Powerful Passwords

Essential Question
How do you create a secure password?

Lesson Overview
Students explore why people use passwords, learn the benefits of using passwords, and discover strategies for creating and keeping strong, secure passwords.

Students learn password tips, test their existing passwords with an interactive game, and create new passwords using guidelines for powerful passwords.

Learning Objectives
Students will be able to ...
• understand the functions of passwords.
• identify strategies for creating and protecting secure passwords.
• create their own secure passwords using the lesson guidelines.

Materials and Preparation
• Copy the Dos and Don’ts of Powerful Passwords Student Handout, one for every four students.
• Chalkboard or white board
• Blank index cards or strips of paper, four per student
• Review the online password generator Dinopass (www.dinopass.com).

Family Resources
• Send home the Online Security Family Tip Sheet (Elementary School).

Estimated time: 45 minutes

Standards Alignment –

NETS-S: 2b, 5a, 5b

Key Vocabulary –
password: a secret word or phrase that some websites require you to type in if you want to visit them
protect: to keep safe
symbol: a shape or sign that stands for something else
secure: safe and protected
introduction

Warm-up (10 minutes)

ASK:

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

Students will offer a variety of definitions.

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

DISCUSS with students that people use locks to keep their belongings safe and protected.

ASK:

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

Locker, bicycle, safe, etc.

DEFINE the Key Vocabulary term **password**.

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**.

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.

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?**

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

teach 1

Dos and Don’ts of Powerful Passwords (15 minutes)

HAVE students complete the **Dos and Don’ts of Powerful Passwords Student Handout**, making their best guesses about whether statements should begin with a “Do” or a “Don’t.”

REVIEW the correct answers with students when they are finished.

INVITE them to explain their reasoning for starting each statement the way they did. Here are the correct answers and sample explanations:
1. **Do** make passwords eight or more characters long. (Longer passwords are harder to crack than shorter ones.)

2. **Don’t** use dictionary words as your password. (Others could guess your password this way.)

3. **Do** include letters, numbers, and symbols in your password. (It can be harder to guess passwords with this combination.)

4. **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.)

5. **Don’t** use private identity information in your password. (Others could guess your password this way.)

6. **Don’t** use your phone number as your password. (Others could guess your password this way.)

7. **Don’t** use your nickname as your password. (It could be easy for others to guess.)

8. **Do** give your password to your parent or guardian. (They will help you remember it if you forget it.)

9. **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.)

10. **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?

Answers will vary.

**REMEMBER** students that they should not carry their passwords with them, tape them to their computers, or share them with friends. It is also wise for students to let trusted family members know about their passwords. They can help students find a safe place to store their written passwords.

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**teach 2**

**Make a Secure Password** *(20 minutes)*

**DEFINE** the Key Vocabulary term **secure**.

**TELL** students that you will now practice creating a new, secure password.

**DISTRIBUTE** four blank index cards or strips of paper to each student.

**INSTRUCT** students to write down an answer for each of the following categories, one per blank index card or strip of paper:

- Favorite number
- Pet’s name, or favorite character’s name
- A symbol (#, $, %, *, or &)
- Favorite food

**HAVE** students arrange the four strips in various combinations to create a new password, keeping in mind the dos and don’ts tips they discussed earlier. When they’ve finished, have them share their new password with a partner, and then have them vote on which password they consider the strongest. For an added challenge, students can tear words apart to create more options for combinations.

**INVITE** students to share their winning passwords with the class, and discuss what makes them so strong.
Test Your Password (20 minutes)

TELL students that they are now going to play “Test Your Password,” a game that tests how secure their passwords are. Have students line up against one wall of the classroom, or go to a bigger space, such as the playground. Tell them that you will call out statements about password protection, along with what to do in response if the statement is true for them.

Statement 1: If you change your password at least every six months, take three steps forward.
Statement 2: If you use your nickname as your password, take two steps back.
Statement 3: If your password includes letters, numbers, and symbols, take three steps forward.
Statement 4: If your password has less than eight characters, take one step back.
Statement 5: If you haven’t changed your password in two years, take four steps back.
Statement 6: If your password has at least eight characters, take two steps forward.
Statement 7: If you let your friends use your password, take two steps back.
Statement 8: If no one except you and your parent or guardian knows your password, take two steps forward.
Statement 9: If your password has no private information, take three steps forward.
Statement 10: If your password is a word in the dictionary, take two steps back.
Statement 11: If your password is hard for you to remember, take two steps back.
Statement 12: If your password is not your home phone number, take two steps forward.

Wrap-up (5 minutes)

You can use these questions to assess your students’ understanding of the lesson objectives.

ASK:

What is a password? A secret word or phrase that some websites require you to type in if you want to visit them.

Why are strong passwords helpful? Strong passwords help to protect our information from being accessed or seen by others.

What are some dos and don’ts to remember about powerful passwords? See tips in Teach 1 for sample responses.
**Extension Activity**

Show students how to create a password that is both hard to guess and relatively easy to remember. Suggest that they write down the name of a book, TV show, or movie. They should then abbreviate the phrase, replace some of the letters with numbers and symbols, and make some letters uppercase and some lowercase. For example, “Clifford the Big Red Dog” could become Cl1ffB1Grd. You can also have students make new passwords with the online password generator Dinopass (www.dinopass.com).

**At-Home Activity**

Have students test the password of a parent or guardian. Students should bring home their completed *Dos and Don’ts of Powerful Passwords Student Handout*. They should ask their parent if they can test their passwords based on the dos and don’ts they learned at school. Students should give their parents one point for each correct answer, and they should subtract one point for each one that is incorrect. Students can share their parents’ scores when they return to class.
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Directions
Do you know how to make a powerful password? Write the word “Do” or “Don’t” into each of the statements below to show how to make the best passwords. If you fill them in correctly, these tips will help you create a powerful password. Make sure to write in the correct answer when you go over the correct answers with your teacher.

1. _____ make passwords eight or more characters long.
2. _____ use dictionary words as your password.
3. _____ include letters, numbers, and symbols in your password.
4. _____ change your password at least every six months.
5. _____ use private identity information in your password.
6. _____ use your phone number as your password.
7. _____ use your nickname as your password.
8. _____ give your password to your parent or guardian.
9. _____ share your password with your friends.
10. _____ create a password that you can remember.

Use Common Sense!
It’s okay to write down passwords, but ...
• Remember not to carry them with you
• Don’t tape them on your computer
• Ask a parent or caregiver to help you find a safe place at home to keep them
1. Some websites make you type in a __________ if you want to visit their site. These are made of secret letters and numbers.

   a) password  
   b) crossword  
   c) puzzle  
   d) backstage pass

2. True or False: Sam Slate has just chosen a new password. It’s sammyslate. This is a great password because it has a lot of letters.

   a) True  
   b) False

3. The best way for Lauren to remember her password and keep her password safe is to:

   a) Tell her best friend  
   b) Keep the password taped to her computer  
   c) Use a password that’s easy to remember, like her birthday  
   d) Tell the password to her parents
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1. Some websites make you type in a ________ if you want to visit their site. These are made of secret letters and numbers.
   a) password
   b) crossword
   c) puzzle
   d) backstage pass

   Answer feedback
   The correct answer is a. A secret word or phrase is called a password.

2. True or False: Sam Slate has just chosen a new password. It’s sammyslate. This is a great password because it has a lot of letters.
   a) True
   b) False

   Answer feedback
   The correct answer is b. False. Even though it’s true that a password with a lot of letters can be strong, this one isn’t. You should not use your name or nickname in a password. You should also combine numbers, letter, and symbols.

3. The best way for Lauren to remember her password and keep her password safe is to:
   a) Tell her best friend
   b) Keep the password taped to her computer
   c) Use a password that’s easy to remember, like her birthday
   d) Tell the password to her parents

   Answer feedback
   The correct answer is d. Lauren should tell her parents her password. You can trust your parents to keep your password safe. If you lose your password, they can remind you.