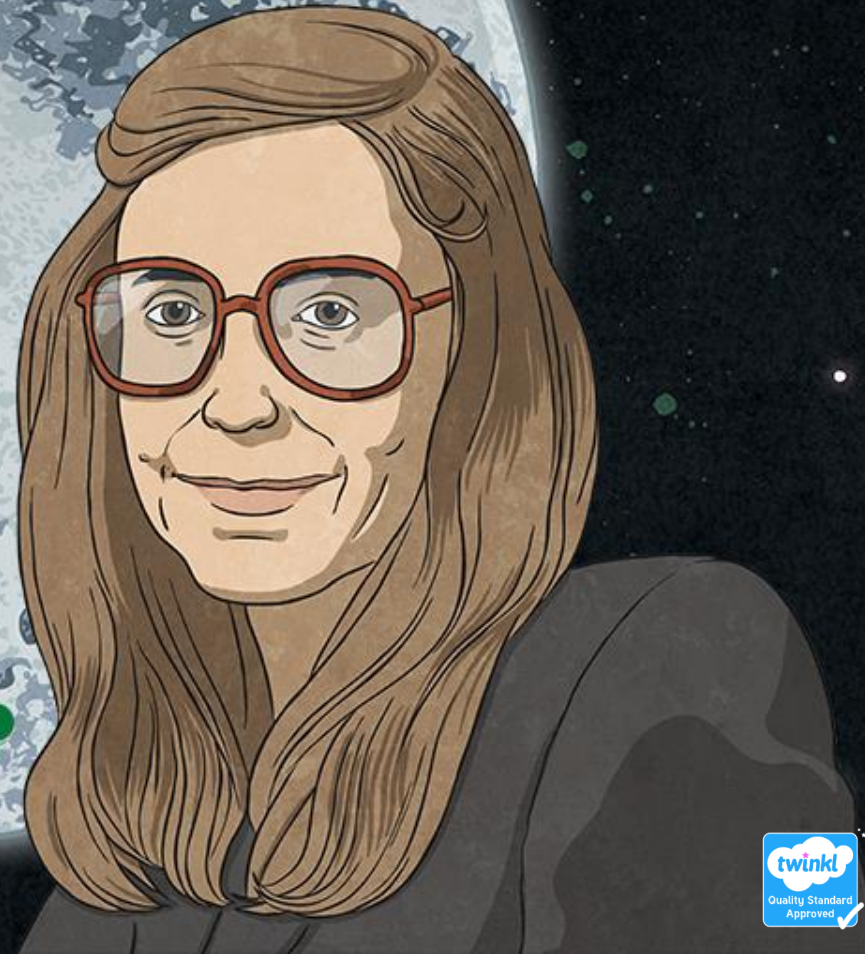


# Mission to the Moon



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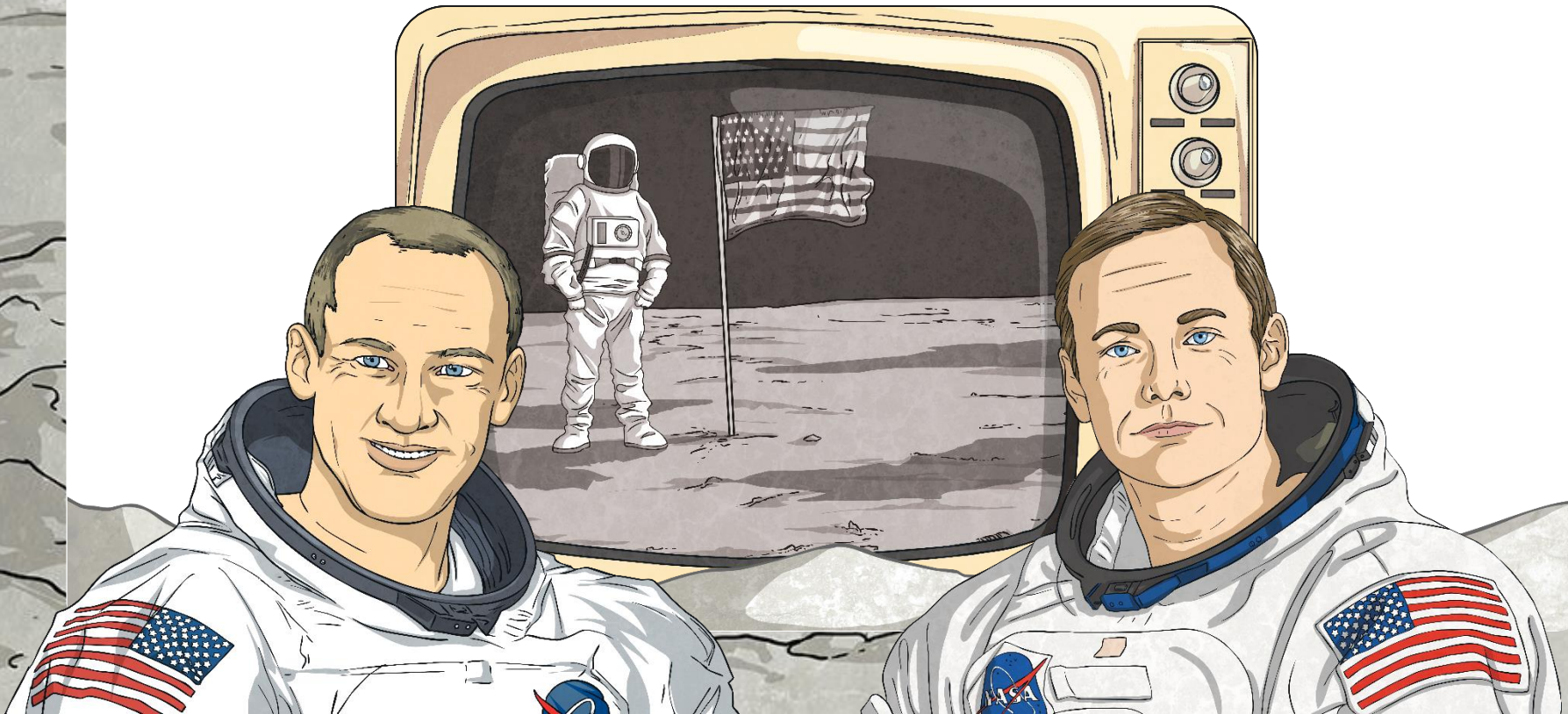
# Mission to the Moon



On the 20th July 1969, the Apollo 11 spacecraft landed on the Moon. Inside the spacecraft were astronauts including Neil Armstrong and Buzz Aldrin.

The following day, Armstrong and Aldrin became the first people to ever set foot on the Moon.

How did they get there? How did their spacecraft manage to fly from our Earth to the Moon? How did it land safely?



# Margaret Hamilton

The answer to all these questions is the work of one person - Margaret Hamilton.

Hamilton worked at NASA, and was responsible for programming the on-board flight software on the Apollo computers.

She wrote the code that the computer used to navigate from Earth to the Moon, and made sure that the computer would land the spacecraft safely on the surface of the Moon.



# Hamilton's Success

A moment that Hamilton has described as one of her biggest successes is the moment the Apollo 11 spacecraft landed on the Moon.

A radar had been mistakenly switched on, so the computer was receiving too much information. It could not land safely while this was happening.

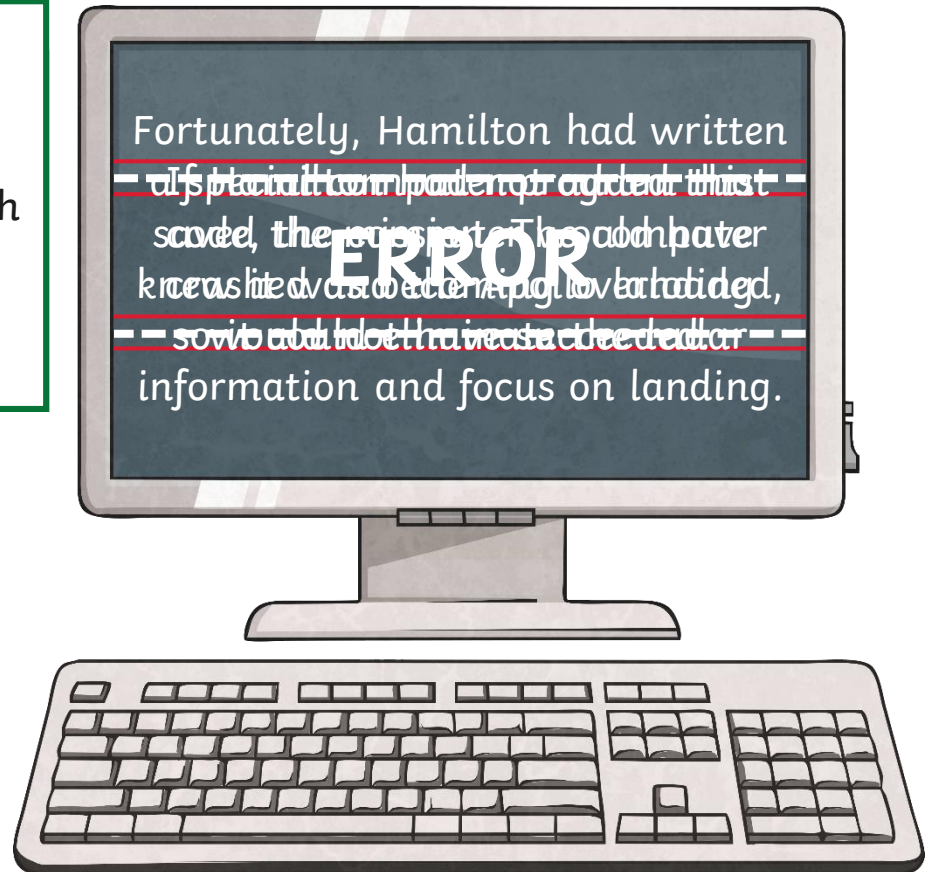
Fortunately, Hamilton had written

~~if special computer code could detect this~~

error, the computer could ignore the information and focus on landing.

~~so it could detect this error~~

information and focus on landing.



# Margaret Hamilton's Legacy

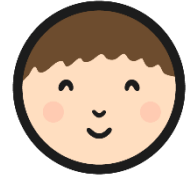
Margaret Hamilton worked on every one of the Apollo **manned** flights and several unmanned ones. Her work in computer engineering set the standard for the use of computers in space travel.

any mission which had astronauts on board a craft

Her work made many future space missions, and other forms of flight, possible.

Margaret Hamilton with stacks of her own coding.

# Margaret Hamilton's Legacy



Use computer research to correctly order and explain some of the most important events in space travel on the **Space Travel Timeline**.

**Margaret Hamilton's Legacy**

I can order key dates in space travel on a timeline.

Find out when the events on the bottom of this sheet happened and add them, in the correct place, to your timeline. Write in the country involved in the mission. Choose two of the missions and find out about some of the important people involved. Write their names below the country involved in the mission.

1950	1960	1970	1980	1990	2000	2010
<p>The first space station is launched - named <u>Saljut</u>.</p>	<p>Yuri Gagarin becomes the first human to go into space.</p>	<p>Sputnik 1 satellite is launched into space.</p>	<p>The first 'space tourist' pays to visit outer space.</p>	<p>Apollo 11 lands on the moon.</p>	<p>The Viking 1 Lander is the first spacecraft to land on Mars.</p>	<p>People start to build the International Space Station in space.</p>

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# How Have Things Changed?



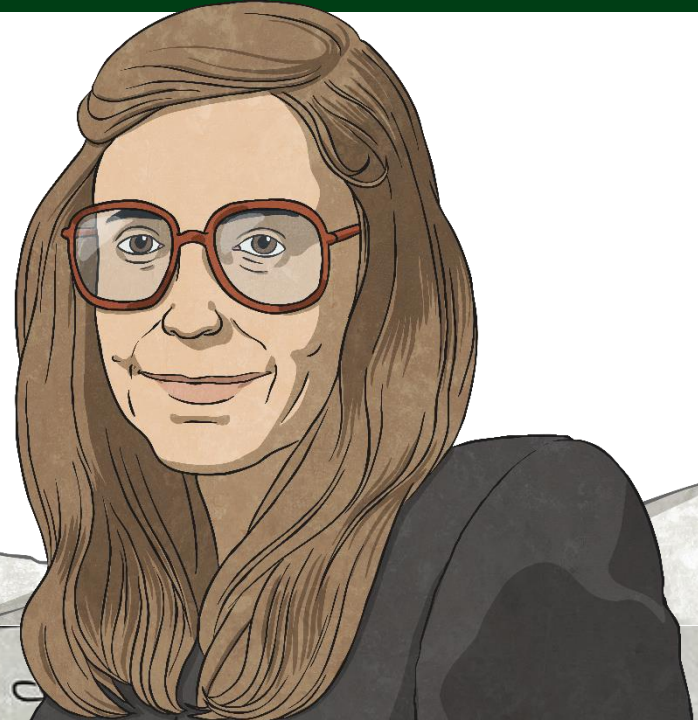
Margaret Hamilton was the first person to really understand how software and computer programs could be used to make things happen.

How are things different today?

How did Hamilton's work change things?

Can you think of ways software and computer programs are used today?

She referred to herself as a software engineer. At that time, there were no earlier software projects to learn from, or classes in software engineering. Hamilton taught herself everything.





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