an astronaut's favorite place on a computer keyboard?**

① ASREKEP

— — — — —

② CESENR

— — — — —

③ SEMOU

— — — — —

④ EKBYODAR

— — — — —

THE — — — — —

— — — — —!

Answer on page 10

STEP

## 3 Find out how to create layers of security

**When you want to keep something safe, you need to protect it.** When it comes to cybersecurity, many layers of protection work better than just one.

What is a layer of security? Imagine that you were asked to protect an egg so that it doesn't break if it falls off a table.

You might put the egg in a small box filled with cotton balls. To be even safer, you could seal the box with lots of tape. Then you could wrap the box in bubble wrap and put it in a larger box.

That's five layers of protection: cotton balls, small box, tape, bubble wrap, and large box.

The egg would be much better protected inside all those layers. In cybersecurity, many layers of protection work better than one layer, just like in real life.

STEP

## 4 Find out how to use real-life safety rules when you go online

**In real life, you have rules that you follow so you don't get hurt or lost.** For example, when you go out in public, your parents might tell you to stay close to them so you don't get lost in a crowd, to look both ways when you cross a street, or to obey traffic lights.

It's the same when you go online. The safety rules we follow in real life can be used in the digital world too.

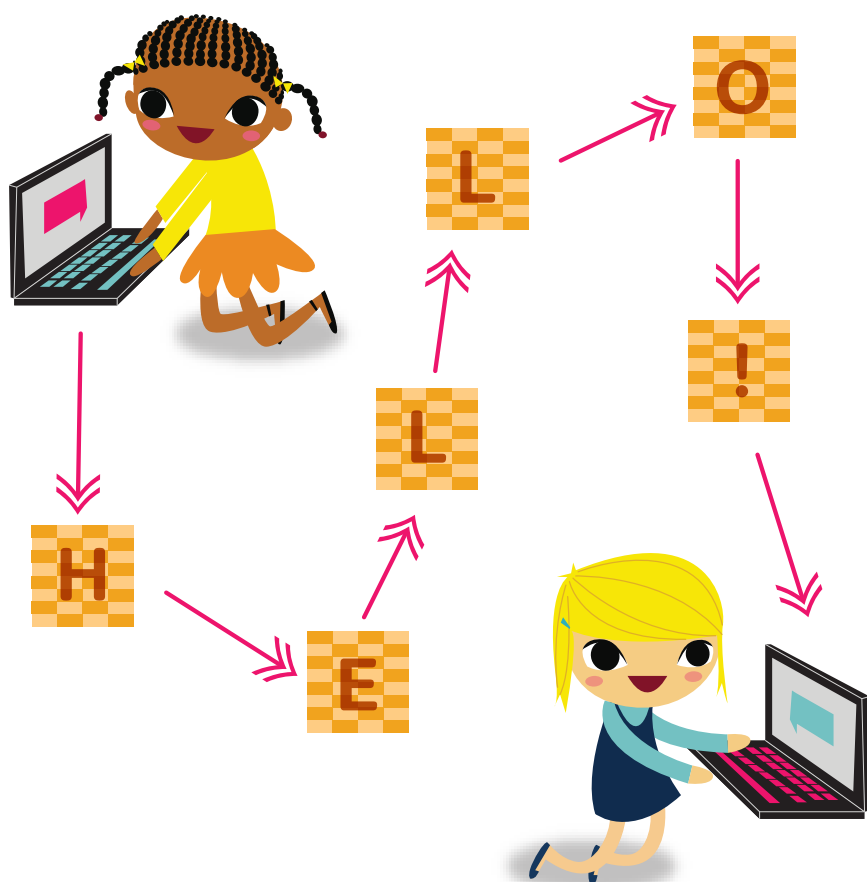


## STEP 5 Find out how messages travel on the internet

**Every message, text, or picture that is sent on the internet is broken down into pieces called packets.**

Imagine you're shipping a large object, such as a playhouse. If the playhouse is put together, it will be too large to ship—unless you had a very big box! So you would probably decide to ship all the pieces of the playhouse in separate boxes.

That's how it works on the internet too. When you send information on your computer—like an email, a photo, a meme, or a text—it's too big to send in one piece. It's broken into smaller packets of information that can ship from computer to computer.



### What Is the Internet?

The word “internet” comes from two words: interconnected and network.

Interconnected means linked together. A network is a group of people or objects that are connected. For example, your Brownie troop is a network—and you're also a part of a network that includes all Girl Scouts around the country and around the world!

The internet is many different computers and networks all around the world. Your computer sends information to another computer in another location. That computer sends information back to your computer. That's how you connect to websites and get information. The internet has billions of connected computers.

**Now that I've earned this badge,  
I can give service by:**

- Telling my family and friends the rules to stay safe online.
- Doing a show-and-tell at school demonstrating layers of security, using the egg-in-a-box activity.
- Teaching others the basics of cybersecurity by using a cybersecurity game I played while earning this badge.

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**I'm inspired to:**