TECHGODDESS INNOVATIONS

Trimester Projects

CS Influence I: Do a search of a field and computer science. Think of a field that isn't normally associated with Computer Science. Such as computer science + archaeology or computer science + farming. Find someone in that field and asks them the question: What are current innovations that involve CS and this field? (Remember/Understand)	Cyber Security I: How can one protect themselves? Research and explain common cyber attacks. Develop a list of tips and tricks that students can use to help protect their cyber information. (Understand/Apply)	Machine Learning and AI I: Many people believe if they don't use Siri or have an Alexa at home they do not interact with AI. People also know that AI is involved in facial recognition. Research AI's other common uses that most people don't know. Explain how AI is being used. (Remember/Understand)
CS Influence II: Why do you learn Java? Where is currently being used? Research how java is used in the real world. In addition, research 2 other programming languages and their uses. Determine the benefits and drawbacks of these languages. (Evaluate)	Cyber Security II: Log on to Go CyberStart to try your hand at some cybersecurity challenges. Explore at least 3 items that you would share with others regarding cybersecurity. (Understand/apply)	Machine Learning and AI II: AI Explorables. Walkthrough each of these interactive tools that explain some big ideas of Machine learning. Look at collection, fairness, bias, diversity, and data leaks. How can you help others understand this information? (Understand/Analyze)
CS Influence III: Faces of Computing. Did you an African American created Video Cartigrides, a woman created the first compiler, and an African American woman laid the groundwork for GPS? Research who are the current figures in computing that are being underrepresented.. (Remember)	Robotics I: Robotics is a field of CS where a machine is created to help humans. Research the main components of Robotics and its uses in modern-day life. How is robotics changing society? (Remember/Evaluate)	Robotics II: Internet of Things(IoT) is more and more popular. Research and explain the IoT. How is this related to robotics? What are key factors that people should know regarding the IoT? (Understand/Apply)
Bonus Choice: Ethical Computing Computing has changed quickly over the past 25 years with the birth of the Internet and the World Wide Web. Information is at our fingertips, data is being collected at an enormous rate, and machines are all interconnected. What are some ethical responsibilities for computer scientists as items are being created and designed? What are some ethical computing responsibilities of users? (Evaluate)		

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Details:

You must choose one box each trimester to complete and you can not repeat a box.
Your computational artifact can be:

- An animation (Scratch/Tooncastic) (Logical-Mathematical/Linguistic-Verbal)
- A digital book (Book Creator) (Linguistic -Verbal, Inter-Personal)
- A Poster (Adobe Illustrator) (Visual-Spatial)
- Infographic (Adobe Illustrator) (Logical-Mathematical)
- A video (Adobe Spark/ iMovie) (Kinesticic Learner)
- Comic Strip (Illustrator/Canva) (Visual-Spatial)
- Record your own song (Musical Learner)
- Interactive Google Slides (escape/break out room, jeopardy game) this **cannot** just be a presentation. (Interpersonal Learner, Logical-Mathematical)
- Submit your own computational artifact idea (Naturalistic Learner)

You must design a new computational artifact each trimester as well. In other words, you can not design three posters. You may choose a poster, a comic strip, and a video. (This is an example)

Timeline:

Your box choice must be decided by the end of the second cycle of each trimester. Your computational artifact decision should be made by the end of cycle 4 of each trimester. The completed work is due at the end of cycle 6 of each trimester.

Reflection

You must submit a 1-page single-spaced reflection on what you learned by doing this project. You should not rewrite the information you use for the artifact. This should be your reflection of your understanding of the material and the technology tool you used. You should discuss why you choose the method and topic, what you learned, what you found interesting, what you found challenging, and any other comments you want me to know about your process.

Notes:

These products will be seen by members of our community. Please design for the understanding of a person who might be new to computer science, assuring you are defining terminology. The Bonus you can assume they are not new to CS. Please READ the rubric for more details on the assignment.

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Reminder:

Please use reputable sources, do not just google. Start with resources from our Library Page. Please remember to use proper MLA Citations for work that is not your own. This may be information, images, music, video, or code.

Research:

You may have noticed I am looking for you to research in a variety of ways. This can be done by looking at the following choices. Your information does not just need to come from books or articles, think of the variety of modes that are available for you to get information.
Choose three of these below, or use your random die generator size nine to make the choice for you! When you see research from now on think of the variety of different modes you can get information (In order to get fluency you must be using one from the third column)

I: Visual/Spatial Watch a video. This can come from Netflix, Amazon, Hulu, Youtube, Cable (PBS, National Geographic) Again making sure it is a documentary /reputable source.	II: Linguistic Read an article regarding the topic. (Use the school's web resources or others provided)	III: InterPersonal: Talk to an expert in the field. (This can be done over video chat, Twitter, email) Documentation or recording of at least one voice must be provided.
IV: Mathematical/Logical Find data that explores the topic or find big data that is being collected by that field.	V: Free Space Choose a second one of the 8 choices, or think of one I didn't come up with.	VI: Naturalistic: Find an organization/business that is related to the topic. Learn about them. From their site and other places. If they are close can you visit/shadow them? Can you talk to a member of the company about the business (Note this is different from an expert)
VII: Mathematical/Visual Find an infographic that explores the topic.	VIII: Intrapersonal: Reflect on why you chose this field. What do you hope to learn about the topic?	IX: Musical Listen to a podcast regarding that topic (Apple Podcasts, Spotify are good places to search)

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Rubric:

	Fluent	Proficient	Approaching	Beginning
Understanding of Concept	Produces work that demonstrates a high degree of progress toward the application of skills and content related to the topic. Shows thought and insight that goes beyond just research.	Produces work that demonstrates recognition of key skills and concepts related to the topic. Indicates a solid understanding and shows a good grasp of the concept. Can apply some information that they learned.	Produces work that demonstrates recognition of some of the key skills and concepts related to the topic. Work is not completely developed and shows some gaps in the material. The student has not reached a level of applying the information consistently.	Produces work that does not demonstrate that they recognize basic skills and concepts related to the topic. Work is not developed and does not indicate an understanding on the part of the student. The student has not reached a level of applying skills and concepts related to the standard.
Computational Artifact Originality (6-12 creativity, n.d)	uses ingenuity and imagination, going outside conventional boundaries when shaping ideas into a product. The product is new, unique, surprising; shows a personal touch. May successfully break rules and conventions, or use common materials or ideas in new, clever, and surprising ways.	Uses ingenuity and imagination, inside conventional boundaries, when shaping ideas into a product. The product is new and shows a personal touch. May show a tentative attempt to step outside rules and conventions, or find new uses for common materials or ideas.	shows some imagination when shaping ideas into a product, but may stay within conventional boundaries. Has some new ideas or improvements, but some ideas are predictable or conventional.	Reproduces existing ideas; does not imagine new ones. Relies on existing models, ideas, or directions; it is not new or unique.

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Computational Artifact Style (6-12 creativity, n.d)	Is well-crafted, designed with a distinct style, and appropriate for the purpose. Combines different elements into a coherent whole	Has interesting touches, lacks a cohesive style or style that does not match its purpose. Has excessive elements that could have been refined.	Safe and ordinary. Some elements are hard to read or understand. Has one or two elements that do not fit together.	Safe and ordinary; has several elements that do not fit together. It's a mish-mash. Hard to read or understand.
Reflection (6-12 critical, n.d)	Can clearly explain new understanding gained in the project and how it might transfer to new situations or context. Justifies the computational artifact choice and gives a valid reason for it with supporting information. Justifies choices made for the design of artifact and topic information giving valid reason and supporting evidence. Can explain advantages, and disadvantages of choices, and explain risks they took with their learning.	Can explain new things learned in the project, but not clear about new understanding. Justifies the computational artifact but lacks supporting evidence. Discusses the design of artifact and topic but does not fully provide reasoning or supporting evidence. Can explain advantages and disadvantages of choices, explains challenges they had with their learning but not necessarily risks taken.	Can explain some items learned but does not provide insight to the understanding. Does not consider alternative choices that could be made for the computational artifact. Reasons for choices are not all valid reasoning for the topic. Struggles to explain their own understanding of the project. Can explain advantages but not disadvantages of choices, explains challenges they had with their learning but not with risks taken.	Cannot explain the important new understanding gained in the project. Cannot explain choices in the creation of the computational artifact. Does not consider any other alternatives for choices, just lists what they did and is not a true reflection of work. Might be able to explain one of the following: advantages or disadvantages of choices, challenges they had during the project. Does not recognize any risks taken.
References and Fair use (6-12 creativity, n.d)	Finds one unusual way or place to get information (adult expert, community member, business or organization, literature). Completes citations on both a reference page and in-text as needed. Utilized fair use guidelines appropriately.	Utilizes typical sources of information. Completes citations on both a reference page and in-text as needed. Mostly uses fair use guidelines appropriately, minimal (one or two) errors.	Use Typical sources of information, one may be a questionable source. Provides a reference page but no in-text citations. One or two errors with fair use guidelines.	Few Sources of information are questionable. Does not provide in-text citations, or reference page. Does not follow fair use guidelines three or more errors.

References

Bucks Institute for Education. (n.d.). *6-12 creativity innovation rubric non-CCSS* [rubric]. PBL Works. Retrieved July 11, 2021, from https://my.pblworks.org/resource/document/6_12_creativity_innovation_rubric_non_ccss

Bucks Institute for Education. (n.d.). *6-12 critical thinking rubric non-CCSS* [rubric]. PBL Works. Retrieved July 11, 2021, from https://my.pblworks.org/resource/document/6_12_critical_thinking_rubric_non_ccss