



## The Three Rs and Animal Use in Science Project

The **Three Rs project** of the European Commission's Joint Research Centre **introduced the principles of the Three Rs – Replacement, Reduction and Refinement of animal use for scientific purposes in primary and secondary education** between February 2021 and January 2023. The goal was **to inspire students to think critically about science, become aware of the scientific progress made for a future science without animal use, and build the skills to debate nuanced and complex topics such as animal testing**. With the learning activities of the project, students also developed science literacy skills by exploring topics such as ethics in science, how the European Union is protecting the welfare of laboratory animals, and what high-tech non-animal tools are available as alternatives. **Almost 2,000 teachers benefited from the project, reaching over 24,000 students.**

Outputs:

1. The Three Rs MOOC
2. Learning Scenarios and Additional Resources
3. Materials on Careers related to Three Rs
4. Teacher Training Workshops
5. Workshop For Ministries of Education

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*"There are many interesting topics we can integrate and combine with other subjects and STEM methodology and the Three Rs is one of them." – Teacher from Greece*

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### 1. THE THREE RS MOOC

The Three Rs and Scientix created MOOC [The Three Rs and Animal Use in Science](#) (2020), which was updated and rerun in 2021: the MOOC ["The Three Rs and Animal Use in Science Rerun"](#). The online course was developed to promote the Three Rs in the teacher community by taking participants through the principles of the Three Rs, and examples on how to address them in the classroom.



**The MOOC consisted of 4 modules.**

- Module 1: Animal Welfare and Science
- Module 2: Human-based Science
- Module 3: Critical Thinking
- Module 4: Your Own Three Rs Learning Scenario

The course was run in 2020 and again in 2021. In the first MOOC participated 692 teachers from 54 countries, out of which 264 received certificates.

The re-run of the MOOC was followed by 693 participants from over 49 different countries, out of which 313 participants received the course certification. In total, over 16,000 students were reached indirectly. The completion rate of the MOOCs was 38% and 45% respectively.

## 2. THE THREE RS LEARNING SCENARIOS AND ADDITIONAL RESOURCES

Within the Three Rs project, thirty-seven Learning Scenarios and Additional Resources have been developed to help primary and secondary school teachers to integrate the Three Rs topics into their curriculum. The materials are based on the Three Rs Principles, specifically Replacement, Reduction and Refinement of animal use in science and usually take an interdisciplinary approach to them. These materials were linked to existing pedagogical trends and the 21<sup>st</sup> century skills to help teachers to integrate the Three Rs in their subjects and prepare students for future careers in the field. While generally intended for STEM classes, with small adaptations, materials can also be implemented in the non-STEM classes.

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*"I found the work process enriching. Overall, I am satisfied because the students had to reflect critically using the acquired knowledge. My group is rather quiet and not very participative; the scenario helped them to talk and express their ideas."* – Teacher from Spain

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All the educational materials developed can be found at the Three Rs webpage on Scientix, under the Three Rs Educational Resources section: <https://www.scientix.eu/projects/steam-partnerships/3rs#resources>



The materials published are also compiled into one publication The Catalogue of Learning Scenarios and Supporting Teaching Resources for Introducing the Three Rs in the classroom, which can be viewed here: <https://www.scientix.eu/resources/details?resourceId=129704>



The Three Rs materials were implemented by 50 teachers from 18 countries in classroom. Description of the validation process, guidelines and feedback is reflected in the report: [Bringing Real Life Examples Into Classrooms: Integrating Topics Of Animal Use In Science Into Stem And Non-Stem Subjects](#), which is also available at the Three Rs webpage on Scientix.



Some of teachers, who implemented the Three Rs materials, shared their impressions and how their students reacted to the new material. The full list of stories and videos available here: <https://www.scientix.eu/news/news-detail?articleId=1416732>

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*"I have taught topics about animal protection in my class, but never about the Three Rs. Now, at the end of this teaching and learning adventure, I consider that the Three Rs project touches all the important curricular subjects in an interdisciplinary learning perspective. It provides powerful models for integration of science in real life, it triggers students' natural interest and curiosity in research, it helps them develop communication, collaboration, and the critical thinking they need to protect all the living creatures."* – Teacher from Romania

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## 3. MATERIALS ON CAREERS IN THE THREE RS

Developed under the Three Rs project, the career profiles aim to provide students and teachers with a more informed image of the three principles to improve animal welfare in science by delivering job profiles. The materials consist of career profiles, podcasts, video interviews, and the career chats. In total 4 experts in the sphere of the Three Rs were involved in the development of the career profiles.

The Career Chats with the Three Rs Experts were held online as live events, in which teachers with their secondary school students participated and had the opportunity to ask questions about which skills, knowledge and personal traits are required to become an expert in the Three Rs field and find out more about the relevant experiences of a professional.



Throughout the Project, **4 Online Career Chats with Three Rs Experts** were implemented with the overall number of **40 teachers with more than 687 students from 15 different countries** across Europe.

The teachers, who participated in the live events reported that students found these sessions to be very valuable and enriching experience, they were very eager to learn about unusual or new careers for them. They also stated that students found the speakers inspiring, especially the female students, and all of

them showed interest towards pursuing STEM and research as a career. Teachers also reflected on their own experience with the chat and found it very helpful in bridging the gap between theory and practice, and in answering the complex questions they hadn't been able to answer before.

*"It was really nice to see my students face lighting up during the Chat. Like switching a light bulb...It was truly motivating and enriching experience for my classroom. – Teacher from Croatia"*

*"This kind of talks are very interesting and important for both students and teachers. Students can ask questions directly to the professional in the field, and realize what tasks are involved in the job, what is the day-to-day life for someone who works in this field and what skills are important to develop. For teachers is always a good way to confirm that what they teach is right for the students." – Teacher from Portugal*

The Three Rs career profiles and the recordings of Career chats can be viewed the Three Rs webpage on Scientix, under the Three Rs Educational Resources section:

<https://www.scientix.eu/projects/steam-partnerships/3rs#resources>

#### 4. TEACHER TRAINING WORKSHOP

EUN have developed the workshop materials: **"How to Connect Theory and Practice in Class: The Value of Teaching about the Three Rs and Animal Use in Science"** helping teachers to learn what the Three Rs is and with the help of guided collaborative exercises to explore how the topic can be used in education for primary and secondary STEM and non-STEM subjects. The materials consist of a step-by-step trainers' guide and the PowerPoint presentation that can be adapted to the needs of the audience. The materials are developed in a way, that helps trainer/teacher to adjust sessions and adapt content depending on the previous background of participants. The workshop can be held as a 2.5-hour training or can be split in several shorter or longer sessions for more in depth study. The materials can be used by teachers, teacher training institutions (pre-service or in-service) and teachers in charge of professional development of teachers.



EUN held 2 TOTs for the Lead Teachers of the project, who tested the materials in their own workshops. During November 2022-January 2023, twenty Lead Teachers organised and held 24 workshops in 13 European countries. The trainings were intended to help teachers learn more about the Three Rs, inform them about developed materials, inspire, and equip them with knowledge and skills on how to use the materials in their classroom.

| Lead Teachers | Workshops | Countries | Participants (teachers) | Students reached indirectly |
|---------------|-----------|-----------|-------------------------|-----------------------------|
| 20            | 24        | 13        | 360                     | >4,000                      |

Quotes from the lead teachers of the projects, sharing their impressions from the workshops held:

*“I am very satisfied that I was able to connect meaningfully with the teachers and equip them with new knowledge and skills about developed materials on how to use them in their classrooms and connect theory and practice while teaching the Three Rs topics in their classrooms. Another important part of the training that I did well was the communication and engagement, that allowed my colleagues to learn more about Three Rs and share their personal and professional experiences related to the Three Rs content”. Trainer from Lithuania*

*“They wholeheartedly participated in all the activities, eager to understand the Three Rs principles, to find examples of good practice and connections with their subjects... The participants found the topic very interesting and the interactive activities engaging, so they shared ideas and gave us positive feedback in the end”. Trainer from Romania*

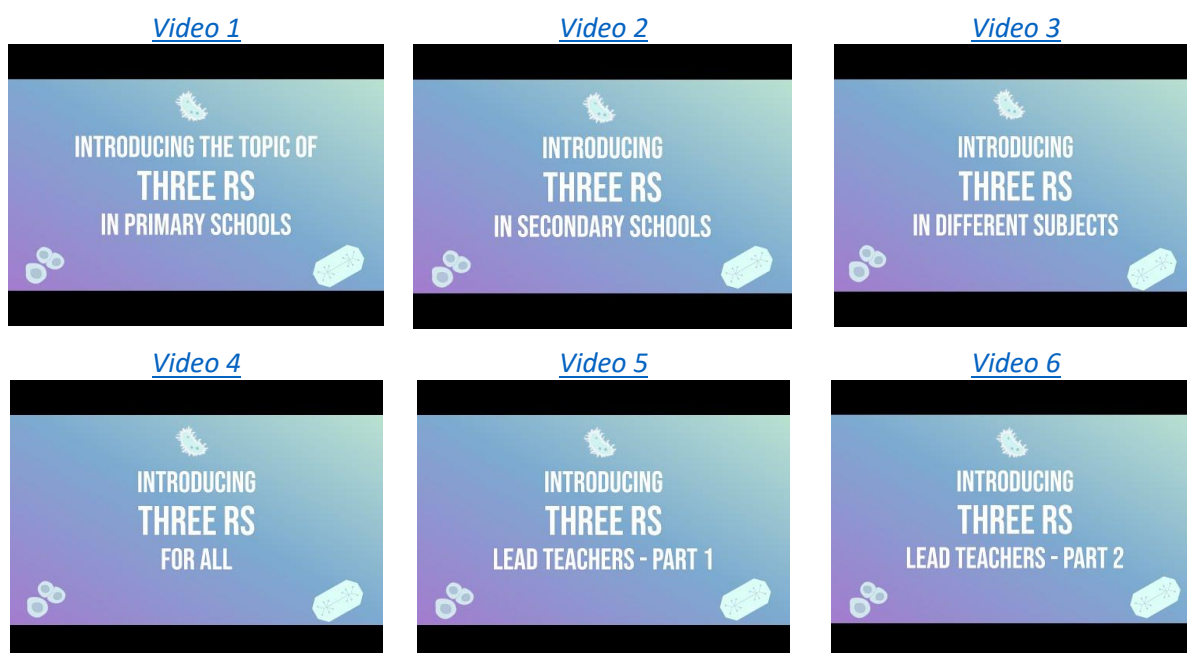
*“I think that the audience was satisfied with the scientific and up-to-date information provided, along with the realization that Three Rs teaching can actually be aligned with certain learning units of the Greek curriculum. Most of the participants commented that they were inspired by the material and that it was worthy of their time. None of them had ever experienced such an approach regarding the issue of animal use in science and it was quite impressive, the way they reacted to all the information provided”. Trainer from Greece*

*“The participants were enthusiastic about the workshop. They found the methodology interesting and innovative and showed huge interest for the subject because according to their opinion it is interesting for the students and can help them enhance their critical thinking and encourage them to learn more about future careers which can contribute on animal's wellness in science. They are willing to try and use the materials in their teaching”. Trainer from Greece*

## 5. WORKSHOP FOR MINISTRIES OF EDUCATION

The **“LIFE values in STEM education”** online workshop for Ministries of Education STEM representatives in January 2023 brought together almost 40 participants to discuss how to improve STEM education by addressing the use of animals in science; developing solutions on how to integrate and provide best possible education for children from different social, economic, and geographical backgrounds; and providing interactive environmental education programmes for children. The workshop was organised by European Schoolnet, in collaboration with the European Commission (EC) Joint Research Centre (JRC) and Cisco Foundation, with the support of Scientix, the community for science education in Europe. The [results of the workshop](#) are publicly available.

### MORE INFORMATION



As well as Scientix <https://www.scientix.eu/projects/steam-partnerships/3rs> or email: [scientix@eun.org](mailto:scientix@eun.org)