

STEAM Year 9 – Cybersecurity

Completion date:

You will learn about:

- What Cybersecurity means
- How a computer network operates
- How encryptions works
- How to stop the hackers

STEAM SKILLS

- Analysis
- Understanding of tools
- Logical Reasoning

You will do this by investigating in depth how it is possible for hackers to manipulate and trick their way into computer systems to commit crime. As everything is now connected to the internet the rise in jobs in this area is massive. You will of course need to understand how a computer network operates so that you can protect it!

<p>Lesson Overview</p> <p>Lesson 1 – Intro to Cybersecurity Understand what the rules of engagement are. Learn about Malware and Social Engineering issues.</p> <p>Lesson 2 – Network Hardware Know what a network is and how different devices connect together to allow computers to communicate.</p> <p>Lesson 3 + 4 – Packet Tracer Learn how to create a network using a network simulator and actually set up computers with IP addresses so they can communicate.</p> <p>Lesson 5 – Data Packets and DNS Learn about how website addressing works and how a hacker could trick the system to going to the wrong location.</p> <p>Lesson 6 – Encryption Learn about how messages are kept secret and how it might be possible to still read the messages.</p> <p>Lesson 7 + 8 – How to prevent and stop the hacker. Find out about methods used to identify hackers and stop them.</p> <p>Lesson 9 – Review and research in depth At the end of the unit, you will have a chance to review what you have learned and improve some of your skills or investigate a particular area in depth.</p>	<p>Key Words</p> <p>Packet Tracer Hub Switch Router Fibre Optic Cat 5/6 Wifi Encryption Pentester Hacker DNS DHCP IP (v4 and v6) Risk Asset Malware Trojan Worm Virus Ransomware Spyware Adware Social Engineering Blagging Shouldering Phishing Pharming</p>
<p>Suggested reading or support available</p> <p>Look in your OneNote library where I will put references and links. YouTube!</p>	<p>Cross curricular</p> <p>Literacy links</p>

SUCCESS CRITERIA

Highlight your starting point for each skill in **PINK**, at the end of the project highlight where you think you got to in **BLUE**.

Grade Range	Analysis	Understanding of tools	Logical reasoning
0	I presented no work.	I presented no work.	I presented no work.
1	<p>WWW: I can say what the task to be solved was.</p> <p>EBI: I need to understand the problem in more detail.</p>	<p>WWW: I know which tools or software to select and can use them for basic tasks safely (with hand tools or computer software).</p> <p>EBI: I need to be able to choose the correct tools (hand tools or software) and understand the risks.</p>	<p>WWW: I understand some of the cause and effect in my work.</p> <p>EBI: I need to try to work out what the other possible choices and results could be in the task.</p>
4	<p>WWW: I can identify the task and individual problems to be solved with some help.</p> <p>EBI: I need to break the problem down into parts and describe how the parts are linked.</p>	<p>WWW: I can select the correct tools (hand tools or software) and know the risks of that tool.</p> <p>EBI: I need to expand my knowledge and features of different tools (hand and software).</p>	<p>WWW: I clearly understand cause and effect and use them as I work. I make predictions whether something will or will not work and test my hypothesis out.</p> <p>EBI: I need to ensure that I cover more\all possibilities when I test or try to solve my problem..</p>
6	<p>WWW: I can independently and accurately identify the various problems within the overall task.</p> <p>EBI: I need to make sure that I have carefully and in detail examined all possible parts of the problem.</p>	<p>WWW: I can make good choices in my selection of tools (hand tools and software) for safe and efficient use. I have a good understanding of their purpose.</p> <p>EBI: I need to expand my knowledge and purpose of a wider range of tools and equipment so I can work more effectively.</p>	<p>WWW: I can apply clear logic thinking as part of my problem solving and regularly rely upon this to know whether something is likely to work or not. I can identify faults effectively.</p> <p>EBI: I should make sure that I work out the logical opposites to my work and use them to aid testing and fault finding.</p>

WWW: I can analyse the problem(s) thoroughly and can give a comprehensive and accurate description of each problem to be solved within the overall task.

WWW: I know the pros and cons of different tools (hand tools and software) and can make clear decisions on which to use for safety and efficiency. I have an excellent understanding of how they work and their capabilities.

EBI: I can expand my knowledge and understanding of tools (hand\machine and software tools) that are used in the real world.

WWW: I use logical processes and arguments to confidently ensure an efficient solution is found. I use logic for fault finding frequently and successfully. I understand that inverse operations are used for checking and proof.

EBI: Make use of logic tables to prove and test more advanced ideas or concepts.