

Reading comprehension and activities for  
intermediate upper KS2 and KS3 EAL students

## Famous scientists



## Lise Meitner, the 'forgotten' physicist

'Life need not be easy, provided only it was not empty'

(Lise Meitner)



## Activity 1

Why does the title say that Lise Meitner was a 'forgotten' scientist?

Have a think and write your idea below. It doesn't matter if you don't get it right. Just have a guess! You will find out the answer to this question later when you read some information about her.

I think she was 'forgotten' because....

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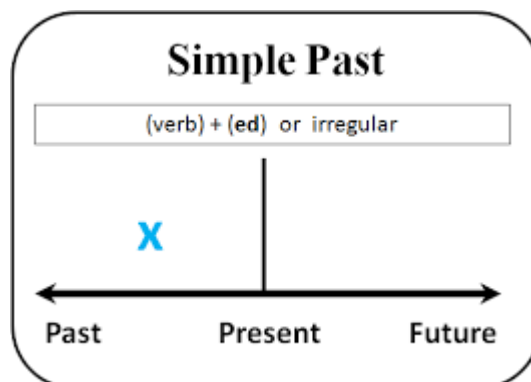
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Activity 2 - Let's start with some revision of the past tense before we read the fascinating life story of Lise Meitner. First, read through these revision notes.

## Past simple tense - revision notes

We use the past simple tense when we talk about something that started and finished at a definite time in the past.

Have a look at the timeline below:



There are 2 types of past simple tense verbs in English:

1. Regular verbs - you simply add **ed** to make their past form;
2. Irregular verbs - you have to learn and remember them because most of them need to be changed completely.

Don't forget the verb TO BE has different forms in the past tense too!

Here is a complete overview of the past tense:

Past simple – To be			
Affirmative	Negative	Questions	short answers
The film <b>was</b> fantastic	The film ... boring	<b>Was</b> the film good?	Yes, it <b>was</b> . No, it ...
We <b>were</b> at the cinema	We <b>weren't</b> there	... you there?	Yes, we ... No, we <b>weren't</b> .
They ... entertained	They ... bored	<b>Were</b> they bored?	Yes, they <b>were</b> . No, they <b>weren't</b> .
Past simple – Regular and irregular verbs			
Affirmative	Negative	Questions	short answers
The I <b>watched</b> a comedy	I ... a musical	<b>Did</b> you ... it?	Yes Yes, I ... No, I <b>didn't</b> .
She ... the soundtrack	She <b>didn't like</b> the acting	... she ... the actors?	Yes, she <b>did</b> . No, she ...
They <b>went</b> to the cinema	They ... to the cinema	<b>Did</b> they <b>buy</b> the tickets?	Yes, they <b>did</b> . No, they <b>didn't</b> .

We use the past simple tense with certain time expressions:

last	ago	yesterday
last night	10 minutes ago	yesterday
last Sunday	an hour ago	yesterday morning
last week	three days ago	yesterday afternoon
last weekend	a week ago	yesterday evening
last year	a month ago	the day before yesterday
last month	a year ago	



Activity 3 - Now let's read the text below to find out a bit more about Lise Meitner. Read it carefully because you will be asked to answer some questions later. Also, pay attention to the verbs in the past tense used in the text.

## Lise Meitner

### Her childhood and youth



Lise was born at the end of the nineteenth century (in 1878) in Vienna, which is the capital city of Austria. She had a big family: in fact, she had 3 brothers and 4 sisters. Imagine that at that time, girls weren't allowed to go to high schools or colleges! It was very unfortunate for her because Lise loved learning, especially maths and science. She even kept a diary with her scientific observations under her pillow, when she was only eight years old. However, Lise was very lucky because her parents supported and encouraged her to follow her dream of becoming a scientist. Her father, who was a lawyer, paid for her private education and she successfully passed her exams and went on to study Physics at the University of Vienna. Again, it was quite unusual for a woman to study at university and even more unusual to choose Physics. Nevertheless, Lise studied and worked very hard and obtained a doctoral degree in Physics in 1905. She was only the second woman to achieve this at the time.



## Her scientific career



In 1907, Lise moved to Berlin, in Germany and started working at the Chemistry Institute. She was working as an unpaid assistant and, what's more, women weren't allowed to work in the laboratories until 1909 so she had to set up one in the basement in a former carpenter's workshop. She couldn't even use the toilets and had to go to a nearby restaurant! These circumstances didn't discourage her and she carried on with her research in radioactivity and she made some important scientific discoveries, together with her colleague Otto Hahn. In 1926 she became the first female Professor in Physics in Germany at the University of Berlin, and in 1935 she was named the head of the physics department at the same Chemistry Institute she started working at.

## Escape to Sweden

Lise's family was Jewish (their religion was Judaism) and it was becoming more and more



## THE NUCLEAR PIONEER WHO ESCAPED THE NAZIS

dangerous to stay in Germany for her in late 1930s. With World War Two on the doorstep, on 13 July 1938 she had to flee from Berlin and escape to Sweden, without having time to pack her things and belongings. She was 59 years old. Even then she managed to continue her work and research through



the secret letters with her colleague Otto. Otto didn't understand the results of their experiment and asked Lise to explain them. It was Lise Meitner with her brilliant mind who discovered nuclear fission, which is the reaction that releases nuclear energy. A discovery, which was later crucial to the creation of an atomic bomb. However, she refused to have anything to do with making of a bomb and defended the peaceful uses of atomic energy.

### Why was she a 'forgotten' scientist?



Although Lise Meitner and Otto Hahn worked together for 35 years, only Otto was awarded the Nobel Prize, (which is a special top award given to the best scientists, writers and other exceptional people who made important discoveries or contribution to society.) Otto Hahn didn't thank her in his speech, nor did he even mention her name when he was receiving the award! Later in her life, the truth about her contribution to the science was recognised and Lise was given many other important awards. In 1997, the element 109 on the periodic table was named after her as *meitnerium*. She died in 1968 in Cambridge, England, when she was nearly 90 years old. The writing on her gravestone reads: 'Lise Meitner: a physicist who never lost her humanity.'



## And finally, some interesting facts

### Did you know that...

- 🔗 She shortened her name from Elise to Lise.
- 🔗 Her family was considered one of the wealthiest in their neighbourhood.
- 🔗 She was named 'Woman of the Year' by the National Press Club of the USA in 1946.
- 🔗 She volunteered as a nurse in World War One, managing X-ray equipment.
- 🔗 Albert Einstein called her 'our Marie-Curie'.
- 🔗 Her picture was on an Austrian stamp.



**Activity 4** - Before you answer some questions about the text you have just read, find and highlight 5 regular and 5 irregular verbs from the text used in the past form.



**Activity 5** - Now, let's see how much you remember. We will start with some straightforward factual questions that you can easily find the answers to in the text. Short answers will be fine.

Questions:	Your answers:
In which country was Lise born?	
What did she study at University?	
Why did she flee Germany?	
How old was she at the start of WW2?	

Let's do it the other way round now. You will have the answers and need to form the right questions:

Your questions:	Answers:
How many...	She had 3 brothers and 4 sisters.
How long...	She worked with him for 35 years.
What...	She kept a diary under her pillow when she was 8.
Where...	She set up her first laboratory in the basement.
Why...	Women were not allowed to use facilities at University.





Challenge! Can you make up 3 more questions and answers about the text completely on your own now?

Your questions:	Your answers:

**Activity 6** - Let's have 2 more challenging, 'thinking' questions now. You can write the answers down or if you are working with a partner, you can discuss them.

Lise Meitner once said:



1. Do you agree with her statement? Why or why not? Who is to blame if a scientific discovery is used in the wrong way - scientists who helped to discover it, or the politicians who decide to use it badly? Jot down a few of your ideas and discuss them with your partner:



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Look at this photo that shows a group of physicists:



How many women can you see? How and why has the situation changed since then? Are more women involved in science now? Why do you think it happened? What about you personally? Do you like science? Why or why not? Would you like to be a scientist and change the world for the better? Explain your reason here or discuss it with your partner:



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**Extension:**

**Activity 7** - Now it is your turn! Do you know any famous, influential or forgotten scientists? It can be a person from the past or present. Do some research to find out and write down some information about them. What did they discover? How did they change the world? Did they make the lives of other people better or easier? Don't forget to use verbs in the past tense and make your writing exciting and engaging for your readers!

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