Marie Maynard Daly

Marie Maynard Daly was an American scientist who was the first Black American woman to receive a PhD in chemistry. She was well known for researching the effect of cholesterol on the heart.

Early Life

Marie Maynard Daly was born on 16th April 1921 in Queens, New York, USA. She was an only child and her family believed strongly in the importance of education. Marie's father loved science and had a passion for chemistry. When he was younger, he was offered a place at university but couldn't go because he wasn't able to afford the fees. Marie's mother was a keen reader and encouraged Marie's love of books, especially those about science.

Education

Like her father, Marie loved science (especially chemistry) and excelled at the subject during her time at high school. She decided to study chemistry at Queen's College, New York and graduated with a bachelor's degree in 1942. Just one year later, Marie completed her master's degree in chemistry at New York University.

In 1944, Marie started a PhD at Columbia University and three years later, in 1947, Marie became the first Black woman to receive a PhD in chemistry in the USA.

What Is a Degree?

Degrees are qualifications that are awarded by universities. Here are the common types of degree:

Bachelor's – A degree that most people take after leaving college. It can take three or four years to complete.

Master's – Usually follows a bachelor's degree and allows you to become an expert in your subject area.

PhD – The highest level of degree a person can take. For this, students need to carry out new research in a subject area.

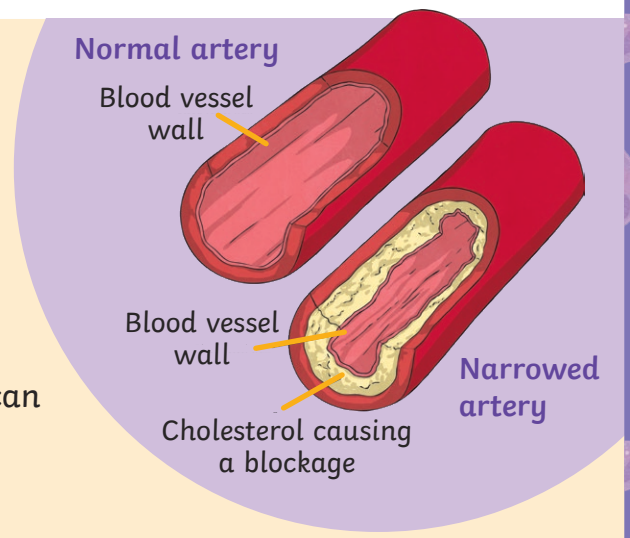
Career in Research

Marie stayed at Columbia University to work as a teacher. While she was there, she also continued her research into how chemicals in the body help to digest food.

Cholesterol

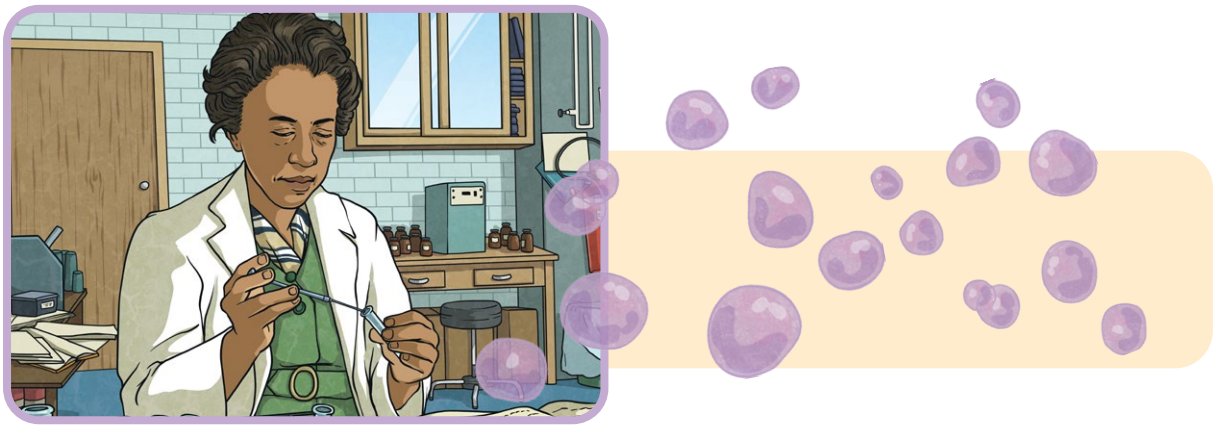
Marie found that foods high in fat (such as dairy products and meat) cause a substance called cholesterol to block the **arteries** and prevent blood flowing properly around the body.

High levels of cholesterol in the arteries can cause heart problems and strokes.



Marie's research was important because it showed the link between cholesterol and the **circulatory system**.

In 1960, Marie started working at Albert Einstein College of Medicine and stayed there until she retired in 1986.



Marie felt strongly that Black and Minority Ethnic students, like her, should be able to study science and attend medical school. In 1988, Marie established a scholarship fund for Black science students at Queens College to help to pay for their studies. She did this in honour of her father, whose studies were affected by lack of finances.

Legacy

Marie's research has helped to develop our understanding of how cholesterol affects the body. In 1999, Marie was named one of the Top 50 Women in Science. In 2016, a school in her hometown of Queens was named after her.

Glossary

arteries: The large vessels (tubes) that are part of the **circulatory system**.

circulatory system: The blood vessels that carry blood to the heart and around the body.

Questions

1. Why didn't Marie's father complete his university degree? Tick one.

   - ○ His grades were not good enough.
   - ○ It was too far for him to travel.
   - ○ He could not afford the fees.
   - ○ His family did not want him to go.

2. Number the events from 1-4 to show the order that they happened in.

   - ☐ Marie was awarded a PhD in chemistry from Columbia University.
   - ☐ Marie completed a master's degree at New York University.
   - ☐ Marie began working as a teacher at Columbia University.
   - ☐ Marie received a bachelor's degree in Chemistry from Queen's College, New York.

3. Find in the missing word.

   High levels of _____in the arteries can cause heart problems and strokes.

4. Find and copy a word which shows that Marie was good at chemistry when she was at school.

   _____

5. In what year did Marie retire from Albert Einstein College of Medicine?

   _____

6. What do you think Marie's father might have done instead of completing his chemistry degree?

   _____

   _____

7. Explain what you have learnt about cholesterol.

8. Summarise Marie Maynard Daly's achievements.

Answers

1. Why didn't Marie's father complete his university degree? Tick one.

   ○ His grades were not good enough.
   ○ It was too far for him to travel.
   ⊘ **He could not afford the fees.**
   ○ His family did not want him to go.

2. Number the events from 1-4 to show the order that they happened in.

   3 Marie was awarded a PhD in chemistry from Columbia University.
   2 Marie completed a master's degree at New York University.
   4 Marie began working as a teacher at Columbia University.
   1 Marie received a bachelor's degree in Chemistry from Queen's College, New York.

3. Find in the missing word.

   High levels of **cholesterol** in the arteries can cause heart problems and strokes.

4. Find and copy a word which shows that Marie was good at chemistry when she was at school.

   excelled

5. In what year did Marie retire from Albert Einstein College of Medicine?

   1986

6. What do you think Marie's father might have done instead of completing his chemistry degree?

   Pupils' own responses, such as: Marie's father would probably have found a job so that he could earn money to support himself and his family.

7. Explain what you have learnt about cholesterol.

Pupils' own responses, such as: Cholesterol is a substance found in food containing a lot of fat. Having high cholesterol levels can block the arteries and lead to heart problems and strokes.

8. Summarise Marie Maynard Daly's achievements.

Pupils' own responses, such as: Marie Maynard Daly was the first Black American woman to be awarded a PhD in chemistry. She carried out lots of important research into the effect of cholesterol on the arteries and heart. She set up a scholarship fund for Black and Minority Ethnic students.

Marie Maynard Daly

Marie Maynard Daly was an American **biochemist** who is known for her pioneering research into the effects of cholesterol on our health. She was the first Black American woman to receive a **PhD** in chemistry.

Early Life

Marie Maynard Daly was born on 16th April 1921 in Queens, New York, USA. Her family believed strongly in the importance of education at a time when very few Black Americans attended university. Marie had no siblings and her father was a keen scientist with a passion for chemistry. He was offered a place at university to study science but was forced to decline as he could not afford the fees. Marie's mother was a keen reader and encouraged Marie's love of books, especially those about science.

Education

Marie inherited her father's love of science; she excelled at the subject during her time at an all-girl school, Hunter College. Following high school, Marie went on to study chemistry at Queen's College, New York. She graduated with a bachelor's degree in 1942 and was named Queens College Scholar (an award given to their top graduates). Just one year later, Marie completed her master's degree in chemistry at New York University.

Marie started a PhD at Columbia University in 1944. The Second World War meant that there was a shortage of male students so Marie was able to be offered a funded place. Her studies focused on the chemicals of the human digestive system. In 1947, Marie became the first Black woman to receive a PhD in chemistry in the USA.

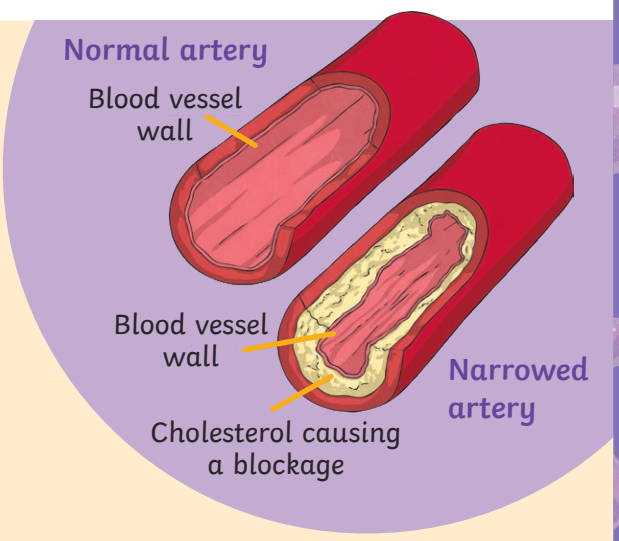
Career in Research

Marie stayed at Columbia University, taking a position there as a teacher. During this time, she also continued her research into how the body's chemicals help digest food.

Cholesterol

Marie found that foods high in fat (such as dairy products and meat) cause a substance called cholesterol to clog the arteries and prevent blood flowing correctly around the body.

High levels of cholesterol in the arteries can cause heart conditions and strokes.



Marie's research was important because it revealed the crucial relationship between cholesterol and the **circulatory system**. She also helped to demonstrate how diet and lifestyle choices can affect our health.

In 1960, Marie started working at Albert Einstein College of Medicine. As well as teaching students, she continued researching how lifestyle and diet can affect the body. Her research also looked at the impact of cigarette smoking on lung tissue. She remained at the Albert Einstein College until she retired in 1986.

Marie felt strongly that Black and Minority Ethnic students, like her, should have access to medical school education. In 1988, Marie established a scholarship fund for Black science students at Queens College to help to pay for their studies. She did this in honour of her father, whose own studies were affected by lack of finances.

Legacy

Marie received her degrees during a time when very few Black women attended university. In 1999, Marie was named one of the Top 50 Women in Science, Engineering and Technology by the National Technical Association. In 2016, a school in her hometown of Queens was named after her.

Glossary

arteries: The large vessels (tubes) that are part of the circulatory system.

biochemistry: The study of the chemistry that takes place in living things.

circulatory system: The blood vessels that carry blood to the heart and around the body.

PhD: The highest level of university degree a person can achieve. PhDs are awarded to students who research and write about something important and new in their subject

Questions

1. Which word best defines Marie Maynard Daly's career? Tick one.

   - ◯ teacher
   - ◯ researcher
   - ◯ dietitian
   - ◯ author

2. Draw **four** lines and match each event to the correct year.

1988	Marie began working at Albert Einstein College of Medicine.
1942	Marie became the first Black American woman to receive a PhD in chemistry.
1960	Marie established a scholarship fund for Minority Ethnic students.
1947	Marie graduated with a bachelor's degree in chemistry.

3. Fill in the missing words.

   In 1988, Marie began a _____ fund for Black science students at _____ to help pay for their studies.

4. ***...she excelled at the subject...***
   How else could the author have written this phrase?

   _____

   _____

5. Why did Marie's father not complete his degree in chemistry?

6. What would be a suitable sub-heading for the first paragraph of the text?

7. Explain how a person can lower their cholesterol levels.

8. Why do you think that there was a shortage of male students at Columbia University during the Second World War?

9. Summarise what you have learnt about cholesterol.

Answers

1. Which word best defines Marie Maynard Daly's career? Tick one.

   ○ teacher
   ⊘ **researcher**
   ○ dietitian
   ○ author

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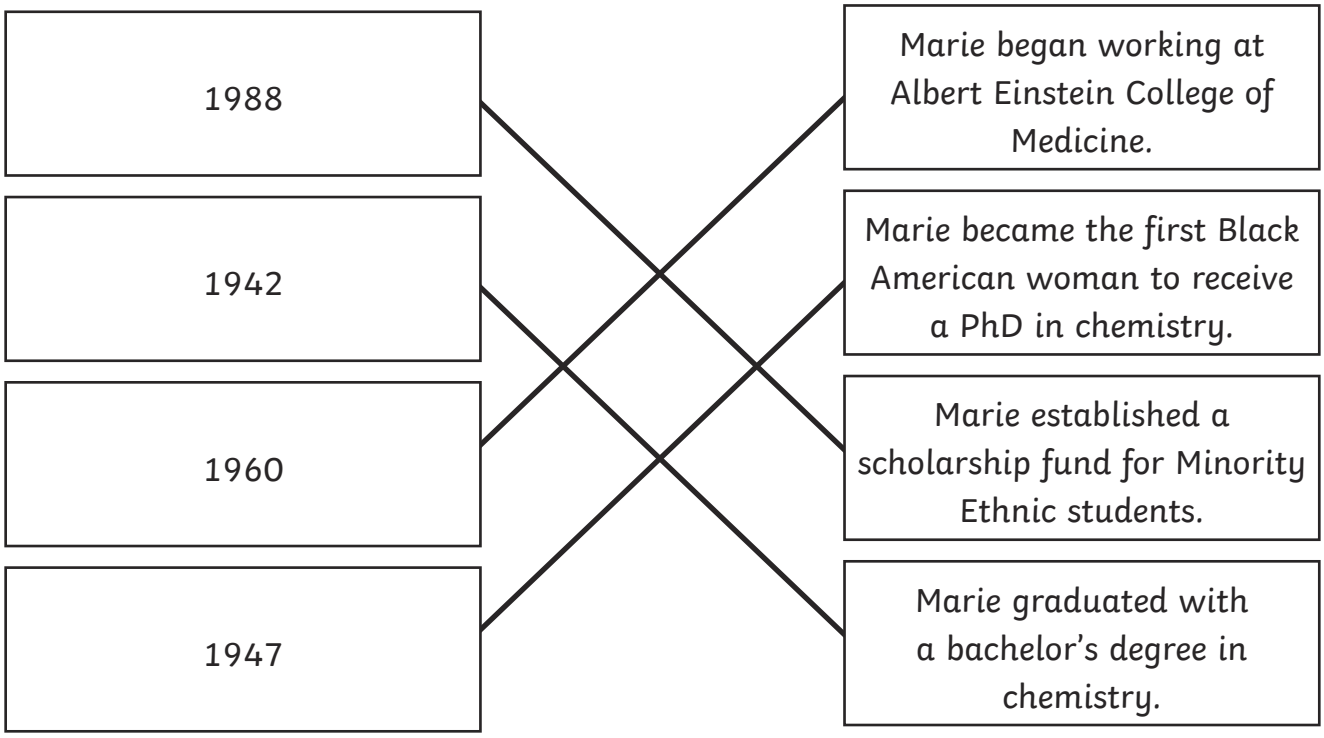


3. Fill in the missing words.

   In 1988, Marie began a **scholarship** fund for Black science students at **Queens College** to help pay for their studies.

4. ***...she excelled at the subject...***
   How else could the author have written this phrase?

   Any reasonable wording which maintains the same meaning, such as: She was very gifted at the subject.

5. Why did Marie's father not complete his degree in chemistry?

   Marie's father was forced to decline a place at university as he could not afford the fees.

6. What would be a suitable sub-heading for the first paragraph of the text?

   Any reasonable answer which suggest an introduction to or overview of the subject, such as: Who Was Marie Maynard Daly?

7. Explain how a person can lower their cholesterol levels.

   Pupils' own responses, such as: You can lower your cholesterol levels by replacing high cholesterol foods with foods containing less cholesterol. You can also ensure that you exercise regularly.

8. Why do you think that there was a shortage of male students at Columbia University during the Second World War?

   Pupils' own responses, such as: There was probably a shortage of male students because many men were involved in the war effort.

9. Summarise what you have learnt about cholesterol.

   Pupils' own answers, such as: Cholesterol is caused by eating foods that are high in fat, like butter and cheese. High cholesterol levels can cause the arteries in your body to become blocked and lead to heart problems and strokes.

Marie Maynard Daly

Marie Maynard Daly was an American biochemist who was famous for her pioneering findings into how cholesterol affects the heart and circulatory system. She was the first Black American woman to receive a PhD in chemistry.

Early Life

Marie Maynard Daly was born on 16th April 1921 in Queens, New York, USA. Her family believed strongly in the importance of education at a time when very few Black Americans even hoped to attend university. Marie had no siblings and her father was a keen scientist with a passion for chemistry. He was enrolled at the highly prestigious Cornell University but was forced to abandon his place due to lack of finances. Instead, he returned to New York City and took a position as a post office worker. Marie's mother was an avid reader and read extensively to her throughout her childhood; she encouraged Marie's love of books, especially those about science.

Education

Marie inherited her father's love of science and her enthusiasm and aptitude for the subject were fostered and encouraged during her time at her all-girl high school, Hunter College, where she was encouraged to study university-level chemistry. Marie then went on to study chemistry at Queen's College, New York and graduated with a bachelor's degree in 1942. She was named a Queens College Scholar: an award that is only given to the top 2.5% of graduates. Just one year later, Marie completed her master's degree in chemistry at New York University.

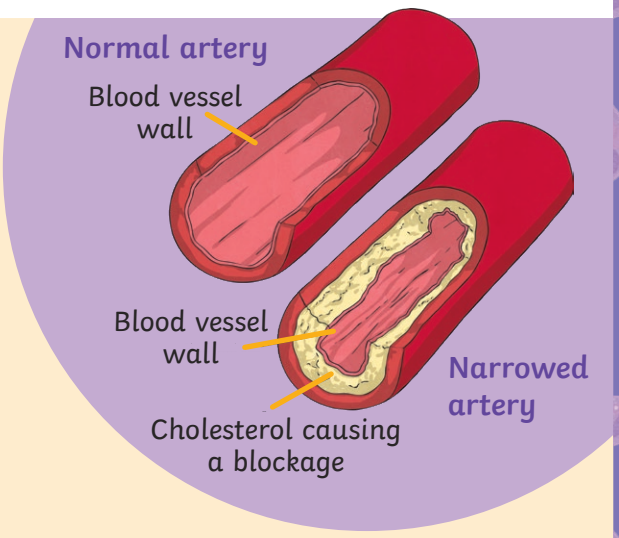
In 1944, Marie continued her studies at Columbia University. Due to a shortage of male students because of the Second World War, Marie was offered a much-coveted funded place. Her studies focused on the chemicals of the human digestive system and, in 1947, she became the first Black woman to obtain a PhD in chemistry in the USA. A PhD (doctor of philosophy) is the highest form of academic qualification that a person can achieve: they are awarded to students who research and write about something important and new in their subject.

Career in Research

Marie stayed at Columbia University and took on a teaching position there. During this time, she also continued her research into how the body's chemicals help digest food.

Cholesterol

Marie's research established that foods that are high in fat (such as dairy products and meat) cause a substance called cholesterol to clog the arteries and affect the circulatory system (the flow of blood around the body). High levels of cholesterol in the arteries can cause heart conditions and strokes.



As well as exercise and lifestyle changes, cholesterol levels can be reduced by eating foods which have less saturated fat (found in cheese, butter and fatty meats) and more unsaturated fats (found in vegetable oils, oily fish and nuts).

Marie's research was hugely significant because it uncovered the crucial relationship between cholesterol and the circulatory system and furthered our knowledge of how diet can impact our health.

In 1960, Marie became a professor (the highest rank of a university academic) at the Albert Einstein College of Medicine. As well as teaching students, she continued researching how lifestyle and diet can affect the body; her studies included research into the effect of cigarette smoking on lung tissue. During this time, Marie also worked with the Health Research Council of New York as a cancer scientist for a number of years. She remained at the Albert Einstein College until her retirement in 1986.

Marie was passionate about ensuring that Black and Minority Ethnic students, regardless of their financial status, could have access to medical school education. In 1988, in honour of her late father, Marie established a scholarship fund for Black science students at Queens College. This meant that Minority Ethnic students with an aptitude for science would be able to study without having to worry about the burden of finances: something which her father was unable to achieve.

Legacy

Marie received her degrees during a time when very few Black women attended university. In 1999, Marie was named one of the Top 50 Women in Science, Engineering and Technology by the National Technical Association. In 2016, an elementary school in her hometown of Queens was named in her honour.

Questions

1. Which word best describes Marie's research into cholesterol? Tick one.

   - ○ minor
   - ○ pioneering
   - ○ controversial
   - ○ insignificant

2. Draw **four** lines and match each of Marie's level of education to the corresponding establishment.

bachelor's degree	Queen's College, New York
high school education	New York University
PhD	Hunter College
master's degree	Columbia University

3. In which section of the text can you find information about Marie's parents?

   _____

4. Find and copy **two** words which show that Marie's high school supported her love of science.

   - _____
   - _____

5. Fill in the missing words.

   High _____ levels can be reduced by eating foods which are lower in _____ fat.

6. Explain how Marie's mother helped to support her education from an early age.

7. Discuss reasons why there may have been a shortage of male students during the Second World War.

8. Discuss why you think that Marie was named one of the Top 50 Women in Science, Engineering and Technology by the National Technical Association.

9. Predict how you think that Marie's father would have felt about her establishing a scholarship fund in his honour.

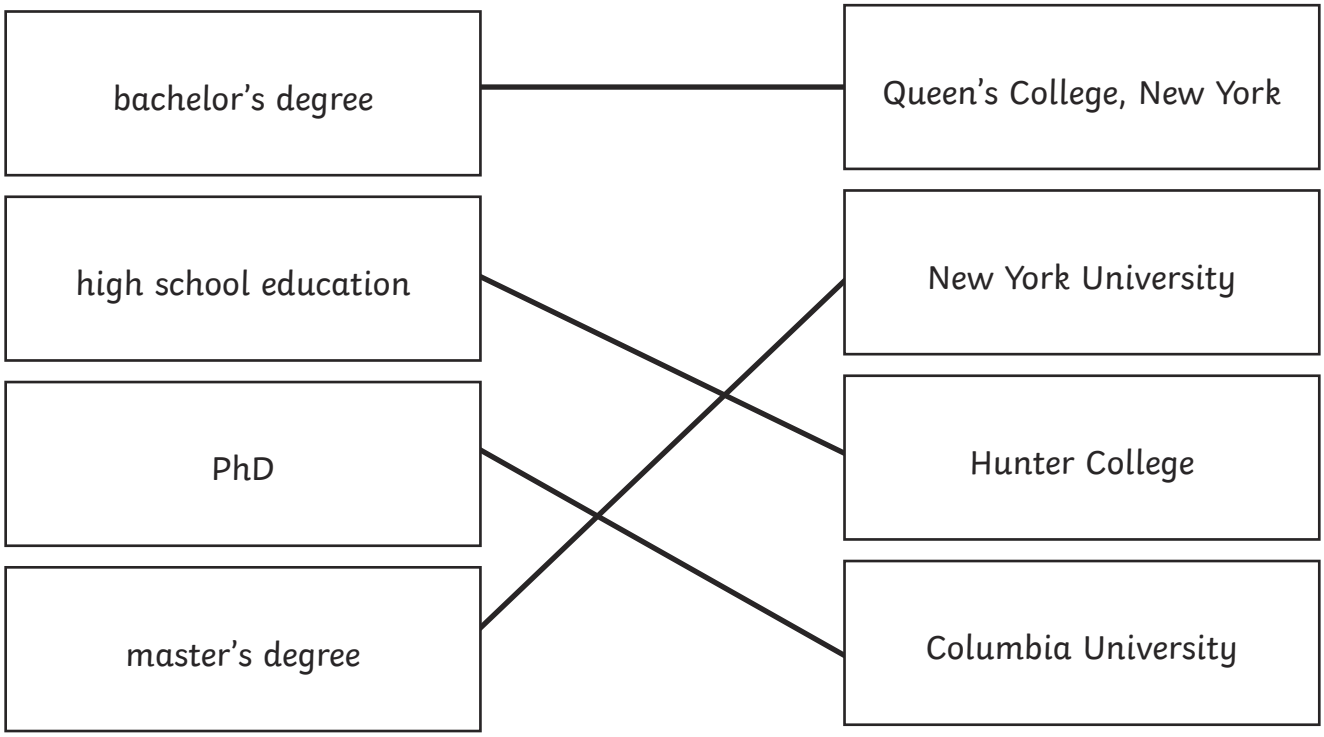
10. Summarise what you have learnt about cholesterol in 25 words or fewer.

Questions

1. Which word best describes Marie's research into cholesterol? Tick one.

   ○ minor
   ⊘ **pioneering**
   ○ controversial
   ○ insignificant

2. Draw **four** lines and match each of Marie's level of education to the corresponding establishment.



3. In which section of the text can you find information about Marie's parents?

   Early Life

4. Find and copy **two** words which show that Marie's high school supported her love of science.

   - ***fostered***
   - ***encouraged***

5. Fill in the missing words.

   High **cholesterol** levels can be reduced by eating foods which are lower in **saturated** fat.

6. Explain how Marie's mother helped to support her education from an early age.

   Pupils' own responses, such as: Marie's mother encouraged her love of reading books (especially books about science). This would have provided her with a great deal of extra scientific knowledge and useful reading skills from an early age.

7. Discuss reasons why there may have been a shortage of male students during the Second World War.

   Pupils' own responses, such as: There may have been a shortage of male students during the war because many men were involved in the war effort. Rather than studying, many young men were enlisted as soldiers and the rest had taken on jobs to help support the country.

8. Discuss why you think that Marie was named one of the Top 50 Women in Science, Engineering and Technology by the National Technical Association.

   Pupils' own responses, such as: She may have been given this award because she made significant findings in the field of biochemistry and revealed an important link between cholesterol and the circulatory system.

9. Predict how you think that Marie's father would have felt about her establishing a scholarship fund in his honour.

   Pupils' own responses, such as: Marie's father would probably have been very proud of his daughter's achievements. He may also have been pleased to know that she had established a scholarship to prevent others from experiencing the same barriers to education that he faced.

10. Summarise what you have learnt about cholesterol in 25 words or fewer.

    Pupils' own answers, such as: Cholesterol is caused by eating foods that are high in fat. High cholesterol can cause the arteries to become blocked and lead to heart problems.