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Stories of inspiring women in STEAM:

# Samantha Cristoforetti

Prepared by CESIE ETS



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# Samantha, the girl who went to space. Twice!





# From mountains to space

There is a place in northern Italy surrounded by beautiful mountains and crystal-clear lakes called Val di Sole, which means Valley of the Sun. In the middle of beautiful nature lived a little girl who was as sunny as the name of her home region. Her name was **Samantha**. She lived there happily with her mom, dad and brother.

Samantha was a very bright girl who loved reading and was very curious about the world around her. She enjoyed running on the grass and dreaming of the world beyond the skies. On summer nights, she would lie on the ground and watch the starry sky, imagining one day becoming an **astronaut** and reaching the stars.

Samantha's parents encouraged her and gave her all the freedom to dream and create her future. She was lucky to live in a time and place where she could study and do practically whatever she wanted. She had a lot of chances that she could take and the freedom to make her own choices.





### Question for children:

Do you think this automatically meant she would be able to reach her dream?



Of course not. Samantha didn't have to face so many issues that other girls and boys in different parts of the world or people living in the past. But it still takes curiosity to learn about new chances and not give up, so you can take those chances and enjoy them.

And Samantha had both chances and courage!

When she was only 18, she went on a fantastic adventure to learn and went to **Space Camp** in the U.S.A.





# A lot of studying

It's a long way to become a real astronaut. Samantha knew she would have to study, learn and practice a lot, but her dream fueled her interests, and the interests kept the dream alive.

To get the best education and experience many different things, she studied not only in Italy but also in France and Russia. The more she learned, the more passionate she became about everything connected to space science, engineering, and aeronautics. Eventually, she graduated from the Technical University of Munich in Germany with a degree in **Mechanical Engineering** and also in **Aeronautics Sciences** in Naples. Learning so much about mechanics and aeronautics brought her one big step closer to her dream.

## Fighter pilot

Once completed her studies, Samantha didn't go immediately to space. She began her career as one of the first women to be a **fighter pilot** in the Italian Air Force. She has flown six different kinds of military planes and has spent more than **500 hours flying** them.



### Question for children:

What do the jobs of a pilot and an astronaut have in common?

Pilots and astronauts fly vehicles, but pilots fly planes and astronauts fly in spaceships.

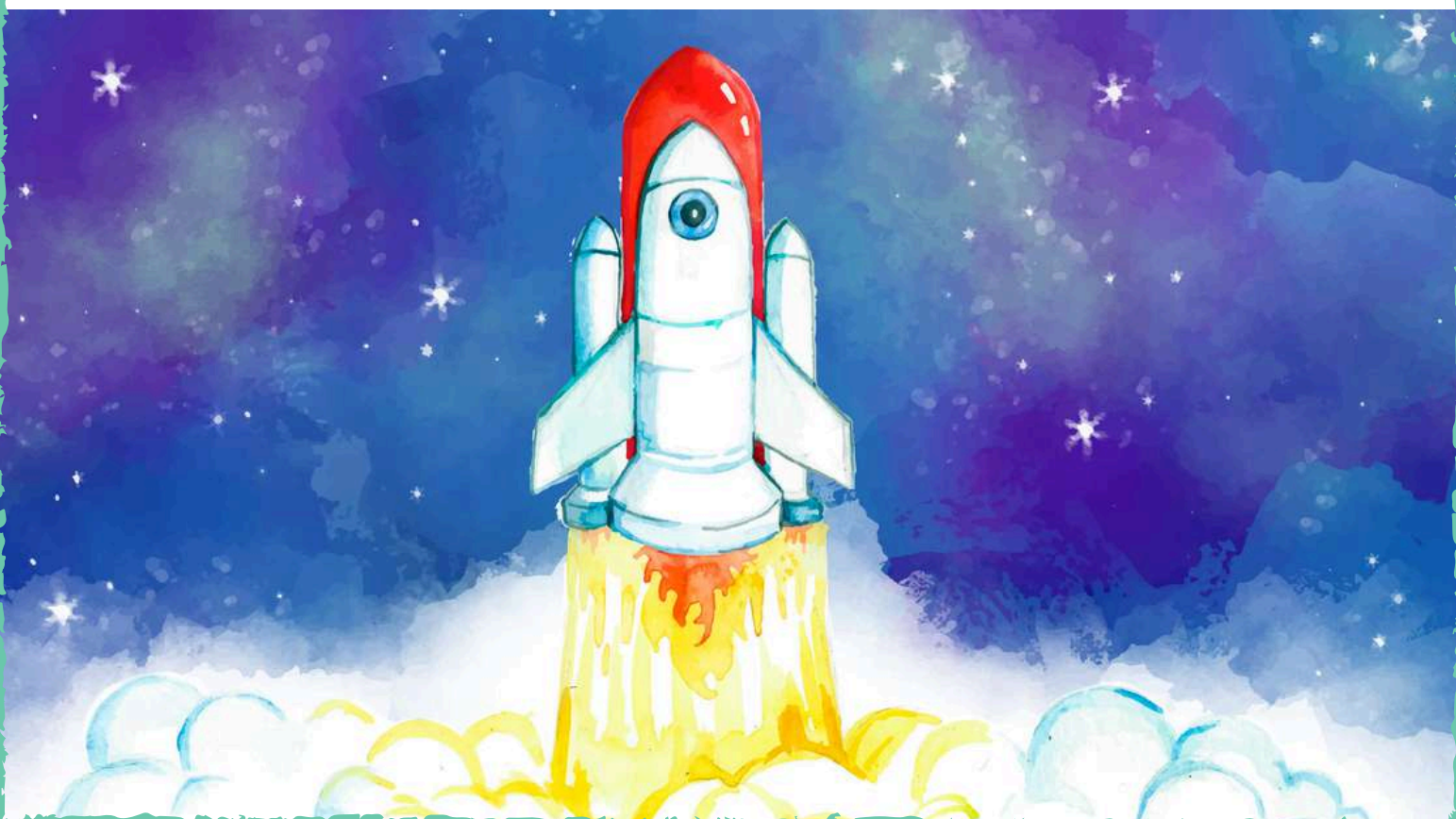
Both jobs need special skills, training, and a great attention to safety and precision.

# A step closer to her dream

When Samantha was 32 years old, she got a chance to become a real astronaut and depart for a long-duration space mission. The mission, called **Futura**, was organised by the European Space Agency and was headed to the International Space Station.

## Explanation for children:

The International Space Station, or ISS for short, is like a floating science lab in space. It's as big as a six-bedroom apartment! Astronauts from different countries live and work there together. They do all kinds of experiments to learn more about space and how things work up there. The ISS travels around the Earth once every 90 minutes, so the astronauts can admire the amazing views of our planet from space.





### Question for children:

How many people do you guess applied to take part in this space mission?

8.500! From these 8.500 applicants, Samantha was one of six selected to become an astronaut and travel to space. Congratulations, Samantha!

Not only was she going to space, but she was **the first Italian woman** to achieve this!



### Question for children:

How do you think Samantha felt being selected for a space mission?

She was super excited and happy because she was about to make her childhood dream of exploring space come true. However, it also meant a long and tiring preparation and being separated from her family and friends.

Once she was chosen for the space mission, Samantha didn't leave immediately for space. It was just the beginning of a very long and very tough training. Samantha's training included learning how to move in **weightlessness** and how to maintain and repair the machines inside the ISS. She also had to learn perfectly how to give first aid and use medical equipment in emergencies in zero gravity, and how to survive in case of landing in water. She also trained with a simulation machine, called a **centrifuge**, that made her feel eight times Earth's gravity.

Samantha also had to learn how to do simple daily tasks, including personal hygiene, eating and exercising, which are different and more difficult in space.

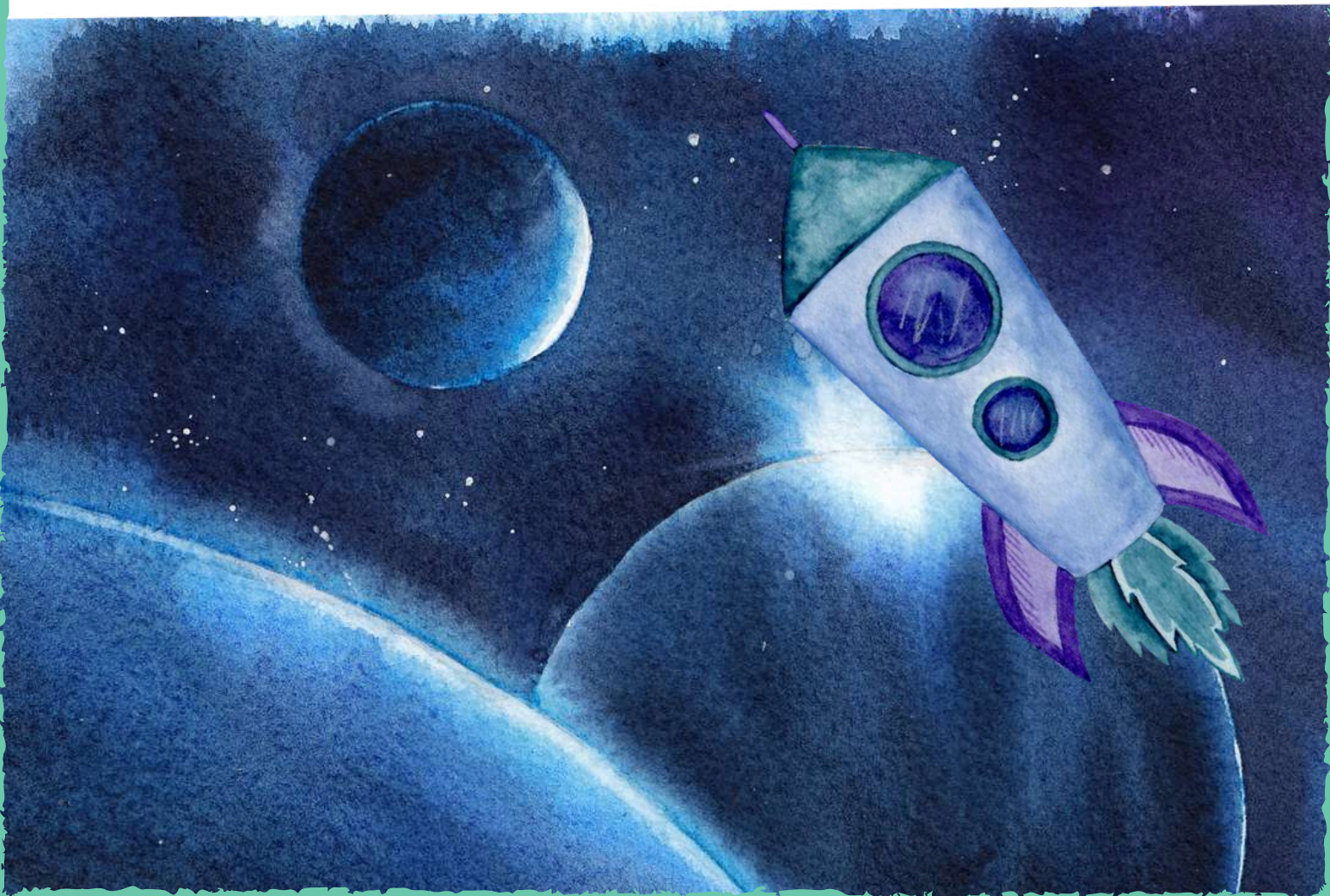




### **Explanation for children:**

In space, astronauts experience something called weightlessness or zero gravity. This happens because the ISS is always falling around the Earth, but it never hits the ground because it's moving so fast. Everything inside the ISS, including the astronauts, is always falling around the Earth. This makes it feel like there's no gravity, so astronauts float around like they're flying. It's a bit like swimming in water but without any water.

She had to learn so many things before leaving for space, and she was travelling in different countries to complete parts of her training: the USA, Russia, Germany, Kazakhstan and Japan.



# Finally in space

Four years later, Samantha was finally ready to depart for the International Space Station.



## Question for children:

**How long do you think it took Samantha and her crewmates to arrive in a rocket at the ISS?  
Roughly six hours! Quite quick, right?**

Samantha stayed in space for 199 days. It's more than half a year in a quite small space from which you cannot leave easily – well, there is a whole universe around you, but as an astronaut, you can't just easily go for a walk outside the station. Astronauts spend most of their time inside the station, doing experiments and learning about space. While she was on the ISS, Samantha worked on experiments to understand what it would be like to live in space for a long time and to prepare for trips to the Moon and Mars. She focused diligently on her work but on nothing else. She also **exercised** for a couple of hours a day!







### Question for children:

Do you know why it is so important to exercise in space?

Well, for the same reasons as on Earth, but in addition, because in weightlessness you would lose your muscle mass, strength and bone density much quicker without regular training.

While on her mission, she also launched a program for children called "**Mission X: Train Like an Astronaut**", where she encouraged children from all over the world to get fit and train with her.

Samantha was also the first person to stream on TikTok from space. But don't get me wrong, she wasn't doing funny dances. She was talking about life and work in space and about science. Because that's what girls are awesome at!



### Question for children:

Would you like to try training like a real astronaut?



# Back on Earth

Long months of Samantha's space adventure came to an end, and she had to return to Mother Earth.



## Question for children:

Can you imagine how Samantha felt coming home from the space?

Maybe she would miss the view from space, but she was definitely happy to breathe fresh air and, most importantly, hug her family and her husband **Lionel**. Lionel watched her journey with interest and admiration because he shared Samantha's passion for space science. He is an aerospace engineer and also trains future astronauts.

Once back on Earth, Samantha's life didn't get boring, and her career was no less important.

About a year after returning from space, Samantha started a new, exciting adventure - one of the most important and challenging in the world. She became a **mom** to a lovely girl, and five years later, to a boy.



# Return to space

In 2021, Samantha, an astronaut and a mom of two, was announced to take part in the next space mission called **Minerva**.

It was another dream come true. Even though she was excited to go on this amazing adventure, she might feel sad about leaving her two beloved children for six months. What a pity she couldn't take them with her.

They would surely enjoy it. Would you? Samantha's children would miss their mom, but they were also surely very proud of her. Isn't it cool that your mom goes to work in space and can blow you special starry kisses from there?

## The spacewalk

This time in space, Samantha had a special task. She became the **first European woman** to conduct a spacewalk. Yes, an actual walk-in space! What a thrill!

But don't be fooled. A spacewalk it's not like walking in a park. It's a bit less comfortable because astronauts have to wear a bulky **spacesuit**, but it's definitely exciting and unforgettable. Just imagine the view and the sensation of floating without gravity!







## Question for children:

Would you like to go spacewalking?

Samantha and her colleague Oleg didn't just go for a walk and star-gazing, they had an important task to do: they had to set up the European **Robotic Arm**. It took them 7 hours, and they did a great job.

Samantha's great work was recognised when she became the **first European woman astronaut** to be chosen as the **commander** of the ISS.





# AstroSamantha

After 170 days, Samantha safely landed back on Earth. Welcome back, AstroSamantha! What a joy to have you here and learn from you about Space.

In fact, Samantha doesn't keep the amazing experiences to herself and happily shares them with people, especially children!

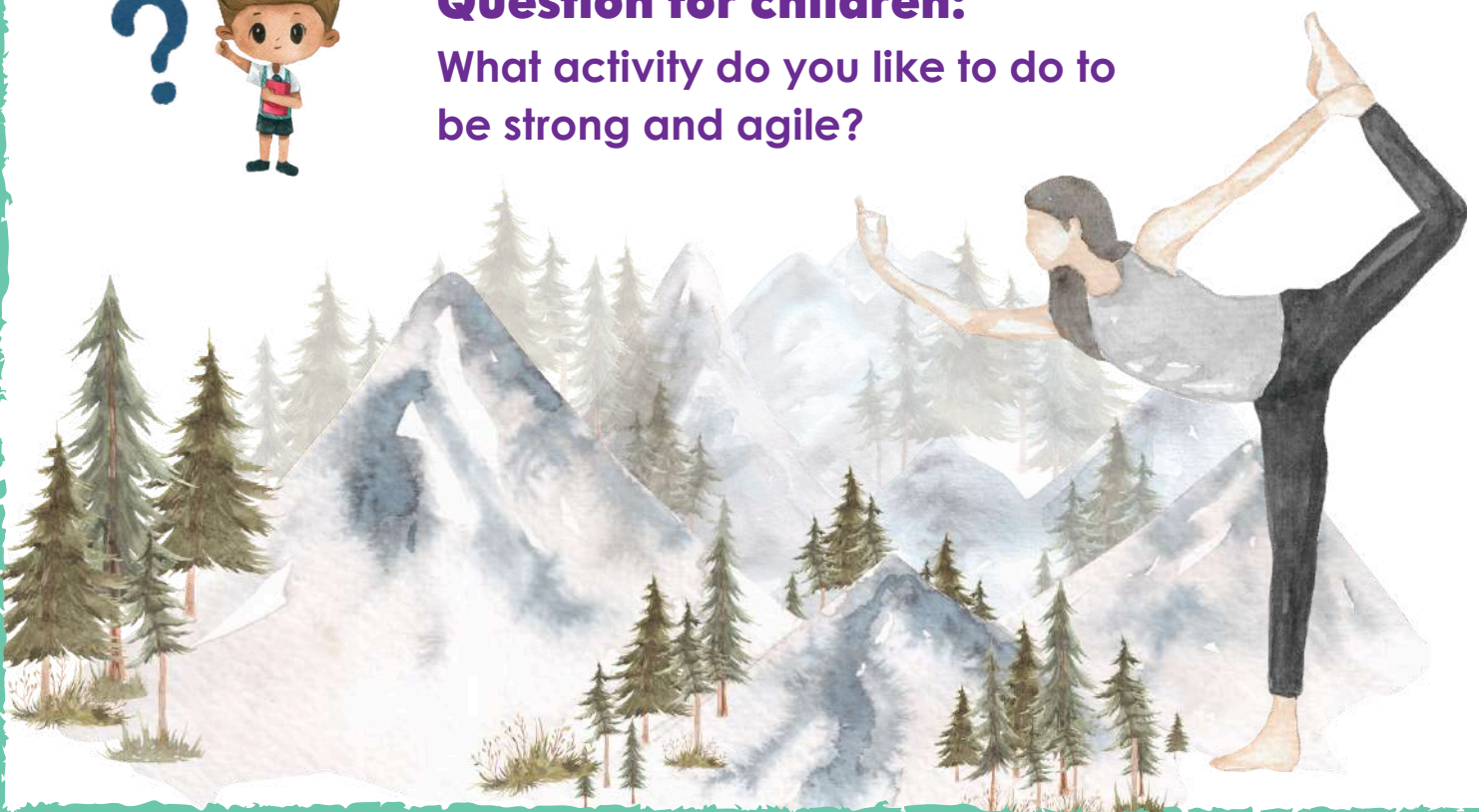
We can discover more about the exciting training and work of astronauts in her book **Diary of an Apprentice Astronaut** and in many videos on social media where she talks about science and life in space. She cares in particular about a **healthy lifestyle**. As an astronaut, she knows how important it is to keep fit, exercise and eat right.

When on Earth, Samantha enjoys returning to the mountains where she grew up to do hiking and also enjoys scuba diving and practising yoga.



## Question for children:

What activity do you like to do to be strong and agile?



# Follow your passion and keep learning

Having listened to the story of Samantha, you may wonder how many sacrifices she must have made to fulfil her dream of going to space.



## Question for children:

Do you think her training and work was a sacrifice for her?

In reality, Samantha says she has always just done what she felt like doing and what made her feel good. From when she was a little girl living in a mountain village, she felt a need to look for new challenges and new experiences. It doesn't mean it wasn't hard work, but she kept going thanks to her passion and curiosity.

To conclude our story, here's a piece of advice Samantha gives to all girls and boys: having a **dream** helps you look for chances to grow, and this makes your passions stronger. **Read a lot, study a lot.** And don't worry if you end up doing something different in life. All your interests and efforts will help you along the way.

She'd probably also wish you **good luck**, because, as she says, reaching your goals takes both talent and hard work. But sometimes, a little bit of luck and being in the right place at the right time can help too.

**Fun fact:** Did you know that Samantha has been awarded the title of Knight of the Grand Cross of the Republic, she has a Lego figure and a Barbie doll made after her and also an asteroid called Samcristoforetti? Isn't that awesome? What an amazing woman!



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