

OSHUB CZECH REPUBLIC



OPEN SCIENCE HUB
ŘEŠÍME VĚDOU!
CZECH REPUBLIC



Science In

SCIENCE IN is a company specialised on creative interpretation of various scientific topics. Activities of SCIENCE IN spread from leading accredited educational programmes, designing and manufacturing interactive exhibitions, developing applications to, for example, producing educational TV films. SCIENCE IN also formally collaborates with important bodies responsible for the development of national Curricula, such as the Ministry of Education and the National Pedagogical Institute of Czech Republic.

OSHub Team

Petr Mares

*Open Science
Coordinator*

Sylvie Krocakova

*Creative and
Engagement
Specialist*

Tomas Kapler

*Hands-on
Experiments*

Petr Pokorny

*Scientific
Advisor*

Value Proposition

OSHub-CZ facilitates the collaboration within the local community to creatively deal with interesting/important daily-life challenges.

Target public

Members of local communities, especially students, teachers, parents/families and local actors, such as municipalities.

Management Board

02 Academia

- **Centre for theoretical studies of the Czech Academy of Sciences**
Petr Pokorný, Director
Type of relationship/interaction: Scientific Advisor
Contact frequency: Two months
- **Charles University, Faculty of Science**
Tomas Matejcek, Expert on Education
Type of relationship/interaction: Education Advisor; work with students on OSHub topics
Contact frequency: Monthly

01 School

- **Skola Vitae**
Petr Jonas, Director
Type of relationship/interaction: Consulting the approach to private schools
Contact frequency: Three months

02 Government

- **Municipality of Zdikov**

Roman Sebanek, *Chief of the Municipality*

Type of relationship/interaction: Consulting the approach to schools and municipalities; personal engagement in educational activities

Contact frequency: Two months

- **Ministry of Education / National Pedagogical Institute**

Tomas Cimbalnik, *Guarantor of the Polytechnics education*

Type of relationship/interaction: Development of the approach how to use polytechnic education within OSHub activities

Contact frequency: Three months

01 Civil Society

- **Do Krajin**

Petr Miksicek, *CEO*

Type of relationship/interaction: Consulting the approach to Civil Society/NGO organisations

Contact frequency: Two months

Approach

OSHub-CZ implemented a decentralised approach by establishing a network of OS Hubs across different regions of Czech Republic, based on existing local premises/entities – with their own facilities, teams, equipment. More specifically, local OS Hubs have been established at: Kovarska, Ore mountains, managed by the NGO Do Krajin; Trebon, Trebon lowlands, managed by a local section of the Czech Union of Nature Protectors; foothills of the Sumava mountains, managed by the Elementary School – Zdikov.

This approach aims to strengthen the role of OS Hubs as centres for knowledge-based local development, thus increasing the resilience of local communities and ensuring long-term sustainability.

Despite their different contexts, all local OS Hubs share the common objective of using real-life issues/topics to increase the interest of local communities in scientific processes and tools, while promoting the development of local networks that contribute to community development.

In addition, SCIENCE IN, the coordinator entity of OSHub-CZ, also develops programs and activities with national reach, as we describe below.

Model

The programs and activities of the local OS Hubs are designed specifically according to their needs and capacities and have the specific objectives of developing strategies to tackle local relevant problems, increasing their visibility in the region and establishing new collaborations or strengthening existing ones. For example, OS Hub Zdikov focused on the issue of air quality, which is the main environmental problem at this location, by developing strategies with local schools to periodically monitor air pollution and to generate public discussion with the local community; OS Hub Kovarska uses their expertise on producing film documentaries to boost the interest of children, teachers and their families to discover their territory through the creation of their own film documentaries; and OS Hub Trebon works with local schools transforming the knowledge acquired during educational field experiences and adventures into graphically impressive layouts, which can then be used by other schools and the local community).

Although these approaches are based on the specific context of each local OS Hubs, the activities are easy to replicate by other similar institutions (NGOs, schools).

The national coordinator, SCIENCE IN, on the other hand, focuses on the development of initiatives with national reach. An example of such initiatives was the production of a TV series – Koumando TV series – , together with the national Czech Television and the Czech Technical University, about how kids discover interesting everyday life topics, like public space, drought, new wilderness, landscape memory etc. The episodes were nationally broadcasted from April to June 2022, and are now on the portal of the *Czech Television*.

Importantly, these episodes have been used to stimulate local communities' interest about important real-life challenges, such as drought, sustainability, air pollution, public space, through scientific experiments and creative activities, which are then discussed during public meetings and school-led seminars.

Additionally, the experiments of the Koumando TV series are currently being transformed into educational programmes that will be placed at the CT-EDU, the educational portal of the Czech Television (and one of the most used educational e-portals in the country) supporting schools and extra-school education.

Physical Space

There are three OS Hubs which are shielded by partner institutions of various nature: 1. OS Hub Kovarska – operating from a newly restored building in the village of Kovarska and using an old historical building Konigsmuhle; 2. OS Hub Trebon – it's a youth centre of approx 120m²; 3. OS Hub Zdikov – it's part of a local elementary school (no dedicated space available). The local OS Hubs are coordinated by SCIENCE IN from its premises in the centre of Prague (Celetna 21) where also some activities were designed and produced.





Figure 1 – 6: Photos of OSHub-CZ physical spaces (1st row: OSHub Kovarska; 2nd row: OSHub Trebon; 3rd row: OSHub Zdikov; 4th OSHub headquarters in Prague – Celetna 21)

Partner Schools

NAME	LOCATION	SCHOOL YEARS	# STUDENTS	# TEACHERS	# SCHOOL HEADS	# PARENTS
Do Krajín	Kovarska	Primary to secondary	15-30	2	1	15-30
ZS a MS Zdikov	Zdikov	Elementary	15-30	2	1	15-30
CSOP Volavky Trebon	Trebon	Primary to secondary	15-30	2	1	15-30
SCIENCE IN	Praha	Preschool to tertiary	15-30	2	1	15-30

Implementation

Overall, OSHub-CZ impacted:

- Directly:
 - 2 207 students corresponding to 2 207 interactions (engagement rate: 1)
 - 242 teachers corresponding to 242 interactions (engagement rate: 1)
 - 2 182 community members corresponding to 2 182 interactions (engagement rate: 1)
- Indirectly:
 - 911 750 students
 - 26 210 teachers
 - 2 118 585 community members

We Create our own Mobile Path with OSHub Kovarska and OSHub Trebon

The objective of this program was to stimulate collaboration within the local community by preparing geolocation mobile trails around interesting places and by common use of the prepared app.

For that, OSHub CZ developed the App Creator, which allows Android and iOS geolocated mobile apps to be used with users’ own content (text, photos, pictures, audio, video, 3D scenes, AR).

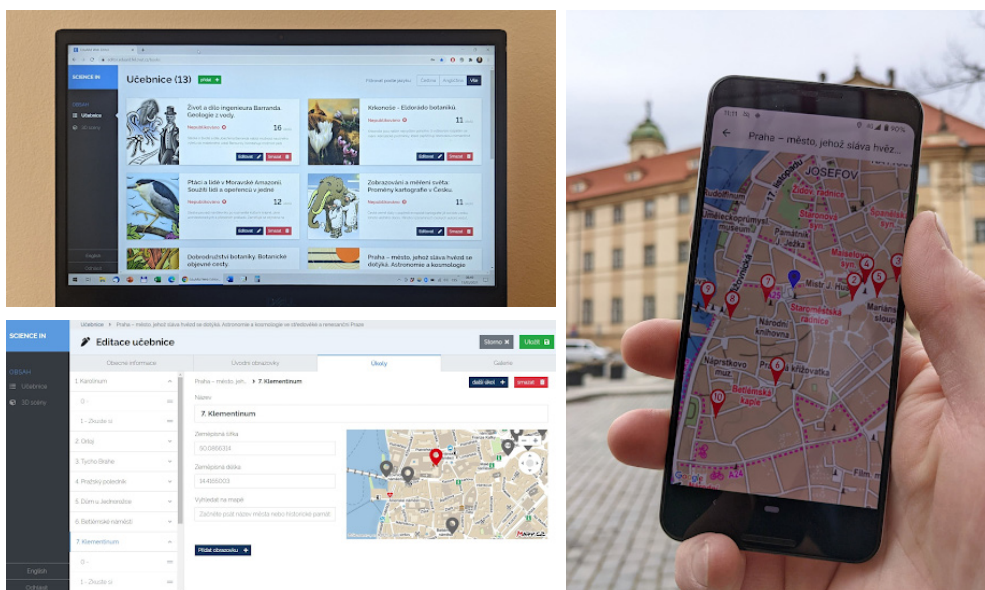


Figure 7 – 9: Photos from We Create our own Mobile Path sessions.

Partnerships

02 Academia

- **Czech Technical University**

Type of relationship/interaction: Collaboration on development of the App Creator; software development

Contact frequency: Monthly

- **Charles University**

Type of relationship/interaction: Collaboration on piloting of the App Creator

Contact frequency: Monthly

Activities

10 Sessions to pilot the app creator during field work

SHORT DESCRIPTION

There were 10 mobile paths prepared in cooperation with OSHub-CZ (SCIENCE IN, Kovarska, Trebon) and Charles University (experts from Faculty of Science) to pilot the App Creator and its individual features. Students collaborated in the preparation of the App Creator.

In *this presentation*, one can find the guidelines on how to use the App Creator.

This activity has been communicated in social media, for example: <https://www.facebook.com/sciencein.eu/posts/pfbid0389i82P595hqVPpiQ7YmAAeRQdxNz2KrmzZoYDL2gExZhYqwHxjZhs6qzrxktSRvKI>

DURATION

14 days for each path

TIMELINE

School year of 2020-2021

PEOPLE ENGAGED

- Directly engaged:

- 28 students
- 6 school heads
- 16 parents/guardians
- 8 researchers
- 5 professionals from NGOs
- Indirectly engaged:
 - 200 students
 - 50 teachers
 - 100 parents/guardians
 - 20 researchers
 - 10 professionals from NGOs

01 Introduction at the Konigsmuhle Arts Festival

SHORT DESCRIPTION

Introduction of the AppCreator at the creative festival of Konigsmuhle by the students that participated in the development of the app.

This activity has been communicated in social media, for example: <https://www.facebook.com/sciencein.eu/posts/pfbid02krKojowZ9NBETBjo34fv36eM41DkzNkPPNNEaMQwBm2HZmHeLdRoePqA2vJQq7M7I>

DURATION

The festival had the duration of three days

TIMELINE

10-12/08/2021

PEOPLE ENGAGED

- Directly engaged:
 - 30 students
 - 10 teachers
 - 200 parents/guardians
 - 5 professionals from NGOs
- Indirectly engaged:
 - 200 students
 - 50 teachers

- 10 school heads
- 100 parents/guardians
- 20 researchers
- 10 professionals from NGOs

KOUMANDO TV series and its experiments

The objective of this activity was to deal with real-life challenges and supporting the communication within local communities by doing experiments and lead discussions on the topics of prepared and nationally broadcasted KOUMANDO TV Series

OSHub CZ and Czech Television prepared a TV series about how kids discover interesting topics they meet during their everyday life (9 episodes out of 12-part series were co-produced by OSHub CZ). The episodes were nationally broadcasted from April to June 2022 (and are now on the portal of the Czech Television – <https://www.ceskatelevize.cz/porady/13772468403-koumando/>) and simultaneously used to stimulate local communities' interest about important real-life challenges. The topics (drought, sustainability, air pollution, landscape memory, „new wilderness“, public areas etc.) are discovered by scientific experiments and creative activities and then discussed during public meetings and school-led seminars.



Figure 10 – 11: KOUMANDO TV series graphical cover and photo of its experiments session.

Partnerships

01 Media

- **Czech Television**

Type of relationship/interaction: Co-production, national broadcasting

Contact frequency: Weekly

04 Academia

- **Charles University**

Type of relationship/interaction: Scientific and didactic advisory

Contact frequency: Monthly

- **Palacky University**

Type of relationship/interaction: Scientific and didactic advisory

Contact frequency: Three months

- **Masaryk University**

Type of relationship/interaction: Scientific and didactic advisory

Contact frequency: Three months

- **Czech Academy of Sciences**

Type of relationship/interaction: Scientific advisory

Contact frequency: Monthly

Activities

09 Producing OSHub episodes of the TV series, piloting experiments involved in the episodes

SHORT DESCRIPTION

Designing and piloting the experiments in collaboration with schools and OS hubs, preparation of the series and its production (ideas, scripts, filming, post-production). This has been communicated in social media, with a dedicated channel: <https://www.facebook.com/koumando.cz>

DURATION

20 months

TIMELINE

09/2019-05/2022

PEOPLE ENGAGED

- Directly engaged:
 - 30 students
 - 17 teachers
 - 6 school heads
 - 30 parents/guardians
 - 20 researchers
 - 10 professionals from NGOs
- Indirectly engaged:
 - 400 students
 - 60 teachers
 - 20 school heads
 - 600 parents/guardians
 - 50 researchers
 - 20 professionals from NGOs

01 Introduction of the series at the international film festival for children and youth; Reportage in the main evening tv news of the czech television

SHORT DESCRIPTION

Show with OSHub experiments at the Boothe of the Czech Television at the festival; filming and broadcasting the reportage at the main evening TV news. This has been communicated in social media, for example: <https://www.facebook.com/sciencein.eu/posts/pfbid0yUucVkp29CoCJr81Bg2oda1J6TBtJr5xLzagfE4jVakXP-MTE4rERxYgaaHnsHzzk>

DURATION

One day

TIMELINE

11/09/2021

PEOPLE ENGAGED

- Directly engaged:
 - 50 students
 - 5 teachers
 - 100 parents/guardians
 - 3 professionals from NGOs
- Indirectly engaged:
 - 500 000 students
 - 20 000 teachers
 - 1 000 school heads
 - 2 000 000 parents/guardians
 - 1 000 researchers
 - 500 professionals from NGOs

09 Broadcasting the series through Czech Television channel for children and youths

SHORT DESCRIPTION

Broadcasting of the TV series and watching the episodes at the Archive of the Czech Television (iBroadcasting) afterwards.

The 9 episodes of the Koumando TV series are available in the portal of the Czech Television: <https://www.ceskatelevize.cz/porady/13772468403-koumando/>

This has been communicated in social media and in the website of the Czech television, for example:

<https://www.facebook.com/sciencein.eu/photos/a.2485749198123359/5358195037545413/>

<https://www.ceskatelevize.cz/vse-o-ct/press/tiskove-zpravy/?id=9685>

DURATION

Two months of the broadcasting (altogether 9 OSHub episodes); TV series placed at the iArchive afterwards

TIMELINE

04-06/2022

PEOPLE ENGAGED

Indirectly engaged:

- 400 000 students
- 5 000 teachers
- 500 school heads
- 100 000 parents/guardians
- 200 researchers
- 200 professionals from NGOs

08 Presentation of the series and its experiments at makerfaire CZ Festivals

SHORT DESCRIPTION

One or two days festivals in 8 different cities around Czech Republic (Prague, Ceske Budejovice, Plzen, Brno, Liberec, Mlada Boleslav, Rychnov nad Kneznou); leading workshops on four Koumando experiments (water rockets, air quality measurements, simulator of gravity, optics); appointing teachers for further collaboration.

DURATION

15 days (altogether)

TIMELINE

2021-2022

PEOPLE ENGAGED

- Directly engaged:
 - 2 000 students
 - 200 teachers
 - 10 school heads
 - 1 500 parents/guardians
 - 80 researchers
 - 50 professionals from NGOs
- Indirectly engaged:
 - 10 000 students
 - 1 000 teachers
 - 300 school heads

- 13 000 parents/guardians
- 800 researchers
- 400 professionals from NGOs



Figure 12 – 15: OSHub-CZ Presentations at Makerfaire Festivals.

Let's make our own film documentary with OSHub Kovarska

The objective of this activity was for children with teachers and parents discover interesting points around their village through creation of their own film documentary

The filming team identifies interesting places, study information about them and create a film documentary – script, filming, animations, post production; then the film is presented together with „production experience” to the local community.



Figure 16: Photo from Let's make our own film documentary session.

Partnerships

05 School

- **5 schools from neighbouring villages**

Type of relationship/interaction: Collaboration on content

Contact frequency: Monthly

Activities

01 Workshop “Let’s make our own film documentary”

SHORT DESCRIPTION

Workshop for pupils on script, filming, proceeding of materials and postproduction

This has been communicated in social media, for example:

- <https://www.facebook.com/sciencein.eu/posts/pfbid022g8NJFCgpLbcfg1VXFqeb5PeHTdnJ-kwxC9V4JTfAh21FtEacnzWhsmK2PvG2AqFhl>
- <https://www.facebook.com/sciencein.eu/posts/pfbid0P2UK7uH24vW3RaSAQ4LFk58yFQDWjSE1ik-g9qwyLRoFtPu6gZ5hpLxVRtFVr1xR4l>

DURATION

Three days workshop with preparatory work before

TIMELINE

05/2021

PEOPLE ENGAGED

- Directly engaged:
 - 15 students
 - 4 teachers
 - 20 parents/guardians
 - 5 researchers

- 2 professionals from NGOs
- Indirectly engaged:
 - 500 students
 - 30 teachers
 - 6 school heads
 - 500 parents/guardians
 - 10 professionals from NGOs

01 Presentation of the outputs at the Art Festival Königsmühle 2021

SHORT DESCRIPTION

Information about OSH Kovarska and presentation of the outputs of the workshops

This has been communicated in social media and websites, for example:

- <https://www.facebook.com/sciencein.eu/posts/pfbid02krKojoWZN9BETBjo34fv36eM41DkzNkPPN-NEaMQwBm2HZmHeLdRoePqA2vJQq7M7I>
- <https://konigsmuhle.cz/rocnik-2021/vzdelani-partnerstvi/>

DURATION

Three days

TIMELINE

26-28/8/2021

PEOPLE ENGAGED

- Directly engaged:
 - 12 students
 - 2 teachers
 - 56 parents/guardians
 - 5 researchers
 - 5 professionals from NGOs
- Indirectly engaged:
 - 150 students
 - 10 teachers
 - 2 school heads

- 300 parents/guardians
- 10 researchers
- 10 professionals from NGOs

COVID The Teacher with OS Hub Trebon

The objective of this activity was to use the actual COVID-19 epidemic to learn important skills.

Since schools have problems using current events and news in their formal education (they often teach standard lectures without even noticing there is something important going around) we decided to support them with materials that deal with current COVID pandemic – interpreting data, revealing fake news and learning important skills. When there started to be a lack of food in shops in spring 2020 OS Hub Trebon prepared inspiring worksheets about what is possible to eat in nature.



Figure 17: Photo from COVID The Teacher sessions.

Activities

12 Session with students to pilot activities and create worksheets

SHORT DESCRIPTION

12 inspiring field workshops (what to eat in nature) and graphical tools how to present the outputs. The outputs from this activity, developed together with the students, can be found [here](#).

DURATION

24 days during Spring and Autumn 2020

TIMELINE

One day of fieldwork + one day of work with graphical SW for each topic

PEOPLE ENGAGED

- Directly engaged:
 - 12 students
 - 2 teachers
 - 31 parents/guardians
 - 4 researchers
 - 2 professionals from NGOs
- Indirectly engaged:
 - 200 students
 - 10 teachers
 - 3 school heads
 - 300 parents/guardians
 - 10 researchers
 - 10 professionals from NGOs

What Air do we Breathe? with OSHub Zdikov

The objective of this activity was to measure and to communicate through educational activities on air pollution from home heating

Air pollution from house heating systems (brown coal and wet wood combustion, often also burning waste) is probably the most serious environmental problem in the Czech countryside. Especially in the villages locked in narrow valleys, the concentration of pollutants significantly exceeds defined pollution limits during most of the heating season. It is extremely important to obtain at least some data on air quality and discuss the problem within the local community, try to find ways to persuade people that clean air is a top priority for them, their children and nature, and that it is worth trying to improve the situation with a joint effort.



Figure 18: Photo from the evening measurement (air pollution from home heating at village of Zdikov).

Activities

01 Measurement of air pollution and discussing the topic with pupils and local municipality

SHORT DESCRIPTION

One week of professional measurement of air pollution (network measurement with three stations and mobile measurement during two evenings) and three weeks of educational and communication activities in the village – collaboration of the school with local municipality.

The presentation used in the communication campaigns can be found *here*.

This has been communicated in social media, with a dedicated account, and media outlets, for example:

- <https://www.facebook.com/conspirozdikov>
- <https://www.facebook.com/conspirozdikov/posts/pfbid0TmnoApxrV8HRGMrGcHfr2fiWuZVsZu-U56Afebo4wZ9iZsZ4zrk4JVMD5KgDvkLb7l>

DURATION

Three weeks in Spring 2020

TIMELINE

One week of measurements and two weeks of the educational/communication campaign

PEOPLE ENGAGED

- Directly engaged:
 - 30 students
 - 2 teachers
 - 1 school head
 - 21 parents/guardians
 - 4 researchers
- Indirectly engaged:
 - 100 students
 - 10 teachers
 - 5 school heads
 - 400 parents/guardians
 - 5 researchers

Resources

- **Koumando TV series, 9 episodes**

Set of guidelines for establishing and running a Fab Lab, including materials, tools and equipment, as well as safety recommendations

- Available in the portal of the *Czech Television*.



Figure 19: Image taken from Koumando TV Series dissemination website.

Dissemination and Communication Activities

ACTIVITY TYPE	# ACTIVITIES	INFORMATION ABOUT ACTIVITIES
Organisation of a Conference	2	<ul style="list-style-type: none"> • Konigsmuhle Land Art Festival • MakerFaire Prague <p>Detailed information above and in the document in the footnote¹</p>
Organisation of a Workshop	8	<ul style="list-style-type: none"> • ESA-NASA Trans Atlantic Training • MakerFaire Plzen • MakerFaire Praha • MakerFaire Plzen • MakerFaire Rychnov • MakerFaire Ceske Budejovice • MakerFaire Prague • MakerFaire Mlada Boleslav <p>Detailed information in the document in the footnote</p>

Press release	2	<ul style="list-style-type: none"> • Article in Czech TV website² • Article in local media³
Social Media	50	Facebook, Instagram, LinkedIn, Twitter
Website	1	Web page of OSHub in SCIN website ⁴
Communication Campaign (e.g. Radio, TV)	2	<ul style="list-style-type: none"> • Reportage in the Czech Radio⁵ – Reportage with the leader of OSHub Kovarska Petr Miksicek in the Czech national radio; describing the activities of local community development through education and art • Reportage in the main evening news of the Czech Television⁶ – Reportage about OSHub experiments in the main evening TV news of the Czech Television (Reportage from the Booth of the Czech Television at the International film festival for children and youth Zlin 2021, OSHub produced Koumando TV series)
Participation to a Conference	2	<ul style="list-style-type: none"> • PirateCon • COPERNICUS User Forum Czechia <p>Detailed information in the document in the footnote⁷</p>
Participation to a Workshop	1	<p>ESA-NASA Trans Atlantic Training</p> <p>Detailed information in the document in the footnote⁷</p>

2 <https://www.ceskatelevize.cz/vse-o-ct/press/tiskove-zpravy/?id=9685>

3 https://drive.google.com/drive/folders/1yPa4TmezJ5wl8ilQsvMfeWdM1VxBraq8?usp=share_link

4 <https://www.sciencein.cz/projekt/open-science-hub/>

5 https://www.youtube.com/watch?v=N9kyBZNWi8o&ab_channel=%C4%8Cesk%C3%BDrozhl%C5%BEurn%C3%A1l

6 <https://www.ceskatelevize.cz/porady/1097181328-udalosti/221411000100911/cast/876278/?fbclid=IwAR2zeVklidSj-0fSKDzqqBAXW2qr3KPjsb7JTGA0aYi5hneSZnboabcymIROY>

7 Conferences & Events

Participation to an Event other than a Conference or a Workshop

2

- OSHub Inspiration Session #1
- International Film Festival for Youth and Kids in Zlin, Czechia⁸

Video/Film

12

- 9 episodes of KOUMANDO TV series
- "What is Open Schooling?" (made by the consortium)⁹
- "Why would you encourage a peer to take part?", featuring a local partner¹⁰
- "What do I need to know to get started?", conversation between an "experienced partner" and a newcomer¹⁰

Detailed information above

Legacy

The experiments of the Koumando TV series are currently being transformed into educational programmes that will be placed at the CT-EDU, the educational portal of the Czech Television (and one of the most used educational e-portals in the country) supporting schools and extra-school education.

8 <https://www.zlinfest.cz/en/>

9 <https://opensciencehub.net/index.html>

10 https://opensciencehub.net/local_OSHub_CZ.html