Cybersecurity
UNIT OVERVIEW

Th **Cybersecurity** Unit is designed to provide a high- level and engaging introduction to networking and cybersecurity concepts. Each lesson is a combination of short instructional videos, cybersecurity games/simulations, and class discussion. Each lesson also includes a worksheet that can be used for assessment.

UNIT DETAILS

- Grade level: 5th-8th grade
- Length: 5 lessons (85 minutes each)
- Cost to implement: Free

MATERIALS

- Enough computers for at least a 2:1 student to computer ratio during class
- Internet connection strong enough to stream videos from multiple devices at the same time

HIGH-LEVEL LEARNING OBJECTIVES

By the end of this unit students will:

- Learn how computers exchange data over networks
- Learn how networks are designed to ensure reliability and efficiency
- Learn how clients (computers) communicate with servers to load web resources (videos, pages, etc.)
- Learn how servers can be vulnerable to attack and how these attacks have affected a number of real-world businesses
- Learn how web companies can ensure their infrastructure is able to withstand attacks

STANDARDS ALIGNMENT

- ISTE (International Society for Technology in Education)
- CSTA (Computer Science Teachers Association) – *coming soon!*

CompTIASpark.org

HOW THE CURRICULUM WORKS

Learn → Explore → Discuss
- This unit is built using a framework that allows students to learn about a concept through bite-sized videos, then explore the concept using hands-on activities and then discuss the concept through group discussions.   - All concept instruction is provided through short custom videos (under 5 min).

CyberSim
- The student activities in the unit include all levels of a custom-built, online interactive simulation game called CyberSim.   - All levels of this game are available online (Chromebook compatible) and without sign in.   - All levels are collaborative and are designed to be played in groups of 2-3 players sharing one computer.

UNIT PLAN

LESSONS

LESSON	INCLUDES	LENGTH	RESOURCES
1	- Introduction to unit - Student worksheet - Research cybersecurity careers 2 instructional videos 1 activity intro video (rules) 2 student activities	85 min	- Lesson plan - Slides - Worksheet
2	- Student worksheet 2 instructional videos 2 activity intro videos (rules) 2 student activities	85 min	- Lesson plan - Slides - Worksheet
3	- Student worksheet 2 instructional videos 2 activity intro videos (rules) 2 student activities	85 min	- Lesson plan - Slides - Worksheet
4	- Student worksheet 1 instructional video 1 activity intro video (rules) 1 student activity - Case studies	85 min	- Lesson plan - Slides - Worksheet
5	- Case studies - Presentations	60 min	- Lesson plan - Slides - Worksheet

Assessment

Each lesson has several opportunities for assessment, including:
- A student worksheet
- Class discussion questions

The unit also concludes with student presentations which can be used as a summative assessment opportunity.

Differentiation

- Each lesson contains student activities (CyberSim levels) that can be repeated and re-played multiple times to give students additional opportunities to learn.
- Each lesson contains self-paced videos with closed captioning to help students who are more visual/auditory learners, and learners who may need to replay the videos more than once.
- The unit can be spread out over a longer period for students who need more time.