

WOMEN IN COMPUTING

Lesson Notes, Worksheet and Activity Answers

Introduction

Designed for Key Stages 3 and 4, this ready-to-use lesson introduces pupils to a diverse group of computer women past and present and helps challenge any misconceptions about the women who choose this career path. Pupils are encouraged to think through for themselves the contribution that women can bring to computing and reasons why in the UK less than 25% of the people working in computing today are women.

The lesson also provides a brief introduction to computing careers, studying computer science at university and digital apprenticeships with links to further information.

Curriculum Links

This lesson supports the national curriculum for computing which aims to ensure that all pupils become digitally literate and active participants in the digital world.

Learning Objectives

At the end of this lesson

All pupils will be able to:

- Explain the achievements of three women who have worked in computing.

Most pupils will be able to:

- Discuss whether or not women bring a different perspective to computing compared to men.

Some pupils will be able to:

- Argue what the impact would be if more women worked in computing.

Lesson Duration

Approximately one hour plus two activities.

Lesson Contents

This lesson consists of:

- A fully illustrated PowerPoint consisting of over 30 slides. Notes provide web links to more information on the women featured.
- A short quiz at the start of the lesson. Quiz answers are included in the PowerPoint.
- A more detailed worksheet containing 20 questions to be completed as the lesson progresses.
- Two activities which can be completed in class or given as homework:
 - Learning more about five of the women featured in the lesson. The activity is completed by reading further information which can be accessed via a web link or could be printed out for those pupils without internet access.
 - Poster Activity

There are two opportunities for discussion, either in small groups or in the whole class:

Slide 8: A woman's perspective?

- Do you think that women bring a different perspective to their work?
- If so, what are the differences between men and women?
- What sort of women do you think work in computing?

Slide 18: Why don't more women work in computing today?

- In the 1950s and 1960s about half the people who worked with computers were women. In the 1970s things began to change.
- In the UK today less than 25% of the people working in computing are women.
- The good news is that the number of young women taking computer science degrees is growing fast.
- If more women worked in computing, what difference do you think it would make?

Worksheet Answers

Question	Answer
1. Karen Spärck Jones said computing is too important to be what?	Left to men.
2. Ada Lovelace grew up in a single parent family. Who was her father?	Lord Byron, the famous poet.

3. What was different about the COBOL programming language that Grace Hopper helped to develop?	It was a programming language that used English words.
4. Hedy Lamarr developed a radio guidance system to do what?	To stop torpedoes from being sent off course.
5. Mary Jackson was the first female black engineer to work where?	The American space agency, NASA.
6. Katherine Johnson was well known for solving what?	Complex mathematical calculations.
7. Where did Stephanie Shirley learn to write computer programs?	At the Post Office.
8. Why did Stephanie start to call herself Steve?	Because it was easier to make contact with business men if they thought she was a man.
9. In 1998 Martha Lane Fox found it difficult to persuade people what?	That the internet was going to survive and that people would pay for things online.
10. What did Catherine Breslin study at university?	Engineering, computer science and automatic speech recognition.
11. Claudia Natanson is a leading professional in what?	Cyber security.
12. When did Ella Schofield discover that she enjoyed coding?	During her university course.
13. Which charity did Sheridan Ash start?	Tech She Can.
14. Why does Jaycee Cheong enjoy being a team leader?	She enjoys passing on her skills and helping others achieve their best.
15. Name one of the computer games that Eilidh Macleod has worked on.	Angry Birds POP!
16. Noor Shaker is interested in how artificial intelligence can be used to do what?	To help create new drugs to treat diseases like COVID-19.
17. Beverly Clarke is the author of which book series?	The Digital Adventures of Ava and Chip.

18. What did Kayla Phillips Sanchez study at university?	Computer science and management.
19. Where did Emalin Matthews work as an apprentice?	Co-op Technology
20. What is Amy Grove's job now?	Network software engineer.

Learn more about Ada, Grace, Hedy, Katherine and Stephanie Answers

Ada Lovelace

1. What did Ada's father, Lord Byron, say when she was born?	<i>"Oh! What an implement of torture have I acquired in you!"</i>
2. Ada's mother was very good at mathematics. What nickname did her husband give her?	Princess of Parallelograms
3. When she was 12 years old, Ada came up with an idea for a flying machine with a body like which animal?	A horse
4. How old was Ada when she first met Charles Babbage?	17 years old
5. Ada suffered from cancer. Which famous author read stories to her as she lay ill in bed?	Charles Dickens
6. Where did Ada ask to be buried?	Beside her father in the church of St Mary Magdalene in Hucknall.

Grace Hopper

1. What was Grace's rank in the American navy?	Navy Rear Admiral
2. Where did Grace grow up?	New York City
3. During the Second World War, Grace worked on one of the world's first computers. How big was this computer?	8 feet tall and 51 feet long (That's about 2.4 metres tall and 15.5 metres long.)

4. In 1966 Grace wrote that she would do almost anything to stay working with computers. What did she hope would be true of computers one day?	She hoped the price would come down so that one day she could have a computer of her own.
5. In 1956 one of her students asked her what she thought about their college getting a computer. What did Grace say?	<i>"I've been waiting for you to wake up."</i>
6. Complete what Grace said: <i>"The most dangerous phrase in the language is"</i>	<i>"We've always done it this way."</i>

Hedy Lamarr

1. What was Hedy's birth name?	Hedwig Eva Maria Kiesler
2. When she was 18 years old, Hedy married a wealthy weapons manufacturer who had links with which two world leaders?	Hitler and Mussolini
3. Name two of Hedy's inventions.	A better Kleenex box A new traffic signal A tablet that dissolved in water to make a fizzy drink
4. What was the name given to technology that she invented?	Frequency hopping
5. Hedy offered this technology to the American navy but was told she could do more to help win the war doing what?	Raising money
6. Hedy died when she was 86. The descriptions of her life (called obituaries) didn't mention her inventions much at all, instead they talked about her what?	Beauty

Katherine Johnson

1. Where was Katherine born?	White Sulphur Springs, West Virginia
2. When she was at West Virginia State College, Katherine had a lot of help from a mathematics professor. What was his name?	Dr. William W. Schiefflin Claytor

3. Katherine did calculations for the first moon landing which took place when?	1969
4. Complete this sentence that Katherine used to say to students <i>"Some things will drop out of the public eye and will go away</i> "	<i>"but there will always be science, engineering and technology."</i>
5. Complete this important lesson that Katherine's father taught her: <i>"You are as good as anyone in this town</i> "	<i>"but you are no better than any of them."</i>
6. How old was Katherine when she died in 2020?	101 years old

Stephanie Shirley

1. Stephanie was a refugee from Germany when she arrived by train in London. What German name was given to this train?	Kindertransport
2. What was the name of the company that Stephanie started?	Freelance Programmers
3. Name two things that women couldn't do when Stephanie started her company.	Work as a bus driver. Open a bank account without their husband's permission.
4. The women who worked in Stephanie's company wrote the software for which part of the Concorde aeroplane?	Black box flight computer
5. Why does Stephanie support autism charities?	Her son was autistic.
6. What advice does Stephanie give those who want to be successful?	Surround yourself with first class people and people that you like.



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