Strong Passwords

Essential Question

How can a secure password help you protect your private information?

Lesson Overview

Students learn how to create secure passwords in order to protect their private information and accounts online.

Students learn tips for creating safe passwords. They explore scenarios in which two characters choose passwords, and they use the tips they have learned to create secure new ones for those characters. They then create posters to communicate password tips to their families and other students.

Learning Objectives

Students will be able to ...

- identify the characteristics of strong passwords.
- apply characteristics of strong passwords to create new passwords.
- create secure passwords with their family members.

Materials and Preparation

- Copy the **Password Tips Student Handout**, one for each student.
- Copy the **Password Challenge Student Handout**, one for each student.
- Supplies for creating posters (paper or posterboard, markers, crayons, pens, etc.

Family Resources

- Send home the **Online Security Family Tip Sheet (Elementary School)**.

Estimated time: 45 minutes

Standards Alignment –

Common Core:

grade 3: RI.1, RI.4, RI.10, RF.4a, W.4, W.10, SL.1a, SL.1b, SL.1c, SL.1d, SL.3, SL.6, L.3a, L.6

grade 4: RI.1, RI.4, RI.10, RF.4a, W.4, W.10, SL.1a, SL.1b, SL.1c, SL.1d, SL.6, L.3a, L.6

grade 5: RI.1, RI.4, RI.10, RF.4a, W.4, W.10, SL.1a, SL.1b, SL.1c, SL.1d, SL.6, L.3a, L.6

NETS•S: 2a, 2b, 3b, 5a, 5b

Key Vocabulary –

password protection: requiring a password to use, see, or do something

random: having no pattern

security: protection; guarding information on a device (such as a tablet or laptop)

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

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introduction

Warm-up *(5 minutes)*

ASK:

What are some of the non-electronic security devices that people use to protect their possessions from being stolen or used by others?	Sample responses: • Lock on a gym locker • Apartment and house keys • Bicycle locks
What are examples of how you use passwords when you use electronic devices?	Sample responses: • Logging on to a computer • Signing into online accounts • "Unlocking" a cell phone

EXPLAIN that passwords protect your online accounts from being stolen or used by others. Point out that the older students get, the more important password security will become to them. Choosing good passwords will help them protect their social networking profiles when they are in high school, keep their grades private when they are in college, and protect their bank accounts and online store accounts when they are adults.

ASK:

What do you think could happen if someone got hold of your password?	Sample responses: • Access my online accounts • Steal my money • Pretend to be me and hurt my reputation • Find out things about me that I don't want anyone else to know

teach 1

No Guesswork *(10 minutes)*

DISTRIBUTE the **Password Tips Student Handout** and review each of the eight security tips for managing passwords.

INVITE students to explain why each tip is effective. If they are not sure, offer some of the following tips:

- **Only your parents should know your password.** Never give a password to anyone else – not even your friends. They could unknowingly share it with someone who could use your password to pretend to be you or to harass other people.
- **Don't use passwords that are easy to guess, like your nickname or your pet's name.** People who know you well can guess these kinds of passwords.
- **Never use any private identity information in your password.** Identity thieves can use this information to pretend to be you.
- **Don't use only a word in the dictionary as a password.** Hackers use programs that will try every word in the dictionary to guess passwords.

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- **Create passwords with at least eight characters.** The fewer the characters, the easier it is for hackers to try every combination of characters.
- **Use combinations of letters, numbers, and symbols.** They are harder to crack than just words because there are more combinations to try.
- **Change your password regularly – at least every six months.** The longer you use the same password, the more likely it is that someone will guess it or use a program to find it.

Note: Make sure that students are familiar with the forms of private identity information listed in the Use Common Sense! box on the handout. Remind students of an important safety and security rule: Do not give out private identity information without the permission of a teacher or parent.

teach 2

Password Remix *(10 minutes)*

TELL students to now read and discuss the Smart Passwords? scenarios about Jesse and Krystal, also in the **Password Tips Student Handout.**

DISCUSS Jesse's password choice with students.

ASK:

Did Jesse make a safe choice? Why or why not?	Jesse's password is too obvious a choice, easily guessed by people who know him, and therefore not secure.

HAVE students identify the password tips Jesse's password did and didn't follow.

GUIDE students to discuss the scenario about Krystal.

ASK:

How did Krystal choose her password?	She chose her password by combining part of her name (kr), her favorite activity (swim), and the numbers of her birth month (8) and day (4).

HAVE students evaluate Krystal's password.

ASK:

Was it a safe choice?	It is a safer choice because she used no complete personal identity information, and she combined at least eight letters and numbers.
What are some other password tips Krystal could follow?	Students can refer to the **Password Tips Student Handout.**

HAVE students follow the directions for the You Try It activity at the bottom of the handout. Invite them to write new passwords for Jesse and Krystal, then share their new passwords with the class. Write the new passwords on the board and ask students to share their suggestions for how Jesse and Krystal could remember them.

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teach 3

Pass the Word? *(15 minutes)*

HAVE students create posters that will communicate the password tips and help their families and other students keep their online identities secure. You may wish to assign one tip to each student, resulting in a series of tip posters that can be displayed together or rotated throughout the year.

closing

Wrap-up *(5 minutes)*

You can use these questions to assess your students' understanding of the lesson objectives. You may want to ask students to reflect in writing on one of the questions, using a journal or an online blog/wiki.

ASK:

What are some tips for having strong passwords? Which ones do you think are most important to follow?	Encourage students to recall as many of the eight tips as they can. Have students explain why they think particular tips are important.
Which tips are easiest to follow? Which are hardest?	Have students explain their reasoning. Answers will vary.
How can we remind ourselves, other students, and our families to keep passwords secure?	Answers will vary.

REVIEW with students that passwords protect their online accounts and identities. Remind students that hackers and identity thieves try hard to guess passwords so they can steal people's online information. Tell students that creating a good password will make it hard for people to guess it.

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_____

Strong Passwords

_____

Directions

Create one strong and one weak password for an important historical figure. Both passwords should show something special or unique about that person.

For example: **Historical Figure:** Abraham Lincoln
Strong: 4score7yrs ("Four Score and Seven Years Ago ...")
Weak: HonestAbe

Use the DOs and DON'Ts tips from the **Password Tips Student Handout** to help you create your passwords.

HISTORICAL FIGURE: _____

FACTS ABOUT YOUR HISTORICAL FIGURE: _____

_____

Strong Password	Weak Password

Directions

Answer the questions below by checking the appropriate boxes.

1. How did you come up with your strong password?

- ☐ I chose something that was connected with my person, but not too obvious.
- ☐ I replaced certain letters with numbers and symbols.
- ☐ I shortened words.
- ☐ Other: _____

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2. How did you choose your WEAK password?

- ☐ I didn't use any numbers.
- ☐ I used words about the person that would be easy to guess.
- ☐ I used the person's name or nickname.
- ☐ Other: _____

3. How could the weak password be more secure without changing it a lot?

- ☐ Shorten words.
- ☐ Replace letters with numbers/symbols.
- ☐ Spell out words in number form (A-1, B-2, C-3, D-4 ...).
- ☐ Other: _____

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Strong Passwords

Directions

Read the tips below on how to make and use strong passwords.

DOs

- DO share your password only with your parents.
- DO create passwords with at least eight characters.
- DO use combinations of letters, numbers, and symbols.
- DO change your password regularly – at least every six months.

DON'Ts

- DON'T give a password to anyone else – not even your friends.
- DON'T use passwords that are easy for people you know to guess, like your nickname or your pet's name.
- DON'T use any private information in your password.
- DON'T use a word in the dictionary as a password.

Use Common Sense!

Passwords should NOT have **private information** in them, like your:

- Full (first and last) name
- Date of birth
- Mother's maiden name
- Street address
- School name or school address
- Credit card numbers
- Phone numbers
- Social Security number

Smart Passwords?

Directions

Read the stories about Jessie and Krystal below and answer questions about their passwords.

Jesse lives in Lawrence, Kansas. He has a pet rat named "Phil" and is a big fan of the Kansas Jayhawks men's basketball team. Jesse chose "jayhawks" as his password.

Did he make a safe choice? Why or why not?

_____

_____

_____

Krystal lives in Miami, Florida. Her birthday is August 4, 1984, and she swims on a team. Her password is "krswim84."

How did Krystal choose her password? Was it a safe choice? Why or why not?

_____

_____

_____

You Try It!

Use the Dos and DON'Ts tips to make new passwords for Jesse and Krystal.

Jesse _____

Krystal _____

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Strong Passwords

_____

_____

1. Read the sentences below. Write either DO or DON'T in each of the spaces to show rules for creating strong passwords.

_____ change your password regularly.

_____ use a word from the dictionary as your password.

_____ tell your password to your parents.

2. Some of the passwords below are strong passwords that are difficult to guess. Others are weak passwords that are easy to guess. Read the passwords below and circle either Strong or Weak.

a) gRe@tjob	Strong	Weak
b) Luv2sw!m	Strong	Weak
c) anna99	Strong	Weak
d) June111998	Strong	Weak

3. Noah created a password with his name and his favorite sport. His password is NoahSoccer. Why should Noah choose a different password? Choose the BEST answer.

a) Because it's too long
b) Because it uses his name
c) Because it uses his name, and doesn't use symbols or numbers

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Strong Passwords

1. Read the sentences below. Write either DO or DON'T in each of the spaces to show rules for creating strong passwords.

__DO__ change your password regularly.
__DON'T__ use a word from the dictionary as your password.
__DO__ tell your password to your parents.

Answer feedback
You should change your password every six months. Don't use a dictionary word for your password, because some computer programs are designed to guess them. Share your password with your parents to keep it safe.

2. Some of the passwords below are strong passwords that are difficult to guess. Others are weak passwords that are easy to guess. Read the passwords below and circle either Strong or Weak.

a) gRe@tjob	(Strong)	Weak
b) Luv2sw!m	(Strong)	Weak
c) anna99	Strong	(Weak)
d) June111998	Strong	(Weak)

Answer feedback
Passwords gRe@tjob and Luv2sw!m are strong passwords because they contain capital and lowercase letters, numbers, and symbols. Passwords are weaker when they are a dictionary word, or when they are an important date.

3. Noah created a password with his name and his favorite sport. His password is NoahSoccer. Why should Noah choose a different password? Choose the BEST answer.

a) Because it's too long
b) Because it uses his name
c) Because it uses his name, and doesn't use symbols or numbers

Answer feedback
The correct answer is **c**. Noah's password is weak, not only because it uses his name but also because he did not include any symbols or numbers. Such passwords are easy for people to guess.

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FAMILY TIP SHEET

ELEMENTARY SCHOOL

Common Sense on Online Security

What's the Issue?

Learning to protect personal identity information, creating strong passwords, and being cautious when downloading programs and files are crucial to kids' safety as well as the security of the information stored on their digital devices. Otherwise, kids can expose themselves and their families to digital threats such as computer viruses, data and identity theft, and hacking.

To understand digital safety and security, you'll need to learn perhaps some unfamiliar words: phishing, malware, spyware, spam, and yes, even junk. These refer to greedy little programs that attach themselves to respectable-looking software – for example, a downloadable game that looks really cool – and then wreak havoc once installed on your computer.

Why Does It Matter?

If kids don't protect their personal information, there are many potential risks: damage to the hardware, identity theft, and financial loss. Children may not realize they are putting their information in jeopardy, because the warning signs aren't always obvious. For instance, another child might ask for your child's computer password to play a game, and then access your child's private email account. Or your child might use a file-sharing program that passes along a virus to your computer. Older elementary kids might be asked to provide personal identity information, such as a home phone number, address, date of birth, or your Social Security number, by a thief posing as someone else, all of which opens up the family to the risk of identity theft. Just like in real life, kids online have to know who to trust with information.

common sense says

Help your child master the fine art of password creation. Teach them:

- **Not to use passwords that are easy to guess, such as their nickname or their pet's name.**
- **Not to use any private identity information in their password.** Identity thieves can use this information to pretend to be them.
- **Not to use a word in the dictionary as a password.** Hackers use programs that will try every word in the dictionary to guess passwords.
- **To use combinations of letters, numbers, and symbols.** These are harder to crack than regular words because there are more combinations to try.

Teach your kids to be careful with what they download. Let them know not to download free games or videos to their computer. These programs often come with spyware and viruses that will land the computer in the shop – and them in hot water. In the end, what seemed like free software often comes at a cost.

Let your kids know how to identify and deal with spam. Teach them that spam is Internet junk mail. They should not open this mail, because if they do, they will just receive more of it. The best strategy is not to open email from addresses they don't recognize.

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GRADES 3-5

Strong Passwords

✱ DID YOU KNOW ...

One of the most commonly used passwords is "qwerty," and this is NOT a secure password! (Can you figure out why so many people might use this password? Hint: Try typing it out on a computer keyboard.)

Draw a line from the words to their meaning.

password	○ A name you create to sign into a website, app, or game
protection	
random	○ Having no pattern
security	○ Requiring a password to use, see, or do something
user name	○ Protection; guarding information on a device (such as a laptop or tablet)

✱ WHAT DO YOU THINK?

How can we remind ourselves, other students, and our families to keep passwords secure?

✱ DO YOU REMEMBER ...

How a secure password helps you protect your private information?

1. Family Activity

With a family member, review the Common Sense dos and don'ts of creating a safe password. Then, pick your favorite cartoon character and draw a picture of him or her on a piece of paper. On the back of the paper, make a list of personal information (interests, fun facts) about the character and use it to make up a safe and secure password for your character. Check that you haven't included any PRIVATE information -- only use personal information. Next, try to come up with a story to remember the password.

2. Tech It Up!

DinoPass (http://www.dinopass.com/) is a password generator for kids that has two options: SIMPLE passwords and STRONG passwords. Try generating at least three of each and write them down. With a family member, see if you can spot a pattern to figure out the difference between the STRONG and the SIMPLE passwords. Together, come up with at least one pro and one con of using each type of password.

3. Common Sense Says ...

Smart and safe passwords: 1). have at least eight characters; 2). use a combination of letters, numbers, and symbols; and 3). aren't easy for other people to guess! Passwords should NOT have private information in them, such as your full name (first and last), date of birth, mother's maiden name, street address, school name or address, credit card number, phone number, or social security number.

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