



Technical Skill Focus – Basics of Cybersecurity

SuperCyberKids Lesson Plan

Lesson 3 Consolidation

Call: ERASMUS-EDU-2022-PI-FORWARD

Type of Action: ERASMUS-LS

Project No. 101087250



**Co-funded by
the European Union**

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Project ref. number	101087250
Project title	SCK - SuperCyberKids
Document title	Social Skill Focus – “Basics of Cybersecurity” Lesson 3 Consolidation
Document Type	Lesson Plan
Document version	V1, 10/12/2024
Previous version(s)	V1
Language	English
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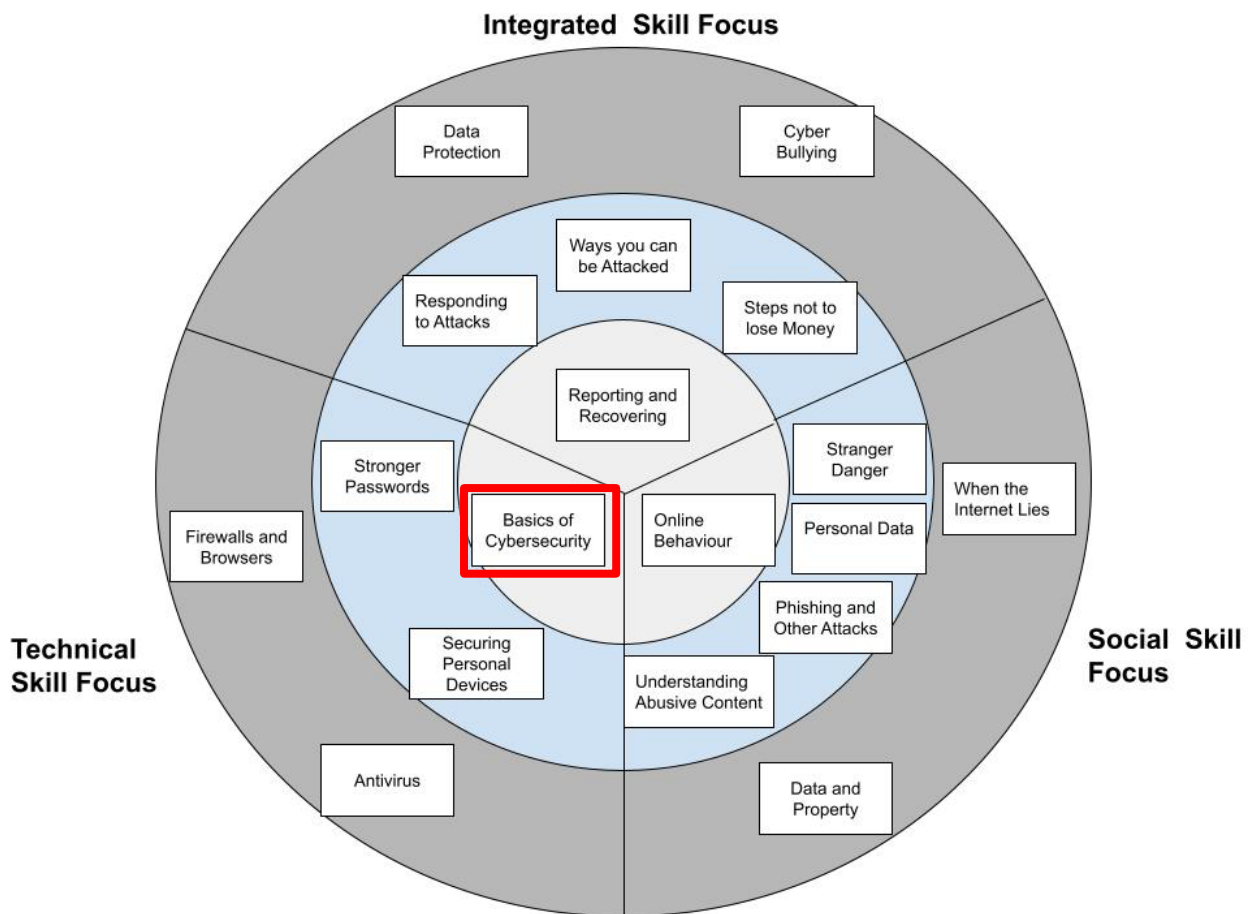
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1 Learning Context

Main tool: Video game “Spoofy”

- Ages 8-13
- 10-25 students
- 50 minutes
- Location: classroom with projector or screen visible to all students
- Resources:
 - Internet-connected computer for instructor
 - *SPOOFY* game with lesson materials
 - Whiteboard
 - Paper and writing instruments for students

2 Objectives



3 Lesson Plan 3 - Consolidation

Activity	Time	Details	Learning Goal	Extras
Intro	5 min	<p>Announce to the class that the topic of discussion for the day will be a continuation of the class discussion on cybersecurity.</p> <p>Review prior lessons by eliciting effective tools for creating good, strong passwords</p> <p>Write the rules elicited on the board.</p> <p>Add any rules Students may have forgotten.</p>	Introduce topic	
Discussion	10 min	<p>Ask Students what way people can get a hold of your PWs. Elicit ideas.</p> <p>Mention the types of attacks hackers can perform even if they don't have your PW.</p> <ul style="list-style-type: none"> - Dictionary attack - Brute force attack <p>Explain how these attacks work</p> <p>Elicit ideas for how to prevent these attacks from being successful</p>	Expand knowledge base	
Activity	20 min	<p>Explain that the activity will help them understand how PW attacks work and how PW complexity can help prevent these attacks.</p> <p>Separate class into pairs.</p> <p>For each pair, choose one Student to be 'A' and the other to be 'B'</p> <p>Instruct 'A' students to pick a single number and 'B' students to pick a single letter. These will be their PWs.</p>	Deeper understanding of password complexity	Adapted from this activity

		<p>NB! Stick with the letters allowed by most website PW creation tools (26 base letters)</p> <p>Instruct Students to try to guess their partner’s PW, recording the number of guesses each attempt takes before successfully guessing.</p> <p>Repeat this a few times for more accurate results. If time allows, switch sides as well (‘A’ becomes ‘B’ and vice versa)</p> <p>When all groups have completed the task, ask how many guesses it took to guess. Compare ‘A’ guesses to ‘B’ guesses on the board. Some lucky guesses may make guesses at ‘B’ PWs lower, but an average should show that it takes more guesses for a letter than a number. Discuss why. (10 possibilities vs. 26 possibilities)</p> <p>Now instruct ‘A’ Students to choose a single number OR letter OR a special character such as those allowed by PW creation tools (~!@#%&*()_+={ } \:;'"<,>./) (NB! Not all of these characters are allowed by all PW tools, but it helps illustrate our point)</p> <p>Repeat the above process with Students writing down the number of guesses they have to make to correctly guess their partner’s PW character.</p> <p>Collect the numbers of guesses and write the averages on the board.</p> <p>Compare the outcomes of the two iterations of the activity</p>		
Discussion	10 min	<p>Discuss the results on the board.</p> <p>What do the results show? Why is this important? What effect would increasing the number of characters have?</p> <p>Discuss what strategies Students used to guess their partner’s PW and how to counter these strategies.</p> <p>Look at real-world examples of PW requirements for websites and discuss why they have the requirements they have.</p>	Exploration of topic in depth	

		As a class, create a new list of rules for PW creation		
Wrap-up	5 min	<p>Consolidate lessons from the day.</p> <p>Answer any questions Students may have.</p> <p>Assign homework (if any)</p>		