Marie Curie

Fact File

Name at Birth:	Maria Salomea Sklodowska
Date of Birth:	7th November 1867
Place of Birth:	Warsaw, Poland
Famous For:	Discovering **radioactive** materials

She was the youngest of five children.
Her parents were both teachers. Marie's Dad taught maths and physics and inspired Marie to study science when she was older.

Moving from Poland to Paris

Marie Curie's greatest dream was to go to university. Unfortunately, universities in Poland were only for men at the time and she was not allowed to join.

Because of this, Marie had to make the difficult decision to move to Paris where women were allowed to go to university.

Did You Know...?

Marie Curie was not interested in having a traditional wedding.
Instead of a white wedding dress, she chose to wear dark blue.
This outfit ended up being her work clothes for the next few years!

In Paris, Marie studied physics at Sorbonne University. She did not have a lot of money. To keep herself warm during the winter, Marie would often wear all of her clothes at once!

While she was working in Paris, Marie met another scientist called Pierre Curie. The couple fell in love over their shared interest in science and got married. From then on, Maria Sklodowska was known as Marie Curie.

Discovering New Elements

When she had finished university, Marie Curie began to work in a laboratory carrying out lots of different scientific experiments. She was very interested in the work of Henri Becquerel. Henri had discovered tiny waves that were so small that they could not be seen by the human eye yet they could travel inside the human body. These waves were called 'radiation'.

Together with her husband, Marie began research to see if there were other elements that were **radioactive**. After a long time spent crushing materials, setting them on fire and melting them, Marie Curie discovered two new elements which had never been seen before.

She named the first one 'polonium' after her birth country, Poland. The second element was named 'radium'.

Marie ran more tests on these radioactive elements and discovered that they were able to kill diseased cells in the human body. This incredible discovery led to a treatment for cancer that is still being used today.

Nobel Prizes

In 1903, Marie Curie was awarded a joint Nobel Prize in physics for her scientific discoveries. Although women were not supposed to win the prize, Marie's husband complained and Marie became the first woman ever to win the coveted Nobel Prize.

WARNING!

Marie Curie did not know how dangerous radioactive elements were and used to carry them around in her pocket. Because of this, she became extremely ill with radiation poisoning at the age of 66. Anyone holding radioactive elements must now be completely covered in protective gear to avoid **contamination**.

Glossary

contamination: Being polluted or poisoned. **radioactive:** Giving off radiation.

Questions

1. What was Marie Curie's greatest dream? Tick one.

   ○ to get married
   ○ to go to university
   ○ to teach physics
   ○ to move to France

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

   ☐ Marie Curie wins a Nobel Prize.
   ☐ Marie Curie begins to research radioactive elements.
   ☐ Marie Curie discovers two new elements.
   ☐ Marie Curie moves to France.

3. Fill in the missing words.

   Marie Curie discovered two new elements, which she named _____ and _____.

4. Look at the section titled **Nobel Prizes**.
   Find and copy one word that shows that the Nobel Prize was highly sought after.

   _____

5. When she didn't have much money, what did Marie do to keep warm in the winter?

   _____

6. **After a long time spent crushing materials, setting them on fire and melting them, Marie Curie discovered two new elements which had never been seen before.**

   How do you think Marie Curie felt when she discovered these two new elements? Explain your answer.

   _____

   _____

   _____

7. How was Marie's new life in France different to her old life in Poland?

8. If you were to discover your own element, what would you name it? Explain your answer.

Answers

1. What was Marie Curie's greatest dream? Tick one.

   ○ to get married
   ⊘ **to go to university**
   ○ to teach physics
   ○ to move to France

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

   [4] Marie Curie wins a Nobel Prize.
   [2] Marie Curie begins to research radioactive elements.
   [3] Marie Curie discovers two new elements.
   [1] Marie Curie moves to France.

3. Fill in the missing words.

   Marie Curie discovered two new elements, which she named **polonium** and **radium**.

4. Look at the section titled **Nobel Prizes**.
   Find and copy one word that shows that the Nobel Prize was highly sought after.

   coveted

5. When she didn't have much money, what did Marie do to keep warm in the winter?

   When she didn't have much money, Marie wore all of her clothes at the same time.

6. **After a long time spent crushing materials, setting them on fire and melting them, Marie Curie discovered two new elements which had never been seen before.**
   How do you think Marie Curie felt when she discovered these two new elements?
   Explain your answer.

   Pupils' own responses, such as: I think she felt really excited and happy because she had spent a very long time experimenting and trying to discover the new elements.

7. How was Marie's new life in France different to her old life in Poland?

   Pupils' own responses, such as: Marie Curie was not allowed to go to university when she lived in Poland but, when she moved to France she was allowed to study physics.

8. If you were to discover your own element, what would you name it? Explain your answer.

Pupils' own responses, such as: I would name it englandium because I come from England and Marie Curie named hers polonium because she came from Poland.

Marie Curie

Marie Curie is often described as one of the most influential scientists of all time. One of only two people to have won the sought-after Nobel Prize twice, her work on radiation is known around the world and is still being used today.

Early Life

Marie Curie was born in Poland on the 7th November 1867.

The youngest of five children, she was born Maria Salomea Sklodowska.

At the time of her birth, Marie's father was a teacher of maths and physics. However, at that time, many laws were changing and it was decided that laboratory work would no longer be taught at school.

When he heard this news, Marie's father took the lab equipment from his place of work and began using it to teach Marie and her siblings instead. It is widely believed that this is where Marie Curie first developed her fascination with the sciences.

Moving to Paris

Marie's greatest dream was to go to university. Unfortunately, at the time, it was unheard of for women to continue studying after they had left school. Therefore, Marie made the difficult decision to leave her beloved Poland and head for France, where the Sorbonne University in Paris was accepting women.

While studying for a degree in physics, Marie had little money and often wore every item of clothing she owned during the cold winters in an attempt to keep warm. Marie loved learning new things and it is said that she often forgot to eat and drink as a result of being so involved in her studies!

While in Paris, the young Maria Sklodowska met Pierre Curie, a fellow scientist. In 1895, they married and Maria Sklodowska became Marie Curie: Marie being the French translation of her original first name. Not being interested in a traditional wedding, Marie chose to wear a dark blue outfit instead of a white wedding dress. In fact, this was the same outfit she would end up wearing while working in the laboratory for many years to come!

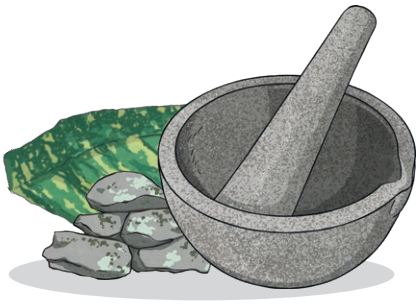
Discovering New Elements

Marie Curie was inspired by the recent work of Henri Becquerel, who had discovered tiny, high-energy waves that were small enough to enter the human body. These waves were called 'radiation' and Marie believed that there were other radioactive elements that had not yet been discovered.

By now, her husband (who had been previously running tests on crystals) was so interested in her work that he abandoned his own altogether to work with Marie. Together, in an old shed attached to the university, they ground, burnt, melted and examined various materials.

These materials were so radioactive that Marie used to enjoy sitting and watching them glow in the dark. It was this work that led them to the discovery of two new elements: polonium (named after Marie's favourite place – Poland) and radium.

During one of her experiments, Marie noticed that, when exposed to radiation, diseased human cells were destroyed a lot quicker than healthy human cells. This led to the discovery of radiation as a treatment for cancer; this is a treatment still being used today.



- NOBEL PRIZES -

1903

In 1903, Marie Curie was awarded a joint Nobel Prize in physics for her scientific discoveries alongside Pierre Curie and Henri Becquerel.

To begin with, it was decided that only the two male scientists would receive the award as women were not allowed to. When Pierre heard this, he complained to the committee, who overturned the decision. This made Marie Curie the first woman in history to win the coveted Nobel Prize.

In 1911, she won a second Nobel Prize in chemistry: making her the first person ever to receive two Nobel Prizes.

Although we now know that handling radioactive materials is dangerous and requires protection, Marie Curie knew little of the dangers. Having spent her life carrying around these materials in her pockets, at the age of 66, Marie fell fatally ill as a result of radiation poisoning.

Marie Curie's work is still incredibly important today and, in 2009, the New Scientist Magazine named her 'The Most Influential Woman in Science.'

Questions

1. Where did Marie go to attend university? Tick one.

   - ◯ Poland
   - ◯ Paris
   - ◯ England
   - ◯ Italy

2. What unexpected piece of clothing did Marie Curie wear in the laboratory for many years? Tick one.

   - ◯ a lab coat
   - ◯ all of her clothes at once
   - ◯ her wedding outfit
   - ◯ a radiation suit

3. Look at the section titled **Discovering New Elements**.
   Why did Pierre Curie stop investigating crystals?

   _____

4. Look at the section titled **Early Life**.
   Find and copy one phrase that means the same as 'most people think'.

   _____

5. Fill in the missing words.

   Marie Curie won two Nobel Prizes. The first was in _____ and the second was in _____.

6. **To begin with, it was decided that only the two male scientists would receive the award as women were not allowed to.**
   Do you think it would have been fair to not give Marie Curie a Nobel Prize?
   Explain your answer.

7. Look at the section titled **Discovering New Elements**.
   How do you think Marie was feeling at this time in her life?
   Explain your answer.

8. Marie Curie chose to name her first element polonium after her favourite place, Poland.
   What else could she have named the element? Explain your answer.

9. Compare Marie Curie's life in Poland to her life in France.

Answers

1. Where did Marie go to attend university? Tick one.

   ○ Poland
   ⊘ **Paris**
   ○ England
   ○ Italy

2. What unexpected piece of clothing did Marie Curie wear in the laboratory for many years? Tick one.

   ○ a lab coat
   ○ all of her clothes at once
   ⊘ **her wedding outfit**
   ○ a radiation suit

3. Look at the section titled **Discovering New Elements**.
   Why did Pierre Curie stop investigating crystals?

   Pierre Curie stopped investigating crystals because he became interested in Marie's work.

4. Look at the section titled **Early Life**.
   Find and copy one phrase that means the same as 'most people think'.

   it is widely believed

5. Fill in the missing words.

   Marie Curie won two Nobel Prizes. The first was in **physics** and the second was in **chemistry**.

6. **To begin with, it was decided that only the two male scientists would receive the award as women were not allowed to.**
   Do you think it would have been fair to not give Marie Curie a Nobel Prize?
   Explain your answer.

   Pupils' own responses, such as: I do not think it would have been fair because she did as much work as the other two people and deserves to be recognised.

7. Look at the section titled **Discovering New Elements**.
   How do you think Marie was feeling at this time in her life?
   Explain your answer.

   Pupils' own responses, such as: I think she was feeling incredibly excited at this time because, after working really hard, she was able to make two new discoveries.

8. Marie Curie chose to name her first element polonium after her favourite place, Poland.
   What else could she have named the element? Explain your answer.

   Pupils' own responses, such as: She could have named it marium after her first name, Marie.

9. Compare Marie Curie's life in Poland to her life in France.

   Pupils' own responses, such as: When she lived in Poland, she was around her family but was not allowed to go to university which was her dream. When she was in France, she had left her family behind but she was able to go to university and study.

Marie Curie

Marie Curie is commonly noted as being one of the most influential scientists of all time. One of only two people to have won the prestigious Nobel Prize twice in their lifetime, her work on radiation is renowned worldwide and is still being used today.

Early Life

Born Maria Salomea Sklodowska in Poland on the 7th November 1867, Marie Curie was the fifth and youngest child of Bronislawa and Wladyslaw Sklodowska, who were both teachers.

At the time of her birth, Marie's father was a teacher of maths and physics. However, due to the changing law and political unrest at the time, it was declared that laboratory work would no longer be taught at school. Upon this news, Marie's father took the lab equipment from his place of work and began using it to teach his own children instead. It is widely believed that this is where Marie Curie first developed her fascination with the sciences.

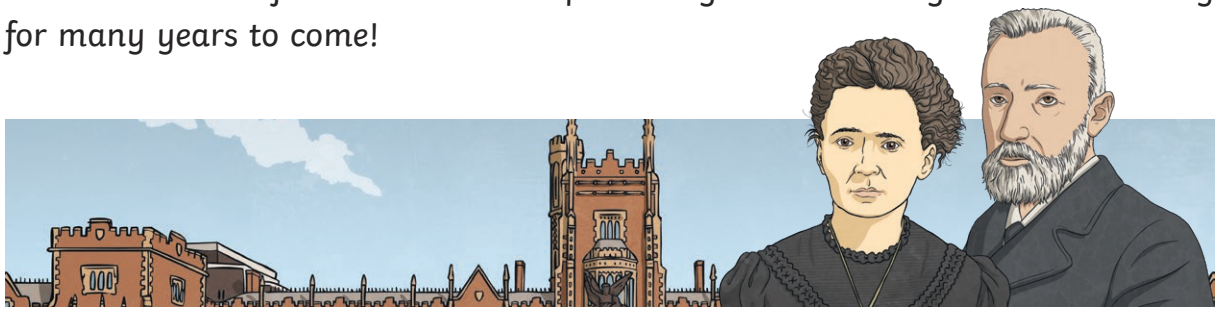
Moving to Paris

Marie's greatest dream was to go to university. Unfortunately, at the time, it was unheard of for women to be in the field of academia so she was unable to study in her homeland of Poland. Therefore, Marie made the difficult decision to leave her beloved Poland and head for France, where the Sorbonne University in Paris was accepting women.

While studying for a degree in physics, Marie had little money and often wore every item of clothing she owned in an effort to stay warm against the harsh Parisian winters.

An avid reader and with a real thirst for knowledge, it is said that Marie Curie often forgot to eat and drink as a result of being so involved in her studies!

It was here, in Paris, that the young Maria Sklodowska met Pierre Curie – a fellow scientist. In 1895, they married; Maria took on his surname and adopted the French translation of her first name – Marie. Opting against a traditional wedding, Marie chose to wear a dark blue outfit in lieu of a wedding dress; this was the same outfit she would end up wearing while working in the laboratory for many years to come!



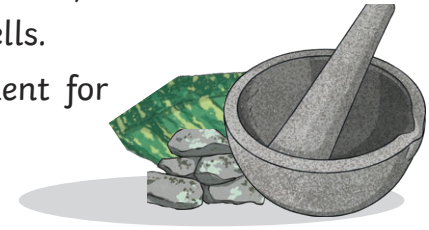
Discovering New Elements

Inspired by the work of Henri Becquerel, who had discovered radiation – tiny, high-energy waves that are small enough to penetrate the human body – Marie was convinced that there were highly radioactive elements that had not yet been discovered. Many people believed that she was wrong but this didn't dissuade her.

By now, her work had piqued the interest of Pierre, who subsequently chose to abandon his work on crystals to help Marie. Together, in an old shed attached to the university, they ground, burnt, melted, filtered and examined various materials; these materials were so radioactive that Marie would often spend the night watching them emit a slight glow.

It was this work that led them to the discovery of two new elements: polonium (named after Marie's beloved homeland) and radium. During one of her experiments, Marie noted that, when exposed to radiation, diseased human cells were destroyed a lot quicker than healthy human cells.

This led to the discovery of radiation as a treatment for cancer: a treatment still being used today.



- NOBEL PRIZES -

1903

In 1903, Marie Curie was awarded a joint Nobel Prize in physics for her scientific discoveries alongside Pierre Curie and Henri Becquerel.

In 1903, Marie Curie was awarded a joint Nobel Prize in physics for her work on radioactive elements alongside Pierre Curie and Henri Becquerel. Initially, due to the fact that she was a woman, the prize was only intended for the two male scientists.

Upon hearing this fact, Pierre complained to the committee who overturned the decision; Marie became the first woman in history to win the coveted Nobel Prize.

In 1911, she won a second Nobel Prize for chemistry, becoming the first person ever to receive two awards.

While we know today that handling radioactive materials is dangerous and requires suitable protection, little was known of their dangers at the time. Having spent her life carrying around these materials in her pockets, at the age of 66, Marie fell fatally ill as a result of radiation poisoning.

Marie Curie's work is still of incredible significance today and, in 2009, the New Scientist Magazine named her 'The Most Influential Woman in Science.'

Questions

1. Draw **four** lines and match each date to the event in Marie's life.

1895	named the most influential woman in science
1903	won the Nobel Prize in physics
1911	married Pierre Curie
2009	won the Nobel Prize in chemistry

2. Where did Marie Curie initially learn about the sciences? Tick one.

- ○ from Sorbonne University
- ○ from Henri Becquerel
- ○ from her father
- ○ from Pierre Curie

3. Why did Marie name her first element polonium?

_____

4. Look at the section titled **Nobel Prizes**.
Find and copy one word which means the same as 'changed'.

_____

5. Fill in the missing words.

We now know that radioactive materials are highly _____ and you need to wear suitable _____ when handling them.

6. Do you think that Marie should have moved to France? Explain why.

_____

_____

_____

7. Why do you think Marie Curie was named **The Most Influential Woman in Science**? Explain your answer.

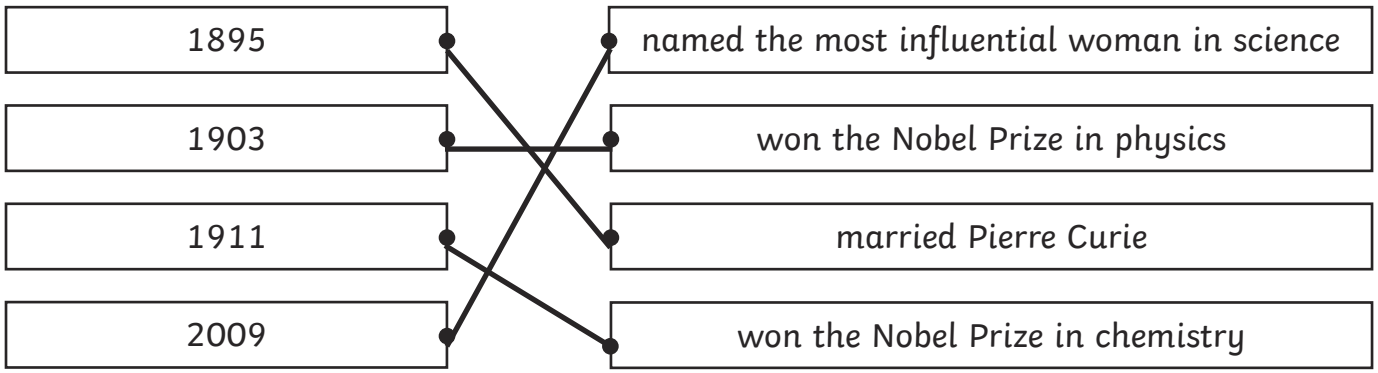
8. Look at the paragraph beginning **While we know today...**
If you were to travel back in time, what advice would you give to Marie Curie?

9. **Therefore, Marie made the difficult decision to leave her beloved Poland...**
Why do you think this was a difficult decision for Marie to make?

10. Discuss how Marie Curie's life would have changed had she not moved to France.

Answers

1. Draw **four** lines and match each date to the event in Marie's life.



2. Where did Marie Curie initially learn about the sciences? Tick one.

- ○ from Sorbonne University
- ○ from Henri Becquerel
- ✓ **from her father**
- ○ from Pierre Curie

3. Why did Marie name her first element polonium?

Marie named her first element polonium as she named it after her homeland, Poland.

4. Look at the section titled **Nobel Prizes**.
Find and copy one word which means the same as 'changed'.

overturned

5. Fill in the missing words.

We now know that radioactive materials are highly **dangerous** and you need to wear suitable **protection** when handling them.

6. Do you think that Marie should have moved to France? Explain why.

Pupils' own responses, such as: Yes, she should have moved to France because she was able to go to university and study to become an incredible scientist.

7. Why do you think Marie Curie was named **The Most Influential Woman in Science**? Explain your answer.

Pupils' own responses, such as: I think she was named the most influential woman in science because she never gave up on her dreams. Women weren't allowed to go to university in Poland so she moved all the way to France so that she could study and discover new elements. Her discoveries are still used in today's practice of medicine.

8. Look at the paragraph beginning **While we know today...**
   If you were to travel back in time, what advice would you give to Marie Curie?

   Pupils' own responses, such as: I would tell her to wear protective clothing and to not store the radioactive materials in her pockets.

9. **Therefore, Marie made the difficult decision to leave her beloved Poland...**
   Why do you think this was a difficult decision for Marie to make?

   Pupils' own responses, such as: I think it was a difficult decision because all of her family were in Poland and she was moving to a different country where she might not know the language or anybody.

10. Discuss how Marie Curie's life would have changed had she not moved to France.

    Pupils' own responses, such as: If she had not moved to France, it would be unlikely that she could have gone to university. Without going to university, Marie Curie might not have discovered polonium and radium and won two Nobel Prizes.