

# Badge 3:

## Cybersecurity Investigator

**D**o you enjoy doing puzzles and solving mysteries? Cybersecurity investigators are people who solve crimes that happen on digital devices and the internet. In this badge, you'll put on your detective hat and explore cyber crimes.

### Steps

1. Crack a code to solve a problem
2. Investigate what's real and fake in photos
3. Find out about digital footprints
4. Investigate how a computer virus can spread
5. Explore a cyber attack

### Purpose

When I've earned this badge, I will know how to use investigative skills to spot problems in the cyber world.

## STEP 1 Crack a code to solve a problem

**Computers use codes to send information.** The code uses numbers to stand for different letters. That's because numbers are much easier to transmit and send than letters. Once you know the code, you can figure out what the messages mean.



### Cybersecurity Savvy

Could you be a cybersecurity investigator? Take this quiz to find out!

- 1 Do you like using computers?
- 2 Do you love to learn new things? Are you always asking “why?”
- 3 Are you always ready to solve a puzzle, whether it’s a jigsaw puzzle, crossword puzzle, or puzzle app?
- 4 Do you dream of spotting clues and solving mysteries?
- 5 Do you want to help and protect people?

If you answered “yes” to any of the questions above, you might want to think about having a cybersecurity job someday!

# MISSION POSSIBLE: CRACKING CODES

One way of keeping private messages private is to use a code.  
Try your hand at cracking this code.

If A=1, B=2, and so on, can you figure out the coded message  
and answer this riddle?

**Why did the computer show up late for work?**

9 20 8 1 4 1 8 1 18 4 4 18 9 22 5 !

A=1	H=8	O=15	V=22
B=2	I=9	P=16	W=23
C=3	J=10	Q=17	X=24
D=4	K=11	R=18	Y=25
E=5	L=12	S=19	Z=26
F=6	M=13	T=20	
G=7	N=14	U=21	

Answer on page 23

## STEP 2 Investigate what's real and fake in photos

**It's easy to look at a photo and think that what it shows is real.** But photos can be easily changed with editing software. You can often spot how a photo is changed—using your cybersecurity investigation skills!

### Truth or Hoax

Guess which ones are real and which are fake:

- You can charge an iPod with an onion.
- Bill Gates wants to give you money!
- Bananas are berries but strawberries are not.

Answer on page 23



### Pasta Prank

In 1957, a British news network broadcast a fake report to celebrate April Fool's Day. They showed a family in Switzerland picking spaghetti from a spaghetti tree.

This was before the internet existed. People couldn't search online to find out where spaghetti comes from. (It's made from flour and water.)

British viewers believed the report! Hundreds of people called the BBC the next day to find out how they could grow their own spaghetti trees.

## STEP

# 3 Find out about digital footprints

**When you walk along a sandy beach, you leave a trail of footprints.** When you use a computer, you also leave a trail of footprints.







These footprints are called digital footprints. They are made up of information that you leave behind. Some of this information is OK to leave behind, but there is some private information that's not OK to include in your digital footprint.

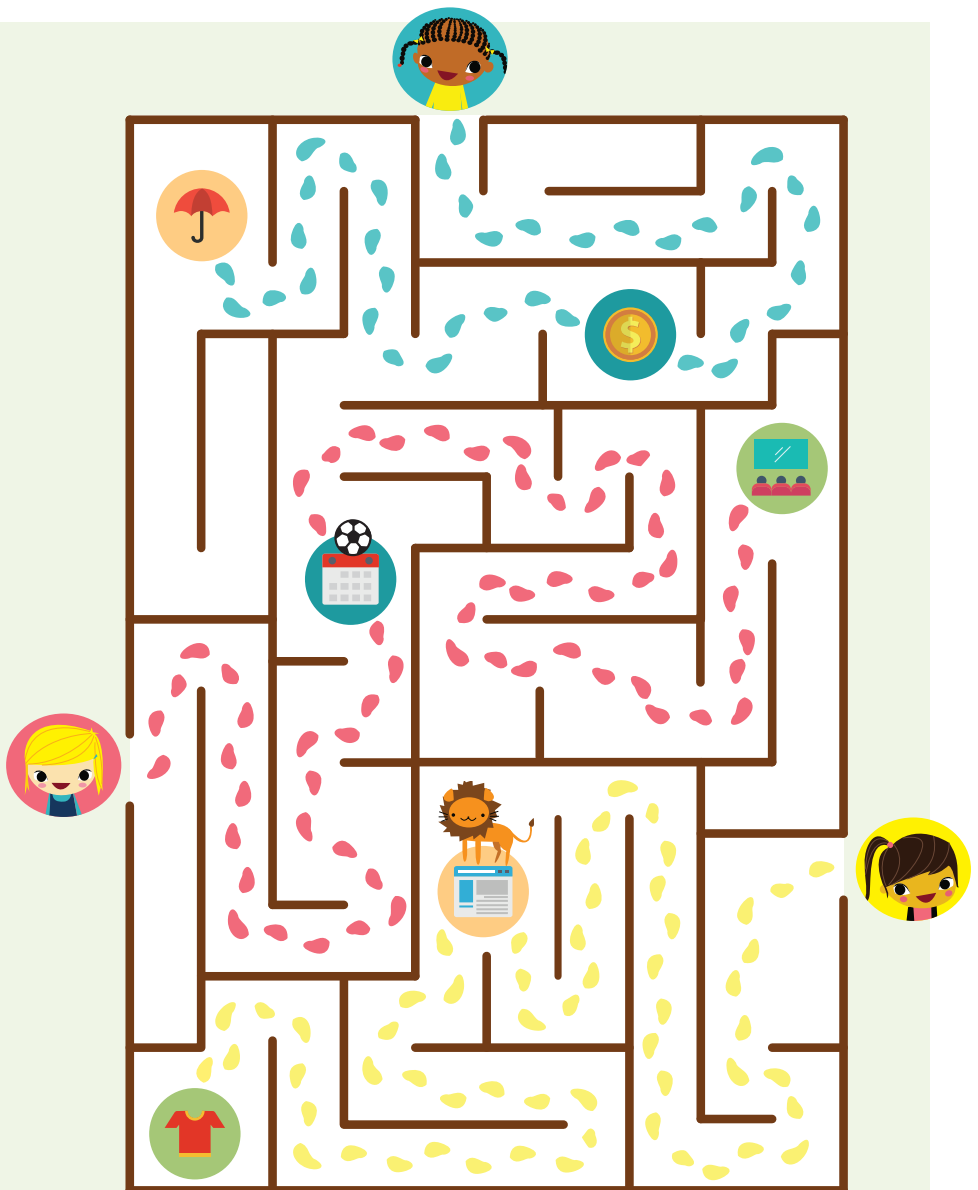
## Follow the Footprints

Alejandra, Campbell, and Jamila have been busy online!

To see where each girl went, follow their footprints (yellow for Alejandra, red for Campbell, blue for Jamila). Take a look at the locations they visited. Which ones are safe places to leave a digital footprint? Which ones aren't?

### KEY

-  = online banking
-  = online shopping
-  = web search for homework
-  = watching a movie
-  = checking the soccer team's schedule
-  = checking the weather



## STEP 4 Investigate how a computer virus can spread

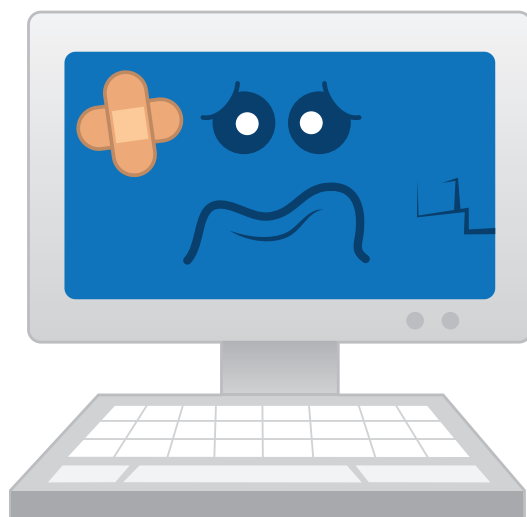
### **If you have ever had a cold, you have had a virus.**

A virus is a tiny germ. When it gets inside your body, it makes copies of itself. Your body reacts. You sneeze, cough, and blow your nose until you fight off the virus. Viruses can make us sick. They can also spread to other people and make them sick.

Computers get viruses, too! A computer virus isn't a germ. It's a software program that was made by someone to cause harm.

How does it get on your computer? If you click on a link in an email from someone you don't know or download information from a website you don't know, the computer virus can sneak into your computer. Then it can spread bad code or destroy information on your computer. Once your computer has a virus, it can spread to other computers you are linked to.

You protect yourself from colds by washing your hands. In the same way, you can protect your computer from viruses by only clicking on links and emails that you know. You can also put anti-virus software on your computer. This software looks for viruses and gets rid of them before they can cause harm.



## STEP

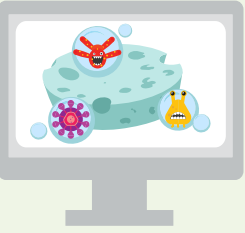
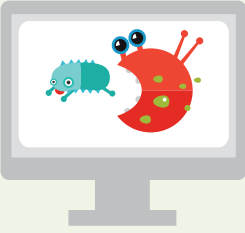
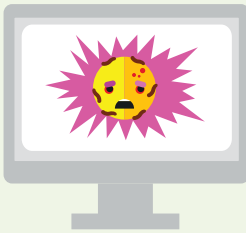

# 5 Explore a cyber attack

**When one computer attacks another computer, we call it a cyber attack.** A cyber attack can also be a group of computers attacking another group of computers. Sometimes the goal is to disrupt—or interrupt—the other computers' connection to the internet. Other times, the goal is to find the private information on the other computers. Companies and governments have big computers that hold a lot of important data. The people who work there are always thinking of ways to stop cyber attacks. That's because they want to protect the data. You'll find out more about the disruptions cyber attacks cause.

## Battle of the Bugs

Twenty-five viruses have sneaked into your computer! Don't worry—you have different protection software programs that can help. The software programs are called Scour Power, Virus Muncher, Bug Blaster, and Cyber Clear.

How many viruses out of the 25 were left for you to destroy?

SCOUR POWER	VIRUS MUNCHER	BUG BLASTER	CYBER CLEAR
			
Scour Power zapped three times as many viruses as Cyber Clear.	Virus Muncher gobbled up twice as many viruses as Bug Blaster.	Bug Blaster got rid of three.	Together Cyber Clear and Bug Blaster zapped just as many viruses as Virus Muncher did.

Answer on page 23



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

- Helping my family understand how viruses work and how we can avoid them.
- Asking my school's computer teacher to talk to our class about cybersecurity.
- Connecting with younger girls and telling them what I found out about cybersecurity investigations.

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**I'm inspired to:**

Answers: Page 18: IT HAD A HARD DRIVE; Page 19: The first two statements are false—but the last one is true! Page 22: There were 4 viruses left to destroy: Scour Power devoured 9, Virus Muncher ate 6, Bug Blaster gobbled up 3 and Cyber Clear blasted 3. Together they took care of 21 viruses. You started with 25 viruses so there are 4 left.