

# Engage with Space Toolkit

## space4youth Activity

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# Introduction

## About the spaceEU Engage with Space Toolkit

Space science is a rich and powerful tool in science education, as the excitement of space can open doors to reach new audiences and engage young people in STEAM. Humankind shared fascination with space can encourage young people to follow STEAM related careers while inspiring and broadening their minds. Engage with Space toolkit is a ready-to-use digital collection of space centred activities with a specific focus on girls and underserved communities. These activities encourage and help schools, youth centers, museums, universities, NGOs and informal learning spaces to bring together students, families, space professionals, their communities and more to engage them with the wonders of space.

The spaceEU Engage with Space Toolkit is comprised by:

### Step into Space Exhibition

Step into Space exhibition consists of three flexible modules which allow to build a regional connection and engagement. The exhibition looks into how space exploration has been an intrinsic part of our lives, contributing to new technologies we use here on Earth, assists us in thinking about how to protect our planet, and inspiring us to think outside the box and to cooperate.

The architectural design allows you to adjust the exhibition to your needs; space and content wise. You can find graphic templates and detailed handbook about how to build the exhibition here and in the download section of spaceEU. We encourage you to invite and collaborate with local artists who can contribute to the exhibition.

#### Modules

- What We Made from Space
- Through the Lens of Space
- A Creative Space

### Engagement & Education

The Engage with Space Toolkit presents detailed instructions for implementing spaceEU engagement formats. The formats presented here are trialed and tested, which doesn't mean they can't be modified to best suit local contexts. Engage with Space offers in detail one way to implement spaceEU engagement formats and we highly encourage you to adapt and adjust these formats to your needs. You know your audience and local partners the best!

The formats aim to reach two main target groups and can partly be combined and integrated in the exhibition.

#### Children and Youth

- Space in the Classroom
- space4youth
- space4youth Open Call
- Open Space Lab (integrated in the exhibition)

#### General Public

- Space Café
- Citizen Space Debate
- Space Unconference

With the exhibition and the engagement programmes the spaceEU project address the following objectives:

- We aim to inspire young people with space topics and encourage them to consider careers in the space sector.
- We want to celebrate the accomplishments of European space science and demonstrate how European society benefits from the space sector.
- We plan to highlight past and present contributions by women and minorities to the advancement of the space field and promote a diverse and inclusive space sector.

Find the complete spaceEU Engage with Space Toolkit at [www.space-eu.org/toolkit](http://www.space-eu.org/toolkit).

### **About spaceEU**

spaceEU ([www.space-eu.org](http://www.space-eu.org)) encourages young people to choose careers in science and technology on the one hand and stimulates a sense of European and global citizenship on the other. An exhibition and a wide range of engagement programmes use the excitement of space and the beauty of the Earth in order to convey these stories. Our main target audience are youth and families with a specific focus on girls and youth from underprivileged communities as well as professional stakeholders.

# space4youth Activity

Overview	
<p><b>Description</b></p>	<p>This peer-to-peer event format introduces space topics to a young community. In a co-design session participants learn how to teach, gain confidence in presenting and start sharing their own knowledge and skills with their peers. Further, they will implement their own ideas as an event. The event can be a talk, a skill sharing session, a tour through an exhibition, a workshop, a TedX style youth conference etc. The peer to peer aspect here is most important.</p> <p>The activity has 2 parts:  <b>space4youth Co-design:</b> Forming a group, finding topic, learning how to teach and share skills.  <b>space4youth Event:</b> Implementing the developed event with peers.</p>
<p><b>At a glance</b></p>	<p><b>Suitable group size:</b> Depending on scale. We recommend to start with a group not bigger than 20 participants.</p> <p><b>Coordination Time:</b> 2 months</p> <p><b>Duration of activity:</b> space4youth Co-design: 6h space4youth Event: depending on the outcome of Co-design session.</p> <p><b>Cost per Student:</b> Low Cost</p> <p><b>Age:</b> 12-19</p> <p><b>Education Level:</b> Middle School Secondary School Informal Learning</p> <p><b>Types of Learning:</b> Peer to peer Fun activity Reflective practice</p> <p><b>Materials:</b> Post Its, white board or large paper to write on, maybe computer, video projector, seats, other workshop materials as required</p>

	<p><b>Place:</b> Workshop/ event space in formal or informal education organisations, such as schools, science centres, youth centres,etc.</p> <p><b>Catering:</b> Optional Snacks and Drinks</p> <p><b>Promotion:</b> Aim to reach new audiences with actively outreach to underprivileged communities.</p>
<p><b>Goals and Objectives</b></p>	<p>Goals</p> <ul style="list-style-type: none"> <li>● Engage students with space related topics, building connections between their own interests and space</li> <li>● Engage underprivileged youth and girls</li> <li>● Peer-to-Peer learning and skill sharing</li> <li>● Build confidence, self-efficacy &amp; Decision making</li> <li>● Improve teamwork, collaboration skills</li> </ul> <p>Objectives</p> <ul style="list-style-type: none"> <li>● Teach to teach</li> <li>● Allow students to design their own teaching session</li> <li>● Adapt teaching methods towards their own interests</li> <li>● Multidirectional engagement</li> <li>● Improve planning skills</li> </ul>

Preparation	
<p><b>Personnel</b></p>	<p><b>Organiser</b> coordinates and manages the project. He/she will work closely work with a moderator/ facilitator on the implementing the activity. Depending on the venue the event takes place more personnel might be needed.</p> <p><b>Moderator/facilitator:</b> The moderator/facilitator are 1-2 educators who will guide students through the process of developing an event, acting as a mentor. They accompany the organiser with the needed educational background and will also hold the co-design session.</p> <p><b>Optional Group Coordinator:</b> We highly recommend organising this activity together with an existing communities or organisations. Partners could be schools, youth centres, youth groups, etc. This aims to encourage higher engagement with girls or underserved communities. You can reach out to their main person of contact or teacher, who will act as bridged between your organisation and theirs.</p> <p><b>Participants:</b> Because of the two layers of the event you'll also need two kinds of participants: In the following</p> <ul style="list-style-type: none"> <li>● participants are the youth implement the event</li> <li>● attendees are the youth attending the event</li> </ul>

## Step by Step

### Collaborating with Group Coordinator

1. Select a local organisation with whom you would like to work. For example, an off-school time project for migrants.
2. Try scheduling an in-person meeting with the group coordinator where you can discuss the structure of the activity, the goals, possible themes, etc.
3. A second meeting is advised, when group coordinator and moderator/ facilitator would further discuss the activity plan. As group coordinator know the youth in their group the best, they can help select the most appropriate topics and the best strategies to engage the participants.
4. Revise the Points to consider for running a more inclusive space4youth activity with the Group Coordinator.
5. Find a topic: Define a very open and wide space related topic. For example: Why should we care about space science? How does space science influence our daily life? How can space teach us more about ourselves? How can space science help us to tackle climate change.

### Infrastructure:

- Venue: select a venue or venues that's suitable for the Co-Design Session and comfortable for the participants. For the first day, you will need tables and chairs enough to sit the all participants. Tables should be arranged so teams can work together.
- Materials: Have tech equipment and various workshop materials (post-it, markers, white board) available on site.
- Catering: Plan catering according to the time and size of the two sessions. Session 1 can simply have light refreshments.
- Depending on the size of your event, clarify is any additional staff is needed in order to manage tech like computers, projectors, sound etc.
- Make sure you have suitable event space.

### Communicating

1. Before start working with participants, prepare a clear and catchy announcement of the activity. It should let them know the theme, the days and the location of the two sessions.
2. Send a reminder a couple of days in advance.
3. **space4you event** should be communicated as a public event. Add to your promotion channels and online calendars, etc.

**Points to consider for running a more inclusive space4youth activity**

**Co-Design**

- Teenagers often reproduce gender stereotyped roles unconsciously in groups. Make sure roles in the groups are not stereotypical gendered, as to not contribute to the internalization of 'female' or 'male' identities, for example make sure not only boys are build things and girls are taking notes. Ensure that the different roles required by the activity are rotated between participants. This might be taken as a chance to underline it and use it as a point of reflection
- Challenge learners to depart from easy or comfortable topics their preferred interests and widen their engagement in science, especially in regards to challenging stereotypes. (many youth have gender stereotypic interests that might be challenged).
- Encourage participation from quieter students deliberately, especially if some are more outspoken, and avoid interrupting students with your own thoughts as the facilitator. Make sure to let students speak to the end and do not interrupt them.
- Find a balance between explaining something and trying out yourself, make sure everyone gets the chance to speak, if some youth take over the conversation try to bring in the ones who didn't say much before.
- Lively discussions and public speaking may be more comfortable to some participants than others, and thus will feel more inclined to take bigger role in the event. Consider how to facilitate equal participation among team members to ensure the voices of all participants are heard.
- When working together with participants in preparing the event, consider including discussions on equity and gender aspects present in their chosen topic and discuss inclusive ways they can communicate and conduct their event.

**Event**

- Will your event charge a fee? Keep costs as low as possible and consider providing fee waivers, discounts, or scholarships for students and underrepresented groups.
- Consider having registration available in multiple formats, such as online, by phone or text, and on paper.
- If your event requires registration or sign up, include a place for people to submit accessibility and dietary needs, where relevant.
- Be mindful that particular activities or programming might cause a 'sensory overload' to some participants, such as through the use of loud music, bright images, flashing videos, or a combination of sounds, visuals, and

	<p>movements. Have a quiet space where participants can go to decompress if they feel overwhelmed. This is critical for individuals on the autism spectrum and for young children.</p>
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**Day 1 of the event: space4youth Co-Design**

<b>Set Up</b>	<p>Make sure the co-design area is ready with materials and easy to find for the participants.</p>
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<b>Introduction 10-15 min</b>	<p>moderator/facilitator should state clearly at the beginning that participants are encouraged to speak freely and ask any questions they might have at any point in the discussion. He/ she / they introduces themselves, including the following:</p> <ul style="list-style-type: none"> <li>• Who they are</li> <li>• Their background</li> <li>• Some of their skills: Give some less obvious examples like “I’m really good at making coffee” or “I can dribble a basketball” that can help students think of some of the other sources of skills (hobbies, chores, teamwork, etc)</li> </ul> <p>The participants then introduce themselves and say at least one skill that they have.</p> <p>Give a brief overview about what the parts of the activity are:</p> <ol style="list-style-type: none"> <li>1. Co-Design: Find a topic and a team and learn how to prepare for the event</li> <li>2. space4youth event: Implement your idea with peers</li> </ol> <p>Set out guidelines for the students to follow during the co-design session; This can be brainstormed on a poster and each student signs it to agree. For example ‘everybody has a voice and should have a chance to speak (if they want to), every idea is a good idea’. Make sure to write them down.</p>
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<b>Topic Brainstorm 10-15 min</b>	<p>Introduce the chosen topic and try to find answers to the following questions. Use post it’s, white boards, posters and other brainstorming tools to collect the ideas.</p> <ol style="list-style-type: none"> <li>1. What comes to your mind when you hear... ?</li> <li>2. How does this affect you personally?</li> <li>3. How does it affect your immediate environment?</li> <li>4. Do you think it’s important and why?</li> <li>5. What are the aspects that is worth investigating further?</li> </ol> <p>To brainstorm with the full group each student can put their ideas onto a post it note (one concept per post it). After a few minutes of brainstorming, group the ideas into a few broad theme.</p>
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<b>Group Sorting</b> <b>5 min</b>	<p>Students will then self select and form groups based on the theme that they want to delve deeper into. They will be free to switch groups later, and may need to merge or divide groups if some are too large or too small. Optimal group number would be 5 participants.</p>
<b>Establishing Goals</b> <b>10-15 min</b>	<p>To assist groups in defining goals and objectives of their event, as them to consider the following questions:</p> <ul style="list-style-type: none"> <li>● What's the knowledge, skill, or emotion we want to convey/teach?</li> <li>● Why is it important?</li> <li>● What do I want to happen when the attendees leave?</li> <li>● What are specific outcomes of the event?</li> <li>● What will the attendees know, be able to do, or feel at the end of the event?</li> </ul> <p>Be sure to reinforce to students that their goals and objectives can change as they develop their event, but that their goals should align with what they choose to do.</p>
<b>Activities</b> <b>10-15 min</b>	<p>Ask students to brainstorm what activities would accomplish the goals they set above. They can choose multiple activities in one event. Some examples of activities:</p> <ul style="list-style-type: none"> <li>● Presentation: Giving information to a mostly passive audience by speaking, with or without visual aids.</li> <li>● Follow-Along Participation: Guiding the audience through an activity, step-by-step.</li> <li>● Creative Participation: Giving the audience directions and guidelines, then allowing them to produce a product.</li> <li>● Co-Creation: Creating a product as a group, with the entire audience contributing parts or ideas.</li> <li>● Performance: Either the presenters or the audience performs/presents something they created.</li> </ul> <p>Examples: a workshop, a talk, a panel discussion, a video streaming, a tour, etc...</p>
<b>Conclusion</b> <b>10 min</b>	<p>The groups should briefly present their ideas to the other groups, and have the opportunity to get feedback or ideas. This is also an opportunity for them to ask questions and clarify any details with the facilitator.</p> <p>Participants should also be offered the opportunity to change groups, if another has an idea more in-line with what they would like to do.</p>
<b>Break</b> <b>30 min</b>	<p>Take a proper break and provide food and refreshments</p>

<p><b>Recap</b> <b>5 min</b></p>	<p>Recap what happened in the first session and clarify the goal of the second part: Having a detailed plan of an event ready for peers.</p>
<p><b>Outline</b> <b>45-60 min</b></p>	<p>Explain what you can offer for their event (what room will they have, what materials and technical equipment can they access, etc).</p> <p>Consider introduce basic presenting/teaching methods through asking who of your teachers do you really like and how do they teach things that you like?</p> <p>Consider showing things like how to make a slideshow engaging, how to project your voice, how to speak with authority, etc.</p> <p>Instruct students that they now need to work on a concrete outline of their event. Ask them to first consider these 3 questions:</p> <ol style="list-style-type: none"> <li>1. What are the steps to accomplish our goals? How do we want to design these steps?</li> <li>2. What materials do we need to implement the event?</li> <li>3. What could the misunderstanding or difficulties we will face be?</li> </ol> <p>Once they have these answers, they should spend some time on an outline, including estimated times, activities, and materials needed for each section.</p>
<p><b>Testing</b> <b>30-45 min</b></p>	<p>Instruct students to do a trial run of parts of their event through talking through the run of the event. They can clarify who does what when. They should be encouraged to actually speak the words they would say, or physically do the tasks they are proposing, to determine how long it takes, how feasible it is to do, and what materials they will need.</p> <p>Encourage them to continue this process on their own time with all parts of their event. At the end they should have a thorough list of needed materials, know which member is responsible for various tasks, and have answered any unknowns about it.</p>
<p><b>Conclusion</b> <b>10-15 min</b></p>	<p>At the end, it is important that participants have time to discuss amongst each other any remarks open questions or comments they may have. Participants can also be asked if their perception of science and teaching has changed. They can also be asked what they are most looking forward to do.</p>

<b>Set up</b>	<ul style="list-style-type: none"> <li>• If additional staff and volunteers are needed, assign tasks and responsibilities</li> <li>• Check beforehand that all tech and materials needed are on site</li> <li>• Check room is set up in the right way</li> <li>• Make sure registration at your entrance is clear and easy accessible</li> <li>• Make sure it's easy to find the event space (prepare signs if necessary)</li> <li>• Set up a snacks and drinks</li> <li>• Meet early enough with event leading kids so they can get familiar with the event space.</li> <li>• Show them where they can find all the things they need.</li> <li>• Make them feel comfortable.</li> </ul>
<b>Running the event</b>	<ul style="list-style-type: none"> <li>• Allow the participants run the event. Also welcoming the attendees. Ideally, organisers and facilitators will feel and act more like attendees. If they don't follow the steps as agreed before let them figure it out.</li> <li>• Only help students if asked, the facilitator's role should effectively end once the students are in the room, with the materials they need.</li> </ul>
<b>Conclusion (10 min)</b>	After the event, invite the students for a brief debrief to discuss remarks or questions about the event.

<b>Wrap-up</b>	
<b>De-install of event</b>	<ul style="list-style-type: none"> <li>• Make sure de-install and cleaning after the programme is in place so the next one can use the event area again.</li> </ul>
<b>Follow up with participant</b>	<ul style="list-style-type: none"> <li>• Ask for feedback and follow up with thank-you-emails to all participants, peers and their parents (group coordinator).</li> <li>• Share event documentation with everyone.</li> <li>• Double check if you need any consent sheet for documentation.</li> </ul>

<b>Questions and Recommendations</b>	
<b>Recommendation</b>	Consider to repeat the space4youth event so the participants can practice.
<b>Inspiration</b>	<ul style="list-style-type: none"> <li>• Check out spaceEU exhibition - many open source tools are accessible and a workshop could be made out of it</li> <li>• Check out Space Awareness themes and toolkits to get inspiration about how a teaching session could look like.</li> <li>• Informal Learning spaces like local <a href="#">CoderDojo</a></li> </ul>

	<p>community could be a good partner.</p> <ul style="list-style-type: none"> <li>• Recommendation: check out the SySTEM 2020 map to find potential collaborators in your country <a href="http://system2020.education/the-map">system2020.education/the-map</a></li> <li>• Tour space4youth: a group could be introduced to the exhibition and they can learn how to make interactive tours themselves and show around their families, friends and also general public if they feel comfortable with it.</li> </ul>
<p><b>Ars Electronica ran events with these youth groups</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Wurmloch Reise Space</a> Youth run and invented project who also make workshops</li> <li>• <a href="#">AstroBot</a> Cooperation with Malta</li> <li>• <a href="#">VERNER</a> Nature explorer based on the model of the Mars Rover Curiosity</li> <li>• <a href="#">FotoFlex</a> Wearable technology that could be related to space topics</li> </ul>

## Intellectual Property: Ownership of Toolkit

All contents relating to the spaceEU exhibition 'Step into Space' and educational program 'spaceEU Activities' developed by the parties under the terms of the spaceEU agreement shall be jointly owned by the spaceEU consortium, unless otherwise stated. Utilization of any Joint Ideas/Deliverable beyond the scope of this toolkit shall be negotiated reasonably and in good faith by the parties hereto and shall be subject of a separate written agreement.

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