# Purpose:

In grade 12 we explore some exciting computer science topics, but a lot of them are considered ‘classical’. Although ‘classical’ they are constantly evolving and getting a glimpse of some to the ‘new’ cutting edge tech. advancements can be fun.

# The Assignment:

In this assignment you are to research, report, present, and write up 10 questions and answers that could be given on a quiz based on an advanced, emerging, socially relevant, environmental, ergonomic, ethical issue or career related topic that has been influenced by Computer Science.

# Research:

It is strongly recommended that you you’re the Virtual Library and anything in our Library too to help you research your topic. As this is primarily a research –based assignment, bully cited sources are expected in APA standard. ***Note: Wiki’s are not considered a valid resource.***

# Your Report:

It should be at least 4 pages, but no larger than 6, double spaced, 12 point font. Citations, title, table of contents should be included, but do not count in the 4 pages. The report should be broken down into key sections. While these might vary by topic, generally they will include; overview, impact on society/environment/relevance/future possibilities, technical details.

You will hand in your report, your presenting materials and questions to the appropriate Google Classroom Assignment folder AT LEAST 24 hours prior to your presentation or quiz on the last day before March Break.

Power point/prezi presentations are discouraged. A video 3 minutes in length, a game, a Rick Mercer type rant, a Kahn-style video, or just you are some of the options available. Your goal is not to communicate all the technical details, but give the viewers a functional knowledge in an entertaining way. The format is up to you.

Note: **This is not a “fluff” assignment. This is ¼ of the written curriculum.** Choose your topics wisely you should choose a topic that you can actually acquire some technical knowledge and expertise, yet some of these are difficult concepts and you are not required to be an expert. Choose wisely.

There are 11 topics and therefore no more than two people may choose any topic. We will choose topics in the most fair way possible, assuming everyone is in class.

Topic Areas and suggested ideas:

Here is a link to the Curriculum, you may look up the topic for clarification:

<http://www.edu.gov.on.ca/eng/curriculum/secondary/computer10to12_2008.pdf>

D1.1 – Environmental Issues (recycling, impact of recycling or not, impact on human health and environment and lesson impact of computers on society.

D1.2 – Governmental, Community and Company Issues (from rules and regulation to lobbying and choice promoting and supporting sustainability.)

D2.1 Ethical Practices related to computer use (ID theft, cyberbullying, privacy, cyberbullying, lousy compression, mobile computing, travelling salesman, neutral networks, encryption/decryption)

D2.2 Code of Ethics for Computer programmers (what is lacking, needing added, what should be rewritten or removed with emphasis on ACM, IEEE and other standards – explain why there is a need for such codes (e.g.; KeyGens, Cloud computing, Hacking 101, Traffic control, real-time programming etc.)

D2.3 Outline and apply strategies to encourage ethical computing practices at home, school and the workplace.

D3.1 Emerging Tech – what is it’s impact on members of society, societies and cultures of the world and the economy (have vs not, Chromebooks for all, WiFi hubs etc.)

D3.2 Emerging Tech – everything new (VR, Quantum Computing, Microcontrollers, persistence, Mobile computing, devices, sports, etc.)

D4.1 Collaborative Research - computer Science and \_\_\_\_\_\_\_ (bioinformatics, geology, linguistics, biophysics, dynamic programming, AI, health informatics, climatology, society, neutral networks on the basis of information found in industry publications{ ACM IEEE}.)

D4.2 topic in theoretical computer science (topics like graph theory, big data, logic computability theory, data mining, AI, robotics, computer vision…)

D 4.3 – Careers in CS field, include post-secondary requirements for these careers too. (Choose a field that is not computer science or technology related (e.g. literature, forestry, etc.)). Find out how computer science has influenced, and has changed, that particular field. For example, in the arts, animation has been monumentally changed by computer science. (Cannot use this as a topic).

D4.4 How have you evaluated you Essential Skills and work habits – do they help with success. (OSP site)

You can complete this report in any format of your choosing. Be prepared to discuss your work and present-to-the-teacher the information that you have found. Be prepared to answer difficult questions, including evaluating your own work habits relating to the Essential Skills in (4). Also, understand all of the acronyms in your presentations.

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| **Overall Success Criteria (through questions)** | **Learning and Improvement Comments** |
| I can comprehensively investigate or communicate about a topic of theoretical computer science |  |
| I can explain the impact of the topic on societies and cultures around the world |  |
| I can explain the impact of the topic on local and world economies |  |
| I can explain the impact of the topic on the environment |  |
| I can investigate and analyze an ethical issue that could propagate from the development or implementation of this topic |  |
| I can propose strategies to encourage ethical practices related to the computer science topic |  |

Rubric to Follow for Reporting:

|  |  |
| --- | --- |
| Requirements | Marks |
| **Cover page: (Title, Name, School, Course, Teacher, Date)**  Table of contents (sections, appendices, with page numbers) | C-5 |
| **Layout:**  Introduction, key sections, conclusions | C-5 |
| **References:**  All facts are cited consistently (APA)  A minimum of 3 **credible** references required. Wiki’s are NOT a credible reference for this work. | C-5 |
| **Mechanics:**  Sentence structure, grammar, font, etc.  \*All projects may be run through a plagiarism checking program | C-5 |
| **Content**  Each section has appropriate depth of information  Report demonstrates key understanding of topic  Report contains a technical description of the computer science behind it.  Images/Diagrams used to communicate and promote understanding of topic, not merely there to break up text | K-15 |
| **Connections**:  Make connections to Society, Environment, Ethics, Potential Applications, Career  Makes connections to Computer Science | T-10 |

**Presentation/Image/Product for Class**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Topic | Level 4 | Level 3/2 | Level R/1 | Marking |
| Content correct and informative and addressed target audience | Explained and defined the issues well and target audience addressed | Information present but not explained well; audience present | Not correct / not relevant; audience unclear | K  0-5 |
| Ideas organized and sequenced well | Ideas well organized and sequenced in a meaningful manner | Ideas organized slightly and/or not sequenced well | Ideas not organized and not understandable | A  0-5 |
| Visually appealing, appropriate layouts/fonts/nuggets | Visuals enhance the overall look and feel of the flyer | Appropriate use of visual principles such as colour, text, banner etc. | Visually not appealing | A  0-5 |
| Images chosen related to content and overall look of the product | Images relate to the help to illustrate the content and add to the overall look of the product | Image(s) relate to and help to illustrate the content | No images chosen for product | A  0-5 |
| Length and style | Video/Visual met length requirements presented with finesse, memorized or knew topic thoroughly | Video/Visuals met length requirements, presented adequately with some difficulties (ticks, reading, voice, etc.) | Video/Visuals short, presented poorly ( mumbling, too fast etc) | C  0-5 |
| Links Technology with Environment, Society, Ethics, Applications, Career | Expertly links topic to at least 2 | Some links made, with some explanation/Detail | Little or no links made beyond technological details | T  0-5 |

Knowledge /20 Think. /15 App. /15 Comm. /25