A trip to the International Space Station

Did you know it's been over 60 years since Yuri Gagarin went into space as the first human? And only 570 people have followed in the footsteps of the Soviet astronaut. Flights into space are just a dream out of reach for most of us, but you can organise a make-believe flight of your own in your Orange Lab. Let us visit the ISS together!

AGE
13–18

DURATION
60–80 minutes

NUMBER OF PARTICIPANTS
12

OBJECTIVES

The participant:

- knows the capabilities of VR in education and entertainment,
- can obtain the information they need from audiovisual materials,
- knows what the ISS is, how it was constructed and how it functions,
- works in a peer group,
- seeks to function better within the peer group,
- develops a sense of belonging to the local community.

EQUIPMENT AND MATERIALS

- ISS jigsaw puzzle (Appendix 1) – one copy for three participants and an envelope to put the pieces into (before the workshop, cut out the puzzle pieces and place each set in an envelope),
- glue (one stick for three participants),
- a piece of stiff cardboard, A4 size (one for three people),
- a printout of the worksheet How the ISS was constructed – one copy for each participant (Appendix 2),
- blank pieces of paper, A4 size, one for each participants; pens or marker pens, preferably various colours,
- a piece of string about 6-7 m in length and washing pegs,
- a comupter and a projector or large-screen monitor,
- a VR headset with the Mission: ISS: Quest installed.

APPLICATION

Mission: ISS: Quest
https://www.oculus.com

scan QR code

Note: this script uses an app for the Oculus Quest 2 headset. If you have another headset, find a similar app that works with it.

WORKSHOP

Welcome

Greet the participants and ask them to stand in a circle so that they can move around freely. Tell them you will be going on a journey into space today and before you go, you need to warm up your bodies and minds.

Start with a simple game. Ask the person to your left to say their name and make a gesture that would in some way be related to the outer space. The associations can be however loose you like – from the takeoff of a rocket, to the turbulences during the start or eating breakfast in zero gravity: the more creative, the better! The subsequent participants follow after repeating the names and the gestures. Once the last person has recreated the space choreography, perform it together at the same time.

Introduction

All warmed up and good to go? Time for the first task. Split the participants into groups of three and hand each of them an envelope with a puzzle set, a piece of stiff cardboard, and glue. Ask them to put the puzzle together and tell them you will be focusing on the object in the image to be put together. Once they have done the puzzle, ask them if they recognise the object and what they know about it. Recap the information and tell the participants that the VR session will help them see the object a little closer.

Main part

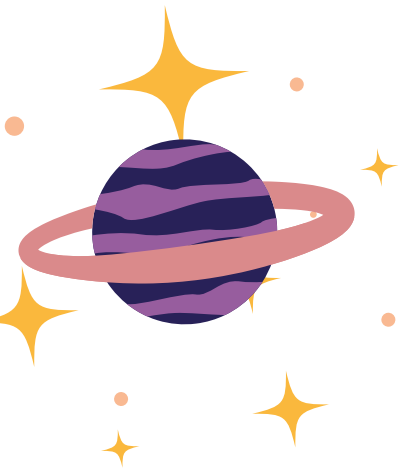
The International Space Station: theoretical introduction

Ask the participants to sit comfortably in the area where you will be playing the projected video, and hand out the How the ISS was constructed worksheet (Appendix 2). Tell them you will now watch a short film about the ISS on the National Geographic YouTube channel and the participants will need to find the answers the worksheet questions.

After watching the video, find a little extra time (if necessary) for the participants to complete the answers using computers, tablets or their own smartphones. Once everyone is ready, check the answers to the worksheet questions. Also, talk about the general impressions based on the video – ask the participants what they found the most surprising or intriguing. In the meantime, use the projector or the large screen to play the live feed from the ISS available **here**. Together, look at the view from the station and make sure you check its current position by clicking the blue button See the current position of the ISS just above the camera feed.

What if...

Every now and then, if the visibility is good, the ISS is visible to the naked eye. As you plan your workshop, you can check when it is visible in your area – to do that, type the name of the town in the search box on the ISS Tracker website. Perhaps you can time your workshop to coincide with the passage of the ISS: if so, it is worth adding the observation of night sky to the workshop! Please note, however, that the time slots when the ISS is visible tend to very brief, so punctuality is of the essence.



The ISS: practical part

After the introduction has concluded, it's time for the high point of the workshop – a visit to the ISS! Tell the viewers that in a moment, thanks to the VR headsets, they will able to experience the interior of the ISS like the astronauts who move within it.

Before you set off on that special journey, organise the space for the VR experience. You will just need a couple square metres of uncluttered space with no obstacles like furniture or other objects.

To get the entire group involved, it would be best to Chromecast the visual feed from the headset and show it either via the projector or on the large screen. This will allow the participants not wearing the headset at the given moment to watch the actions of those who are, to support them and suggest their next moves.

All set? Ask the first volunteer to put the headset on, and off we go!

Allow each participant a few minutes to experience the space with the headset on, making sure they are keeping their balance.

Important points

The Mission ISS app has a relatively long but impressive intro – we are somewhere in the outer space, and the ISS is hurtling towards us!
The start screen of the app offers three modes: Training, Missions, and Explore. For a first experience with VR, we suggest a short immersion experience with the last of these modes, where there are no tasks or missions, and the user can simply become an astronaut onboard an ISS with zero gravity for a few minutes. Bear in mind this is a very realistic and peculiar sensation, which can get your head (literally) spinning even if you're a tough nut. It is therefore worth ensuring that the participant wearing the headset is safe, as they may be thrown off balance.
To get on board the ISS, click the Explore option. This opens a screen with simple instructions for each controller button. It is worth remembering three of those:

- the thumbstick of the left controller: moving it forwards and back enables you to move in these directions,
- the thumbstick of the right controller: changes the viewing angle,
- the side grip buttons of both controllers: enable the user to grip the handrails and various levitating objects.

Once you're familiar with the instructions, press any button on any controller, and off we go!

Conclusion and evaluation

It's time to get back to earth – though we imagine after this dose of emotions it might not be easy. Once everyone has visited the ISS, ask the participants to sit down in a circle. Give each participant a blank A4 page and a marker pen, and ask them to take a moment and write down a single word that best sums up their 'cosmic experience'. This can be the dominant emotion, a detail that stayed in their memory while in the ISS, or something they remembered from the introduction – anything they think of first.

Hang the string in a visible place in your Orange Lab. Once everyone is ready, ask the participants to come up to it and use the washing pegs to hang their keyword from the string, and to briefly explain why they chose it. You can also hang the jigsaw puzzle you did earlier. In this way, you can make a unique gallery and a reminder of this unusual meeting.

Find out more

If the subject has caught your attention and you'd like to find out more about outer space, make sure you check out:

- *The Universe in Your Hand by Christophe Galfard:* a very accessible book about the universe for the uninitiated, which will allow you to travel to the most distant corners of the universe,
- those of you who speak Polish can listen to the *Kosmiczne rozmowy podcast*, with news and trivia about journeys into outer space and the Polish space industry.

Appendixes:

1. Appendix 1 – *International Space Station: jigsaw puzzle*
2. Appendix 2 – Worksheet: How the ISS was constructed

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