Cybersecurity, What's That? | Teaching Guide

Overview

Cybersecurity, What's That? is a short activity (~15 minutes) teaching about good passwords and security on the web. It's taught with the assistance of Google's Interland, which is an interactive game that helps students learn good internet safety. This activity focuses on the "Tower of Treasure" level, which is about standard password practices to keep hackers away.

Teaching Guide Sections

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    b. Students play "Tower of Treasure"
    c. Wrap up
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Vocabulary

- **Cyberattacks** - Digital threats usually aimed at accessing sensitive information, extorting money from users via ransomware, or interrupting processes.
- **Cybersecurity** - The practice of protecting systems, networks, and programs from digital attacks.
- **Hackers** - A person who illegally gains access to or tampers with information in a computer system.

- **Ransomware** - Malicious software that locks your computer including all your files so you can't access them.

Setup

Requirements:

Each student will need to use a laptop to run this activity. They will be playing on a browser, any will do. If students have trouble with the link, try using Chrome.

Instructions

1. Class discussion

The teacher can pose a few of the following questions to the class, and have an open discussion, providing examples and letting students give answers of their own for a few minutes. The teacher can use a few of the provided responses to provide information and segue into the activity.

Provided Questions & Answers:

- Raise your hand if you've heard of Cybersecurity?
    - Cybersecurity is the way you protect computer systems, networks, and programs from digital attacks. For example, we have WiFi here in the school, set up so only students and faculty can access and use it. That is part of cybersecurity.
- Who here knows about internet safety? What does that mean?
    - It means being careful about what you do online.
    - It means protecting your computer and accounts from bugs and malware. There are dangers on the internet too, just like real life! Hackers can steal your personal information if you're not careful.

- What are some things you should watch out for while on the internet?
    - Running programs or downloading things that you don't know the source of. A lot of cyber-criminals hide malicious software as other things.
    - Pop-ups and suspicious links are an easy way to convince someone to do something they shouldn't.
    - One way that hackers can get your personal information is through guessing your passwords. It's very important to make sure your passwords are secure, which is what we are going to be learning about today! Please take out your computers…

2. Students play "Tower of Treasure"

Interland Link: https://beinternetawesome.withgoogle.com/en_us/interland/landing/tower-of-treasure
A shortened link for ease of access: http://tinyurl.com/5xajbhz8

Let students open their laptops and go to the link, which will send them directly to the Tower of Treasure level of Interland. The online game has audio, and reads the text out loud. It does not save your progress. If the site is refreshed or closed, you will have to start from the beginning again. There are three parts to the Tower of Treasure:

1. **Outrun the hackers**
2. **Defend your information**
3. **Quiz**

Refer to the Walkthrough / Key section below for specific instructions per section.

3. Wrap up

Have another short conversation with the students, in the same manner as the first class discussion. Here, teachers will ask questions about what the students learned about creating a secure password. They will also suggest that students use what they learned from now on.

Provided Questions & Answers:

- What are some of the ways to create a secure password?
    - A password should be over 8 characters long.
    - It should be a mix of lowercase and uppercase letters, symbols like the @ sign or exclamation point, and numbers.
    - It should be easy for you to remember, but hard for anyone else to guess.
- Raise your hand if you feel like you will be more secure on the internet now?
    - If you currently use the internet a lot, remember what you learned today and keep it in mind. Think about updating your passwords accordingly.
    - Go home and think about your passwords. See if they are secure, according to the rules we've learned.
    - Another good practice is to always write down account information, like usernames and passwords in a physical notebook and keep it stored safe somewhere at home. That way if you do forget, you can recover your account.

4. Optional Extension

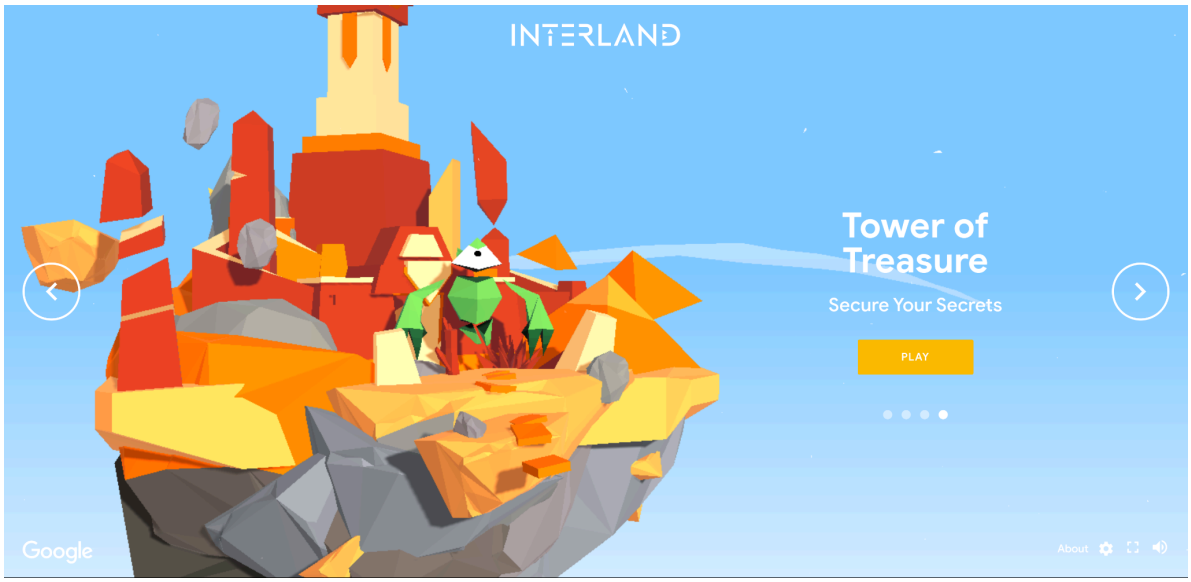
There are three other levels that you can let students play through to learn more about internet safety. They are not included in the Walkthrough / Key here, but you can explore them on your own, or recommend students do so themselves on their own after school. The other levels are:

- Kind Kingdom
    - About being kind and stopping bullying online.
    - Uses arrow keys for movement, and spacebar as the action key.
- Reality River
    - About recognizing phishing / malware traps.
    - Uses arrow keys for looking at answers, and spacebar to choose an answer.
- Mindful Mountain
    - About posting on social media and privacy.

- Uses arrow keys for moving left and right, and spacebar for action.

Walkthrough / Key

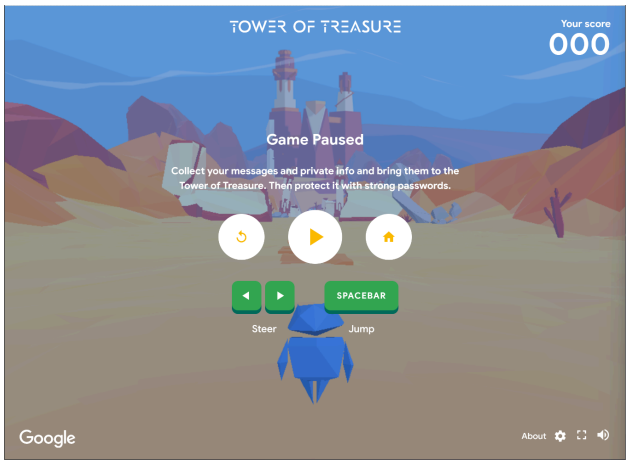
Hit play.



The first section is “Outrun the hackers!”

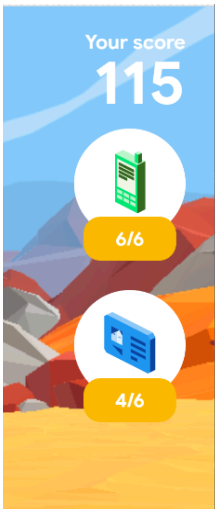
Outrun the hackers

In Outrun the hackers, the students use the left and right arrow keys to move side to side. They can also jump over obstacles with the spacebar or up arrow key.



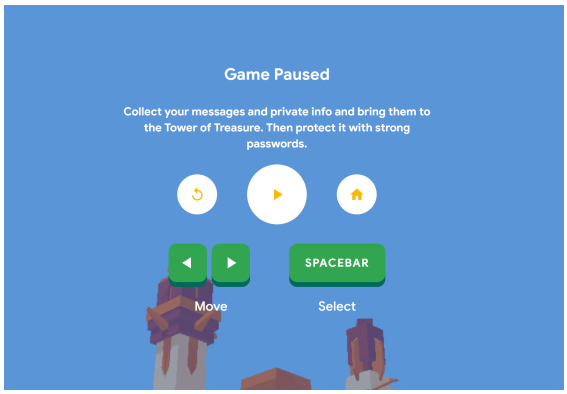
The goal is to avoid obstacles and collect the hovering icons. The amount of icons to collect is displayed on the top right of the screen.

After collecting the messages and emails, you have to collect phone information and ID documents. Then it moves to the next section, “Defending your information.”



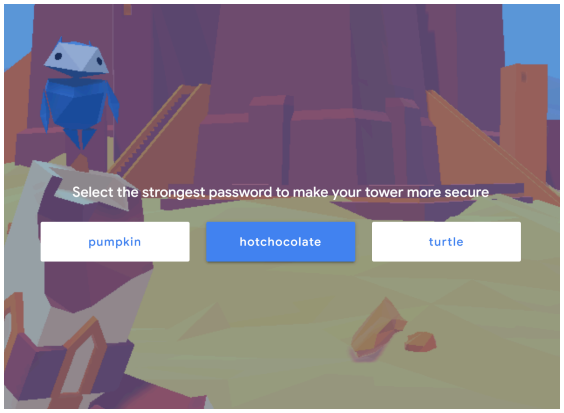
Defend your information

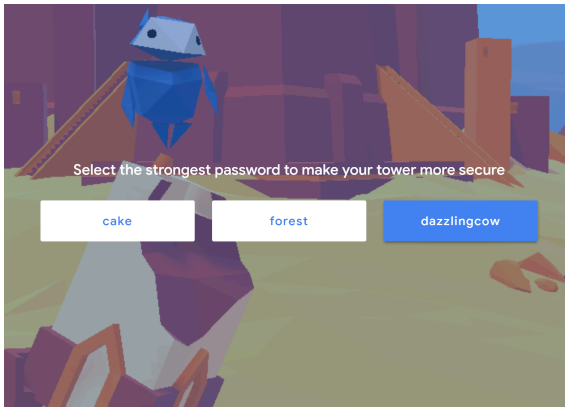
In this section, students use the left and right arrow keys to move from pillar to pillar. They select with the spacebar. Once a pillar is selected, they must answer a question related to passwords. The goal is to upgrade all of the pillars three times (i.e. answer three questions per pillar).



Question 1:

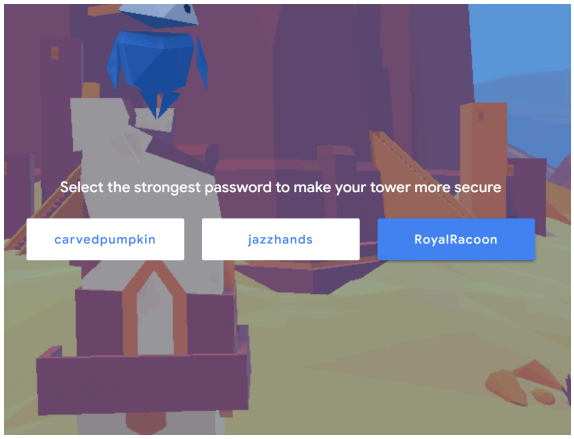
Choose the password that is the longest, 8 characters long at least. Here are two examples:

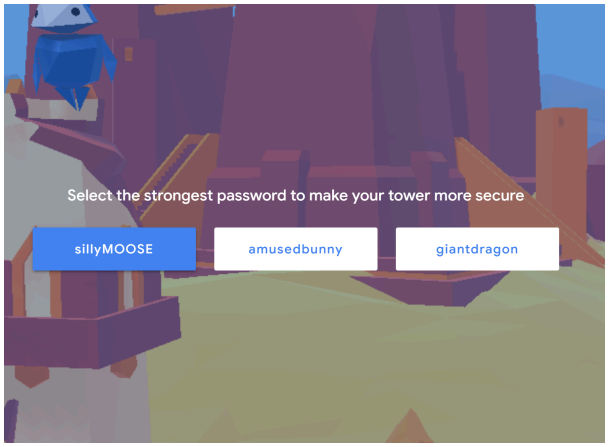




Question 2:

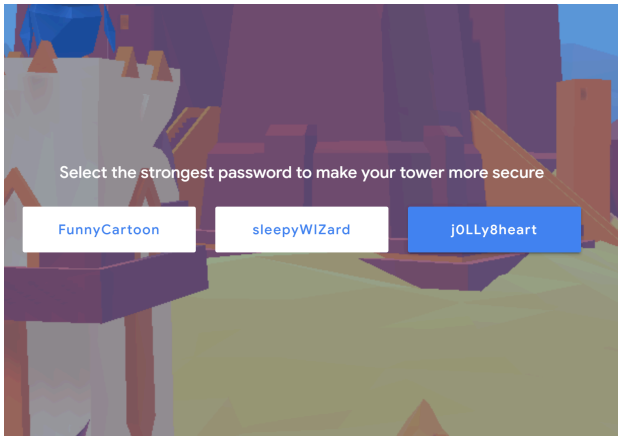
Choose the password that has both upper and lowercase characters. Here are two examples:

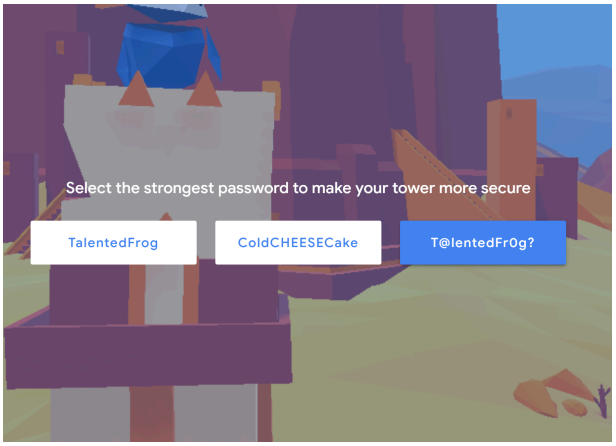




Question 3:

Choose the password that includes numbers and/or special characters. Here are 2 examples:





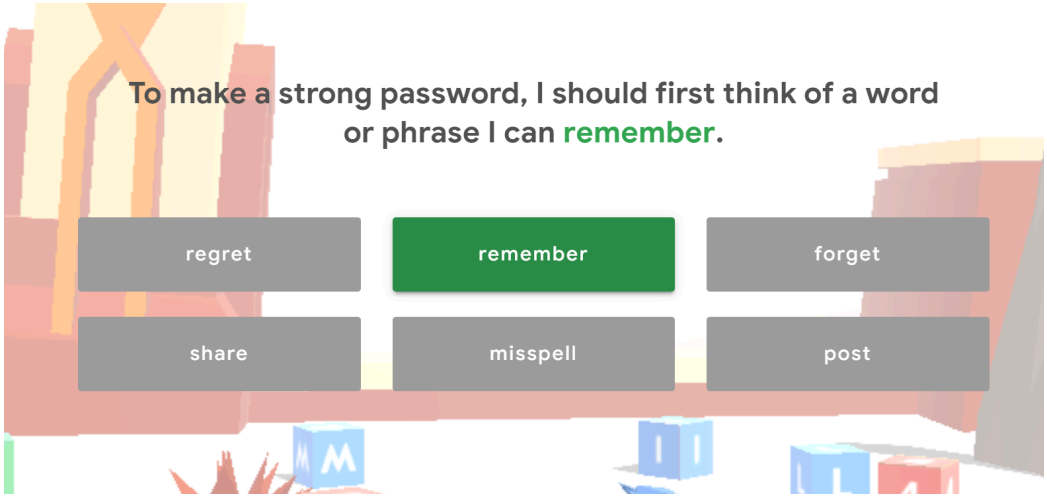
Once that is done for EVERY pillar, it moves onto the “Quiz” section.

Quiz / Testing your knowledge

In the quiz section, students click on the answer they want to choose. The goal is simply to get all questions right. It is like a knowledge check.

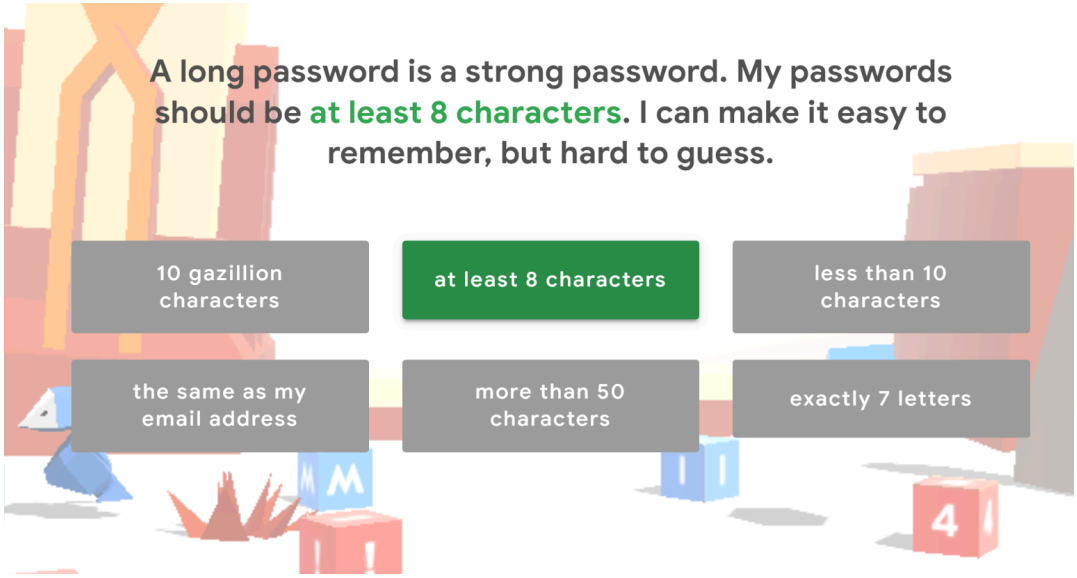
Question 1:

To make a strong password, I should first think of a word or phrase I can _____.



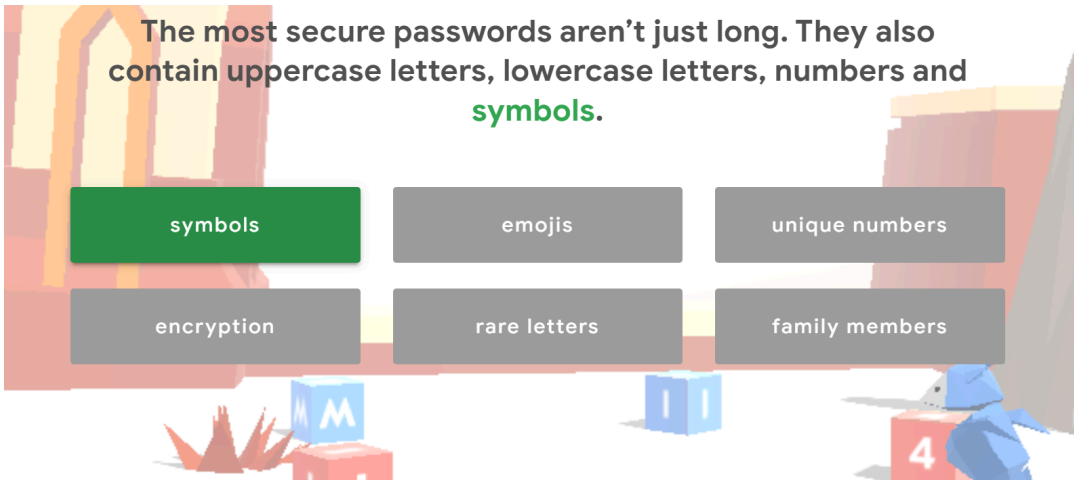
Question 2:

A long password is a strong password. My passwords should be _____. I can make it easy to remember, but hard to guess.



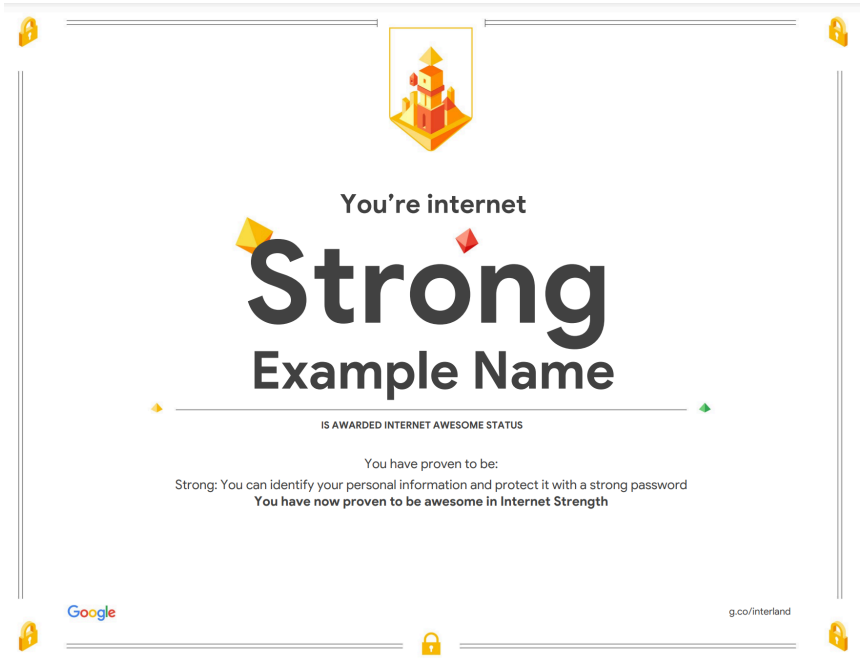
Question 3:

The most secure passwords aren't just long. They also contain uppercase letters, lowercase letters, numbers, and _____.



When done, this is the screen students should see:

After clicking the arrow, they can download a pdf certificate. This is what it looks like:



And that's the end of the activity!

Extra Resources

Internet Safety Books and Videos (K-5):
https://ikeepsafe.org/faux-paw-the-techno-cat/

Downloadable “Interland” Internet Safety Curriculum (K-5):
https://www.gstatic.com/gumdrop/files/bia-curriculum-en-june-2023.pdf

CommonSense.org Digital Curriculum (3-5):
https://www.commonsense.org/education/digital-citizenship/curriculum?grades=3%2C4%2C5

CIAS Cybersecurity Games Downloadable Launcher (ages 11+):
https://cias.utsa.edu/k-12/cybersecurity-games/

CyberPatriot Elementary School Cyber Education Initiative (ESCEI) Kit:
https://www.uscyberpatriot.org/Pages/Special%20Initiatives/Elementary-School-Initiative.aspx