



**Computer Science Virtual Learning**

# **PLTW Computer Science Principles**

**May 1, 2020**



# **Lesson: May 1, 2020**

## **Security By Encryption**

### **Learning Target:**

**The goal of this lesson is for students to personally invest in maintaining online security and to improve their personal cybersecurity hygiene. Students focus on cybersecurity from the perspectives of the user, the software developer, businesses, the nation, and the citizen. In the team competition at the end of the lesson, students explore parallel strands in encryption and security. Encryption is used as a route to explore the efficiency of algorithms and how the time required for an algorithm to execute can depend on its input.**

**Yesterday we started working with RSA Encryption. Some of you might have learned that it might be time to change your password on some of your accounts! The Internet is a wealth of information of you are interested in cybersecurity. Check out this Code Break Lesson with special guest Ashton Kutcher on [Code.org](https://code.org) and take a deeper dive into Encryption before jumping back into 2.3.2 Security and Encryption. You could really boost your Cyber Hygiene!**

## Practice

Today we will be working on Part 2 part of the Security and Encryption Activity. We will be talking about Time Complexity. Watch this video for a deep dive in the subject:





## Practice: Security By Encryption

Click on this [link](#) to open and make a copy of the activity. Source files and presentation resources are hyperlinked into this document. You will be working with Repl.it to execute your Python programs. If you would like a review on creating a Python workspace in in [Repl.it](#).click [here](#).



## Conclusion: Security By Encryption

**As we wrap up our Security and Encryption Activity, consider these concluding questions. Write your answers in your notebook. Click the link below the questions to compare your answers:**

**What is the difference between theoretically and empirically analyzing an algorithm?**

**[Compare your Answers here](#)**

**Why does Internet security depend on processing speed and the time complexity of algorithms?**

**[Compare your Answers here](#)**

**Creating a new and more efficient algorithm for a common problem like searching, sorting, aligning, encrypting, or factoring can be a tremendous discovery. Why?**

**[Compare your Answers here](#)**