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

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

December 26, 1791

* 1. What was his main contribution to computer science?

Charles Babbage was raised to a wealthy family in London he was behind the idea and is famous for his work developing plans for two computer

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?

The way did it work is that you were supposed to calculate the value of a polynomial can require any or all of addition, subtraction, multiplication and division

* 1. How was it similar to modern computers?

They similarity is that they have memory units

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

December 10, 1815, London, United kingdom

* 1. What was his main contribution to computer science?

She made an influential contribution to the analytical engine. She was the first computerprogrammer

* 1. What is the computer language that is named after her?

Ada, the language, was developed in the early 1980s for the U.S. Department of Defense

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

The Analytical Engine was, or would have been, the world's first general-purpose computer

* 1. How did it work?

the AnalyticalEngine introduced a number of computing concepts still in use today

* 1. How was it similar to modern computers?

I think it similar to modern computer because they both have an design  featured an Arithmetic Logic Unit (ALU) and permitted **basic** programmatic flow control

**Level 2: Alan Turing**

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

He was born in June 23, 1912, Maida Vale

* 1. What was his main contribution during World War II?

 he worked for the government breaking the enemies codes and Churchill said he shortened the war by two years

* 1. What were his main contributions to computer science after World War II?

His main contributions to computer science after World War II were to break the enemies codes

1. What is the "Enigma" that Alan Turing worked on during World War II?

Enigma was type of machine used by the German armed force to send message safely in the mid 1940

* 1. What was the "Enigma code" used by the Germans and how did it work?

The Enigma was a type of enciphering machine used by the German armed forces to send messages securely.

* 1. Why was it so important for Britain to "crack" the Enigma code?

It was important for the Britain to crack the Enigma code because it is a piece of spook hardware invented by a German and used by Britain's code breakers as a way of deciphering German signals traffic during World War Two

* 1. How did Alan Turing solve the puzzle?

They used to computer to help them

* 1. Why was Turing's work kept top secret?

They don’t want the German to find out

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.

         He cracked the enigma code

         He laid the groundwork for modern computing and theorized about artificial intelligence

         Helped win the war

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?

  He got made fun of and that slowed his work

* 1. How did being gay affect his work after World War II?

he started getting very depressed and got arrested

* 1. How did Alan Turing's life end?

He committed suicide

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.

He made the first functioning electronic computer and  inspired other people.

**Level 3: Other Great Contributors**

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

He was born in December 28, 1903,[Budapest, Hungary](https://www.google.ca/search?safe=strict&q=Budapest&stick=H4sIAAAAAAAAAOPgE-LQz9U3MDEyTFMCsyxNy-O1xLKTrfQLUvMLclKBVFFxfp5VUn5RHgDmvLiCLgAAAA&sa=X&ved=2ahUKEwizjLHrj6zfAhURWqwKHaDfAIkQmxMoATAdegQIARAH)

* 1. When and why did he move to America?

“John Neumann married twice. He married Mariette Kövesi in 1930, just before emigrating to the United States. They had one daughter. He then divorced her in 1937 and married Klari Dan in 1938.”

* 1. What was his contribution to mathematics & science?

His contribution was physics, computer science, and the area of artificial life

* 1. What was his contribution to computer science?

His contribution was to computer science was that he design model for a stored-program digital computer that uses a processing unit

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

The von Neumann architecture is a design model for a stored-program digital computer that uses a processing unit and a single separate storage structure to hold both instructions and data. It is named after the mathematician and early computer scientist John von Neumann.

* 1. How is it related to modern computers?

Its related to modern computer because it runs on electricity

* 1. Explain how a "von Neumann Machine" applies to modern PCs.

All are modern day computers are based off of the von Neumann machine

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

December 9, 1906, New York City, United States of America

* 1. What were some of her contributions to computer science?

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 used for business

* 1. Is COBOL still in use today? Explain your answer.

 COBOL is still used today in government and many businesses

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

June 8, 1955 London, United Kingdom

* 1. Why was he knighted by Queen Elizabeth II?

He was knighted for services to the global development of the internet

* 1. What is his contribution to computer science?

He made the world wide web

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

We would not be using the internet to research things we would be using books and we would also not be able to play video games online and would have to go to our friends house to play together

**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.