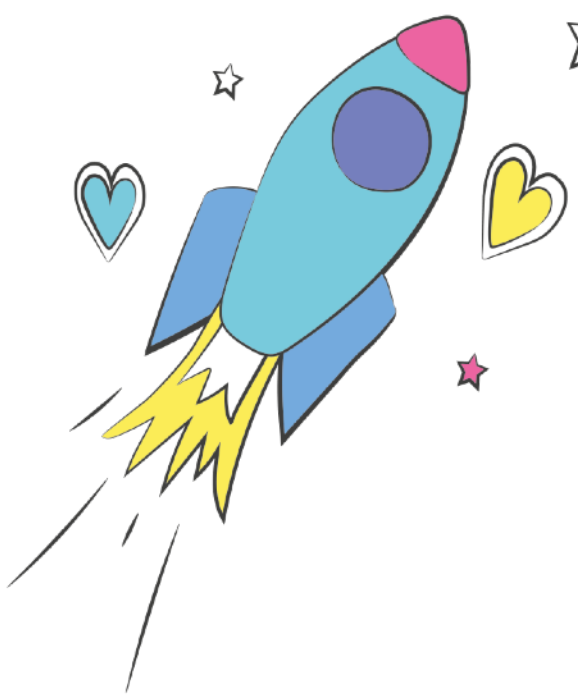


# The Cosmic Kids Astronaut Yoga Plan!

Yoga videos and classroom activities for kids aged 5-9  
Designed in conjunction with the European Space Agency







# ★ Hello from Samantha and Jaime! ★



**Hello!** My name's Samantha Cristoforetti. I'm an astronaut with the European Space Agency. I've asked Jaime from Cosmic Kids for her help. I'll be at the International Space Station this year and want to do yoga to stay strong. Jaime has developed a yoga plan for me to do in space. I hope you will join me in doing the yoga and learning more about space!

**Hello!** My name's Jaime. I'm the Cosmic Kids yoga teacher. I can't wait to see how my friend Samantha gets on in space - especially with her special yoga plan. Yoga is good for your body and mind. And Yoga in space is a new and exciting thing for Cosmic Kids - please join us on the journey!

Photo credit: ESA/NASA



# How and why to use this pack

At Cosmic Kids we're always looking for ways to get kids interested in the world around them and we try to do this at the same time as helping them feel the benefits of yoga and mindfulness.

The European Space Agency got in touch with us in 2021 asking us to explore the idea of Samantha doing yoga in Space. We are so excited to be the first people to work with an astronaut on yoga in space. We've made some VIDEOS about this project and this is the pack to go with those videos.

There is a lot of learning around yoga in this (how do you even do it in space? Why do astronauts need exercise and why is yoga good for an astronaut's body?) but there's also a lot of learning here about space (the ISS, gravity). We hope schools and families can use this pack in conjunction with the Cosmic Kids videos on YouTube and the Cosmic Kids App to learn about yoga and space. To make it helpful there are two different coloured boxes for you to look out for:

## Classroom ideas in yellow

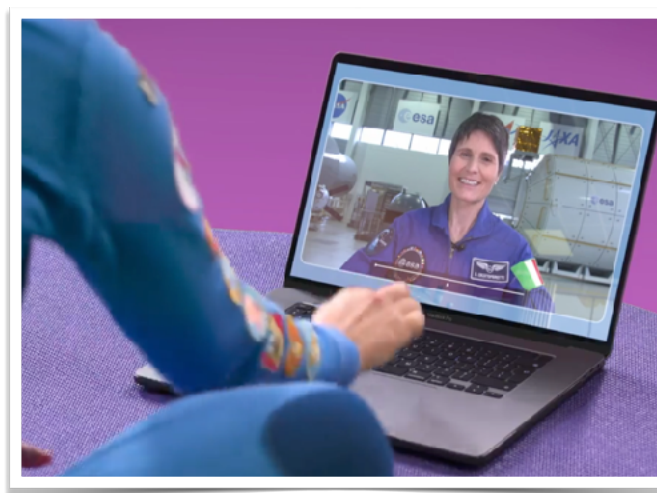
This pack has some great teaching ideas and videos to bring yoga and space to life. They're marked in these yellow boxes to make them easy to spot.

## 'Did you knows' in pink!

There is lots to learn about space, the International Space Station - and YOGA of course - in this pack. These factoids are marked in PINK and sourced from ESA and Cosmic Kids.

# Let's get started

Samantha Cristoforetti, an astronaut with the European Space Agency (ESA), asked Jaime from Cosmic Kids for some help. She wanted Jaime to develop a yoga plan to use when she is in space at the International Space Station (ISS). You can watch Jaime receiving the call from Samantha and developing the yoga plan here on YouTube [[YOGA IN SPACE - VIDEO 1](#)].



## Classroom idea

Follow along with the same yoga plan that Samantha will do in space! Just click on the link and it will take you to a free video on YouTube. It's a mix of learning about space and doing yoga. Duration 24 mins.





# Samantha's Yoga Pose Plan



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Sun Screen

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Hello Sun Breaths

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Crescent Moon (both sides)

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The Eagle has Landed! (both sides)

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Deep Space Dancer (both sides)

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Super Sonic Butterfly

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Hero Space Breaths

Print out this yoga plan and stick it on the wall. It's a handy reminder of the poses that Samantha will be doing in space to stay strong while she is in **microgravity**.

Students can try to guess how Samantha will do the poses in Space with microgravity!



# What is the International Space Station (ISS)?

## Did you know?

The International Space Station is the biggest object ever flown in space. It travels around the Earth at an average speed of 27,700 km/h, completing 16 orbits per day. At night it can easily be seen from Earth, as it flies 320 kilometres above us. 16 countries, including the USA, Russia, Japan, Canada and many ESA member states worked together to build the Station. Samantha will live on the ISS for several months. Source: ESA

## Classroom idea

Imagine what life in the ISS will be like for Samantha. How do you sleep? How do you exercise or go to the toilet? Take a look at this link to learn more from ESA about life in Space.

[LIVING IN SPACE](#)



# Classroom idea

## What would it take to be an astronaut?

Being an astronaut is an incredible job, and Samantha will have experienced all sorts of challenges, adventures and obstacles along the way. What do you think are some of the personal qualities you might need to be an astronaut?

With a friend or with your class, talk about how an astronaut would need to demonstrate the qualities below - when would they need to show these qualities, how might they practice and build these qualities, what other personal qualities might they need:

- Confidence
- Positivity
- Leadership
- Team work
- Bravery
- Responsibility
- Resilience
- Calm
- Strength



Photo credit: ESA/NASA



# Jaime's trip to the European Astronaut Centre

Samantha invited Jaime to come to the European Astronaut Centre in late 2021 to learn more about her mission and the International Space Station. She met a number of the interesting people who prepare astronauts, like Samantha to go to space and run the space program - and she did yoga with Samantha!



## Classroom idea

Watch Jaime's trip to the European Astronaut Centre to meet everyone here:

[YOGA IN SPACE - VIDEO 2](#)

Take a look at other [CAREERS IN SPACE](#) and see what inspires you.



# Classroom idea

## Your Dream Job

Samantha becoming an astronaut is an amazing achievement, and a dream job for many children and adults! If you could do any job in the universe, what would it be? Would it be on the International Space Station, or something totally different?

**Draw a picture of you doing that job, and then write down or discuss it with a friend:**

- Why you want to do that job?
- Would it be fun, or hard, or easy, or challenging or all of them?
- What do you think you might need to do to be able to do this job?
- What help might you need along the way?
- How would you feel if you made it to doing this job?



# Yoga in Space is useful but challenging!

Yoga needs gravity. Our body works against the forces of gravity when we're doing yoga and this is why it takes energy to do it, why we become strong doing it and why we feel relaxed and tired afterwards.

But in space astronauts don't feel the same effects of gravity like they do on Earth. Samantha is going to have to work out how to do yoga in microgravity on the space station. She is going to send a report from the ISS about how she does it.

**Stand by! We'll share it on all our channels as soon as we get it!**



Photo credit: ESA/NASA

## Did you know?

Once a spacecraft reaches orbit, everything inside it appears to be weightless. This is called **Microgravity**. Anything (or anyone) that is not tied down will float. In microgravity, the body doesn't have to work as hard, so bones and muscles can become weak. To stay fit, astronauts have to exercise several hours each day. This allows them to recover more quickly when they return to Earth.

Source: ESA

## Classroom idea

Try to work out how Samantha might do the poses in space with microgravity! What will happen when she does yoga if she's not holding on to something? What props could she use? Try working it out based on some of the yoga poses in her plan. See the next page for the props Samantha will have on board!





# Props for Yoga in Space!

In preparation for Samantha doing yoga in space she was able to pack some resistance bands like the ones being used for here. There are also handles and bars fixed to the floor, walls and ceiling of the ISS to hold onto.

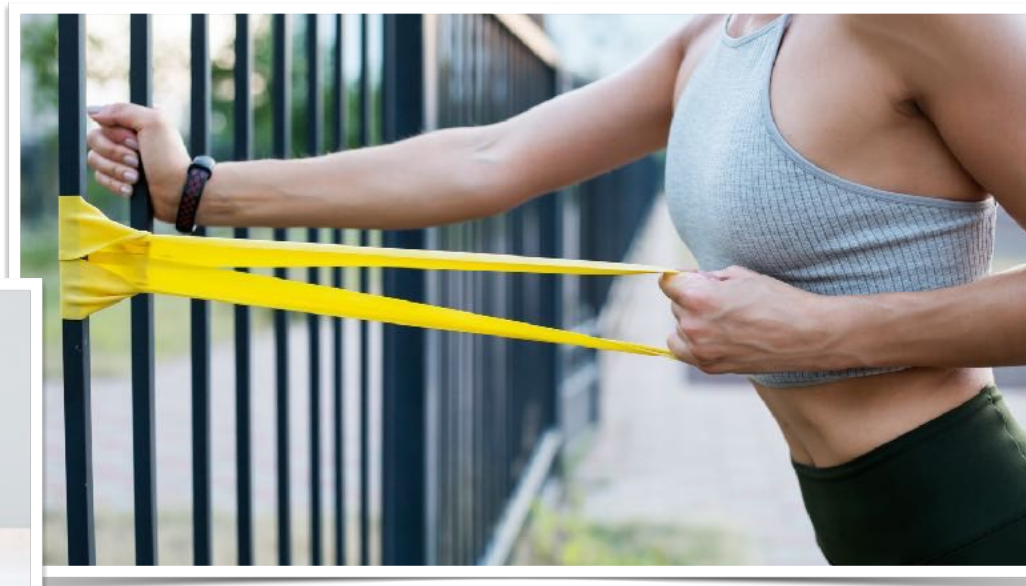
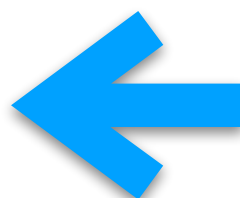


Photo credit: ESA/NASA



## Classroom idea

Look at the photo on the right. Can you see the handles and bars the astronauts hold onto?

Can you work out how Samantha could use the handles and the resistance bands to help her do the poses?

How many people can you spot in the photo?

# The Yoga Plan

## Pose by pose

Follow along with Samantha as she does her Cosmic Kids Yoga plan in SPAAAAAACE!





# Sun Screen

## Instructions

Use rapid pats all over the body – down each arm, the sides, inner part of the arms, chest, abdomen, fronts, insides, outside and backs of the legs, the bottom, the back. Gently pat the head. Then use fingers to patter all over the face.

## What it does

- Energises and wakes up the whole body
- Stimulates nerve endings
- Improves circulation

**“I use this to start any yoga practice. It’s a great way to energise. It’s taken from Qigong which is all about balancing energy.” Jaime**

## Did you know?

The Sun is our nearest star. This huge ball of superhot gas provides us with light and heat, but also gives out dangerous ultraviolet light which causes sunburn – good thing we have sunscreen. Here on Earth, we have daylight, oceans of liquid water, and life, all thanks to our Sun! Source: ESA



# Hello Sun Breaths

## Instructions

Stand with feet hips distance. Arms down by the sides. Exhale. Inhale as you sweep both arms up sideways, reaching arms up at the top, keeping shoulders down. Look up to your hands as you reach up. Exhale and lower the arms back down. Repeat. Keep the movement in time with the breath.

## What it does

- Lengthens the spine
- Synchronises the breath with movement
- Stretches the sides of the body
- Makes space for the lungs to expand and diaphragm to move

**“Combining breath and movement gets us moving mindfully. It’s super calming for the brain too.” Jaime**

## Did you know?

There are 16 sunsets and sunrises every 24 hours on the ISS, so it is not easy to know when it is time to sleep. Astronauts work and sleep according to a daily time plan. Source: ESA





# Hello Earth!

## Instructions

From standing position, slowly roll down the spine, starting with the chin to chest, then one vertebrae at a time. Keep a slight bend in the knees to avoid hyperextending the legs or allow the lower back to release. Let the head feel heavy and feel the spine lengthen. You can also try swaying gently side to side at the bottom.

## What it does

- Allows the back to release
- As you lengthen the legs, you get a stretch through the hamstrings

**“In space, perhaps try holding a handle with the hands at the bottom, or stepping on the hands (as shown in the second picture) to maintain the arms in a lowered position.” Jaime**

## Did you know?

Earth is the only world we know that has large areas of surface water and a lot of oxygen in its atmosphere. From space the Earth looks like a blue planet. This is because about seven tenths of its surface is covered by oceans. It is also the only world known to support life.

Source: ESA



# Crescent Moon

## Instructions

Stand, bring the feet together and sweep the arms up overhead, so the palms touch. Inhale, and lift through the sides. Exhale, leaning over to one side, making a crescent moon shape. Take a breath here to fill the open side then come back to centre and try the other side.

## What it does

- Stretches the intercostal muscles
- Strengthens the core and obliques
- Increases shoulder mobility

**“In space, this could be done with the feet under a handle and the hands holding onto something on the side wall” Jaime**

## Did you know?

Today, most scientists believe the moon was formed when a wandering planet crashed into the young Earth. Huge amounts of material were thrown into space, eventually coming together to form the Moon - 'Earth's Child'. Source: ESA





# Cosmic Camel

## Instructions

Stand with the feet hip distance apart. Place the palms at the lower back for support, drawing the elbows together. Curl the shoulders up, and back as you lift the chest and steadily arch back. A small bend in the knees as you curl the shoulders can also encourage the movement. Use the exhale to release more into the arch. After 2/3 breaths, slowly roll back up to stand still for a moment to absorb the pose.

## What it does

- Stretches and opens the chest
- Stretches the abdomen and hip flexors
- Increases mobility in the spine

**“I encourage kids to blow a raspberry (like a camel!) in this pose to release tension and avoid holding the breath in the pose.” Jaime**

## Did you know?

Space is huge! The distance between the Earth and the Sun is about one hundred and fifty million kilometres. The next nearest star, Proxima Centauri, is about 38 000 000 000 000 km (thirty eight million million kilometres) away. Source: ESA



# Triangle Shooting Star

## Instructions

Step the feet wide with the back foot at a 90° angle. The front foot pointing to the side. Stretch the arms wide, and look over the front outstretched arm. Move the body forwards as if someone is pulling the front hand. When you can't go further forward, tilt down, taking the hand to the inside of the ankle. Stretch and open the chest and look up to the top hand. Breathe. Come back up to stand and repeat the pose on the other side.

## What it does

- Strengthens the legs and back.
- Stretches the waist, adductors and abductors
- Opens the shoulders and chest

**“Keep a tiny bend in the front knee to avoid hyperextension. Imagine your body is evenly centred between two plates of glass” Jaime**

## Did you know?

Most comets are so small and so far away that we cannot see them, even in the biggest telescopes. But we can see them when they head inwards toward the Sun and grow tails of gas and dust. (The word comet means 'hairy star'.) Source: ESA





# Jedi Warrior Pose

## Instructions

Step the feet wide with the back foot at a 90° angle. The front foot pointing to the side. Bend into the front leg, keeping the knee in line with the ankle and heel. Stretch the arms wide, and look over the front outstretched arm.

## What it does

- Strengthens the legs.
- Opens the hips and chest
- Helps us feel grounded and powerful!

**“Avoid the front knee turning inwards, and think about grounding through the outside edge of your back foot.” Jaime**

## Did you know?

Small chunks of rock that travel through space are known as meteoroids. If they enter a planet's atmosphere and burn up, they are then seen as meteors. Space rocks that land on the Earth are known as meteorites. Source: ESA



# The Eagle has Landed!

## Instructions

From standing, bend the knees and cross one leg over the other, wrapping it around the calf of the standing leg. Scissor one arm under the other, and lift them up wrapping the forearms around each other, so the palms or backs of the hands touch. Bend more into the standing leg to squeeze the thighs together and increase the twist. Take a few breaths in the pose before unravelling and trying it again on the other side.

## What it does

- Strengthens and stretches the ankles, calves and shoulders.
- Improves circulation, coordination and balance.

**“The more you squeeze into your thighs, the more you’ll feel a sense of the release when you unravel from the twist.” Jaime**

## Did you know?

In July 1969, Apollo 11 astronauts Neil Armstrong and Buzz Aldrin were the first people to step on the Moon - 4 days, 6 hours and 46 minutes after liftoff.





# Deep Space Dancer

## Instructions

Standing tall, take hold of the inside of the foot behind you. Focus on a spot in front of you to keep balanced. Lift your other arm up to the sky, and begin to press your back foot into your hand to create resistance. Tilt the body forwards, keeping the hips in line staying calm and balanced. Breathe and enjoy the pose before coming out the way you came in. Repeat on the other side.

## What it does

- Stretches the shoulders, chest, groins and abdomen.
- Improves concentration and balance.
- Strengthen the legs and ankles.

**“Think about being strong in the standing leg and (in Space) use a band to reach the back foot if needed.” Jaime**

## Did you know?

The Universe is extremely huge, containing billions of galaxies, each containing millions or billions of stars. Our solar system is located in the Milky Way Galaxy. Travelling at the speed of light (300,000 km per second), it would take 100,000 years to cross our Milky Way galaxy alone. Source: ESA



# Super Sonic Butterfly

## Instructions

Sit with the spine long. Bring the soles of the feet to touch, knees drop out to the sides. Try fluttering the knees up and down to encourage more release.

## What it does

- Opens the hips.
- Stretches the inner thighs and groin.
- Stimulates the bladder and kidneys.

**“If the knees are very high, try sitting on some height to get the pelvis higher. This will help avoid hunching in the back.” Jaime**

## Did you know?

Have you noticed what happens if you let the air out of a balloon? The air goes one way and the balloon moves in the opposite direction. Rockets work in much the same way. Exhaust gases come out of the engine nozzle at high speed pushing the rocket forward. Source: ESA





# Hero Space Breaths

## Instructions

Sit in a kneeling position with a hand on the abdomen and a hand on the chest. Begin by breathing gently, noticing the rise and fall of the chest and tummy. Close the eyes if it helps focus. After a few breaths, add a silent count of 2 between the inhale and exhale. On the next breath, count 3 (again silently) between the inhale and exhale. Then 4, 5, 6, 7, and 8. Keep the count steady. From 8, come back through 7 down to 2. Open the eyes and release from the pose.

## What it does

- Calms the mind and nervous system

**“You can also add the count between the exhale and next inhale. I suggest go to 8, but of course take it steady and if you need to breathe, breathe!” Jaime**

## Did you know?

Astronauts have to exercise for 2.5hrs a day on the ISS. One hour of this time is spent on a specialised running machine which they are attached to to stop them floating away. Some astronauts have even run a marathon in space! [WATCH TIM PEAKE HERE](#)



# USEFUL RESOURCES

## YOGA

Watch all our videos ad-free on the Cosmic Kids app: [app.cosmickids.com](https://app.cosmickids.com)

Cosmic Kids website: <https://cosmickids.com>

Yoga Quest: <https://www.cosmickids.com/yogaquest/>

## SPACE

The European Space Agency website: <https://www.esa.int/>

ESA Kids: <https://www.esa.int/kids/en/learn>

Samantha's second mission: <https://www.esa.int/Minerva>

ESA Education: <https://www.esa.int/Education>

ESA Stem platform:

[https://www.esa.int/Education/Teachers\\_Corner/European\\_Space\\_Education\\_Resource\\_Office](https://www.esa.int/Education/Teachers_Corner/European_Space_Education_Resource_Office)

ESA Mission X, Train Like An Astronaut: <https://trainlikeanastronaut.org/>



**COSMIC  
KIDS!**



# Thank You!

Well done and thanks for joining us on this exciting  
adventure into SPAAAAACE!



If you do any of the activities from this pack and post online,  
please tag us (@cosmickidsyoga) and use the hashtag **#yogainspace**

