

Computer Science Principles (CSP) Syllabus

Overview:

This course is a survey of computer science, which means we will look into many different areas of computer science without getting really deep into any of them. This will give you an idea what many of these areas are like. The goals of the class are to get you a little bit of experience in many areas and hopefully make you want to learn more after you finish.

CSP Priority Standards

- Create and refine computational artifacts
- Create applications that connect to the internet
- Communicate descriptions of computational processes
- Write, test, and revise computer programs
- Organize, analyze, and communicate data using computational tools

CSP Subject Areas

<p>MIT Scratch:</p> <ul style="list-style-type: none">• Introductory programming – graphical interface• Create stories / games <p>MIT App Inventor</p> <ul style="list-style-type: none">• Graphical programming interface• Create Android apps <p>Python:</p> <ul style="list-style-type: none">• Text programming (loops, variables, functions, conditionals, etc)• Image libraries• Graphic user interfaces• Cryptography intro	<p>Web:</p> <ul style="list-style-type: none">• Create simple webpages (HTML)• Design the look of webpages (CSS)• Make webpages interactive (JavaScript)• Server side programming (PHP)• Store data online (SQL database) <p>Data:</p> <ul style="list-style-type: none">• Access and manipulate various forms of data, such as numbers, text, and image data <p>Simulation and Modeling:</p> <ul style="list-style-type: none">• Use software to observe and model scenarios in ecology, epidemiology, and more
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If you are new to programming:

- You will do fine! We start from the very basics, and no prior experience is needed. You might be surprised how much you can do in a short time.

If you have programming experience:

- Novice programmers will be freaked out if you act like everything is super easy. Be sensitive to that.
- Challenge yourself when you choose your goals for assignments and projects.

LMS (Learning Management System)

- Some projects and homework will be turned in on the LMS.
- Most of the content you use will be on nemoquiz.com rather than the LMS.
- We will occasionally use content from mypltw.org (official curriculum) – teacher provides sign on info.

College Credit:

CSP students are dual enrolled at both Linn-Mar HS and Kirkwood Community College for free college credit. Note that this grade appears on a college transcript, so getting a decent grade is highly recommended.

Absences

- It is your responsibility to check with the teacher to see what you missed.
- For extended absences, talk to your teacher to work out a reasonable schedule for turning in makeup work.
- You and your partner are responsible for sharing files so the absence of one partner will not cause the other partner to waste a block of work. If you do find yourself without the files you need, it is your responsibility to either start over from scratch or work on a separate aspect of the assignment and not waste a block waiting for your partner to get back to school.

Late Work

- Late work is accepted, but this causes you to have two projects to finish at the same time. That can put you behind and make it difficult to catch up. If you fall behind, you need to find extra time outside of class to catch up as quickly as possible.
- PowerTeacher grade book will be updated to show if you are falling behind.
- Getting behind in this course is problematic, because it moves quickly. It can be hard to catch up when the class is programming in one language and you are catching up on another project in a different language.

Work Completion / APB Framework

PLTW assignments include Activities (A), Projects (P), and Problems (B). Activities are daily assignments with step by step instructions, problems are much more open ended, and projects are in between.

Students must complete all major **projects** and **problems** and assignments to pass the class. The **activities** will be graded for for completion or points in the online gradebook, but missing one of those does not prevent you from passing. The purpose of activities is to help students learn the skills they need to be able to complete the projects and problems.

Class Time Use

You will fall behind if you waste class time. If you find yourself doing nothing in class, that should make you uncomfortable. We have a lot of things to learn during the semester. If you ever think you are done with your project, remember that it takes years to become a good programmer. Keep learning new things and getting better at it.

Partner Work Expectations

- Actively work to include your partner in the work processes. If your partner isn't doing anything, you are part of that problem. Find ways to work as a team.
- Actively work to pull your weight in the group, including doing the reading, providing ideas, running the computer, asking questions, tracking big picture assignment goals and requirements, and staying productive.
- "Actively" means it requires a consistent, conscious effort to make these things happen!

Final Exam

Project Lead The Way (PLTW) provides an End of Course (EOC) exam. We will do the exam, but it will not count as part of the second quarter grade. The exam is required for all students. Students who score at least 6 on the stanine (1-9 scale) score system will be eligible for transferrable college credits from Kirkwood.

Academic Honesty

Turning somebody else's code and representing it as your own is plagiarism. It is cheating. Copied work does not demonstrate your learning, so it will result in a proficiency scale score of 0 ("not attempted") and you will need to produce some other assignment to demonstrate that learning. Plagiarism will result in a percentage reduction for your final grade for the quarter.

If you can't figure out a program, the smart thing to do would be to get some help. It is often *less time consuming* to do it right than it is to convincingly cheat. It's pretty fast and easy to **unconvincingly** cheat, but it's also pretty easy for your teacher to identify that type of cheating.

If you decide that you are genuinely interested in learning how to do the things we study in this class, cheating starts to seem pretty pointless. I recommend that line of thinking.

Appropriate Computer Use

- Hacking school computers and network systems is a very bad idea. School administrators have no sense of humor about it, and if caught you will be unpleasantly surprised by how much trouble you can get into.
- Avoid wasting time (games, social media, web browsing, etc).
 - If you are finished with everything, find a fun personal project and tinker with it or help other people.
 - If you are stuck, find some resources (website, other people, etc) or try something you haven't tried yet.
 - If you are having trouble focusing, try some strategies to get yourself focused again.
- Do not access inappropriate content.
- If you violate computer use policies, you will lose your computer privileges for some amount of time depending on what you did. That is a big problem for a computer science student, so do not put yourself in that position.

Grading

Priority Standards / Proficiency Scores: 50%

Project + Assignment Points: 50%

For project grading, this course will use a combination of a points score and a proficiency score. The proficiency scales are intended to represent learning rather than work completion. The goal is for students to think about their learning goals instead of thinking about points.

Important: you are passing the class only if you have all major assignments turned in, even if your percentage grade is greater than 60%.

This course has five priority standards, and a student's proficiencies in those standards are combined to form a final grade for the standards portion of the grade (50%). The most recent three standards grades are combined for each standard, then the five standards are combined to form that portion of the overall grade.

This grading system will prioritize learning over point calculations and work completion. The downside is that it can lend itself to procrastination, so you will need to use the following tools to make sure you are keeping up:

- 1) Use the LMS to check what assignments are due.
- 2) Look at the proficiency scores in PowerSchool to see where you need to focus your learning efforts.
- 3) If you see that you are missing assignments in PowerSchool, get them caught up.

The following conversion scale will be used to convert your proficiency average to a final percentage grade:

Proficiency Score	4	3.5	3	2.5	2	1.5	1	0
Percentage	100	95	90	80	70	65	60	50

A weighted proficiency average of 2.625 will result in a grade of 82.5%, which rounds up to 83% (B).

A weighted proficiency average of 3.25 will result in a grade of 92.5%, which rounds up to 93% (A).

A weighted proficiency average of 3.85 will result in a grade of 98.5%, which rounds up to 99% (A+).