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

1. Who was Charles Babbage?

a. When and where was he born?

1791, in the UK

b. What was his main contribution to computer science?

He invented a digital programmable computer.

2. What is the "Difference Engine" proposed by Charles Babbage?

a. What did it do?

Calculated polynomials.

b. How did it work?

The gears moved when the lever was cranked.

c. How was it similar to modern computers?

It’s programming

3. Who was Ada Lovelace?

a. When and where was she born?

1815, UK

b. What was his main contribution to computer science?

She and Charles Babbage worked together to advance the computer calculator or the analytical engine

c. What is the computer language that is named after her?

Ada.

4. What is the "Analytical Engine" worked on by Ada Lovelace?

a. What did it do?

It solved problems.

b. How did it work?

Gears and levers

c. How was it similar to modern computers?

It was the first ever computer and people still used some of the concepts today.

**Level 2: Alan Turing**

1. Who was Alan Turing?

a. When and where was he born?

1954, UK

b. What was his main contribution during World War II?

The Enigma

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

Artificial intelligence

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

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

It was a way for the Germans to communicate without the radio

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

Because they were losing, they needed in advantage

c. How did Alan Turing solve the puzzle?

He cracked the code with his group of scientists

d. Why was Turing's work kept top secret?

Because they didn’t want the Germans to find out

3. 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 helped Britain. He probably saved lives with his contribution. He made the first ever computer.

4. How did being gay affect Alan Turing's life and work as a computer scientist?

a. How did being gay affect his work during World War II?

He was prosecuted and then after he couldn’t get any jobs

b. How did Alan Turing's life end?

Cyanide poisoning, a suicide.

5. 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 created the first ever computer. He used computer science to help in the world war and save lives. He used concepts that are used till this day. He proposed the question, can computers think? And people still trying to answer it to this day.

**Level 3: Other Great Contributors**

1. Who was John von Neumann?

a. When and where was he born?

1903, Hungary

b. When and why did he move to America?

He moved to America in 1938 to teach in Princeton.

c. What was his contribution to mathematics & science?

He did important things for math, physics, computer science and of artificial life.

d. What was his contribution to computer science?

The von Neumann architecture.

2. What was the "ENIAC" computer and the "von Neumann Machine"?

a. What did it do and how did it work?

b. How is it related to modern computers?

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

3. Who was Grace Hopper?

a. When and where was she born?

1909, new York, America

b. What were some of her contributions to computer science?

She was a computer scientist as well as a navy rear admiral. She lead her computer science team to the cobol language

4. What was the "COBOL" computer language that Hopper helped to develop?

a. How was COBOL different from other computer languages of the time?

Common Business-Oriented Language. There weren’t many computer languages then and it was different

b. Is COBOL still in use today? Explain your answer.

It is still used in business, finance and administrative systems for companies and governments.

5. Who is Tim Berners-Lee?

a. When and where was he born?

155, London, America

b. Why was he knighted by Queen Elizabeth II?

Because of his important contribution to technology

c. What is his contribution to computer science?

He invented the world wide web.

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

· Nog google

· Peoples use online would focus on consumption rather than communication.

· Phones wouldn’t be as ‘smart’

· Social media websites would probably not be a thing

· There wouldn’t be a lot of entertainment on the internet

**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.