



CYBER SECURITY BOOT CAMP

Introduction to Cyber Security

Session 1



YELLOW CIRCLE INC
PO Box 2383
Elk Grove, CA 95759-2383

Teacher Lesson Plan

Introduction to Cyber Security

Session Name:

Introduction to Cyber Security

Summary:

Cyber Security is an increasingly in-demand field of Computer Science. In this session we will look at the major ideas in the fields of Cyber Security or Information Assurance. This is not a "hacking" class but we are looking at the ways that computers, programs, networks, and people are exploited by hackers and what we can do to prevent or minimize the damage caused by bad actors.

Time Allotment:

75 minutes

Learning Objectives:

- *Discuss ethical behavior in online context*
- *Ethical dilemma, gray areas*
- *Identify Ten Commandments of Cyber Ethics*
- *Describe a major hacking event*
- *Identify the vulnerability that led to the attacks*
- *Suggest ways to prevent similar attacks*

Supplies:

- *Scrap paper / notepad to take notes*
- *Laptop / computer with Internet access to research topics*
- *Ethics Statement for review and signature (print)*
- *Ten commandments (print)*



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Session 1
Page 2 of 6

Introduction to Cyber Security

Learning Activities:

- **(2 - 5 minutes) - Teacher Introduction**

Introduce yourself to students. Provide your name, industry experience, current job, fun activities you do, and something awesome about cyber security. This is session one, and a very good place to define some ground rules.

- **(2 - 5 minutes) - Volunteers Introduction**

Introduce volunteers that are present in classroom. Teachers will be provided with a quick bio of each volunteer who are helping in the classroom.

- **(5 minutes) - Session overview**

Students need to understand that the material learned in this class should not be used to access files, networks, or other property that they do not have permission to access. Lack of security does not imply permission.

Student activities introduce students to Ethics Statement, and Ten Commandments of Cyber Ethics.

As a class looking at how computers are exploited, we will be learning a lot of skills that could be used to access someone's computer or network without their permission. While all of these skills are easily learned on the Internet, it is important that we agree to respect private property and never access something without permission.

- **(5 minutes) - Ethics Statement**

Have volunteers pass copies of ethics statement to students

Ask students to read and understand Ethics Statement. Encourage questions from students. Get volunteers engaged in answering questions about Ethics Statement. Volunteers to collect signed copies of ethics statement from students

- **(5 minutes) - Importance of ethics in cybersecurity**



YELLOW CIRCLE INC
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Session 1
Page 3 of 6

Introduction to Cyber Security

Students need to understand that the material learned in this class should not be used to access files, networks, or other property that they do not have permission to access. Lack of security does not imply permission. Discuss each area of ethics statement with students, and make sure they understand prior to signing the statement. Inform students how important this statement is, and that everyone will get their signed copy back at the end of boot camp on Sunday afternoon. Once, everyone has read and has a common understanding of Ethics Statement, have volunteers collect signed copies from students.

- **(5 minutes) - Look at several scenarios about ethical situations**

- *What would you do?*
- *Did the people involved act ethically?*
- *Who was harmed in this interaction, who is the victim?*

- **(5 minutes) - Pass copy of "Ten Commandments of Cyber Ethics"**

Ask students to read and understand ten commandments. Encourage questions from students. Get volunteers engaged in answering questions about Ethics Statement.

- **(5 minutes) - Commandments activity**

- *Have students look at "Ten Commandments of Cyber Ethics"*
- *Students will pair up and each take one commandment.*
- *Create an example and non-example of this commandment. Present to the class*
- *Re-evaluate opening scenarios and describe what the ethical response is or is not appropriate.*
- *Link the behavior back to ten commandments*

- **(4 minutes) - Video - Cybersecurity 101**

<https://www.youtube.com/watch?v=sdpxddDzXfE>

- **(5 minutes) - Video Discussion**



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Session 1
Page 4 of 6

Introduction to Cyber Security

Let students ask questions about video, and engage them by asking them questions related to the video

- **(5 minutes) - Lab: First time login to laptops**

- *Quick safety talk about use of laptops*
- *Provide students with password to student account (password will be provided)*
- *Students will connect laptops to Wifi Internet*
- *Test connectivity by browsing to google.com*

- **(10 minutes) - Student group activity in pairs (2-3 students per group)**

In pairs, research one of the major hacking events of the past several years. In your research, identify several important ideas:

Who was attacked?

Who was the attacker (or who is thought to be if unclear)?

What was the motive (money, political, warfare, prank)

What was the result of the attack?

How can this type of attack be prevented in the future?

- **(5 minutes) - Major hacking events, presentation**

2010 - Stuxnet

2011 - PSN

2014 - Mt. Gox

2013 - Target Christmas Shopping Credit Card Data

2014 - Heartbleed Bug

2015 - Jeep Hacked

2015 - IRS hacked

- **(5 minutes) - Activity review / feedback**



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Session 1
Page 5 of 6

Introduction to Cyber Security

- *Discussion of hacking events*
- *Hackers gain a detailed knowledge of a computer or system then find vulnerabilities.*
- *Thinking of your own house, could you get in if you didn't have a key? What inside knowledge do you have of your own home that would allow access?*
- *What could you change to strengthen your home-security? Would the additional security be a benefit or a hindrance? For example, 10 locks would make your door more secure but would also limit your own access in a speedy way.*
- **(5 minutes) - Lab: Setting up PBS/NOVA Lab Account**
 - *Students will use computers / laptops for this part of the activity*
 - *Using laptop, students will browse to PBS / NOVA Cybersecurity Lab at <https://www.pbs.org/wgbh/nova/labs/lab/cyber/>*
 - *Right bottom corner, click on "JOIN" button under "Join NOVA Labs"*
 - *Students can use several different social login providers to set-up their account*
- **(5 minutes) Closing / Wrap-up**
 - *Ask students about different way to keep yourself safe online*
 - *What are some methods hackers use to gain unauthorized access to a computer or network?*
 - *What can we do as individuals to prevent this?*
 - *What should companies or governments do about hacking?*
- **(1 minutes) - What's next?**

Inform students to head back to cafeteria for snacks / break, and remind them to use restroom before next session starts.