



Elementary School Cyber Education Initiative



Supplemental Activities

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ESCEI Supplemental Activities

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Enjoying our program?

Have questions or comments?

Contact us at: info@uscyberpatriot.org

Or fill out our ESCEI feedback survey: <https://goo.gl/iDalvi>

The Elementary School Cyber Education Initiative is a component of the Air Force Association's CyberPatriot National Youth Cyber Education Program, as made possible by its Presenting Sponsor



Materials for the CyberPatriot Elementary School Cyber Education Initiative were funded through a special grant from



A Note from the CyberPatriot National Commissioner



1501 Lee Highway, Arlington, Virginia 22209-1198 (703) 247-5800
An Independent Nonprofit Aerospace Organization

Dear Educator,

Thank you for your interest in the Elementary School Cyber Education Initiative (ESCEI) supplemental activities. These activities were specifically created to complement the ESCEI program by enabling students to assess their cybersecurity skills in creative and collaborative ways. Appropriate for grade levels K-6, the ESCEI activities promote students to work independently as well as in group settings to use their cyber safety and cybersecurity knowledge.

The ESCEI supplemental activities are three interactive activities based upon the program's initial elementary curriculum:

- **ESCEI Bingo** encourages students in grades K-2 to identify and select cybersecurity vocabulary.
- **ESCEI Solve & Swap** has two separate scenario card decks for grades K-2 and 3-6 and offers a comprehensive learning activity that uses scenario cards for students to answer and compare.
- **ESCEI QR Code Scavenger Hunt** enables students to analyze hidden questions in a fun and collaborative activity.

The Elementary School Cyber Education Initiative was launched in July 2015 as a component of the Air Force Association's CyberPatriot National Youth Cyber Education Program. Since then over 2,500 ESCEI kits have been distributed worldwide as made possible by the generous support of its Presenting Sponsor, the Northrop Grumman Foundation. Materials for the CyberPatriot Elementary School Cyber Education Initiative were funded through a special grant from Riverside Research, a Cyber Gold sponsor.

To request more digital or physical copies of the ESCEI, please go to <https://goo.gl/mMMUwA>. Also become a fan of CyberPatriot on [Facebook](#) and follow us on [Twitter](#) to learn more about our special initiatives, promotional giveaways and on-going feedback opportunities.

Once again, I am thrilled to share these new and exciting activities that will continue to encourage and inspire youth nationwide towards careers and education in STEM related fields.

Sincerely,

Bernie Skoch

National Commissioner

CyberPatriot – The National Youth Cyber Education Program

Introduction



Thank you for requesting the CyberPatriot Elementary School Cyber Education Initiative (ESCEI) kit! These printable ESCEI Supplemental Activities are the perfect complement to the ESCEI lessons and learning modules. Each activity creates an engaging and interactive assessment opportunity that builds upon the learned content from the ESCEI curriculum.

Below are brief descriptions of each activity, along with the appropriate grade level. Each activity can be differentiated for your students' level of awareness and curiosity.

ESCEI Bingo (Grades K-3) *printable*

Classic game of word recognition and patience! Students will listen for cybersecurity related words and place a marker on their BINGO board. The first student to cover five words in a row, wins. Winning combinations can be horizontal, vertical, diagonal or teacher's choice.

Required Materials: Scissors, optional laminator or cardstock

ESCEI Solve & Swap (Grades 2-3/4-6) *printable*

Simple and fun cooperative learning strategy for partners or smaller groups, using a deck of scenario cards. Students seated in pairs (or small groups) each take a scenario card, solve the problem, swap task cards, solve the new problem, and then check their answers.

Required Materials: Scissors, pencil/pen, optional laminator or cardstock

ESCEI QR Scavenger Hunt (Grades 3-6) *printable*

Great way to get students moving and learning at the same time! Students use tablets or smart phone capabilities to answer cybersecurity based questions. Each code, when 'read' by the mobile device turns into a question relating to ESCEI topics. Some of these questions rely on existing knowledge while some may require a discussion. Students are encouraged to create their own QR codes with teacher direction.

Required Materials: Smart device(s) or tablet(s), optional laminator or cardstock

ESCEI BINGO

ESCEI BINGO

B I N G O

browser	remote access	software	characters	worm
Sasser Worm	ILOVEYOU virus	firewall	CyberPatriot	infection
pop-up	Trojan horse	Free!	malware	social media
symbol	security	network	attack	anti-virus software
phishing	cybersecurity	malware	scam	data

Board 1

ESCEI BINGO

B I N G O

email	CyberPatriot	malware	infection	software
Sasser Worm	password	remote access	scam	website
worm	virus	Free!	pop-up	characters
Trojan horse	anti-virus software	symbol	social media	firewall
security	files	malware	ILOVEYOU virus	attack

Board 2

ESCEI BINGO

B I N G O

cybersecurity	security	remote access	worm	software
characters	email	scam	Sasser Worm	malware
user account	internet	Free!	virus	infection
firewall	CyberPatriot	attack	data	Trojan horse
social media	browser	website	password	symbol

Board 3

ESCEI BINGO

B I N G O

pop-up	infection	network	files	remote access
software	user account	attack	email	virus
phishing	Sasser Worm	Free!	malware	anti-virus software
scam	CyberPatriot	social media	characters	symbol
browser	data	Trojan horse	website	worm

Board 4

ESCEI BINGO

ESCEI BINGO

B I N G O

Trojan horse	anti-virus software	network	symbol	virus
malware	files	phishing	email	pop-up
internet	password	Free!	characters	attack
browser	data	Sasser Worm	scam	infection
malware	user account	social media	firewall	software

Board 5

ESCEI BINGO

B I N G O

data	remote access	browser	password	internet
files	phishing	software	characters	cybersecurity
infection	pop-up	Free!	virus	symbol
firewall	security	attack	Trojan horse	malware
website	user account	anti-virus software	email	social media

Board 6

ESCEI BINGO

B I N G O

attack	browser	files	malware	Trojan horse
software	I LOVE YOU virus	user account	security	Sasser Worm
network	email	Free!	internet	remote access
characters	phishing	virus	CyberPatriot	social media
malware	data	password	worm	pop-up

Board 7

ESCEI BINGO

B I N G O

security	scam	browser	CyberPatriot	software
social media	Sasser Worm	email	malware	files
Trojan horse	infection	Free!	worm	characters
network	pop-up	attack	symbol	firewall
website	cybersecurity	anti-virus software	malware	I LOVE YOU virus

Board 8

ESCEI BINGO

ESCEI BINGO

B I N G O

scam	cybersecurity	Trojan horse	security	attack
data	password	symbol	network	pop-up
social media	Sasser worm	Free!	remote access	firewall
characters	CyberPatriot	files	user account	website
infection	malware	virus	phishing	anti-virus software

Board 9

ESCEI BINGO

B I N G O

internet	Sasser worm	Trojan horse	cybersecurity	network
pop-up	browser	virus	email	attack
website	phishing	Free!	security	data
user account	characters	firewall	symbol	CyberPatriot
ILOVEYOU virus	remote access	password	malware	social media

Board 10

ESCEI BINGO

B I N G O

pop-up	infection	Sasser worm	firewall	email
network	phishing	Trojan horse	data	ILOVEYOU virus
scam	virus	Free!	files	symbol
social media	software	user account	CyberPatriot	attack
browser	remote access	anti-virus software	security	internet

Board 11

ESCEI BINGO

B I N G O

user account	attack	browser	remote access	Trojan horse
Sasser worm	email	phishing	cybersecurity	scam
symbol	files	Free!	firewall	data
website	malware	password	CyberPatriot	ILOVEYOU virus
infection	security	pop-up	social media	anti-virus software

Board 12

ESCEI BINGO

ESCEI BINGO

B	I	N	G	O
characters	infection	internet	data	symbol
browser	virus	phishing	CyberPatriot	files
remote access	cybersecurity	Free!	Sasser worm	software
website	attack	firewall	email	network
pop-up	Trojan horse	malware	worm	scam

Board 13

ESCEI BINGO

B	I	N	G	O
Trojan horse	virus	anti-virus software	website	security
cybersecurity	remote access	files	data	symbol
scam	social media	Free!	Sasser worm	attack
password	infection	CyberPatriot	malware	internet
worm	email	firewall	browser	ILOVEYOU virus

Board 14

ESCEI BINGO

B	I	N	G	O
social media	anti-virus software	CyberPatriot	internet	browser
files	ILOVEYOU virus	pop-up	virus	firewall
user account	Sasser worm	Free!	remote access	security
Trojan horse	website	malware	password	scam
attack	symbol	worm	characters	phishing

Board 15

ESCEI BINGO

B	I	N	G	O
internet	data	Trojan horse	infection	CyberPatriot
scam	software	Sasser worm	email	firewall
attack	ILOVEYOU virus	Free!	user account	virus
password	network	symbol	pop-up	malware
remote access	website	worm	security	cybersecurity

Board 16

ESCEI BINGO

ESCEI BINGO

B I N G O

Sasser worm	data	scam	website	attack
virus	Trojan horse	social media	malware	software
characters	browser	Free!	ILOVEYOU virus	pop-up
phishing	password	cybersecurity	network	remote access
infection	files	user account	anti-virus software	firewall

Board 17

ESCEI BINGO

B I N G O

symbol	browser	scam	data	malware
software	CyberPatriot	user account	email	attack
remote access	anti-virus software	Free!	website	virus
network	phishing	pop-up	social media	password
internet	ILOVEYOU virus	Trojan horse	files	characters

Board 18

ESCEI BINGO

B I N G O

software	infection	browser	pop-up	email
malware	anti-virus software	scam	virus	internet
Sasser worm	user account	Free!	cybersecurity	social media
characters	worm	network	password	attack
CyberPatriot	ILOVEYOU virus	firewall	website	symbol

Board 19

ESCEI BINGO

B I N G O

network	attack	CyberPatriot	ILOVEYOU virus	scam
browser	email	anti-virus software	data	Sasser worm
social media	cybersecurity	Free!	pop-up	virus
remote access	files	Trojan horse	password	internet
infection	website	software	characters	firewall

Board 20

ESCEI BINGO

ESCEI BINGO

B I N G O

phishing	infection	symbol	virus	social media
CyberPatriot	user account	anti-virus software	password	cybersecurity
ILOVEYOU virus	data	Free!	browser	worm
remote access	attack	pop-up	email	malware
software	scam	files	security	Sasser worm

Board 21

ESCEI BINGO

B I N G O

scam	user account	firewall	remote access	website
data	ILOVEYOU virus	cybersecurity	virus	social media
Sasser worm	characters	Free!	browser	attack
Trojan horse	infection	password	files	symbol
security	email	pop-up	CyberPatriot	internet

Board 22

ESCEI BINGO

B I N G O

characters	firewall	password	symbol	CyberPatriot
cybersecurity	internet	software	user account	pop-up
network	browser	Free!	ILOVEYOU virus	website
scam	remote access	files	Trojan horse	Sasser worm
attack	social media	security	phishing	anti-virus software

Board 23

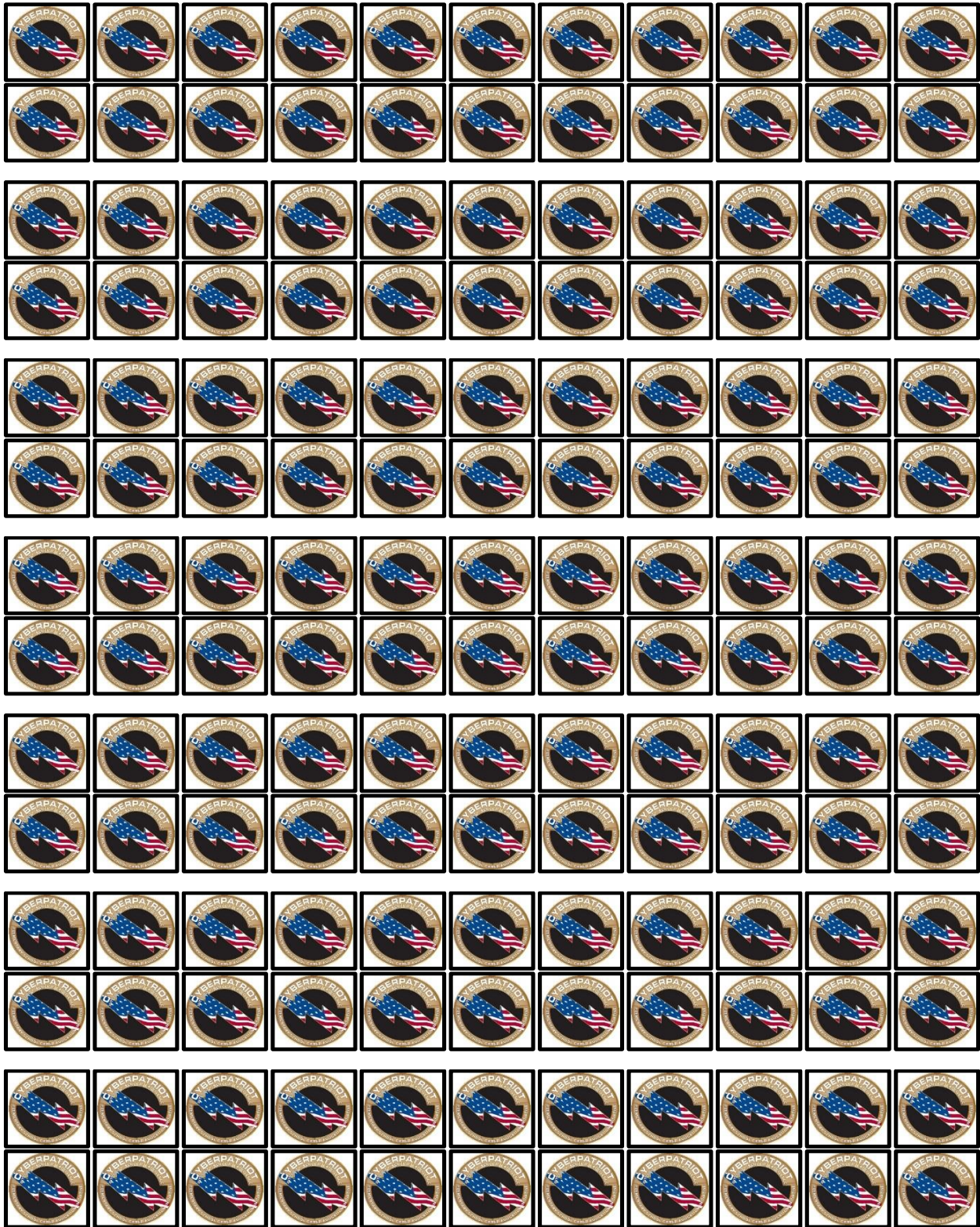
ESCEI BINGO

B I N G O

symbol	virus	scam	infection	password
Sasser worm	worm	browser	email	pop-up
attack	internet	Free!	network	user account
Trojan horse	malware	social media	software	files
ILOVEYOU virus	remote access	security	website	data

Board 24

Bingo Markers



*Educator Tip: Laminate then cut out.

ESCEI BINGO Vocabulary List

1. **pop-up**: a window that contains a menu of commands and stays on the screen only until you select one of the commands and then it disappears
2. **virus**: a piece of code that has a harmful effect on a computer system, typically corrupting or destroying data
3. **CyberPatriot**: National Youth Cyber Education Program located in Arlington, Virginia
4. **user account**: a collection of information that tells the computer system which files and folders a person can access, and what changes a person can make to a computer
5. **security**: protection of information systems from theft or damage to hardware, software and information
6. **Trojan horse**: a program designed to breach the security of a computer system, that looks like a harmless program but when files are open they contain hidden malware.
7. **cybersecurity**: being protected against the criminal or unauthorized use of electronic data or the act to prevent this type of behavior
8. **malware**: software that is intended to damage or disable computers and computer systems
9. **anti-virus software**: computer software used to prevent, detect and remove malicious software
10. **characters**: symbols, numbers and letters found on a keyboard
11. **website**: a located connected to the Internet that maintains one or more pages on the World Wide Web
12. **scam**: a deceptive, dishonest or fraudulent act
13. **network**: devices exchange data with each other along network links or data connections
14. **ILOVEYOU virus**: name of a famous virus where 45 million computers were infected and an estimated \$10 billion in damage was caused in lost revenue
15. **infection**: when a worm or virus has copied itself to a part of a computer system
16. **files**: resource for storing information
17. **data**: facts and figures and information that is stored in or used by a computer
18. **firewall**: system designed to prevent unauthorized access to or from a private network
19. **worm**: malware that replicates itself in order to spread to other computers
20. **phishing**: online scam where people try to manipulate others into giving up their personal information
21. **software**: programs and operating information used by a computer
22. **remote access**: ability to get access to a computer or a network from a remote distance
23. **password**: a word or combination of characters that must be supplied to gain access to a computer system or a program
24. **attack**: disrupting, disabling or destroying a computers network or software programs
25. **internet**: global communication network that allows all computers to connect and exchange information
26. **symbol**: symbols on a keyboard have special meanings and are used for a strong password
27. **Sasser worm**: infection more than 1 million computers and shut down numerous companies, causing millions of dollars in damage
28. **email**: messages distributed by electronic means from one computer user to one of more recipients via a network
29. **browser**: software application used for retrieving, presenting and moving information on the World Wide Web
30. **social media**: websites and apps that allow users to create and share content or participate in social networking

ESCEI Solve & Swap

Instructor Directions

1. Laminate or print scenario cards on cardstock.
2. Cut out cards and have one pile of cards for each pair of students.
3. Split students into groups of two and explain student directions.
4. After activity discuss with students their reactions to the scenarios.

Student Directions

1. Take a scenario card from your shared pile.
2. Read the scenario and write how you would solve the problem on your answer sheet.
3. Swap scenario cards with your partner.
4. Read the new scenario and write your solution for the new problem on your same answer sheet.
5. Discuss both answers with your partner. What was the same? What was different?
6. Repeat with new scenario cards.

Solve & Swap Answer Sheet

Your Name: _____ Partner's Name: _____

<p>Card #:</p> <p>_____</p> <p>Switch!</p>	<p>Card #:</p> <p>_____</p> <p>Check!</p>
<p>Card #:</p> <p>_____</p> <p>Switch!</p>	<p>Card #:</p> <p>_____</p> <p>Check!</p>
<p>Card #:</p> <p>_____</p> <p>Switch!</p>	<p>Card #:</p> <p>_____</p> <p>Check!</p>

Grades 2-3: Scenario Cards

Card #1

You are at the library with your parents, when the librarian walks up to you and asks your birthday. What do you do? And why?

Card #2

You left your lunch at home (again!) and your teacher asks for your mom's cell phone number so she can bring you your lunch. What do you do? And why?

Card #3

Your big brother left his Facebook account open on the family laptop. You know he won't be coming back right away. What do you do? And why?

Card #4

A free game site at school asks you for your address. It's optional (you don't HAVE to give it to play). What do you do? And why?

Card #5

You need to make a password for your school blog, you think 12345 might be a good idea. Is it? Why and why not?

Card #6

Your next door neighbor asks your dad's work address to send him a note. You know your neighbor, Ann, but you are not sure if your Dad wants to share that info. What do you do and why?

Card #7

Your teacher asks everyone when their birthday is at the beginning of the school year. Do you share it with the class? Why or why not? Explain your answer.

Card #8

Your grandmother wants to bring cupcakes in for a school celebration. She received an invitation from your teacher but now she can't remember the address. Do you give it to her? Why or why not? Explain your answer.

Card #9

Someone calls during dinner and your mom says it's okay to answer. The person on the phone asks how many people are in your home and if anyone is under the age of 15. What do you do? And why?

Card #10

Your sister just came home from school and she's late for basketball practice! She can't remember when Dad gets home but you do. What do you do? And why?

Grades 4-6: Scenario Cards

Card #1

You receive an email from a teacher at your school asking for your password but you don't recognize the name. What do you do and why?

Card #6

You are working on a group project and someone in your group says they know how to disable the firewall to get on an awesome website. It's the school's computer and you know that firewalls are necessary to keep malware out. What do you do? Why?

Card #2

You bought a book online and the web store sends you a survey to fill out about your buying experience. The survey link is 1lovemoney.survey, and you think it looks suspicious. What do you do and why?

Card #7

You need to create a password for your social media account, but you already have a password for your email. You know passwords shouldn't be used more than once but you don't want to remember another complicated password. What do you do?

Card #3

You missed your favorite show on TV, your friend tells you to just download it off a free website. There's a big chance that you can obtain malware – but everyone else has seen the episode! What do you do? Why?

Card #8

You are at the library and you see an open computer with no one sitting there. Someone left their FaceBook account open, and you are sure they aren't coming back any time soon. What do you do? Why?

Card #4

Your sister borrows your tablet to play a game, she asks for your password to log into your game center. What do you do? Why?

Card #9

You joined a popular website that lets you play all types of online games. It asks you to create a log in but it also asks you to put your address, social security number and your telephone number. This info is optional, what do you do? Why?

Card #5

You're surfing the web and a security pop-up comes on your computer screen. You remember your dad updated the computers with anti-malware software and it asks you if you want to continue on a potentially dangerous website. What do you do? Why?

Card #10

You receive an email from your friend with a link that says "YOU WON \$50!" Your friend says she didn't send you an email at all. What do you do? Why?

ESCEI QR Scavenger Hunt

Instructor Directions

1. Before the activity, download **any** free QR reader to tablets or smart devices:
QR Code Reader and Scanner by ShopSavvy, Inc
Quick Scan – QR Code Reader by iHandy Inc.
2. Cut QR Codes and place them around the classroom.
Tip: Laminate the sheet beforehand for future use!

Discussion

Has anyone heard of a QR Code? QR Code is short for Quick Response Code which is a two-dimensional barcode that can be read with an app from a tablet or smartphone with barcode reading capabilities. These codes link directly to text, websites and other types of information.

This is a QR Code for the CyberPatriot website:



Who do you think would use a QR Code? Why is a QR Code a great way to share information? Now that you have learned about cybersecurity AND QR Codes, let's see how you can use them together.

Student Directions

You are a cyber investigator looking for QR clues to test your cybersecurity skills.

1. With a partner use a tablet or smartphone and search high and low for QR Codes that you can scan. Each code has a unique question that you must answer on your answer sheet. There may be more than one correct answer, so discuss with your partner before writing your answers. There is one answer sheet per team.
2. When finished, use the back of the answer sheet to write five of your own ESCEI scavenger hunt questions.
3. If time allows (and with your teacher's permission), create your own QR question code to print and post for other students to answer.

Optional Supplementary Activity

Have students generate their own QR codes using one of these free websites:

<http://www.qr-code-generator.com/>
<https://www.the-qrcode-generator.com/>

ESCEI QR Scavenger Hunt



ESCEI QR Scavenger Hunt

QR Code Answer Sheet

1. Name three types of personal information

Name, home address, telephone number, social security number, name of your school, your age, birthdate, family members personal information. Answers may vary.

2. How can you keep personal information safe?

You can keep personal information safe by not sharing personal information with strangers or posting information on websites or social media.

3. Should you share your password with a friend?

No, you should never share your passwords with anyone except your parents/guardians.

4. What information should you not share on social media?

You should not share any personal information such as last name, telephone number, birthdate, home address, what school you attend, social security number and information about your family members. Answers may vary.

5. How do you describe phishing?

Phishing is the attempt to obtain sensitive information such as usernames, passwords, and other personal information (and sometimes money), often for malicious reasons, by pretending to be a trustworthy entity in an electronic communication such as an email.

6. What are two types of malware and what do they do?

Virus – spread from machine to machine with the aid of a person

Worm – can infect and spread without human assistance

Trojan Horse – can cause computer crash and allow attackers to control a computer remotely

Other answers may vary.

7. How is a computer virus spread?

A virus is spread from machine to machine with the aid of unwitting humans. Email attachments, malicious websites or spoofed links, downloaded or shared files like “free” movies can all carry viruses.

8. Can computer worms spread without human assistance?

Worms do NOT need human assistance to spread. It scans networks and finds weaknesses to attack.

9. Why would a hacker use a Trojan horse?

Answers may vary.

10. Give two examples of brand name anti-malware and describe what they do for your computer

-McAfee, Symantec, AVG, Bitdefender, etc. Students may be familiar with other anti-malware brands.

Anti-virus software works by performing scans of all of a computer’s files for malware and if malware is found the software will alert the user and then remove the infected files.

11. What do firewalls do?

Firewalls block malware. Firewalls can be either a piece of computing equipment or software on a computer. They are designed to prevent unauthorized access to a computer.

12. What is a good combination for a strong password?

Strong passwords are ones that are very difficult for other people to guess. Passwords should use many types of characters, like letters, numbers and symbols (!, \$, &, etc.) because it makes them more complex for attackers to guess. Passwords should be long because more character mean more combinations attackers have to try to crack.

ESCEI QR Scavenger Hunt

Answer Sheet

Your Name: _____ Partner's Name: _____

Directions: With a partner use a tablet or mobile device and search for QR Codes that you can scan. Each code has a unique question that you must answer on your answer sheet. There may be more than one correct answer, discuss with your partner before writing your answers.

When finished, use the back of the answer sheet to write five of your own ESCEI scavenger hunt questions.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____



SECURING NETWORKS, SECURING FUTURES

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For more information on how to participate in the Air Force Association's CyberPatriot National Youth Cyber Education Program, visit www.uscyberpatriot.org.

