Who Invented the Computer?

AP

This story comes from VOA Special English, Voice of America's daily news and information service for English learners. Read the story and then do the activities in the worksheet at the end.

Millions of us use them every day. Some are so large they have to sit on the floor. Others are so small that they fit in our hand. They help us with mathematical problems, store our music and pictures, and are needed to search the Internet. They are, of course, computers. So try this experiment. Ask a friend or just someone you see on the street this question: "Who invented the computer?"

Some people cannot live without computers, but we know very little about who invented them. So who did it? Are you ready? The answer is … we do not know for sure. Many people who know a lot about information technology might say computers were invented by Alan Turing. He was a British mathematician who helped solve coded messages from Germany during World War Two. Many people consider him the "father of computer science."

But to find the first person who *thought* he could make a computing device, we have to go back one hundred eighty years to a man named Charles Babbadge. He also was British.

Recently, researchers in his home country announced plans to use millions of dollars to build one of Babbadge's "Analytical Engines." John Graham-Cumming and Doron Swade are supervising the project at the Science Museum in London.

It seems that Charles Babbadge never had time to build this machine. He left blueprints or plans on what he thought would work. But the plans are not complete. That means the first thing the two Science Museum researchers have to do is find all the blueprints and decide how they fit together. Since this is a lot of work, they will publish the information on the Internet next year and ask people around the world to help them.

In Charles Babbadge's day, there were no electrical power lines. So his computer would have been totally mechanical. His Analytical Engine was designed to be powered by steam. It was to have been made from brass and iron. And it would have been very large, maybe even room size.

A number of cards with holes in them were to be used to tell the machine what to do. This kind of "programming" would have been similar to one that IBM – International Business Machines -- used in the nineteen sixties.

Charles Babbadge died in eighteen seventy-one. As the years went by, his work was mostly forgotten. People who knew Alan Turing do not think that he knew much about what Babbadge had done. But Turing's writings show that he was knowledgeable about the work of Ada Lovelace. She lived during Babbadge's time and knew about his machine. She even designed a way to make it work better.

Lovelace thought that this early computer should be able to do more than just add and take away numbers very fast. She thought it could be taught to make music, and to recognize images. Ada Lovelace left many notes about her work. When her writings were studied again years later, people began to call her the first computer programmer.

The researchers in London hope to get suggestions from many people when they put the blueprints on the worldwide web next year. After that, they will attempt to build a complete Babbadge Analytical Engine.

Now do the worksheet ...

Level: intermediate

Time: 30 - 40 minutes

This worksheet looks at two topics. First you will learn new vocabulary about space, then about computers. You will answer questions about a newly-discovered planet and the invention of computers. Then you will write a short paragraph about life on other planets, or whether money should be used to research the past.

1.   Match the words on the left with the words on the right to make four phrases. Write the phrase on the line. The phrases are in the article.
    a. light   1. system   _____
    b. space   2. pictures   _____
    c. solar   3. years   _____
    d. satellite   4. agency   _____

2.   What sentence below is true? Check the correct one. Then write a definition for *orbit*.
    [ ] A planet *orbits* a star.
    [ ] A star *orbits* a planet.

    orbit= _____

3.   What is the Kepler spacecraft designed to do?

    _____

4.   What is 22b?
    [ ] a star about 600 light years away
    [ ] a planet about 600 light years away

5.   Why do scientists think 22b might have water?

    _____

6. Complete the description of the newly-discovered planet below with the correct information.

22b is about _____ larger than the Earth. It is _____ to its star than we are to the sun. But 22b's sun is _____ than ours, and _____ produce as much heat. Scientific instruments have yet to show what the new planet is made of. It could be _____, _____, or some kind of _____.

7. How do scientists know if there is a far-away planet?

[ ] Kepler shows a small, black dot when the planet passes in front of its sun.
[ ] Kepler lights up and beeps, to show that there is a planet.

8. Scientists are concerned about the future of the earth. What will happen as our planet gets warmer?

_____

Now look at the next story in this article.

9. What does *invent* mean?
[ ] to destroy something useful
[ ] to make a copy of something useful
[ ] to create something useful for the first time

10. Read the sentence below. Is it *true* or *false*? If it is false, correct the sentence.

We know who invented computers.

_____

11. Who is considered the father of computer science, and helped solve coded messages from Germany during World War II?
[ ] Alan Turing
[ ] Charles Babbadge

12. John Graham-Cumming and Doron Swade are working on an exciting project at the Science Museum in London. What are they hoping to do? Describe this project in your own words.

_____
_____
_____
_____

OVER TO YOU

Choose one of the following topics to write about.

* Do you think there might be life on another planet? Why / Why not?

* Researchers are planning to use millions of dollars to build one of Babbadge's "Analytical Engines." Is this a good use of money? Why / Why not?

Write 5-8 sentences explaining your answer.

_____
_____
_____
_____
_____

ANSWER KEY

1. light years, space agency, solar system, satellite pictures

2. A planet *orbits* a star.; orbit = to travel around (something, such as a planet or moon) in a curved path

3. It is designed to examine a small part of the Milky Way galaxy and search for places like Earth.

4. a planet about 600 light years away

5. It orbits a star like our sun. It is not too close to it, and not too far away from it. Because of this position, 22b might have water. This is of the main things needed for life.

6. 22b is about **two and a half times** larger than the Earth. It is **closer** to its star than we are to the sun. But 22b's sun is **smaller** than ours, and **does not** produce as much heat. Scientific instruments have yet to show what the new planet is made of. It could be **gas, rocks,** or some kind of **liquid**.

7. Kepler shows a small, black dot when the planet passes in front of its sun.

8. A great deal of ice is disappearing. Their experiments show that the ice has not melted this fast in the past one thousand four hundred fifty years.

9. to create something useful for the first time

10. false; We don't know who invented computers.

11. Alan Turing

12. students' own answers [They want to build one of Babbadge's "Analytical Engines." Charles Babbadge left blueprints or plans, but they are not complete. John Graham-Cumming and Doron Swade have to find all the blueprints and decide how they fit together. They will publish the information on the Internet next year, and ask people around the world to help them. Then they will attempt to build a complete Babbadge Analytical Engine.]