



IT-Adventures
Objectives & Schedule

Module 1

Module 1 Agenda

- IT-Adventures Overview
- Cyber Defense Venue
- Initial Set-Up
- Program Schedule
- What is Cyber Security?
- To-Do List for Module 1

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Overview

Overview

- IT-Adventures is an extra-curricular program for high school students meant to spark interest in three technology-based areas.
- The three areas of focus (venues) include:
 - Cyber Defense
 - Robotics
 - Smart-IT

Overview

Program Goals:

- Garner interest in technology-related fields
- Increase enrollment of students in IT-related degree programs
- Provide students with the support they need to earn their degree
- Make IT fun!

Cyber Defense

Cyber Defense Venue

- Venue focused on developing an understanding of:
 - IT components, their operation, and their integrations within virtual systems
 - Basic cyber security tools and concepts
- Cyber defense venue will provide an opportunity for students to design, build and defend their machines in a cyber defense competition (CDC), during the spring semester.

Cyber Defense Venue

- Throughout the school year, students will:
 - Use cyber security concepts and tools on a virtual environment, simulating real-world systems and consequences.
 - Configure, analyze, break, fix, and defend their virtual machines.
 - Participate in a cyber defense competition that will test your team's ability to defend your machines given a real-world scenario.

IT Olympics & Cyber Defense Competition!

IT Olympics & Cyber Defense Competition!

Upon completion of the IT-Adventures program, students are invited to participate in the IT-Olympics!

What are the IT-Olympics?

- A one-day competition hosted by Iowa State University
- Showcases student knowledge through friendly, fun competitions and presentations
- Consists of high school teams throughout Iowa competing in the Cyber Defense, Robotics, or Smart-IT venues

IT Olympics & Cyber Defense Competition!

IT-Olympics is the main competition comprised of all three venues, the CDC is the main event of the IT-Adventures Cyber Defense Venue.

Cyber Defense Competition:

- Students are given access to virtual machines that are insecure by default. These machines and services must be patched and defended from the red team.
- Entire CDC has a common theme, referred to as the competition scenario.
- Participating in your school's weekly cyber club meetings will prepare you for the competition, no prior experience is required.

IT Olympics & Cyber Defense Competition!

Competition Scenarios

- Every year, students participate in a competition with a unique scenario
 - ISU2 CDC (2019) “The Connected Farm”
 - Hyperstream IT-O(2017) “Cops and Hackers”
 - ISU2 CDC (2017) “Online Sportsbook”
 - National CDC (2018) “Cyber-Physical Systems”

Initial Set-Up

Initial Set-Up

- To get the most out of IT-Adventures, ensure you have the time to:
 - Participate in IT-Club meetings
 - Complete the activities
 - Read the handouts
 - Attend the cyber defense competition, it's really fun!
- You will get more out of this experience if you:
 - Take the initiative with your learning; are a self-starter
 - Persevere and learn from your mistakes
 - Realize that patience is key!

Initial Set-Up

- It may be very helpful to have the following:
 - Have access to a computer at home and school
 - Have access to an internet connection at home
- Things to keep in mind:
 - All of the IT-Adventures material including the slideshows, activities and the virtual playground, can be accessed from anywhere in the world. All you need is an internet connection. Just in case you miss school for the day.

If you do not have access to a computer or the internet at home speak to a teacher or a representative from your school who may be able to help.

Initial Set-Up

Before we forget to remind you:

- Your parent or legal guardian must provide written permission for you to participate in the IT-Adventures program.
- No personal data, including passwords and/or schoolwork should be saved in ISELAB, the virtual cyber “playground”.
- **Do not** use playground resources to attack other IT-Club member systems, other schools, or other Internet connected systems. Be an agent of good, is what we’re getting at.

Program Schedule

Program Schedule

- This program will consist of weekly modules spread out throughout the school year.
 - Modules take about 1 hour to complete
- Modules will consist of:
 - Slideshows
 - Hands-On Activities
 - Videos
 - Check Your Knowledge! (worksheets)

Program Schedule

	Month & Week	Module	Content
Phase I	Sept. 6th	1	Module 1: IT-Adventures Objectives and Schedule
	Sept. 13th	2	Module 2: Information Technology Environments
	Sept. 20th	3	Module 3: Virtual Machine Setup
	Sept. 27th	4	Module 4: Navigating Linux File System
	Oct. 4th	5	Module 5: File Permissions and Network Tools
	Oct. 11th	6	Module 6: DNS and Directory Servers
	Oct. 18th	7	Module 7: Email and Firewalls
	Oct. 25th	8	Module 8: 7 Layers of Cyber Security & Vulnerabilities
	Nov. 1st	9	Module 9: Web Vulnerabilities
	Nov. 8th	10	Module 10: Network & Vulnerability Scanning
	Nov. 15th	11	Module 11: Catch up/play week
	Nov. 22nd		THANKSGIVING BREAK (no material)
Phase II	Nov. 29th	12	Module 12: Auditing and Remediation
	Dec. 6th	13	Module 13: Physical Security & Social Engineering
	Dec. 13th	14	Module 14: Catch up/play week (Fall Evaluations)
	Return from winter break	15	Review of important information and overview of what is coming up
		16	Practice Cyber Defence Competition
	March		Practice Cyber Defense Competition
Phase III			Practice Cyber Defense Competition
		17	CDC Overview and Details (Venue Evaluations)
	April		Competition Scenario / Setup Phase
			Competition Scenario / Setup Phase
			Competition Scenario / Setup Phase
	May		CDC Evaluation Due

What is Cyber Security?

What is Cyber Security?

Definition: The process of protecting physical and virtual assets from malevolent threat actors.

Threat examples: independent hackers, hacker groups or entire nation states.

- Cyber security is a billion dollar industry that employs large numbers of people to protect computers and their data.

Introduction Video



<https://youtu.be/qxSnY7Lmz0w>

To Do

- ❑ Activity 1: Securing Your Information
- ❑ Activity 2: Essential Terminology
- ❑ Review the Module 1 Outline
- ❑ Familiarize yourself with the Program Schedule
- ❑ Watch the [video](#) introduction!
- ❑ Come back to this slideshow if you forget anything logistical in the future!

End of Module 1

- What questions do you have for your educator regarding the Cyber Defense venue?

Next Module Topic:

Information Technology Environments!

Questions?

Contact IT-Adventures support staff!

email:

ita@iastate.edu

Your school's IP-Range can be found at:

<http://www.it-adventures.org/ip-ranges/>