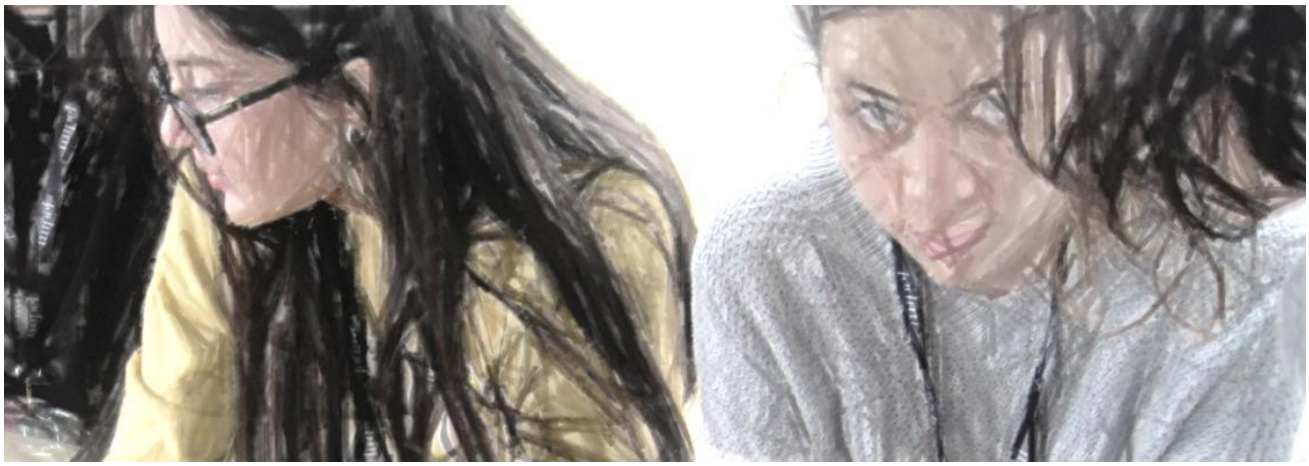

[Present graphics used until the project has developed its own graphics]

science4girls

Making science attractive to female students through open science schooling focused on climate change

DETAILED WORK PROGRAMME

Guidance Collection for Partners

THE OVERALL PROGRESSION LOGIC

The project progression can be illustrated like this:

Empowerment of project participants and creation of consensus, and creation of useful practical guidance to all groups of players

⇓

First round of student teams' climate change missions, including knowledge time-outs
(Basic documentation)

⇓

Local and transnational evaluation, leading to improved guidance for all players
(Based on the project's quality assurance system)

⇓

Second round of student teams' (new) climate change missions, including knowledge time-outs
(Advanced documentation and students and teachers' personal testimonies)

⇓

Total and final evaluation leading towards the production of final outcomes, including developing the ultimate final outcomes quality criteria

⇓

Production of final outcomes, based on teachers' and students' documentation

⇓

Sharing of the project outcomes through the project's dissemination audiences and networks, and ensuring the continuation of the initiated climate change missions at all levels

PHASE 1

CAPACITY BUILDING AND GUIDANCE – 3 months

DESCRIPTION

The most important challenges in the project's opening phase is to create solid consensus among all participants – and to prepare science teachers and female students for the first round of climate change missions.

The project will take off through offering the participating science teachers' solid capacity building and provide useful guidance material to those teachers. This capacity building is crucial to the science teachers' ability to guide and direct the female student teams and to help the students work through the full circle of climate change missions, including supporting the teams' story-telling from and documentation of the missions.

The capacity building will be climaxed through the 3 days intensive TEACHER EMPOWERMENT MOBILITY in month 4.

The second part of the initial capacity building is the capacity building and preparations of the female students.

Therefore, the project will provide, very early in the project, a small guide on how the schools can empower the girls teams to work well in the first practice phase, phase 2.

RESULTS

Process outcomes are:
01-01 Guidelines to the girls teams climate change missions
01-02 Guidelines on story-telling and documentation from the girls teams climate change missions
01-03 The girls teams guide to science4girls: how to learn science through climate change missions in the community

TRANSNATIONAL

PARTNER MEETING 1 – **KICK-OFF** IN KALMAR SWEDEN

Key objectives:
- Create solid consensus on the project's objectives, work methods and results
- Provide strong guidance to science teachers to guide their girls teams towards engaging in the first round of climate change missions
- Detailed planning of the Teacher Empowerment Mobility in month 4 in Catalonia
- In-depths discussions on quality story-telling and documentation from the students' climate change missions, and how to build knowledge elements from this documentation
- Special debate on how the girls will be creating new images of science along the project and how to support this

Participation:
The girls teams captains will participate in partner meetings 2 and 3, but not in the kick-off.
Knowledge partners: 2 professionals
Practice partners (schools): 1 project professionals + 2 science teachers
Quality partner: 2 professionals

SPECIAL CONCERNS

In phase 1 special quality concerns are:
- the project creates solid consensus among all partners, and in particular about the work methods
- science teachers are empowered to guide the girl teams towards solid engagement in the first round of climate change missions
- schools and science teachers are able to help the students create valuable story-telling and documentation from the climate change missions, including a) how the girls learn science along the mission and b) how they can create new images of science through the missions

PHASE 2

CLIMATE CHANGE MISSIONS – PART 1 – 6 months

DESCRIPTION

The 10 local girl teams will engage in the full circle of climate change missions, guided by their science teachers and in collaboration with relevant community resources. The first round of climate change missions will be at basic level, whereas the second round in year 2 will be at advanced level.
The science teachers will insert knowledge creation time-outs when needed for the girls to progress in the missions.
The girl teams will, supported by their teachers, create valuable story-telling and documentation from the missions, including personal testimonies of how they develop new images of science through the missions-
The project's knowledge partners will create knowledge elements from this documentation along the long practice phase – to feed into the project web platform and into the final outcomes.
There will be a special focus on the girl teams' video production in phase 2.

RESULTS

Process outcomes are:
02-01 A first collection of the girl teams climate change mission experience
02-02 The first knowledge elements on how female teenage students can create new images of science through engagement in local climate change missions
02-03 Critical quality questions to the first round of climate change missions
02-04 The empowerment of science teachers for open science schooling – results of the Teacher Empowerment Mobility

TRANSNATIONAL

The 3 days **TEACHER EMPOWERMENT MOBILITY** in Catalonia in month 4

Key objectives:
- to create a strong science teacher community in the project in support of transnational collaboration
- solid empowerment of the project's science teachers to guide and learn alongside the girl teams along the 6 months open science schooling practical experimentation
- a very strong focus on "girls and science", and how the project's work methods and climate change engagement can help the female students create new images of science
- working through scenarios of climate change missions to identify opportunities and challenges
- building capacity among the science teacher to support the girl teams' story-telling with creative media

The 3 days intensive empowerment will include dialogues with experienced Catalan open science schooling resources from the Polytechnic University of Catalonia in Barcelona.

The mobility agenda will build on the key objectives.

Participation:
Knowledge partners: 2 professionals
Practice partners (schools): 3 science teachers
Quality partner: 2 professionals

SPECIAL CONCERNS

In phase 2 special and very important quality concerns are:
- The science teachers are able to turn their mobility empowerment into practical guidance for the girl teams
- The science teachers are able to integrate the climate change engagement into the normal school life
- The girl teams are able to engage in authentic climate change missions based on the project's open science schooling methodology, not simply participating in punctual events
- The girl teams create valuable story-telling from the missions, and the knowledge partners are able to build knowledge elements from the story-telling
- Science teachers are able to organise time-out science learning when needed by the students
- The girl teams and their support teachers are able to establish useful collaboration with community resources in the climate change missions

PHASE 3

EVALUATION – ADVANCED GUIDANCE – 3 months

DESCRIPTION

The project will organise a collective evaluation of the first climate change missions' achievements, including:
- how did the girl teams learn science along the climate change missions?
- what new images of science were created in the missions?
- how are the missions documented?
- what knowledge elements can be captured from the documentation?
- based on the first-round lessons learned, what should ve changed or improved in the second round?
- result: advanced guidance for climate changes missions Part 2

The collective evaluation will be organised around the second partner meeting.
The evaluation will include the following activities:
- The quality partner will create an interactive evaluation document for teachers and girl teams; the results will be discussed at the second partner meeting
- The participating schools will organise local evaluation sessions with participation of the science teachers, the girl teams and key community collaborators; the girl teams captains will present the results at the second partner meeting
- The project's knowledge partners will prepare knowledge creation input from the first round of experimentation, also at the partner meeting.

Across the evaluation the project will ensure a very strong focus on:
- How did the girl teams learn science in the climate change missions?
- Did they create new images of science from these missions?
- How did they document such new images in a development perspective?

RESULTS

Process outcomes are:
03-01 Lessons learned from the first-round if climate change missions; the first knowledge elements
03-02 How did the girl teams experience science in the climate change missions?
03-03 What did the project learn about science and teenage girls' identity formation?
03-04 Advanced guidance for the second round of climate change missions

TRANSNATIONAL

Transnational: **SECOND PARTNER MEETING** month 11 or 12 in Pasvalys, Lithuania

Key objectives:
- Extensive discussions of the local evaluation activity and the project's interactive evaluation activity
- Special sessions for the girl teams' captains to present their experience, including female values, identity creation and girls in science
- Dialogues about the first lessons learned and the first knowledge elements
- Detailed planning of the second round of climate change missions

- Planning advanced and improved guidance for the second round, built on the lessons learned from the evaluation of the first round
- Planning of the GIRL TEAMS CO-CREATION MOBILITY in Lisbon Portugal in month 19, including creating a MOBILITY TEAM to organise the mobility
The second partner meeting will include sessions with the local girl teams and local community collaborators.

An overall theme will run across the second partner meeting and the valuations:
WHAT DID WE LEARN FROM THE FIRST PRACTICE ABOUT TEENGAE GIRLS LEARNING SCIENCE THROUGH CLIMATE CHANGE MISSIONS?

Participation:
Knowledge partners: 2 professionals
Practice partners (schools): 1 project manager + 1 lead science teacher + 2 girl teams' captains
Quality partner: 2 professionals
In total 26 participants of which 22 traveling

SPECIAL CONCERNS

Special quality concerns in phase 3 are:
- Did the evaluation create new knowledge about teenage girls and science?
- Did the evaluation teach us to what extent climate change engagement create new images of science among the girls?
- Did the evaluation manage to bring clear girl teams voice to the project?
- Did the science teachers manage to offer the girl teams substantial and solid support and guide them towards valuable story-telling?
- What kind of improvements should take place in the guidance for the second phase?

PHASE 4

CLIMATE CHANGE MISSIONS – PART 2 – 6 months

DESCRIPTION

The 10 local girl teams will engage in more advanced climate change missions, based on the improved guidance, and guided by their science teachers - and in collaboration with relevant community resources. The second round of climate change missions will be at advanced level, allowing the girl teams to go deeper into local climate challenges and deeper into climate change related science.
The science teachers will insert new knowledge creation time-outs when needed for the girls to progress in the missions.
The term "advanced" also indicates that the girl teams from the participating countries in this second round will be encouraged to create joint cross-country climate change missions – expectedly in an in-pair teams format.
"Advanced" also indicates that the students are invited to link their local climate change engagement to global climate change challenges and their online resources.

RESULTS

Process outcomes are:
04-01 A collection of story-telling from the second round of climate change missions
04-02 Personal testimonies from participating teenage girls from the second round of climate change engagement
04-03 Evaluation design of the full collective evaluation of the project practice
04-04 Design of the GIRL TEAMS CO-CREATION MOBILITY

TRANSNATIONAL

Transnational:
The 5 days **GIRL TEAMS CO-CREATION MOBILITY** will take place in Lisbon, Portugal, in month 19, at the transition point of phase 4 and 5, and will include an informal mini partner meeting.

SPECIAL CONCERNS

Special quality concerns in phase 4 are:
- The science teachers are able to turn their increased guidance skills into improved guidance for the girl teams
- The girl teams are increasingly able to engage in (more complex) authentic climate change missions based on the project's open science schooling methodology, including integrating online climate chance resources in the learning process
- The girl teams create valuable story-telling from the missions, and the knowledge partners are able to build more complex knowledge elements from the story-telling, including linking to online climate change resources
- The girl teams and their support teachers are able to establish useful collaboration with community resources in the climate change missions
- The girl teams are able to create valuable transnational collaboration and create joint missions

PHASE 5

FULL EVALUATION, KNOWLEDGE CREATION AND CO-CREATION – 3 months

DESCRIPTION

The project will engage in a full evaluation of the produced experience, documentation and knowledge elements.
The science teachers and the girl teams will be at the heart of this evaluation.
They will be directly involved in the processing of the material and in the co-creation of final outcomes from this material.
The processing and co-creation will be climaxed through the powerful 5 days GIRL TEAMS CO-CREATION MOBILITY, expected to deliver valuable resources to the production of final outcomes.
The lead science teachers from the participating schools will be participating in the mobility and work alongside the students.

The evaluation will include the following activities:
- The quality partner will create an interactive evaluation document for teachers and girl teams; the results will be discussed during the GIRL TEAMS CO-CREATION MOBILITY
- The participating schools will organise local evaluation sessions with participation of the science teachers, the girl teams and key community collaborators; the girl teams captains will present the results at the GIRL TEAMS CO-CREATION MOBILITY
- The project's knowledge partners will prepare knowledge creation input from the second round of experimentation, also at the GIRL TEAMS CO-CREATION MOBILITY

Across the evaluation and the mobility, the project will ensure a very strong focus on:
- How did the girl teams learn science in the climate change missions?
- Did they create new images of science from these missions?
- How did they document such new images in a development perspective?

RESULTS

Process outcomes are:
05-01 Lessons learned from the second round of climate change missions
05-02 How did the girl teams engagement change from round 1 to round 2 – and why?
05-03 The quality of the girl teams' documentation: what did the girls manage to document, what not? Special focus: science, climate change engagement and female values
05-04 State of the art: knowledge elements produced, and knowledge elements still to produce

TRANSNATIONAL

An overall theme will run across the mobility and the third partner meeting:
WHAT DID WE LEARN FROM THE FIRST PRACTICE ABOUT TEENGAE GIRLS LEARNING SCIENCE THROUGH CLIMATE CHANGE MISSIONS?

5 DAYS GIRL TEAMS CO-CREATION MOBILITY in Lisbon Portugal in month 19 (Timing depending on the de facto progression of the project)

The 5 DAYS GIRL TEAMS CO-CREATION MOBILITY is the climax not only of the project, but in particular of the girl teams' co-creation: project outcomes based on the girls' story-telling and experience and outcomes with considerable contributions from the girls (and their science teachers).
The mobility will link the past to the future in the project progression:
- produce lessons learned from the long and deep project practice
- transform those lesson learned into knowledge elements
- create the project's final outcome from the produced knowledge
Precisely due to this past/future function of the mobility it is of great important that knowledge and quality partners participate in the mobility.

Key objectives:
- carry out intensive dialogues about the lessons learned from the two practice phases
- focus on the direct communication of the girl teams experience: how did we learn and feel science through climate change engagement?
- discuss the story-telling from the experimentation and how it can be used for the final outcomes
- collect, edit and produce on location elements for the Video Movie
- elaborate on the girls' personal testimonies: how can they be communicated on the website and in the final outcomes?

- plan the production of final outcomes and how science teachers and girl teams can contribute, during and after the mobility
- discuss how the local multipliers can be driven by the girls team and how they can mobilise community resources to continue the climate change missions

The work forms will include collective plenums, national girl teams' sessions, in-pair girl teams' sessions, production sessions, video sessions – and special knowledge creation sessions.

The mobility agenda will build on the key objectives.

Participation:
Knowledge partners: 2 professionals
Practice partners (schools): 2 science teacher + 8 students
Quality partner: 2 professionals
In total 56 participants of which 54 traveling

PARTNER MEETING 3 in Maribor Slovenia in month 21
(Timing depending on the de facto progression of the project)
The last partner meeting in Slovenia is placed at the transition point between phase 5 and 6 to assure:
- that the meeting can exploit the results of the mobility to the max
- that careful planning of the final outcomes takes place
- that there is at 3-4 months left in the project to edit and create the final outcomes

Girl teams' captains will participate in the final partner meeting, as the girl teams are expected to co-create elements for the final outcomes after the meeting, including in particular the Movie.

Key objectives:
- Synthesize the knowledge created along the project
- Identify missing elements for the final outcomes
- Focus the knowledge creation on the personal testimonies from the participating girls, including in connection with the girl teams' Movie outcome
- Careful planning of the production of final outcomes, including science teachers and girl teams' co-creation
- Re-organisation of the project's web platform to ensure powerful promotion of the project results
- Check the implementation of the project's dissemination activity
- Discuss how the local multipliers can be used to give sustainability to the climate change missions
- Interacting with the Slovenian science teachers, girl teams and key community collaborators

Participation:
Knowledge partners: 2 professionals
Practice partners (schools): 1 project professional + lead science teacher + 2 girl teams' captains
In total 26 participants of which 22 traveling

SPECIAL CONCERNS

In phase 5 special quality concerns are:
- The project is able to capture and communicate the girl teams' climate change mission experience
- The project is able to transform this experience into series of valuable knowledge elements for the final outcomes
- The mobility included considerable co-creation from science teachers and girl teams, including covering personal testimonies from the participating girls

- Missing knowledge elements are identified and action taken to produce those elements
- The girl teams have created sufficient video raw material, along the project and during the mobility, to allow the editing and final production of the Movie
- The production of the final outcomes is carefully planned

PHASE 6

PRODUCTION OF FINAL OUTCOMES – 3 months

DESCRIPTION

In the last project period, the final outcomes will be produced and shared, and will be openly available on www.science4girls.eu (domain reserved).
The production of the final outcomes will be based on the planning at the mobility and at the third partner meeting.
The outcomes are disseminated according to the project's dissemination strategy.

At the same time partners have planned the promotion of key final outcomes, in particular the IO 01 Guide and the IO 02 Movie, at the local multipliers.
The local multipliers will go far beyond traditional project multipliers, as their key mission will be continue the climate change mission and the open science schooling collaboration after the termination of the project.
As this multiplier missions is of great interest to the community, the local partner will make considerable efforts to ensure the participation of local media.

The key objectives of the local multipliers are:
- To allow the girl teams to present their experience and products to the local community, including organising the multipliers
- To mobilise community collaborators and resources linked to climate change prevention and open science schooling to share the project results in their communities and networks
- To allow open debate on the project innovation, including discussing girls in science
- To mobilise community collaborators and resources linked to climate change prevention and open science schooling to continue the climate change missions beyond the project and to include new students in the continued climate change missions
- To create a platform for open science schooling in the community

RESULTS

In phase 6 there are no PROCESS outcomes, as the phase is fully focused on the production of PRODUCT outcomes.

SPECIAL CONCERNS

The special quality concerns in phase 6 are focused on quality assurance of the final outcomes:

IO 01 - The GUIDE
- The Guide appears intuitively useful to science teachers in secondary school, including practically useful guidance to climate change-based science learning for female students

- The Guide clearly bears the mark of being based on teachers and female students' practical experience and co-creation
- The Guide offers practically useful insight into the mechanisms of teenage girls' science images and how they can integrate in the girls' identity formation

IO 02 - The MOVIE
- The Movie appears to be a strong visualisation of the girl teams' development along the 2-year open science schooling engagement
- The Movie offers valuable personal testimonies from the participating girls, helping science teachers to better understand their images of science
- The Movie creates a good understanding of how the participating female students experience learning science through climate change engagement

IO 03 - The POLICY PAPER
- The Policy Paper gives clear action-oriented recommendations to local policy-makers on how to initiative and support climate change based open science schooling in the community, including through the creation of cross-sector collaboration
- The Policy Paper provides local policy-makers with a strong argumentation for linking science education innovation to climate change engagement, including explaining the considerable benefit for female students and for the community at large

IO 04 - The RESEARCH PAPER
- The Research Paper identifies key challenges and obstacles to science learning innovation through climate change engagement, preventing the full implementation of open science schooling
- The Research Paper offers, against this background, concrete recommendations for further research and practical experimentation in the fields of open science schooling, climate change engagement and in particular science learning for young female students