

Protect Your Passwords

OVERVIEW

Main Goal: The main objective for this activity is to teach students how to create a safe and secure password, while also understanding how passwords can be hacked.

Target Grade Level: 5th Grade

Target Subject: Cybersecurity

Target Unit: Networks & The Internet

Estimated Duration: 45 Minutes

Materials:

- Blank index cards or pieces of papers
- Colored pencil or markers

Background Knowledge: Students need to know what a password is and how they are used in computing and the Internet.

Activity Overview: This activity teaches students the importance of creating a safe and secure password. In addition, students will also get to learn how hackers or computers can hack passwords. Students will be able to create their own password using a set of guidelines. The passwords they create may be used for accessing their school computers or websites.

PRE-TEST

- What is a password?
- What are some consequences of someone finding out your password?

- What should you do if someone discovers your password?

OBJECTIVES

- Define the term "password" and describe a password's purpose.
- Identify strategies for creating and protecting secure passwords
- Practice creating a memorable and strong password.

Key Vocabulary

password:

a secret string of letters, symbols, and numbers that you can use to restrict who can access something digital

phrase:

a group of words that go together and are easy to remember

symbol:

a character other than a number or letter, such as #, !, or @.

username:

a name you create to sign into a website, app, or game

CATCH/HOOK

Ask: What is something in your life that you take steps to protect? Why and how do you protect it?

Have students think-pair-share, and then call on students to share out. Examples might include *hiding a diary, using a bike lock, keeping a toy in a safe place*, etc. Clarify that one of the ways people protect something is by restricting who can access it.

Ask: Let's think about when we use devices, like a phone or computer. How do you limit who can access something that you want to protect, and why would you limit access?

Examples might include password-protection, device-lock, fingerprint scanner, not letting others use the device.

3.

Say: One of the most common ways to protect your devices and information online is by using a password. A password is a secret string of letters, symbols, and numbers that you can use to restrict who can access something digital. Some passwords, however, are stronger than others because they are harder for someone to figure out. Let's investigate why strong passwords are important and how you can make sure yours are strong.

Ask: What is a combination lock? (You can hold up a real combination lock to show students for effect.)

Explain that you can only open a combination lock by turning the dial in a secret combination of numbers that is hard to guess.

Ask: Do you ever use a combination lock? If so, what for?

Define the key vocabulary term password - a secret word or phrase that some websites require you to type in if you want to visit them.

Explain to students that online passwords are similar to the combinations for a lock. They are secret combinations of letters and numbers that only you know. Passwords keep other people from seeing your private information on the Internet. For example, tell students that passwords allow them to save their points after playing an online game. When they're older, they will use passwords to do many things, such as keep track of their money or shop online.

Define the key vocabulary term protect - to keep safe.

Explain that knowing how to create powerful passwords will prevent other people from pretending to be them and help them keep their private information and money secure. Passwords protect one's identity and information.

Discussion Goal

Sample responses:

- Angry, because my privacy has been broken
- Worried that someone might pretend to be me online
- Fearful that someone can find out private information about me through my account

Ask: How would you feel if someone else used your password and pretended to be you on one of these sites? For instance, what if someone used your password to steal points that you have collected in a video game?

ACTIVITY INSTRUCTIONS

Students will learn rules to a safe password as well as make their own.

Dos and Don'ts of a Password (30 Minutes)

- As a class, have students guess if a rule to making a password is a “do” or a “don't”.
 - DO make passwords eight or more characters long. (Longer passwords are harder to crack than shorter ones.)
 - DON'T use dictionary words as your password. (Others could guess your password this way.)
 - DO include letters, numbers, and symbols in your password. (It can be harder to guess passwords with this combination.)
 - DO change your password at least every six months. (This way, even if someone does guess your password, they won't be able to get into your account for long.)
 - DON'T use private identity information in your password. (Others could guess your password this way.)
 - DON'T use your phone number as your password. (Others could guess your password this way.)

- DON'T use your nickname as your password. (It could be easy for others to guess.)
- DO give your password to your parent or guardian. (They will help you remember it if you forget it.)
- DON'T share your password with your friends. (Even if you trust them, they might unintentionally do something that puts you or your information at risk.)
- DO create a password that you can remember. (It's okay to create a random password, but keep in mind that it should be one that you can remember, or else it won't do you much good.)

Ask: Which tips did you know? Which ones surprised you?

Have students get into groups and discuss these two scenarios for DOs and DON'Ts:

- 1.) Amy forgets their phone on the bus. IF someone found it and figured out their password to unlock it, THEN what could happen?
- 2.) Henry writes their email address in their notebook and leaves it open while they go to the bathroom. IF someone saw Henry's email address and figured out their email password, THEN what could happen?

- Have students play the Password Protect game in Digital Passport™ by Common Sense Education. This will help introduce key concepts of this lesson.
<https://www.digitalpassport.org/password-protect.html>
- Have students create their own password! Give each student four black cards / pieces of paper. For these papers, have students write down their favorite number, cartoon character's name, food, and a random symbol.
- Let students play the "test your password" game which can be found at
<https://curriculum.code.org/csf-19/coursesec/2/#powerful-passwords2>

Assessment (15 Minutes)

- Give out the Powerful Passwords Assessment found here:
<https://curriculum.code.org/csf-19/coursesec/2/#powerful-passwords2>

- Finish by asking students some ways they can avoid password theft and what they can do in the event that it happens.

REVIEW

(KNOWLEDGE) ASSESSMENT

Objective #1 - What is a Password?

Have the students go into groups and designate one student to write down their concluded answer. Ask groups what a password is.

Objective #2 - Why are Passwords Important on the Internet?

Remaining in their groups, have students give three reasons as to why passwords are important in the context of the Internet.

Objective #3 - What are Some Dos and Don'ts to a Password?

This objective is assessed from the last part of the activity.

POST-TEST

- What is a password?
- What are some consequences of someone finding out your password?
- What should you do if someone discovers your password?

STANDARDS

COMPUTER SCIENCE

Networks & The Internet

- **Network Communication & Organization (NI.NCO):** Passwords are used to access online accounts that can potentially be linked to communicating with other people.

- **Cybersecurity (NI.C):** Students learn about passwords and what to do if their password gets discovered.

Impacts of Computing

- **Social Interactions (IC.SI):** Students learn the possible negative consequences of sharing their online password with others.
- **Safety, Law, & Ethics (IC.SLE):** Students learn about why it is important to have a secure password.

CROSS-DISCIPLINARY

Common Core Language Arts Standard

- **SL.5.1** - Participate in collaborative conversations with diverse partners about grade 5 topics and texts with peers and adults in small and larger groups.

EXTENSIONS

Ramping Down for Lower Grade Levels

- Instead of giving an individual Dos and Don'ts assessment at the end of the activity, go over them again as a class.
- Students can use a designated set of shapes and symbols instead of writing words / numbers if they are at a pre-reading level.

Ramping Up for Higher Grade Levels

- Have students play the hackers game:

Secret Hackers

Here's what you need:

A piece of paper or post-it notes for every student

3-5 students you can trust with a secret

How to play the game:

At the start of the day, every student gets a piece of paper and writes down:

- A password
- Three of their favourite items

Tell the whole class you are the hacker, and that at the end of the day you're going to try to guess students' passwords.

Here's the twist

Before you play the game (the previous day or in the morning) pick a handful of students to be your secret hackers. Their job throughout the day is to find out what their classmates' passwords and let you know.

When you feel like you have enough of the passwords, you can start 'guessing' students' passwords. For every correct guess, take that student's post-it note. Their favourite items now belong to you!

To wrap-up the class, reveal which students were your co-conspirators and emphasise the two lessons learned:

1. Never give your password to everyone – no matter how much you might trust them
2. Anyone can be targeted, even you