**Level 1: Charles Babbage & Ada Lovelace**

1. Who was Charles Babbage?
   1. When and where was he born?

* December,26,1791
* London,UK
  1. What was his main contribution to computer science?
* Babbage originated the concept of digital programmable computers

1. What is the "Difference Engine" proposed by Charles Babbage?
   1. What did it do?

* is an automatic mechanical calculator designed to tabulate polynomial functions
  1. How did it work?
* To calculate mathematics you have to crank the machine.
  1. How was it similar to modern computers?
* It uses computer programming to function the program.

1. Who was Ada Lovelace?
   1. When and where was she born?

* 1815, December, 10th
* London,UK
  1. What was his main contribution to computer science?
* Mechanical general-purpose computer
* The- Analytical Engine
  1. What is the computer language that is named after her?
* “Lovelace”

1. What is the "Analytical Engine" worked on by Ada Lovelace?
   1. What did it do?

* It would be able to perform any calculations set before it
  1. How did it work?
* The computers consisted these parts of the computer (The Mill,The Store,The Reader, and The Priniter)
  1. How was it similar to modern computers?
* These are the components of modern everyday computers

**Level 2: Alan Turing**

1. Who was Alan Turing?
   1. When and where was he born?

* June,23,1912
  1. What was his main contribution during World War II?
* To “crack” the enigma machine
  1. What were his main contributions to computer science after World War II?
* He “cracked” the enigma machine successfully with his team, and created the one of the first automatic computer.

1. What is the "Enigma" that Alan Turing worked on during World War II?
   1. What was the "Enigma code" used by the Germans and how did it work?

* Electro mechanical rotor cipher machine
* used for German armed forces to send secret messages
* The code was changed daily and applies new codes each day
  1. Why was it so important for Britain to "crack" the Enigma code?
* So they knew what Germans forces were going for and knowing step ahead about the plans they’re making
  1. How did Alan Turing solve the puzzle?
* He used his high mathematics and used the leftover parts he got from britain of the machine
  1. Why was Turing's work kept top secret?
* Because this was an powerful device that barely anybody knows about and could be useful in the future is something happened and need to use it again.

1. Many people call Alan Turing the "Greatest Unknown Hero of World War II". Provide some examples of the impact of his work that would support this claim.

* Being gay in LGBTQ community
* Shorten the war by 2 years
* Helped britain win the war
* He made theories about AIs and computing

1. How did being gay affect Alan Turing's life and work as a computer scientist?
   1. How did being gay affect his work during World War II?

* It stressed him out because being “Gay” in britain was legal
* It was causing him to think more about him then his work
  1. How did being gay affect his work after World War II?
* Turning then commited his suicide because of convicted of “gross indecency”
* After 65 years the Queen Elizabeth ll pardoned him for being “gay”
  1. How did Alan Turing's life end?

1. Many people call Alan Turing the "Father of Computer Science". Provide some examples of the impact of his work that would support this claim.

* Created the first computer
* Created theories and thoughts about computing and AIs
* Created futures of computers

**Level 3: Other Great Contributors**

1. Who was John von Neumann?
   1. When and where was he born?

* December,28,1903
* Budapest, Hungary
  1. When and why did he move to America?
* He was asked to lecture quantum theory in Phatom University
  1. What was his contribution to mathematics & science?
* His dad told him don’t study math and chemistry because there not much money in there
* Then ended up pursuing a career and getting a chemistry degree.
  1. What was his contribution to computer science?
* He designed an computer program model for digital computers

1. What was the "ENIAC" computer and the "von Neumann Machine"?
   1. What did it do and how did it work?

* ENIAC was an all electronic calculating machine
  1. How is it related to modern computers?
* Our machine can do more than just calculating
  1. Explain how a "von Neumann Machine" applies to modern PCs.
* CPUs and other parts of the computer did have to calculate problems to make the computer work.

1. Who was Grace Hopper?
   1. When and where was she born?

* December, 9th, 1906
* New York City
  1. What were some of her contributions to computer science?
* She created the compiler tool

1. What was the "COBOL" computer language that Hopper helped to develop?
   1. How was COBOL different from other computer languages of the time?

* It was mostly used for business purposes and other work.
  1. Is COBOL still in use today? Explain your answer.
* It’s still used today for governments and business and other ideas of the industry.

1. Who is Tim Berners-Lee?
   1. When and where was he born?

* June, 8,1995
* London, United Kingdom
  1. Why was he knighted by Queen Elizabeth II?
* For the services of creating the internet
  1. What is his contribution to computer science?
* Creating the biggest part of modern day technology internet

1. List some ways that your life would be different if Tim Berners-Lee did not invent the World Wide Web.

* Unable to communicate
* Interact with others
* Can’t research about topics
* Studying will only be on textbooks
* Resources will be limited

**Level 4: Presentation**

Pick one of the above "heroes" of computer science and prepare a brief presentation about their life and contributions.

Your presentation will be shared with other students in the class in a "trade show" format. (When we return form Christmas break.)

Your presentation should be shared with Mr. Nestor through Google Docs or via email at p0079141@pdsb.net.