

OUR SPACE OUR FUTURE ONLINE TOOLKIT (ONLINE PORTAL WITH RESOURCES)

DELIVERABLE N.3.4



**OUR SPACE
OUR FUTURE**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement N° 821871

DELIVERABLE DESCRIPTION

Deliverable 3.4 describes the Our Space Our Future Online Toolkit structure and process of development. A co-development process performed by partners produced descriptions of the structure, props and scripts needed to conduct the Our Space Our Future interventions performed in schools, the Our Space Our Future teachers training activities and the Our Space Our Future community events, designed by the delivery partners. The deliverable also describes the process that led to the production of both the backend and frontend structure of the online toolkit located on the Our Space Our Future website.

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Author(s) and Institution(s):	Leonardo Alfonsi Irene Luzi – Psiquadro
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Reviewers:	Kevin Ramirez- EIT-Climate KIC Christopher Styles- EUSEA

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PU	Public	X
CO	Confidential, only for members of the consortium (including the Commission Services)	
CI	Classified, as referred to in Commission Decision 2001/844/EC	

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SUMMARY

Deliverable 3.4 describes the creation of the Our Space Our Future Online Toolkit: an online set of resources available to conduct the Our Space Our Future intervention activities that were designed, performed, and reviewed by the project's delivery partners (ED, SMS, NUCLIO, PSQ, PDK) and external stakeholders.

The first section summarises the concept of the Online Toolkit, and the co-development process that was conducted by the delivery partners to create the online resources of activities. It will also describe the problems that arose throughout this process and the proposed solutions to these issues. Co-development of activities that the delivery partners intend to conduct or have now conducted were first described in Deliverable 3.2 (**Toolkit Methodology**) and then in Deliverable 3.3 (**Toolkit Outline**). These tried and tested activities are being used as content for the Online Toolkit and its development is a continuous aim of Work Package 3.

The second section of this document describes the process of how the Online Toolkit and the web pages have been created. This is an online platform where our key audiences can find descriptions of the activities carried out by the delivery partners within schools, at teacher-training activities and at community events.

This document is considered a working document that will be used internally by the project delivery partners.

1 ABBREVIATIONS

Abbreviations	Definition
OurSpace	Our Space Our Future Project
C-KIC	EIT Climate KIC
D	Deliverable
ED	Explorer Dome
EUSEA	European Science Engagement Association
NUCLIO	Portuguese International Astronomy Nucleus
WP	Work Package
SMS	Science Made Simple
PDK	Planetarium Denmark
PSQ	Psiquadro

2 THE ONLINE TOOLKIT AND THE CO-DEVELOPMENT PROCESS

Access to the Our Space Our Future Online Toolkit is via the Our Space Our Future web site. Our Space Our Future Our Future website pages and can be located using the following URL: <https://www.ourspaceourfuture.eu/toolkit-activities/>. The Online Toolkit contains a number of activities developed for Our Space Our Future interventions and is intended to be used by teachers who would like to emulate Our Space Our Future activities for students in their classroom, for trainers who want to run their own space science activities, or for those who are interested in discovering more about the topics covered by the Our Space Our Future project.

Delivery partners carried out a development process to design the Our Space Our Future school interventions, teacher training activities and community events, as described in D3.2 & D3.3. Community activities involve the families and the wider community of the students who took part in school activities.

As described in Deliverable 3.3 (Toolkit Outline), delivery partners had to re-design many of the prepared activities and adapt them to an online format so that they could be conducted, regardless of any restrictions and safeguards that were put into place during the on-going COVID-19 pandemic. Further, co-development processes have been carried out by delivery partners to share problems, ideas and review re-designed activities. The pandemic challenge has presented a useful opportunity for partners to review activity formats, to test if these activities could work either as an online or as a blended format, and to come up with new approaches on how to involve students in new and different ways. Another positive outcome was the use of role models from a wider field than the schools' local area. Although some of the activities only needed minimal changes to adapt them to an online setting, others needed to be drastically redesigned or changed entirely, leading to the development of new and specific Our Space Our Future online activities.

Due to the changes that delivery partners had to implement due to the covid pandemic, the Online Toolkit now includes a number of differently formatted interventions:

1. Physical activities – to be performed in schools with no covid restrictions in place.
2. Physical activities - to be performed in schools with covid restrictions in place.
3. Online activities – adapted from physical activities to be performed in schools with covid restrictions in place.
4. Online activities - designed specifically in this format for schools with covid restrictions in place.

The format of the activities means the educator has the option of using a physical or online format for the chosen activity, increasing the audience of the Our Space Our Future Online Toolkit. Online events allow participants from European countries and beyond to connect and contribute easily.

Furthermore, the formats of the specific Our Space Our Future online activities may be useful for project partners themselves to use at future events. For example, where we wish to connect stakeholders, researchers or scientific communicators with a well targeted audience from all over the world but would otherwise find difficult to involve at an in-person event.

While toolkit activities collected and reported in the previous Deliverables (D3.2 & D3.3) were drafted before they were tested, the Online Toolkit includes only activities which have been tried and tested with the target audiences of the Our Space Our Future project: students, teachers, families, and the wider community. This has allowed adaptations to be made to the activities described on the Online Toolkit.

To develop the Online Toolkit, Psiquadro, as WP3 lead, and EUSEA carried out a process of collaboration, to determine which features the webpage would need and what steps were required to achieve the final Online Toolkit format. A template of the Toolkit's back-end was then shared with project delivery partners for their consideration, and to ensure that partners understood how to translate the activity drafts onto the digital

platform. Delivery partners had the opportunity to test this template to make sure that the process was fully understood and to provide feedback on how to improve the format of the backend. The feedback provided by delivery partners was important for improving some aspects of the Online Toolkit. For example, during initial tests, when the activities were first uploaded, it became apparent that all the activities required a level of standardisation and proofreading to ensure these activities are easy to follow and the language understood for the audience viewing the webpages.

Through this process, the following fields were decided:

- Title of activity.
- Short description shown on the toolkit homepage. Clearly outline what the activity is about, what participants would be doing and how and who could run this activity.
- Format details. To include a description of the format of the activity and how the activity is presented (via zoom, at a planetarium, in-person performance, etc), or if the event can be conducted in multiple formats (e.g. online or as an in-person event).
- Long description. Featured at the top of the activity page and includes a more detailed description of the activity than the short description. It is an overview of what the activity involves and what it is about, the key audiences (age/curriculum/format), and how the activity engages participants.
- Learning objectives of this activity and how does the activity help to motivate participants.
- Materials needed by scientific explainers to successfully run the activity (e.g., handouts, folders, educational material, teacher guide, internet access).
- Script/programme of activity. To describe the main stages involved in conducting the activity and any guidance needed at each stage.
- Roles and involvement of teachers and educators, as well as researchers or invited experts, guardians, and stakeholders.
- Key elements of inclusiveness. Additional consideration to help promote inclusivity for under-represented groups.
- Extra resources. E.g. books, websites, videos

It was important that the delivery partners clearly defined the activity format, so the target audience can easily understand and navigate the Online Toolkit.

After the initial round of upload to the backend of the Online Toolkit, to make the description of the activities even more standardised, it was decided to alter some of the activity fields to make them even more clear for the audiences who would view the Online Toolkit.

3 DEVELOPMENT OF THE ONLINE TOOLKIT

The Online Toolkit consists of two parts: the back-end and the front-end. The back-end is the software system where users and Our Space Our Future contributors are able to add the details of their activities and upload them to the website. The front-end is where this information is presented to those visiting the website. It is very important that both of these aspects of the Toolkit are easy to use and navigate. Throughout the development of these pages, it was important to work closely with the Our Space Our Future delivery partners, especially when it came to the backend of the toolkit.

3.1 Activity Collection & Format

Due to the fact that there is a huge variety of activity types and formats, including teacher-training events, in-classroom shows, and planetarium shows, it was important that each section of the toolkits back-end made sense to all contributors. It is therefore very important that there is some degree of flexibility when it comes to what could be inputted into each of the sections of the back-end, to accommodate these different activity types. It was also important that the taxonomies (search criteria) for these activities made sense to all and were useful categories that will help the end-users navigate the page easily.

Psiquadro and EUSEA conducted an online meeting to create a toolkit activity template page, listing all the necessary fields. These were based on the activities form shared between delivery partners and listed in appendix 1 below.

When the fields for the back-end had been agreed upon, a description of these, and how we would like them to appear on the front-end of the page was sent to the website developers, who then used this information to create a bespoke plugin for the Our Space Our Future website.

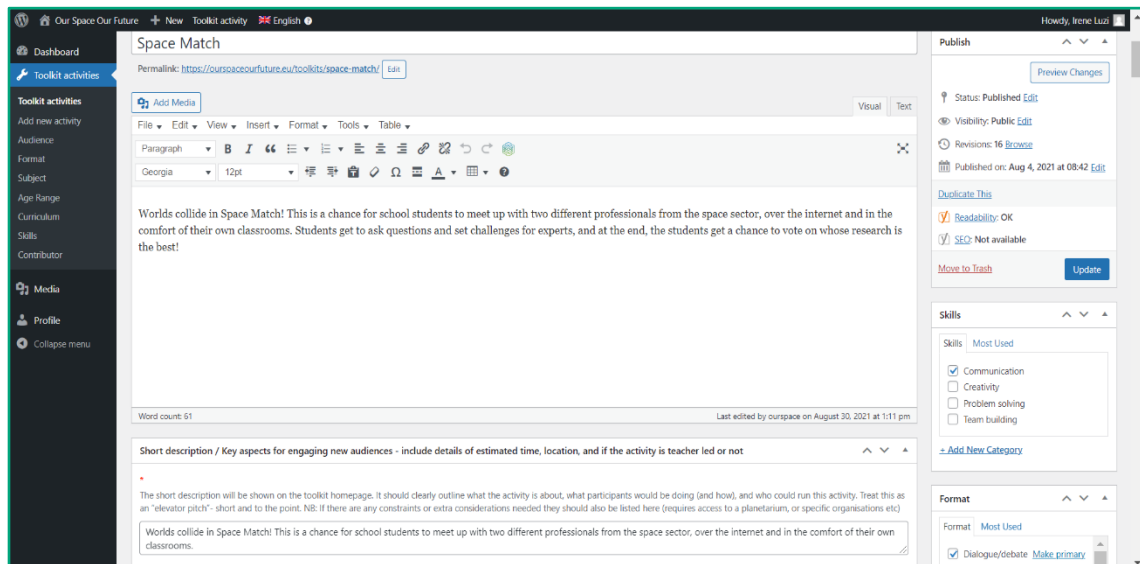
During the months of June and July 2021, a set of online meetings took place between EUSEA and delivery partners to test a working prototype for the toolkit activity back-end uploads. Delivery partners were asked to upload an activity and provide any useful feedback on their user experience. These comments were then fed back to the web developers, and with consultation, some of these issues were addressed.

In the image (a) below is a screenshot showing one of the back-end pages, listing some of the activities and the taxonomies used to categorise each of the toolkit activities. This is how the back-end is viewed by delivery partners, and from this page new activity descriptions can be uploaded easily by delivery partners.

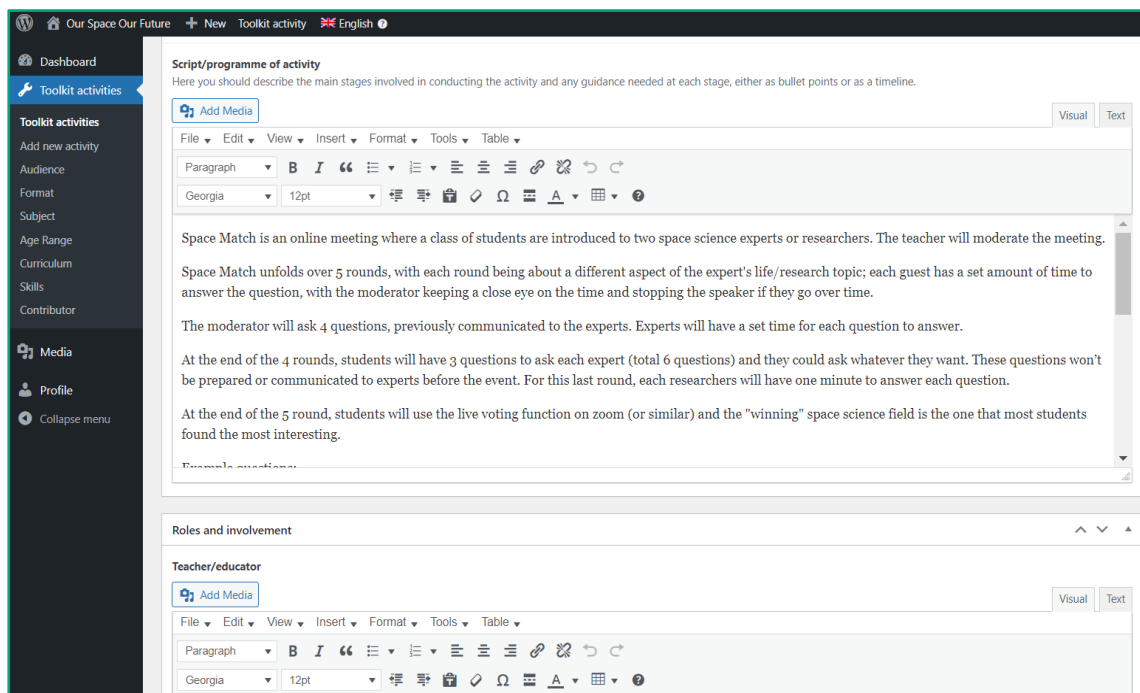
<input type="checkbox"/>	Title	Audience	Format	Subject	Age Range	Curriculum	Skills	Contributor	Date
<input type="checkbox"/>	Taking Up Space	Student	Online, Video	Astronomy and Earth Observation, Biology, Chemistry, Engineering, Environment, Physics	11-14	Secondary	Communication	Science Made Simple	Published 2021/08/30 at 11:49 am
<input type="checkbox"/>	Teacher course: Introduction to the OurSpaceOur Future project	Teacher CPD	Teacher course	Teacher collaboration	Adult	Primary	Communication, Creativity	Planetarium	Published 2021/08/26 at 2:10 pm
<input type="checkbox"/>	Surviving on Mars	Student	Facilitated workshop, Show	Biology, Engineering, Physics	11-14	Primary	Communication, Creativity, Problem solving	—	Published 2021/08/26 at 11:46 am
<input type="checkbox"/>	The Mission to Mars	Student	Facilitated workshop, In-person	Biology, Chemistry, Physics	11-14	Primary	Communication, Creativity, Problem solving, Team building	Planetarium	Published 2021/08/24 at 2:06 pm
<input type="checkbox"/>	Science show by presenters	Student	Dialogue/debate, In-person, Show	Biology, Chemistry, Engineering, Physics	11-14	Primary	Team building	Planetarium	Published 2021/08/24 at 1:40 pm
<input type="checkbox"/>	Using Design	—	—	—	11-14, 14-16	Primary	Communication	—	Last Modified

(a). The backend with the list of activities descriptions by delivery partners.

To upload an activity description, delivery partners have to provide details about certain aspects of the activity into a number of fields, some are mandatory, others are optional, they also need to select some categories from a list of chosen taxonomies, as shown in the images (b) and (c) below.



(b). Examples of activity back-end



(c). Examples of activity back-end

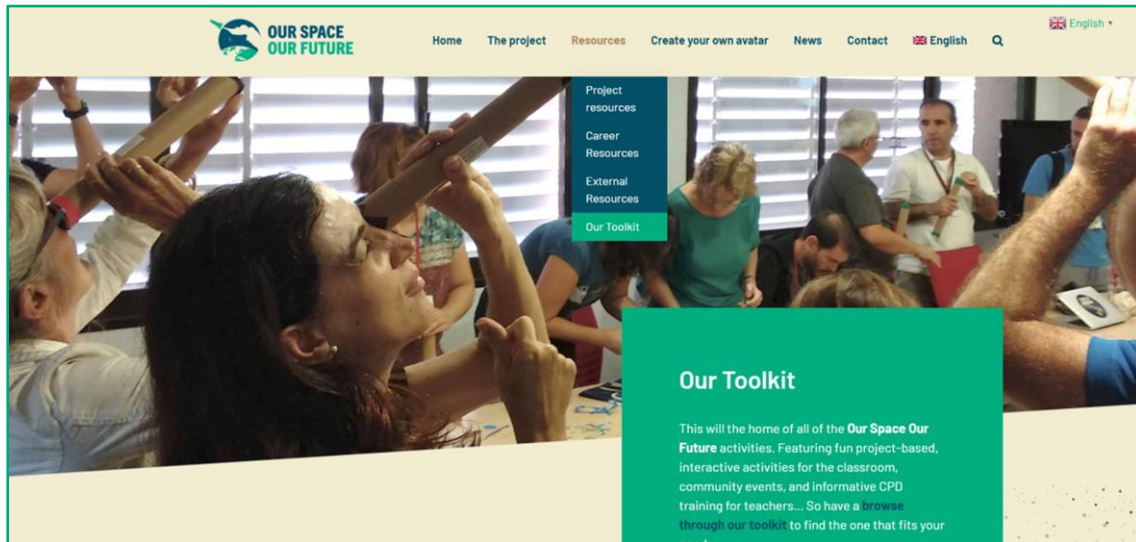
By using the feedback received by delivery partners, evaluations carried out by external stakeholders, and by analysing other online toolkits and education resource websites, this resulted in the creation of the current Our Space Our Future Online Toolkit.

3.2 Online Toolkit

For the website's front-end design, inspiration was taken from a variety of other online toolkits and resources, to create a page that was easy to follow and navigate. Specific consideration was given to online toolkits that featured activities and information that focused specifically on space science topics and other related European projects, such as: Space EU, Space Awareness, and Astro Edu.

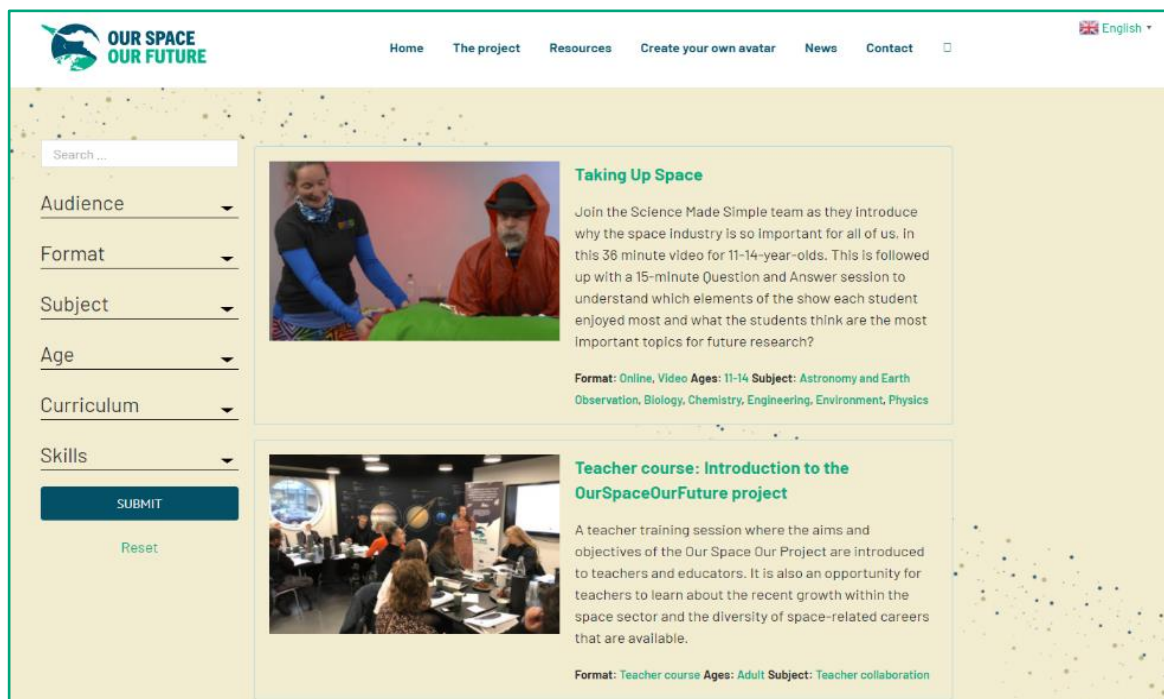
Special attention was given to the sections and fields that were included within the toolkits in these projects. We used these as a point of reference for the Our Space Our Future Online Toolkit, to understand which fields could be expanded or altered when reviewing those initially planned by Our Space Our Future activity upload form. Another important aspect that needed particular attention was the search function that is found on the homepage of the Online Toolkit and the description of the activity. This is the first point that the user will see and use to navigate to the resources so needs to be clear and concise.

When the user lands on the Our Space Our Future webpage the resources tab leads to the Toolkit, image (d).

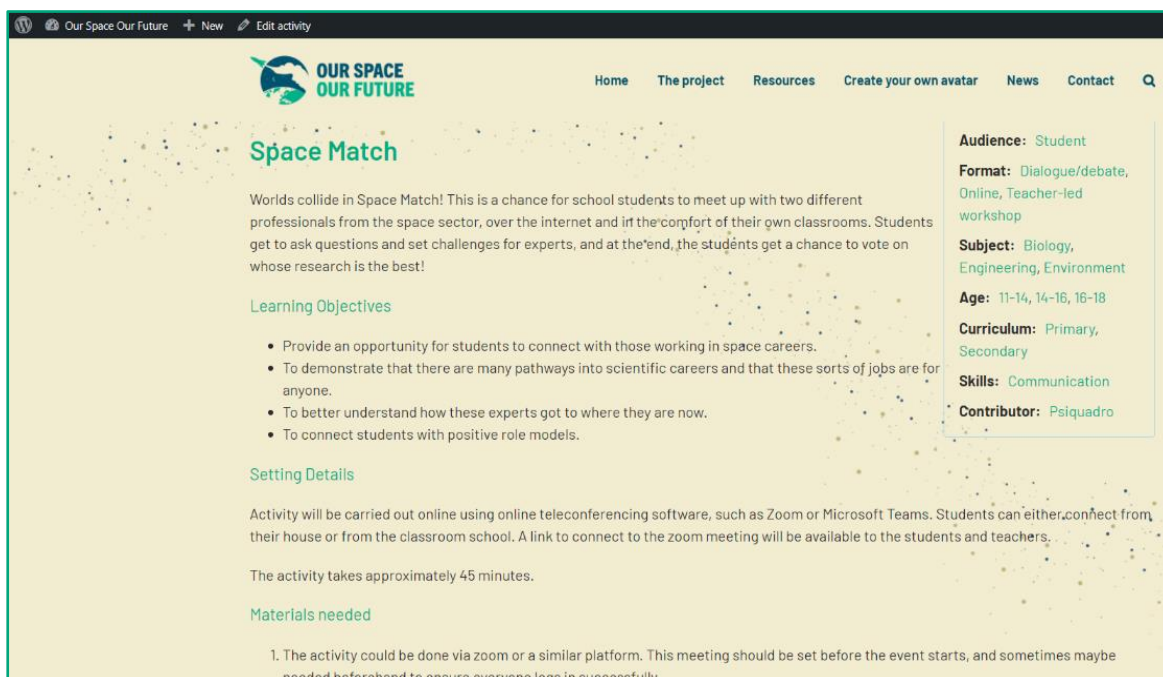


(d). Our Space Our Future Toolkit webpage

The user is then able to either search for an activity – using the selection criteria or browse through the activities one by one, image (e). Once selected the activity is viewed in detail, image (f).



(e). Our Space Our Future online toolkit front-end



(f). Example of Our Space Our Future activity front-end

3.3 Ongoing Resource Upload

The online portal was conceived as an area that could be quickly and easily updated, where already performed activities are published. Delivery partners thus have the possibility to update activities, review activities and add any new activities that have been fully tested with the target audiences.

Many of the teacher training activities and activities for the community event are yet to be fully tested as they have not been delivered to date, however, once they are, the Online Toolkit will be updated to include these activities. Eventually, all the activities performed by the delivery partners throughout the Our Space Our Future project will be added to the Online Toolkit, resulting in a complete collection of all Our Space Our Future activities.

In the month of August 2021, an online meeting was held between delivery partners to begin discussing how it will be possible to keep the developed materials visible, and accessible even after the end of the project. For example, we will link the Online Toolkit through links on the Our Space Our Future partner organisations web pages.

Links with other science organisations, such as ESERO, will allow our resources to be accessible through their webpages. These discussions and outcomes will form part of Deliverable 6.5 – Sustainability Action Plan, and therefore, will be discussed in further detail in this report.

4 APPENDIX 1 CO-CREATION FORM

INTRODUCTION

This form is intended as a tool to collect information about activities that partners involved in the co-development of the toolkit in WP3 are testing or are about to design and that will be implemented with the students, teachers and families that will take part into the project. The different fields to be filled in aim at describing contents and strategies to reach the call objectives developed by the project.

TYPE OF ACTIVITY

Show

Planetarium activity

Drop-in activity

AR/AV Experiences

Family challenges

Workshop

Demonstration

Role models exposure

Game

Other

TARGET AUDIENCE

Age

KEY ASPECTS FOR ENGAGING NEW AUDIENCES

SHORT DESCRIPTION

EXTENDED DETAILED DESCRIPTION (TO BE FILLED DURING THE INTERVENTIONS) intervention no

- Where and when
- Keywords of activity theme (e.g. biology, moons, physics, Mars)
- Didactic methods (e.g. dialogue-based, hands-on, DIY, presentation)
- Materials needed by users in the preparation of the activity (e.g. handouts, folder, educational materials, teacher guide)
- Materials needed when doing the activity
- Script/programme of activity

PLATFORM OR/AND FORMAT

(i.e. overall setting, e.g. is the activity taking place at a science centre, website-based)

LINK TO SPACE SCIENCES

Which topics from the Space Sciences are explored in the activity?

LINK TO AEROSPACE INDUSTRY

Stress the connections with Aerospace Industry topics and/or stakeholders

LEARNING OUTCOMES

(Describe learning outcomes possibly referring to the national curricula and international practice in space education e.g. referring to previous projects outcomes (EU awareness - www.awareu.eu/)

KEY ELEMENTS FOR MOTIVATION TOWARDS SPACE-RELATED CAREERS

How does the activity help to motivate participants towards Space careers?

KEY ELEMENTS FOR INCLUSIVENESS

Which underrepresented or underprivileged group does this activity involve and how?

TEACHERS AND EDUCATORS' INVOLVEMENT

What's the role of the teachers in this activity?

RESEARCHERS' INVOLVEMENT

What's the role of the researchers in this activity?

FAMILY INVOLVEMENT

How does this activity succeed to involve the families?
(Try to describe practical actions to involve the families)

STAKEHOLDER INVOLVEMENT

How does this activity succeed to involve Stakeholders?
(Try the describe the main target group of stakeholders you want to involve)

NOTE

For more information: www.ourspaceourfuture.eu

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