

# PLTW GUIDANCE – COMPUTER SCIENCE

This document has been prepared by a former Project Lead The Way Master Teacher to support high school Computer Science teachers in implementing the STEM Week Challenge with their students.

## Why this Challenge?

Considering career opportunities in Computer Science can be overwhelming for some students given the variety and quantity of positions. Career exploration is incorporated in different ways across the PLTW Computer Science pathway courses. STEM Week Challenge deepens the student experience by giving students the opportunity to not only explore careers but to also build networking and relationship-building skills that are crucial for life after high school.

## PLTW Pacing Guidance

The following are PLTW activities and projects that could be shortened or cut if you need to build in time for the STEM Week Challenge.

Course	Potential Activities to Skip (est. time)
Computer Science Essentials	<ul style="list-style-type: none"> <li>Activity 3.2.1: Careers, Innovations, and Ethics in Computer Science (~4 days). <i>Note: The resources included in the lesson can be incorporated into research students will do for STEM Week. And the innovations section is another great jumping off point for students looking for something that might not fall into the traditional careers.</i></li> </ul>
Cybersecurity	<ul style="list-style-type: none"> <li>Activity 3.2.1 Where Can I Learn More About Cybersecurity (~2 days). <i>Note: the research questions in the activity can be incorporated into students' STEM Week research. Search criteria help students who might be stuck.</i></li> </ul>
Computer Science Principles and Computer Science A	<ul style="list-style-type: none"> <li>Consider cutting projects at the end of lessons that lead into the unit problem and move directly into the problem if your students are ready.</li> </ul>

## Modified STEM Week Schedule

If you have limited time in your Computer Science class(es), you may want to find opportunities to reduce the instructional time spent on the STEM Week Challenge. The following calendar provides an approach for streamlining the first five days of the project, encouraging students to choose a computer science career to explore (see list below).

Key: <span style="color: red;">Red</span> = cut activity <span style="color: blue;">blue</span> = add activity <span style="color: yellow;">yellow</span> = do as homework					
Project Day	Day 1 Project Launch	Day 2 Career Exploration and Research	Day 3 Focus on Networking	Day 4 Making Industry Contacts	Day 5 Product Review
Modified Day	Day 1	Day 2		Day 3	Day 4
<b>Modified Activities</b>	Gallery Walk And need-to-Know List  Project Information Sheet	<span style="color: yellow;">Career Coach Survey</span> <span style="color: red;"><del>Career Sprint</del></span> <span style="color: blue;">Shorter career sprint to choose from pre-set list (below)</span>  <span style="color: red;"><del>Networking video</del></span>  Network Mapping <span style="color: red;"><del>Team Formation and agreement</del></span> <span style="color: blue;">Teachers pre-set groups in advance</span>		Draft, Revise, and Send Industry Contact Emails	Industry Interview Prep  Product Review  Team Work Time

Implement Days 6-10 as written in the STEM Week Challenge materials.

## Related Careers by Course

<b>Computer Science Essentials</b>	<ul style="list-style-type: none"> <li>• Education software developer</li> <li>• Hardware/software engineer</li> <li>• Activist &amp; social progress supporter</li> <li>• Self-driving car developer</li> <li>• Human-Computer Interaction (HCI) and Artificial Intelligence (AI) researcher</li> <li>• Epidemiology and bioinformatics</li> <li>• Software development</li> </ul>
<b>Cybersecurity</b>	<ul style="list-style-type: none"> <li>• Network Security Research and Development Specialist</li> <li>• Ethical hacker</li> <li>• Digital Forensics Investigator</li> <li>• Crime Scene Specialist</li> <li>• Security Consultant</li> <li>• Network Administrator</li> <li>• System Administrator</li> <li>• Computer Scientist</li> <li>• Electrical engineer</li> <li>• Security software developer</li> </ul>
<b>Computer Science Principles</b>	<ul style="list-style-type: none"> <li>• Software engineer</li> <li>• Robot programmer</li> <li>• Graphics programmer</li> <li>• Psychology and linguist app developer</li> <li>• Video imaging</li> <li>• Data scientist</li> </ul>
<b>Computer Science A</b>	<i>With CSA being focused on learning one language in depth, students should be encouraged to explore their own interests and can explore careers from the other courses, if needed</i>

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## General Curriculum Connections

In order to connect the career exploration students will do in the STEM Week Challenge more closely with their Computer Science Courses, consider the following strategies:

- ✓ Utilize the following **Professional Practices** (located in General Student Resources) to supplement aspects of the STEM Week Challenge project for students who need more help: Professional Communication (could supplement or supplant resources on Day 4), Providing Peer Feedback (could replace the Tuning on Day 8), Professional Networking, and Delivering Effective Presentations.
- ✓ Direct students to supplement their research with **PLTW's Career Profiles**, in-depth profiles of individuals in related fields that are linked in the Career Connections sections of PLTW's student materials.