UNIVERSITÀ DI TRENTO
Dipartimento di Lettere e Filosofia

GrACE
Green Europe: Active Citizenship and the Environment

Co-funded by the European Union

Jean Monnet
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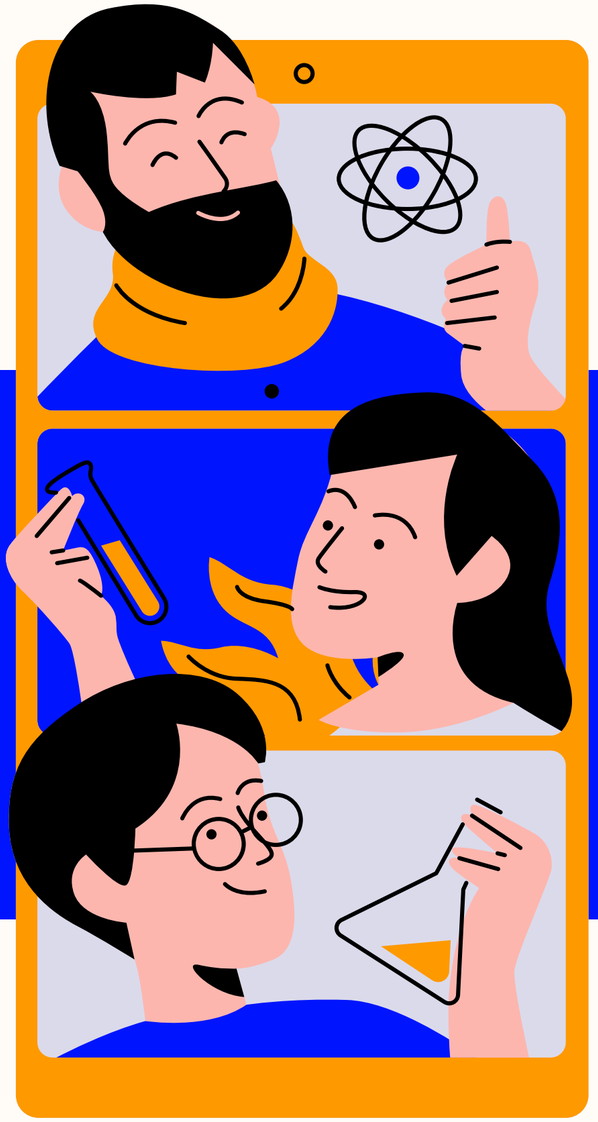
CITIZENS and CLIMATE

The history and evolution of participatory science

Chiara Fedrigotti and Maria Vittoria Zucchelli, MUSE-Science Museum Trento

Webinar GrACE, Thursday 12th March 2026



MUSE

Before we start, we'd like to learn a bit more **about you**.

Scan the QR-code with your phone or join at **menti.com**

Use the code 2290 2325

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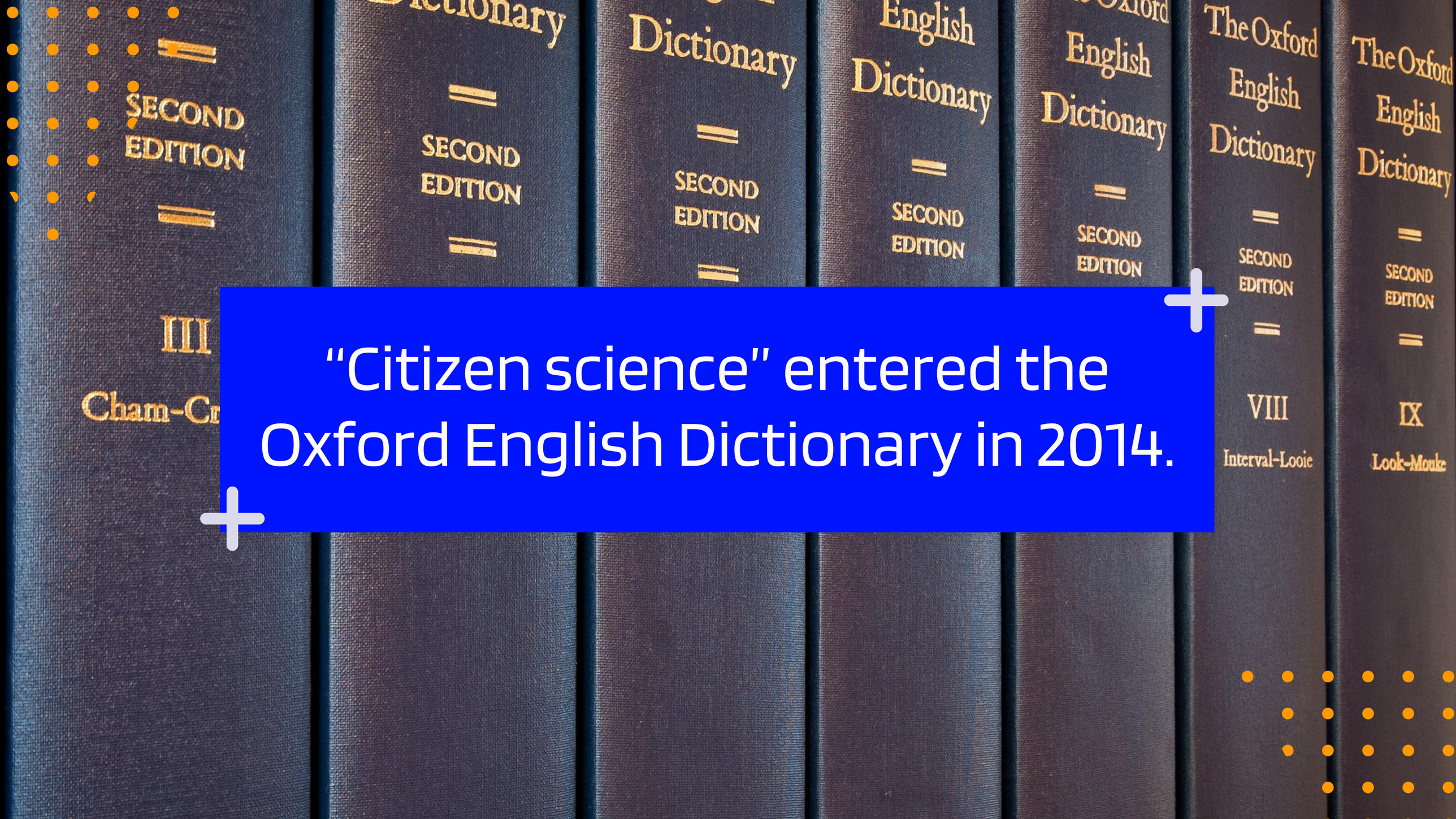
01.

GENESIS of a WORD

Participation in the history of science

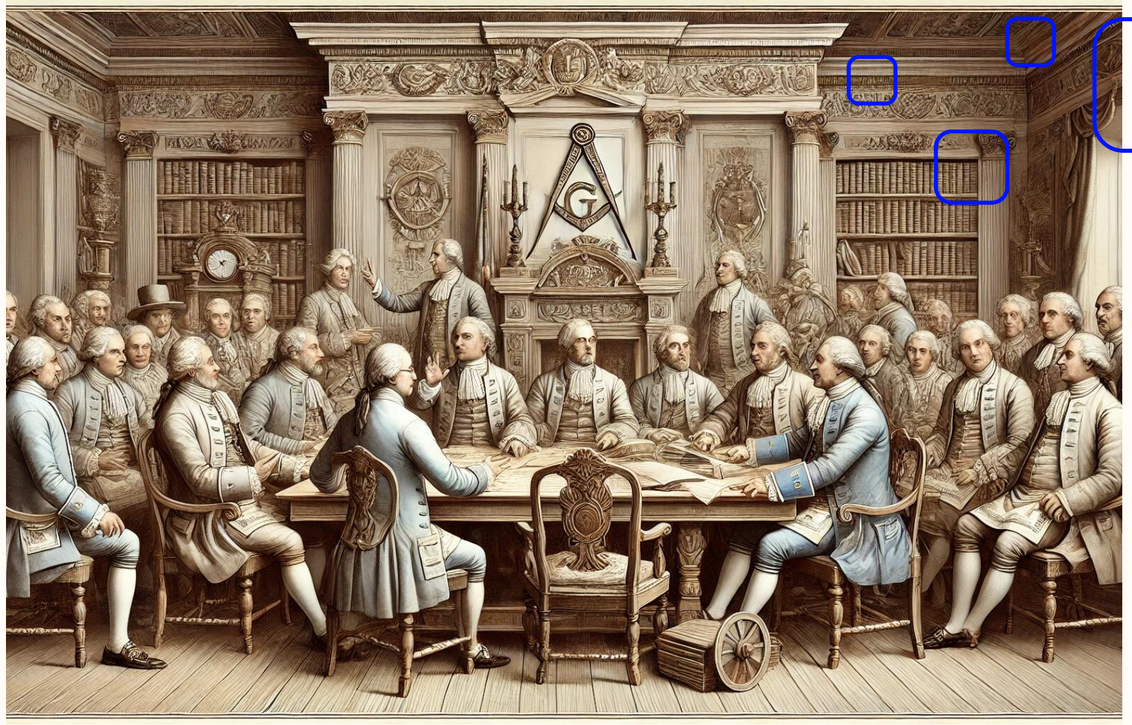


"Citizen science" entered the Oxford English Dictionary in 2014.

n. scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions.

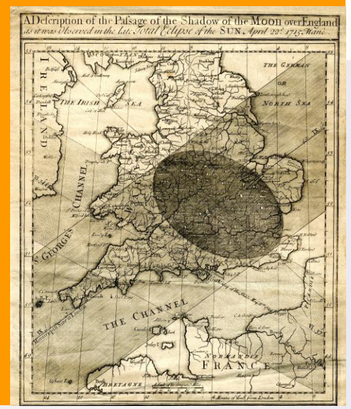
Oxford English Dictionary, 2014

GALILEO'S legacy

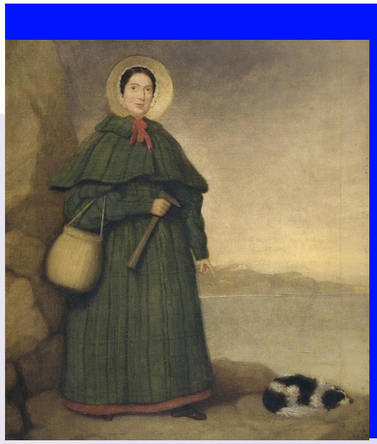


MODERN SCIENCE

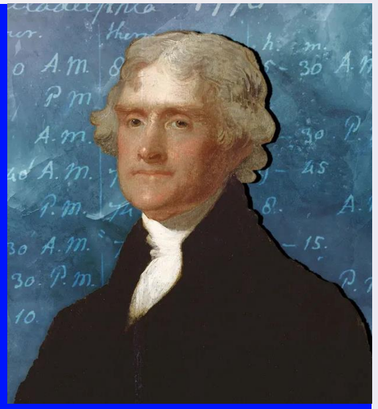
With the introduction of the **scientific method** in the 17th century, gentlemen (and women) devoted themselves to the study and observation of nature.



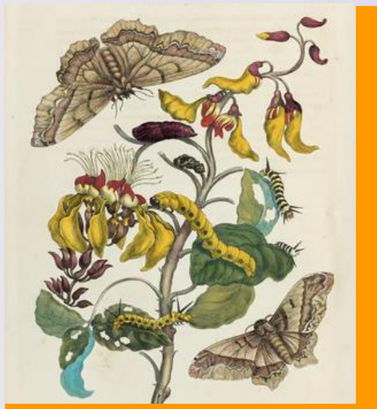
Edmond Halley
and the solar eclipse
of May 1715



Mary Anning
and her skill at
collecting fossils



Thomas Jefferson
a precursor of the
National Weather Service



Maria Sibylla Merian
and the study of caterpillars
and metamorphosis

CITIZEN SCIENCE
ante litteram

A colorful collection of curious
stories and characters.

Professionalization **of SCIENCE**

How the word *scientist* come to be

The word was coined in 1834 by William Whewell as a joke, to describe the ability of a woman, Mary Somerville, to connect all the physical sciences together.

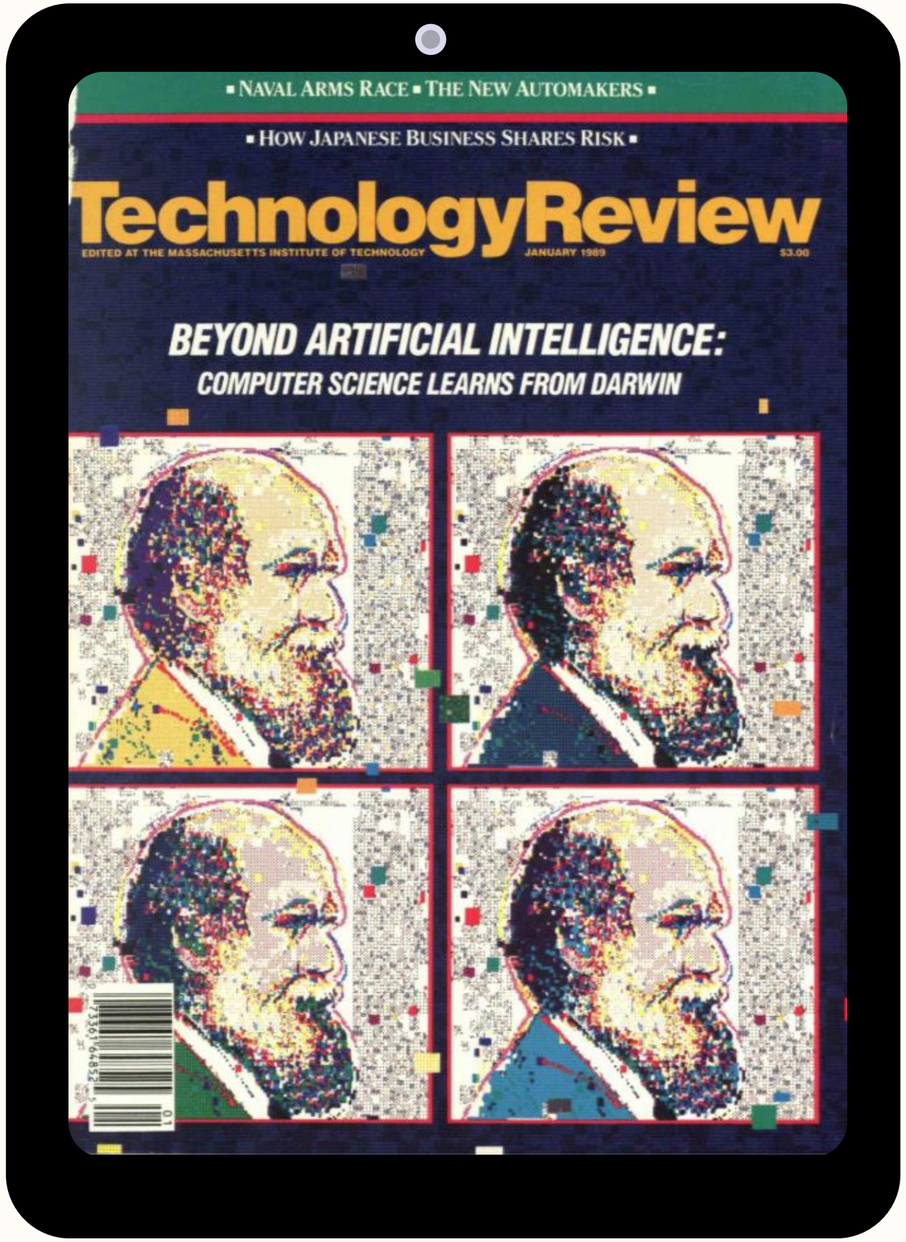
First appearances of the term

«If ufology is not a science, what then is it? It might be considered as a protest movement against the impersonality and specialization of modern science, **which has all but eliminated the role of the “citizen scientist”**, the amateur investigator who in the pas contributed to the development of science through part-time dabbling. […]»

The failure of the sicence of ufology, New Scientist, 11 October 1979.

Lab for the environment

«Audubon involves 225 society members from all 50 states **in a “citizen science” program** that gets information out within five weeks. Volunteers collect rain samples, test their acidity levels, and report the results to Audubon head quarters, which releases a monthly national map of acid-rain levels.»



Lab for the environment, Technology Review, January 1989, p. 11-12

02.

MODERN CS

Principles and benefits of participation in science

"Projects that actively involve citizens in scientific endeavour that generates new knowledge or understanding."

European Citizen Science Association, 2015

Defining CS with the
10 PRINCIPLES

Scan the QR code to download the 10 principles (multi-language versions).

ACTIVE INVOLVEMENT

Citizens always play a meaningful role in the project to generate new knowledge.

MUTUAL BENEFIT

Both the researchers and the citizens benefit from taking part in our project.

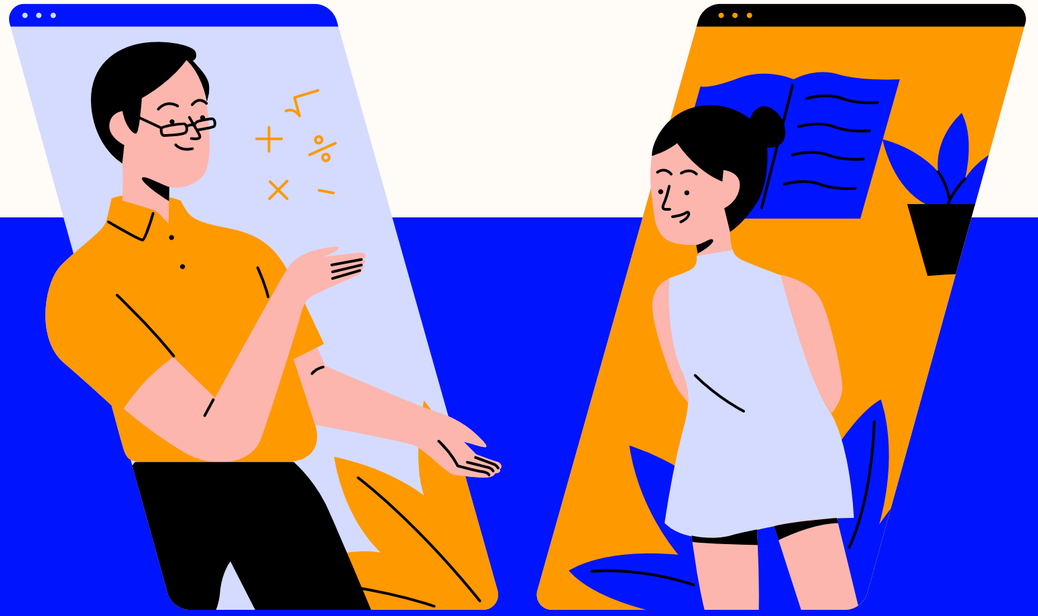
FEEDBACKS

Participants receive feedback from the project and information about outcomes and results.

EVALUATION

CS programs are evaluated for the quality of their output, experiences and impacts.

Delineating the contours of **CITIZEN SCIENCE**

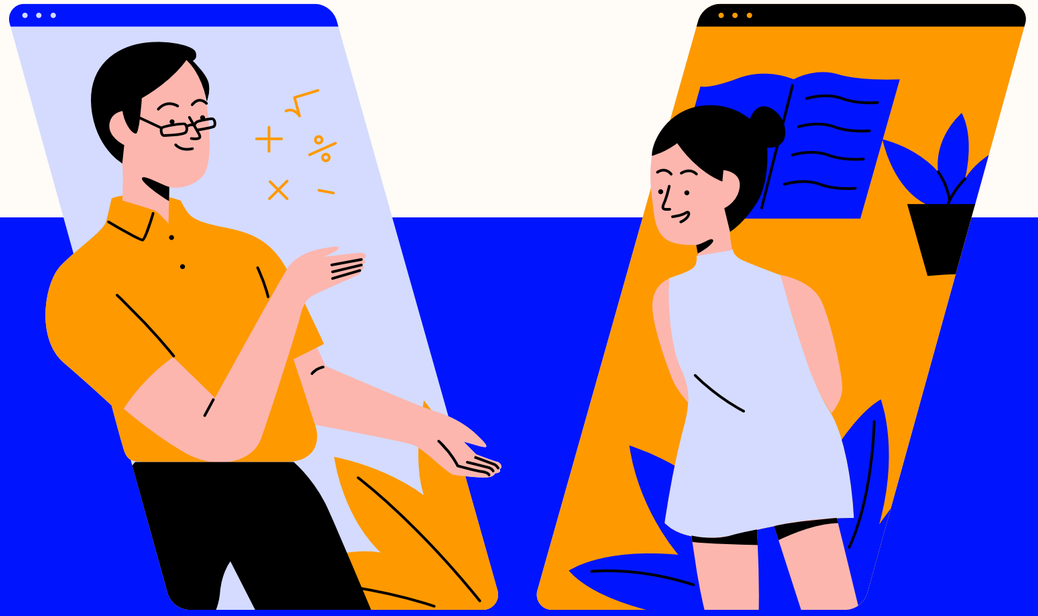


Vignette n.1

Peter takes part in a butterfly project in his hometown Leipzig.
Together with other citizens of different ages and backgrounds, he participates in a series of workshops with entomologists to learn about butterflies, how to attract them into his garden and how to monitor them. Over the course of the project, he learns a lot about the conservation of insect species in urban environments and how he can promote conservation interventions in his city.

Is this citizen science or not?

Delineating the contours of
CITIZEN SCIENCE

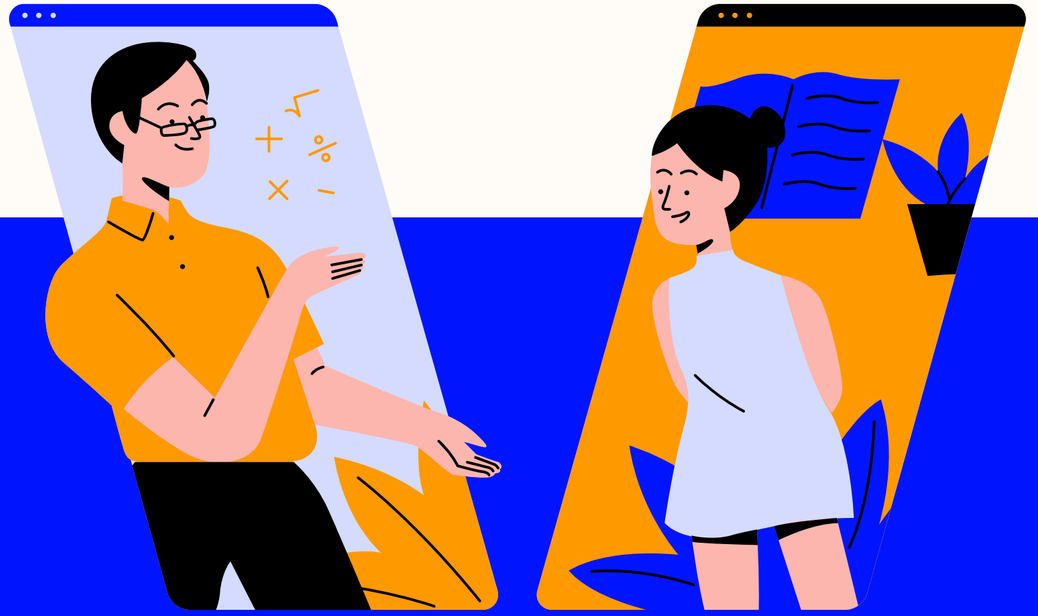


Vignette n.2

Dorotea is a photographer in Katowice, Poland, and she specialises in sharing images of interesting wildflowers and insects on Flickr. She is taking part with groups of photographers who are interested in the beauty of insect photography.
Lena, an ecologist at the university, is scanning these groups regularly and using the images to identify invasive species - some of which are captured because they are often unfamiliar or visually interesting. Lena uses her finding with public authorities to support environmental management and also comments on Flickr to communicate with the photographers. .

Is this citizen science or not?

Delineating the contours of **CITIZEN SCIENCE**



Vignette n.3

Mia is an 8-year-old girl from Graz, Austria, whose parents are divorced. In school, she was approached by her teacher if she wanted to participate in drawing cartoons. Together with other kids her age and assisted by a child psychology researcher Mia expresses her feelings about the divorce of her parents and how she deals with it in cartoons. The participating children develop brochures for adults on how to deal with their kids during a divorce, a brochure for fellow children of divorce, and a board game. The researchers publish their findings on how children perceive fairness in the case of divorce in an international journal.

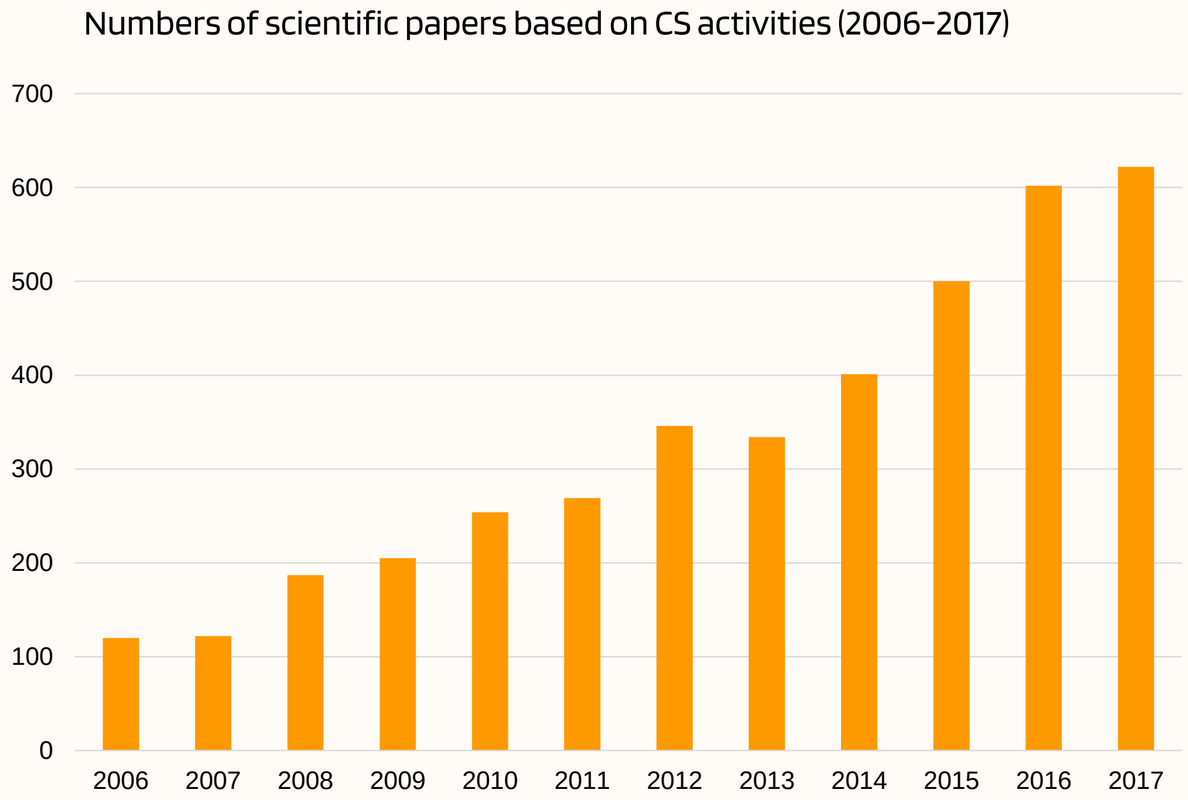
Is this citizen science or not?

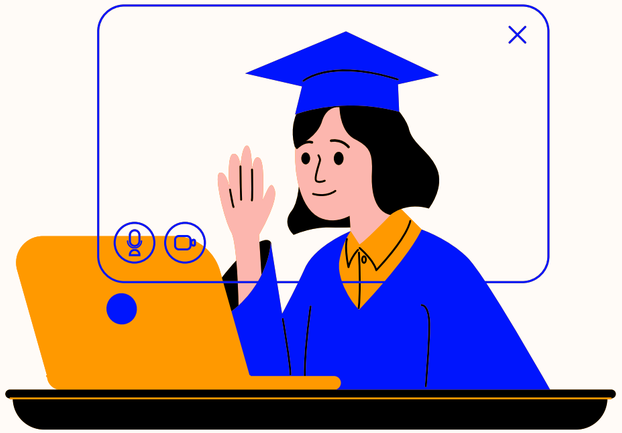
BENEFITS

of citizen science

SCIENTIFIC advancement

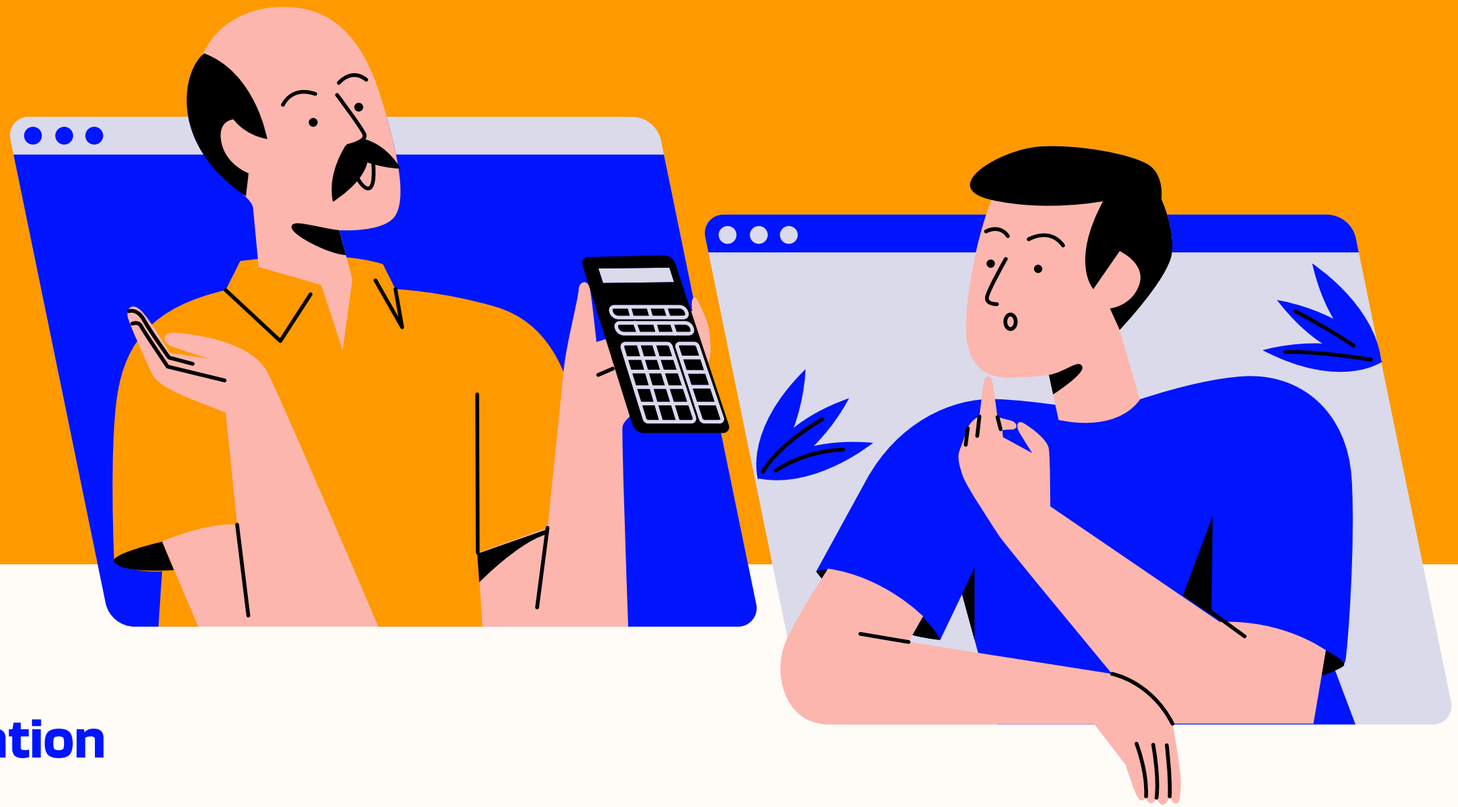
- Speeds up the discovery process
- Delivers superior spatial and temporal data resolution
- Inspires new research questions.
- Promotes public acceptance and understanding of research findings.





SOCIAL

- Generates socially relevant research topics.
- Promotes social inclusion and community self-efficacy.
- Allows society to take on responsibility for research.
- Allows co-creation of transparent and democratic research.



Active citizenship

Allows a better public engagement in decision making.

Information

Provides more effective and actual communication.

Improved services

Keeps authorities connected to citizens current issues.

Evaluation

Helps to better monitor effects of measures and regulations.

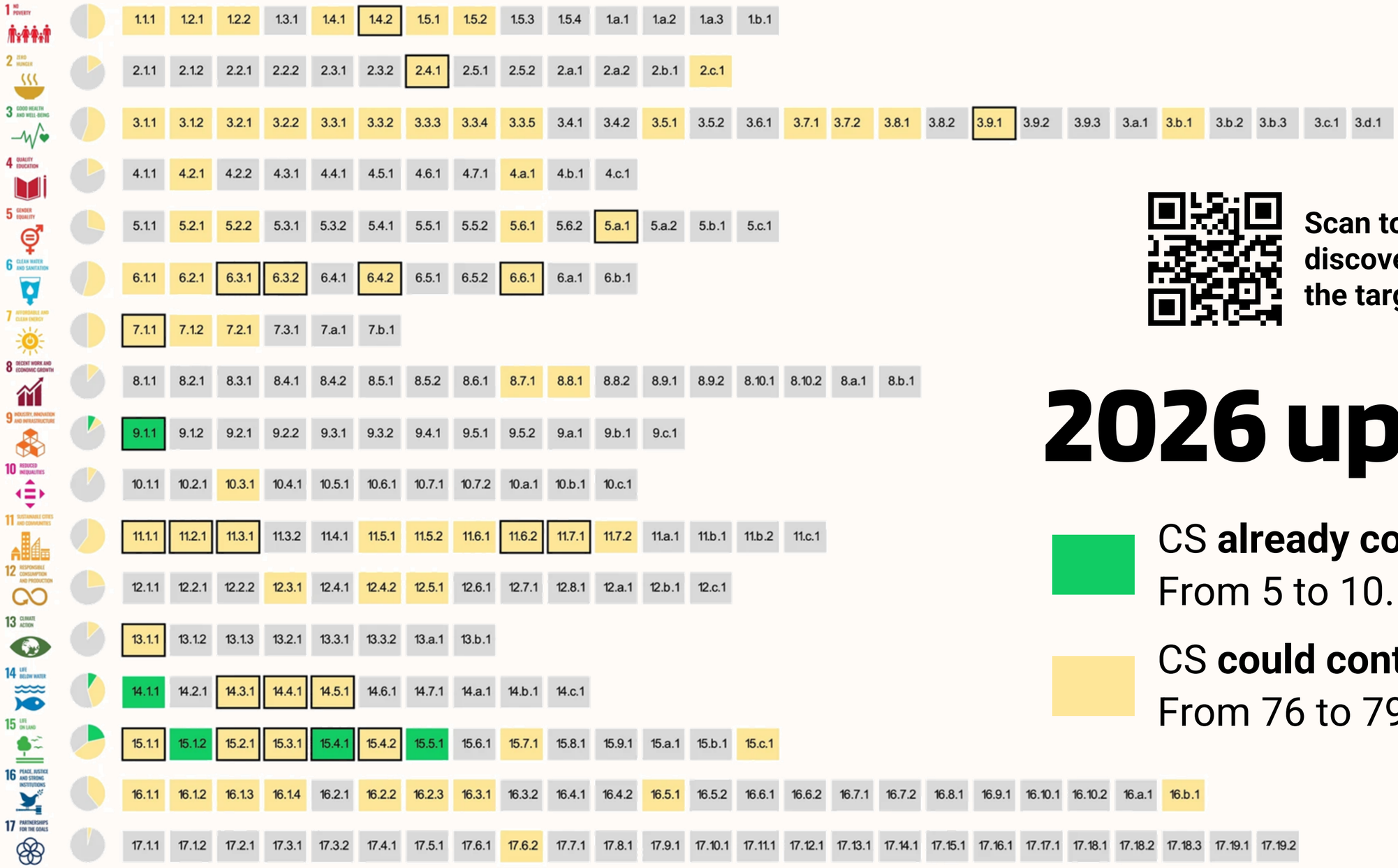
+ POLITICAL benefits

EDUCATIONAL

Don’t miss next webinar
on the 19th March!!

CS and SDGs

The contribution to measure the progress towards the targets.



Scan to discover the targets

2026 update

CS **already contribute**
From 5 to 10.

CS **could contribute**
From 76 to 79.

03.

CITIZENS and CLIMATE

Some examples of public contribution to climate research

1.

In the latest **EU Mission on Climate Adaptation**, citizen engagement takes center stage as a driving force for resilience and transformation.

2.

Citizen engagement in climate action can foster greater **community resilience** and contribute to **more effective and equitable** outcomes.

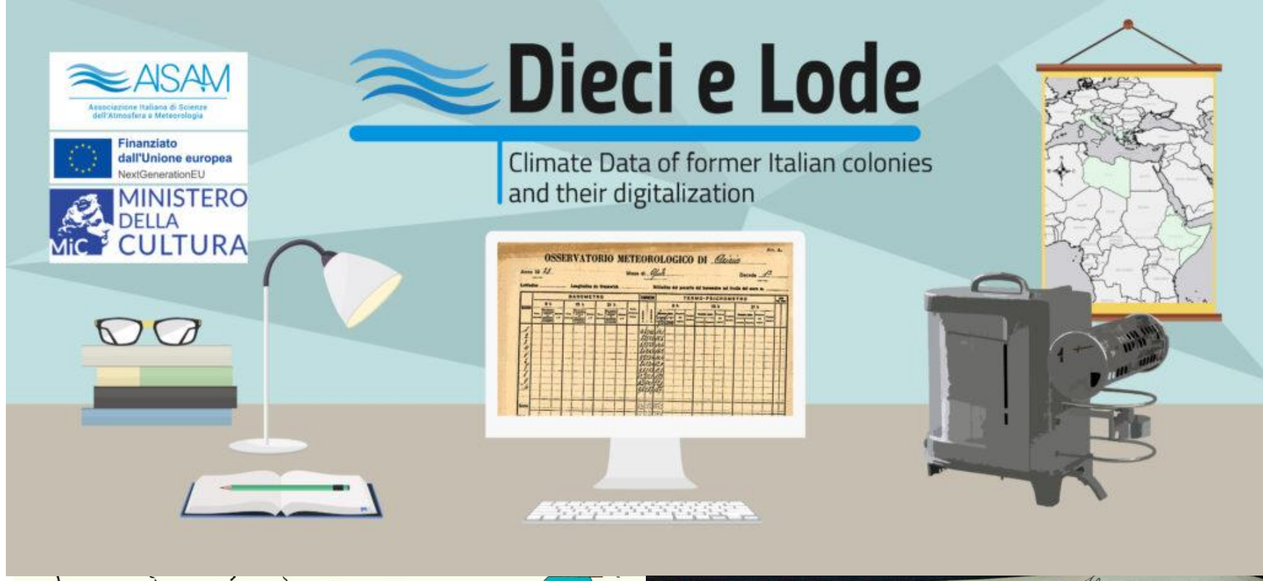
3.

Participatory approaches based on co-design can promote more **inclusive decision-making** and alignment with both scientific knowledge and local needs.

The invisible contribution of **CITIZEN ENGAGEMENT** in climate research

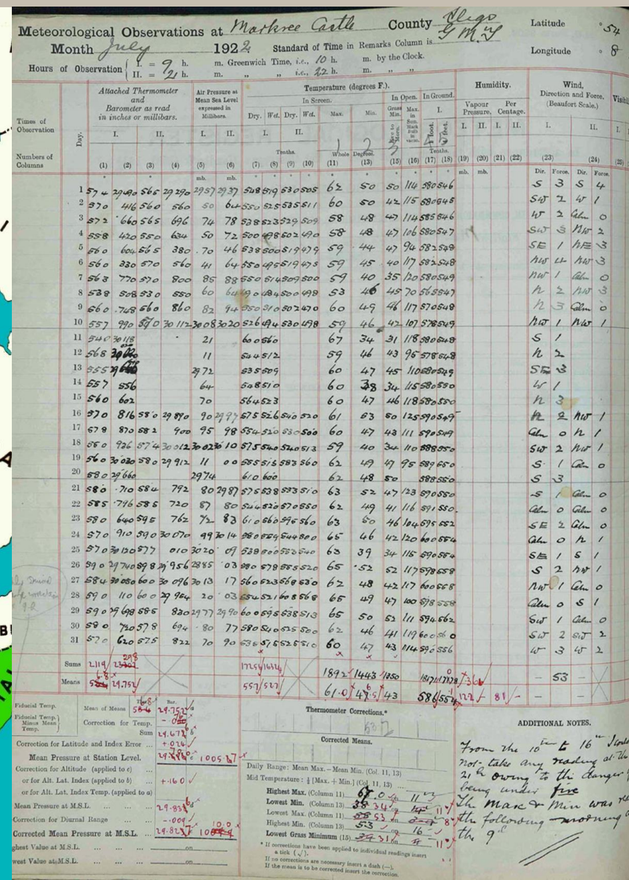
Cli-DaRe@School and Dieci e Lode

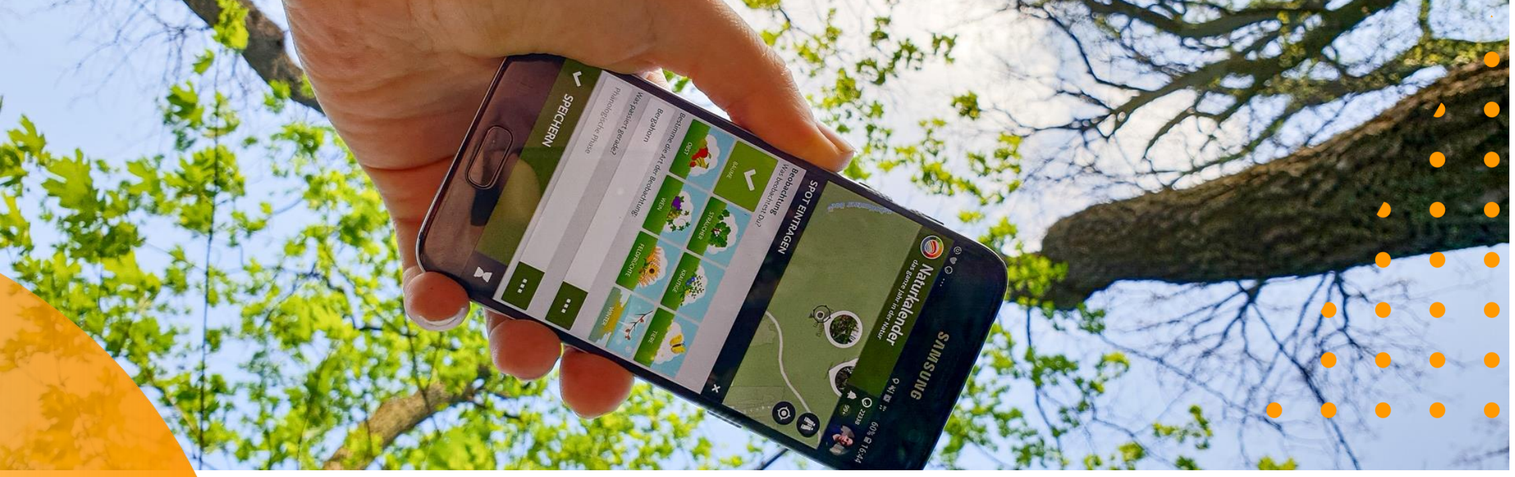
PROJECTS



Coordinated by the Italian Association of Atmospheric Sciences and Meteorology (AISAM), they aim at digitizing historical meteorological observations of temperatures and precipitation collected both in Italy and its former Italian colonies in Africa to unlock a vast observational heritage.

CII-DaRE@SCHOOL: https://aisam.eu/cli-dare-at-school/
DIECI E LODE: https://aisam.eu/10-e-lode-en/





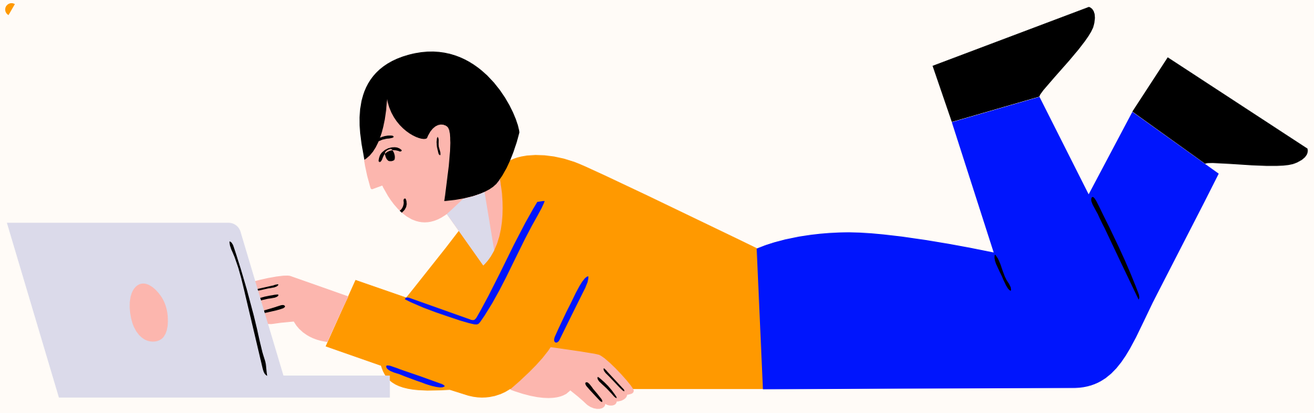
NATURE'S CALENDAR

and phenology

An APP to track the effects of weather and climate change on wildlife near you, recording the signs of the changing seasons. From leaf buds bursting to birds arriving and blackberries ripening.

GERMAN: https://www.naturkalender.at/

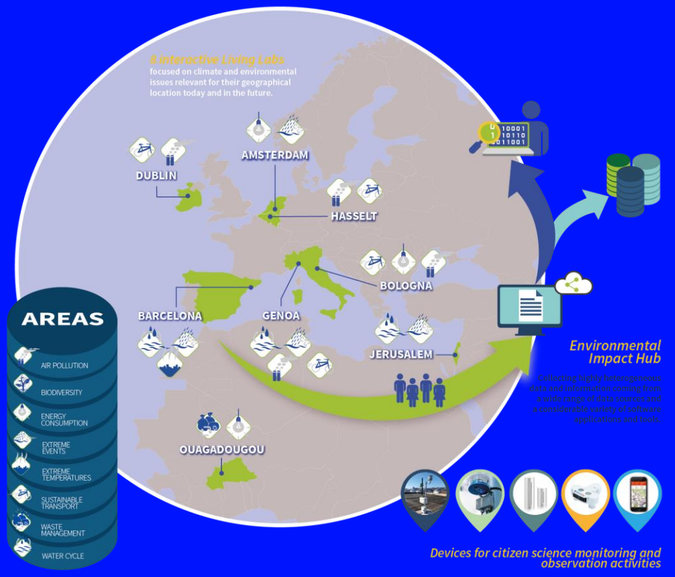
ENGLISH: https://naturescalendar.woodlandtrust.org.uk/

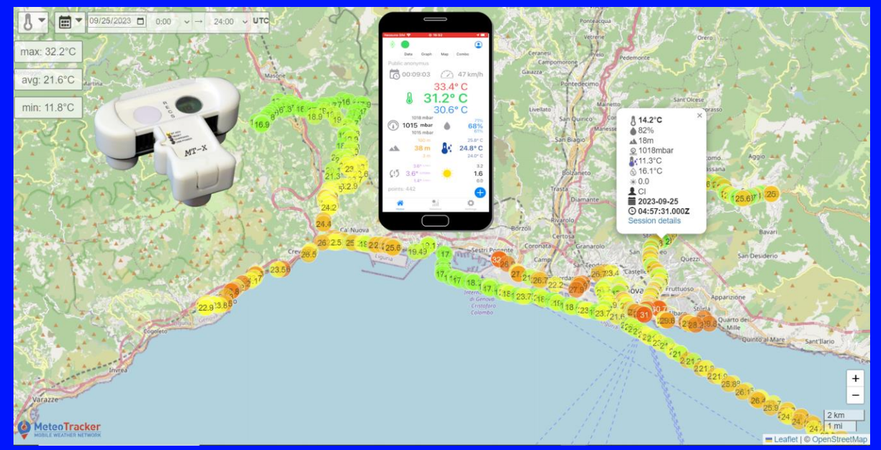


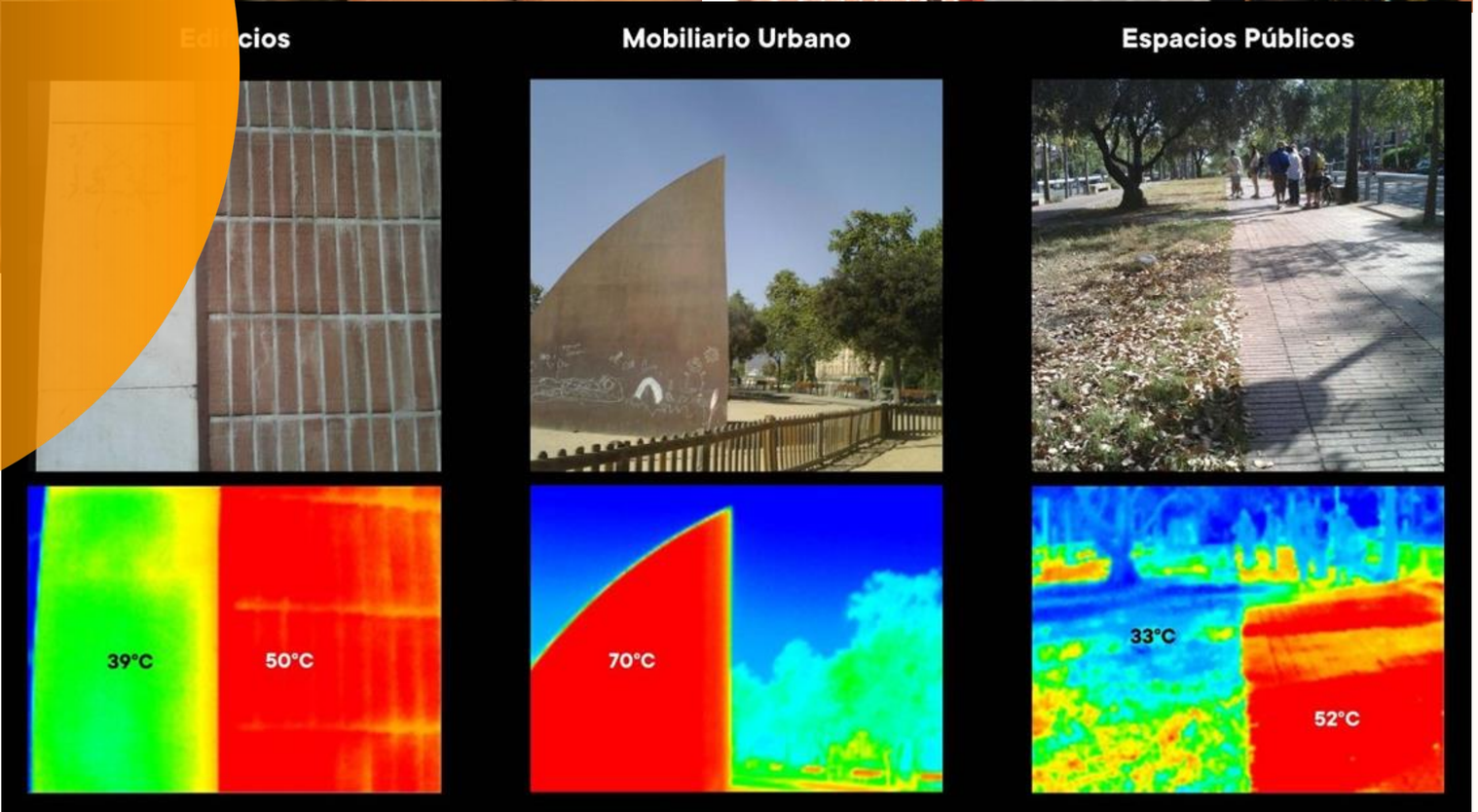
I-CHANGE

Fighting against urban heat islands

As part of the **I-CHANGE project**, people were provided with meteotrackers, to collect data during their daily activities.







CALOR

The project empowered citizens to take an active role in understanding, measuring and addressing the causes and impacts of urban heat effect in Barcelona.

https://www.aqui-coop.org/projects/test-2/

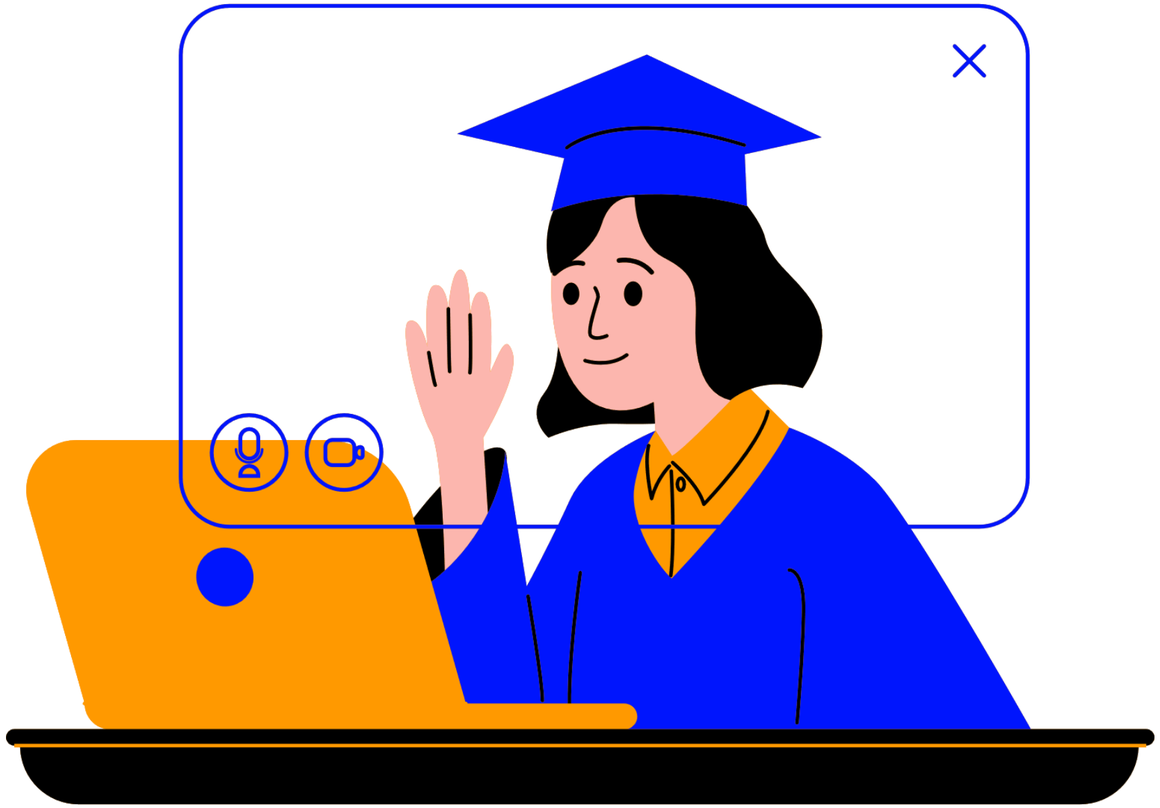
CoCoRaHs

precipitation

Acronym for the *Community Collaborative Rain, Hail and Snow Network*, it is a community-based network of volunteers of all ages and backgrounds working together to measure and map precipitation in the USA.

https://www.cocorahs.org/

A chance for **greening** your curriculum



Green skills

Address cognitive, socio-emotional learning and taking action.

Contextualization

It emphasize the relevance of local knowledge.

Cross-disciplinarity

Learner-centred, experimental, and reflective.

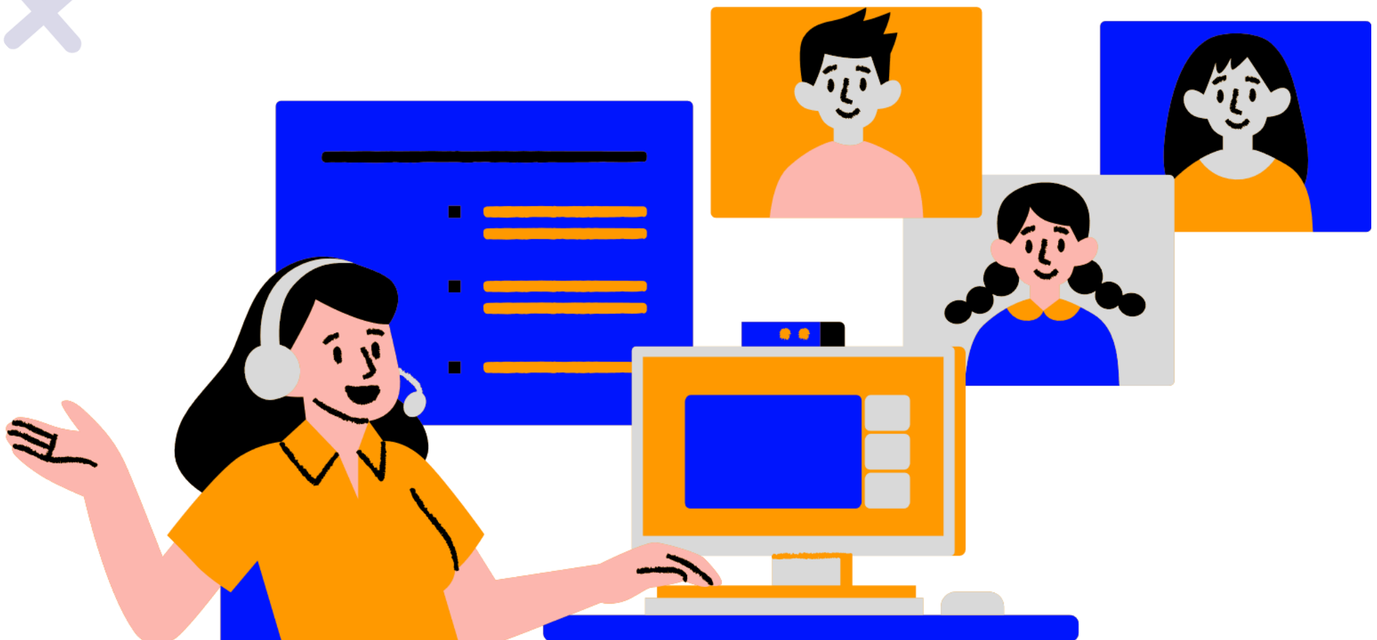
Governance

To drive the development of a school culture of sustainability.

What's next?

In our next webinar, we will cover:

- How citizen science fosters quality education
- Integrating citizen science in school curricula
- Tools and platforms for inspiration
- Key factors for successful citizen science school projects
- Interactive session: challenges and opportunities of School CS



Don’t miss the 19th March!

THANK YOU!

Our contacts

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