CONNECT

Inclusive open schooling with engaging and future-oriented science

D4.1

Open schooling Framework with two pilot sets of SCIENCE ACTION resources

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Revision History

VERSION	DATE	REVIEWER	MODIFICATIONS
0.1	01/10/2020	Dr Tony Sherborne	1st Draft Structured Scenarios
0.2	10/10/2020	Dr Alexandra Okada	2nd draft CARE, KNOW, DO framework and RRI approach for developing Resources
0.3	19/10/2020	Dr Sonia Pinto Dr Patricia Torres	Comments about the CARE KNOW DO and structured scenarios
0.4	27/10/2020	Bjørn Bedsted, Sigrid Vedel Neuhaus	3rd version for peer review Open-ended Scienarios
0.5	30/10/2020	Peer-Reviewers (all partners)	Peer review
0.6	02/11/2020	Dr Tony Sherborne	Final version incorporating reviewers' comments
1.0	06/11/2020	Dr Eva Jaho	Quality check and final version submitted

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Executive Summary

This document presents the CONNECT Open schooling Framework with outlines of pilot sets of SCIENCE ACTION resources: structured scenario materials linked to science curriculum in school (formal learning) and open scenario with participatory science tools outside school (informal learning).

Our aim is to provide clear guidance for participants who will be creating, readapting and reusing resources to promote CONNECT open schooling model.

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1. Introduction

The CONNECT project is underpinned by the Responsible Research and Innovation (RRI) approach, for aligning scientific research with societal needs, concerns and expectations (EC, 2020).

WP4 focuses 'Customizable project resources that support' to enable teachers, students, STEM professionals and parents to successfully implement a Science action. WP4 will take on board the engagement toolkit from WP2 and develop curriculum materials for each of the Care-Know-Do stages. We will use a 'backwards design' approach, starting with the objectives for each stage, and using research-based pedagogies and participatory design, ensure that materials are high quality, easy to use, inclusive, and work well in a wide variety of classrooms. The materials will include: stimulus materials for engaging students for the STEM professional, awareness-raising activities for families, (Care), teacher guides on how to integrate with the teaching of a science concept (Know), plus activities and student sheets for students to produce the output, and guidance for STEM professional on evaluating student work (Do). The materials will give special attention to the RRI dimensions: of gender, ethics, public engagement and governance.

2. CARE-KNOW-DO Framework

CONNECT will address the factors in the science capital model to promote more student confidence and aspiration to pursue careers in science through science-action practices grounded within socio- constructivism. It builds upon the ground-breaking concept of science capital (Archer, 2014) which sheds new light on the factors that influence young people's aspirations towards science-based careers and the conditions that could make more disadvantaged students believe that 'science is for me'. Their research rejects the notion that it is simply a matter of whether students find science interesting. The research identified a much wider range of factors behind students' aspirations or lack of them which they encapsulated into the concept of 'science capital'. It can be thought of as a kind of 'bag' in which where students accumulate specific factors. The more factors the higher the science capital and the more likely students are to aspire to science-based careers. The actors can be grouped into 4 dimensions: how students think (how relevant is science in life), what they know (knowledge, skills and careers awareness), what they do (do they talk about or do science?), and who they know (scientists, science-interested citizens). For disadvantaged and disaffected learners, the science confidence and sense of belonging are most lacking (Riley,2006). They represent a large percentage in the schools (OECD, 2002; 2015) and less likely to attend extra-curricular science, less likely to discuss science at home, and less likely to have anyone who practise science who can act as a role model. Girls and many ethnic minorities are also overrepresented in the low science capital group (Archer, 2014). The component Care-Know-Do-framework (Okada & Sherborne, 2018) (see Table 3) addresses the cognitive, affective and social aspects of learning (Vygotsky, 1978) with students participating in authentic activities, learning through interaction with family and science practitioners.

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Table 1- How CONNECT can increase students' science capital

Dimension	*Factors lacking*	*CARE-KNOW-DO framework*
How you think	Students often see little relevance in science, which appears abstract	Suggests scenarios co-defined for and with them that Youth **CARE** about and by working out actions they can take, will see the connection between science and what they can do with it locally, thus attach greater value to "*Science is for me"*
What you know	Students cannot see beyond science leading to be a researcher	Supports students to **KNOW** how science professionals use science content and skills to solve problems in diverse areas and be aware of its transferability to a wide range of career pathways. *"I know science"*
Who you know	Low science capital students have rarely had contact with scientists	Provides a key role for the science professionals to mentor and inspire in the **KNOW** stage: to support students' in the process of applying scientific ideas to come to informed views, thoughtful actions and considered decisions. "*I can talk about science"*
What you do	Students rarely talk about science with their family members	Makes science more visible and talked about, as family members get involved in discussing the issue, supporting students in the **DO** stage as they create science-action activities. "*I can do science"*

3. Care-know-do Science Action

The framework is a 3-stage structure for embedding science-action projects within the delivery of existing science curriculum topics. The stages are designed to organize the inputs from teachers, science professionals and family members, and maximize the benefits of formal and informal approaches for engagement, learning knowledge and developing scientific thinking and positive attitudes.

Key features of a science action

1 Students address a real-world problem
2 Students interact with STEM professionals
3 Students interact with families
4 Follows the structure: Care-Know-Do

Customizable project resources:

CONNECT will provide two kinds of open educational resources to support science-action projects.

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Structured scenarios come with pre-researched issues and developed activities that schools can easily adopt or customize to maximize the chance of a successful first-time project.

Open-ended scenarios only provide a template structure for schools and science professionals to develop their own issues and activities.

4. Structured Scenarios

4.1 Scenarios:

CONNECT will produce 20 structured scenarios designed for schools to select from and build into their science curriculum. Scenarios will be developed centrally but with localized versions for each country.

4.2 CARE-KNOW-DO Model

CARE: The first, largely informal learning stage is designed to introduce the future-orientated issue, stimulate questions and create a 'need to know' that teachers can harness in the next stage.

KNOW: The second learning stage is focused on students acquiring the scientific understanding and skills they need to make decisions and take action in the final stage. It is mostly a formal learning stage, but can be enhanced with inputs from families and the STEM professional

DO: Students apply this by thinking up ways to minimise the impact.

4.3 Criteria for selecting structured scenario:

4.3.1 Care stage: criteria

- Issue can be made engaging to most students
- Issue has no obvious answer
- Issue easily leads to discussion with family
- Issue leads to a worthwhile output

4.3.3 Know stage: criteria

- Science idea actually helps make sense of issue
- Students apply science learned to start responding to issue
- Activity is easy to use
- Activity justifies added time by teaching enquiry skills too

4.3.2 Do stage: criteria

- Students produce an output that is rewarding
- Production process allows families to help at home
- Output can be used for teacher assessment
- Judging process rewards' everyone's output

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4.4 Criteria for selecting socio scientific issues

i. A balance of personal, community and global issues with local relevance for Youth.
ii. Appeal for girls and boys, based on research ('Relevance of Science Education' project (Sjøberg et al.,2010) and consultation with students including special attention for disadvantaged and disaffected students.
iii. Desirable future scenarios identified by European citizens in other projects like CIMULACT.

4.5 Approach for developing structured scenarios during phase1

- Produced fast in a rough form for early review/testing
- Enables teachers to judge usefulness of final product
- Enables partners to judge how science action will work
- Provides clear feedback on what elements to change
- Gives example of materials for each main stakeholder

4.6 Duration for students to complete science actions using open scenarios resources

(in development)

4.7 In what ways Structured scenarios resources will promote students' Science Capital

(in development)

5. Open-ended Scenarios

This is a bottom-up approach to developing scenarios, which will emerge from the ideas and negotiations between the Consortium University, research lab, company, and CSO – Civil Society Organisations – with schools and families about a relevant local issue. We will only provide project guidelines, to explain and simplify the principles of public engagement, policy development (e.g. 'mini deliberations') and agile methods which we want partners to use in identify and address local issues where science knowledge has a natural role to play. The issues could be identified by the school, the science professional, the family, or other local community players. It is up to the partners to develop and apply criteria for selecting the topic and activities to develop with the support of local council and existing contacts of CONNECT consortium. Universities and enterprise partners will supply scientific experts "on demand" to interact with the school, provide data or information and support students' deliberations on the issue.

5.1 Scenarios

The open-ended scenarios are built upon a model of six steps, two for every stage of the CONNECT science action Care-Know-Do framework. Teachers will facilitate the process and guide the students through each step of the model, which has different options for choice of methods and participants.

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Science action stage	Steps	Methods	Participants	Learning objective
Care	Framing	Agenda setting	Students Experts / Scientists Local community Families	To develop engagement and interest by framing and finding approach to community-based challenge
	Questions	Evidence-based Dialogue Mapping		
Know	Knowledge & opinions	Desk-top Interviews Stakeholder analysis	Students Experts / Scientists Local community Teacher UAB	to acquire scientific understanding of local issues and problem-solving approaches supported by research and interactions with scientists and stakeholders to develop alternative solutions collaboratively
	Deliberation	Consensus format Jury format Informed survey Co-creation	Fellow students Experts / Scientists Local community Teacher	
Do	Recommendations		Students Experts	To communicate science actions projects and findings to the local community
	Dissemination	Open letter with recommendations Article	Decision-makers Media Stakeholders	

The purpose of the model is to empower students by giving them an understanding of how to approach socio-scientific issues they experience in their local community.

Ideally the steps of the model are chosen based on the issue at hand. With inspiration from Engage2020 Action Catalogue the aim is to create a map from where the students can navigate and choose a fitting format for their chosen challenged.

Care: *Framing* and *Questions* – The first two steps are to identify and frame a challenge faced in the local community (Framing) and to find a way to approach this challenge (Questions). These steps can be carried out by the students, families, teachers, experts, or the local community.

Know: *Knowledge & Opinions* and *Deliberation* – The students gather knowledge on the challenge and map out different opinions and stakeholders through desk-top research and interviews with experts, scientist, stakeholders or the CONNECT User Advisory Board (Knowledge & Opinions).

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Using elements from the participatory methods, consensus format, jury format, informed survey and co-creation, students will deliberate with local stakeholders, experts, follow students or the local community (Deliberation).

Do: *Recommendations* and *Dissemination* - based on the outcome of the deliberation step students formulate recommendations. These recommendations can be formulated by the students themselves or in collaboration with scientist or experts (Recommendations). The recommendations are presented to local policy makers, media, and stakeholders (Dissemination).

5.1.1 Methods

The Open-ended scenarios will draw on elements from these participatory methods:

Consensus Conference – A group of 10-30 randomly selected citizens goes through a process of receiving information on a given topic, formulating questions, consulting with a diverse group of experts, formulating recommendations and presenting these to policymakers, stakeholders, experts and media (Engage2020 Action Catalogue).

Citizen Jury – 12-25 randomly selected citizens, who are all affected by the issue at hand must come to a common decision and formulate recommendations. The jury is informed about the issue, consult experts, and formulates recommendations, which are presented to at government level, often a the local or regional government (Engage2020 Action Catalogue).

Informed survey – Gives insight into societal values, needs, and concerns, targeting a large group of citizens and providing input for recommendations. The issue addressed must be thoroughly introduced and explained for the participants (Human Brian Project, not yet in the Engage2020 Action Catalogue)

Co-creation – The process begins with citizens identifying visions for a specific topic. Through different participatory steps citizens, stakeholders, policy-makers and experts narrow these visions into concrete actions, which are finally prioritised by stakeholders, policy-makers and experts, and disseminated (CIMULACT, not yet in the Engage2020 Action Catalogue)

5.1.2 Pilot

This open-ended scenario pilot will test the open-ended scenario model. One combination of steps has been chosen to try out the six steps of the model. 24-26 hours are recommended to go through the 6 steps, excluding preparation.

Framing

Discussion at home - Students will discuss challenges at home with their families – what challenges do they see in their local community, what bothers them, what could be better.

Student workshop – Based on these discussions at home the class will have a workshop facilitated by the teacher to decide on one local challenge they will be working with:

1. Students will write the challenges they have discussed at home on sticky notes and display them on the blackboard
2. In collaboration the class will discuss and group the different challenges presented
3. The students will vote on the challenges and decide which challenge to work with

3 hours should be set aside for this step – 1 hour for making groups and introducing this new class project, the different steps, and assignments. 2 hours for the student workshop.

Questions

Groupwork – Students will formulate 3-5 overall questions defining what they would like to know about the challenge.

2 hours should be set aside for this step – for groupwork and collecting up in class.

Knowledge & Opinions

Groupwork - Students will do research, find information on the chosen challenge and map out possible solutions and different opinions through desk-top research and interviews with local stakeholders and experts. As a part of this process students will have to identify local stakeholders and experts in collaboration with the teacher as well as with support from the CONNECT database of STEM professionals, scientists and CONNECT Local User advisory board.

8-10 hours (e.g. 4-5 times 2 hours) should be set aside for this step – for the students to go back and forth between the different forms of research.

Deliberation

Preparation at home and in groups – Students will prepare questions for the local stakeholders and experts at home with their families and prioritise questions in groups.

Dialogue - The teacher will organise and facilitate an online or face-to-face meeting with 2-4 local stakeholders and experts. Students will ask their questions and discuss solutions.

Issues about no internet access or low internet connection must be discussed with CONNECT coaches and consortium implementation leader.

3 hours should be set aside for this step – 1 hour the groupwork, 1 hour for deliberation with panel and 1 hour for collecting up in class.

Recommendations

Student workshop – Students will work in groups and come up with recommendations based on the deliberation, give feedback, and prioritise recommendations:

1. Groups will formulate recommendations by formulating their:

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- *Observations*
- *Assessment*
- *Recommendations*

2. Groups will go together two and two, one group will present their recommendations, the other group will give feedback and vice versa.
3. Groups will adjust their observations, assessment, recommendations based on feedback given
4. Plenary presentations, each group present their recommendations to the class
5. Class creates prioritised list of recommendations by voting

5 hours should be set aside for this step – 2 for formulating the recommendations, 1 feedback and adjustments, 2 for presenting and prioritising in class.

Dissemination

List of recommendations (including observations and assessments) will be sent as an open letter for town hall, the local newspaper, and relevant stakeholders.

3 hours should be set aside for this step – 1 ½ for disseminating the open letter, 1 ½ hour for collecting up on the project in class and discuss lessons learned.

5.1.3 Promoting students' science capital

The Open-ended scenario has been set up to promote students' science capital by following the CONNECT science action Care-Know-Do framework. The goal of the six steps is to empower the students by having them face a challenge they experience first-hand in their own community by gaining knowledge and skills to act upon this challenge.

Acquired skills:

Care – Understanding of and how to approach a local challenge

Know – Research skills, understanding conflicts of interest, interact with experts, scientist, and local stakeholders, understanding of engagement methods

Do – Formulate policy recommendations, understanding of policy levels.

5.1.3 Support for the open-ended scenarios in phase 1

A learning workshop for partners.

5.1.4 Materials

Teachers guide and student sheets with assignments for each step, information on how to and outcomes are provided.

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6. Examples

6.1 Example of Structured Scenario for science linked with the curriculum resources.

Rewilding asks students to look at the science behind re-introducing a species that has gone extinct back into their country. It will use a real case e.g. the re-introduction of lynxes into the UK. Students will make a case for or against and we will share students' outputs with organisations or policy makers who are working in the field.

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The issue

1. Imagine your country 1000 years ago.
2. Which species have been lost and why?
3. Could we turn the clock back and ‘rewild’ an animal?

Curriculum links: ‘Interdependence’

Fits closely with science usually taught at 11-14 (or 14-16):

- Topic 1: ‘Feeding relationships’ (food webs)
- Topic 2: ‘Competition’
- Topic 3: ‘Abiotic and biotic’ factors (effects of the environment)

Why this issue?

Rewilding is a response to growing public demand for a more hopeful, ambitious and exciting form of conservation.

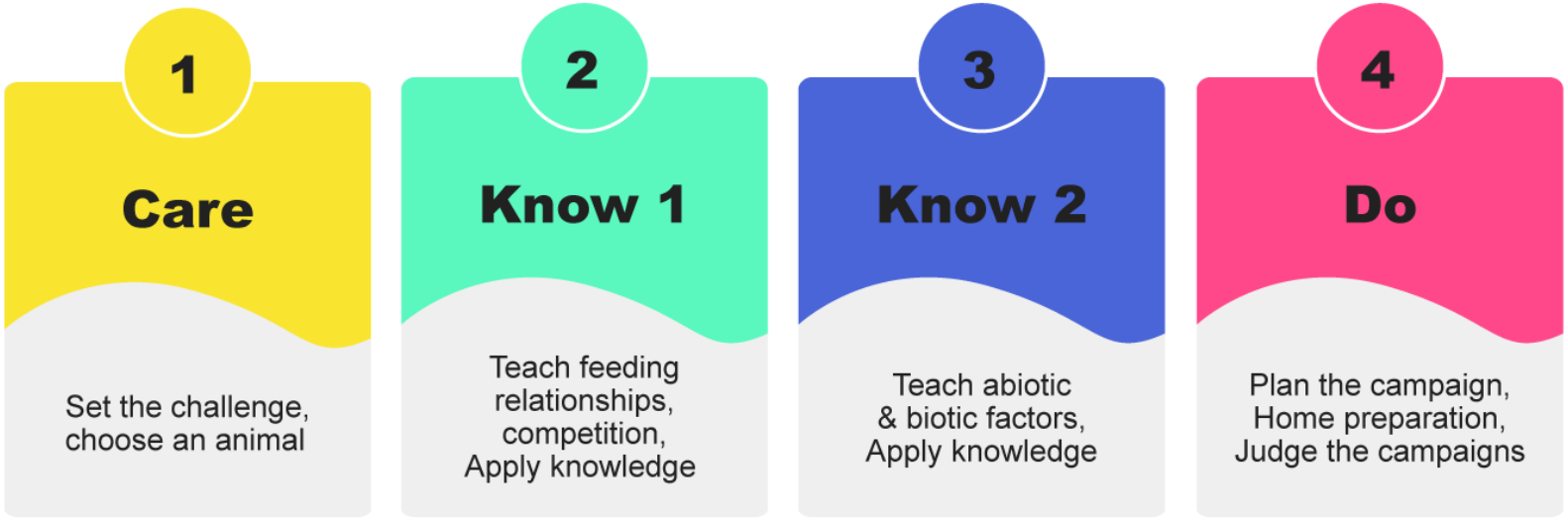
- Topical – in the UK beavers have just been given the go-ahead to remain following a successful trial. Rewilding Europe has 8 projects.
- Engaging – animals and conservation.

Third of Brits would reintroduce wolves and lynxes to the UK, and a quarter want to bring back bears.

European customisation

- Various rewilding organisations and projects across Europe
- Question can be changed e.g. ‘how can we save [animal] from extinction?’

Structure


1
Care
Set the challenge, choose an animal
2
Know 1
Teach feeding relationships, competition, Apply knowledge
3
Know 2
Teach abiotic & biotic factors, Apply knowledge
4
Do
Plan the campaign, Home preparation, Judge the campaigns

Set the challenge

1

Care

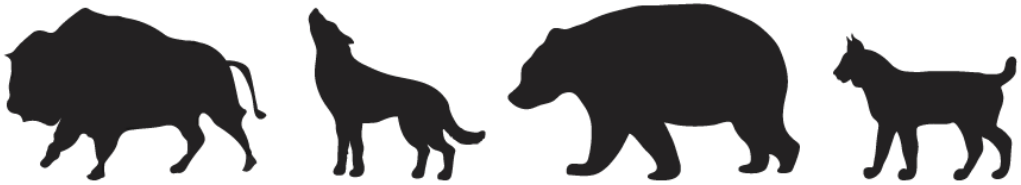
Help campaigners get permission to reintroduce an animal back into the wild.

Choose an animal to help, and then create a campaign to persuade the public that this is a good idea.

Know 1

Know 2

Do



Choose an animal

1

Care

At home: listen to each animal's plea for reintroduction.

Discuss with family and come to a joint decision about which to champion.

Know 1

Know 2

Do

Teach interdependence topic 1 & 2

2

Care	Know 1	Know 2	Do
	Students acquire: Knowledge of science concepts feeding relationships (food webs), competition. Enquiry skill: Writing an argument.		

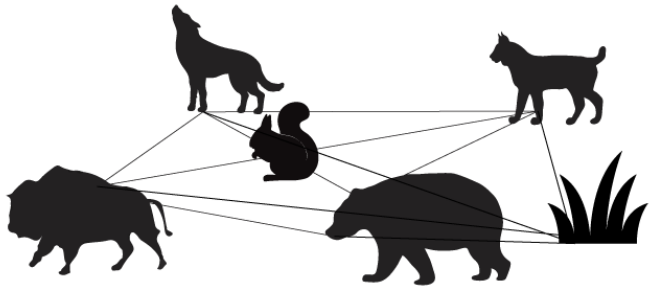
Apply knowledge in case study

2

Care	Know 1	Know 2	Do

1. Case study
Wolves in Yellow-stone – a successful reintroduction.
Use a food web to explain these changes.

2. Apply to their candidate
Put their animal into the current food web
Predict the effects of reintroduction.



Teach interdependence topic 3

Care

Know 1

3

Know 2

Students acquire:
Knowledge of science concept: abiotic & biotic factors

Enquiry skill:
Draw reasoned conclusions from data.

Do

Apply knowledge in case study

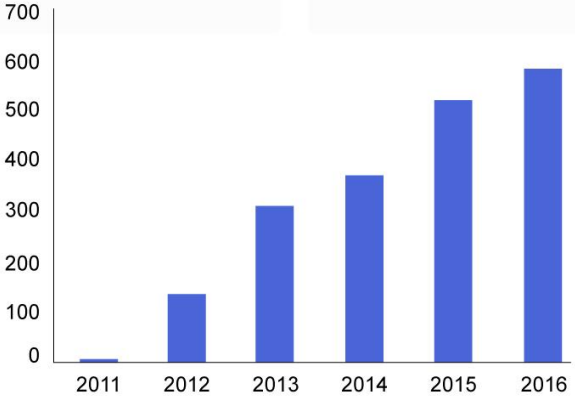
Care

Know 1

3

Know 2

Do



Case study: Data from a previous reintroduction trial e.g. Beavers in the UK.
Students draw conclusions about:

- any impacts (positive and negative) on the environment.
- If the environment can sustain the population.

Plan the campaign

Care

Know 1

Know 2

4

Do

Students work in groups – each working for a different animal.

They plan their presentation – how they will campaign to get public support for their reintroduction.

Each student is assigned a role.

Home preparation

Care

Know 1

Know 2

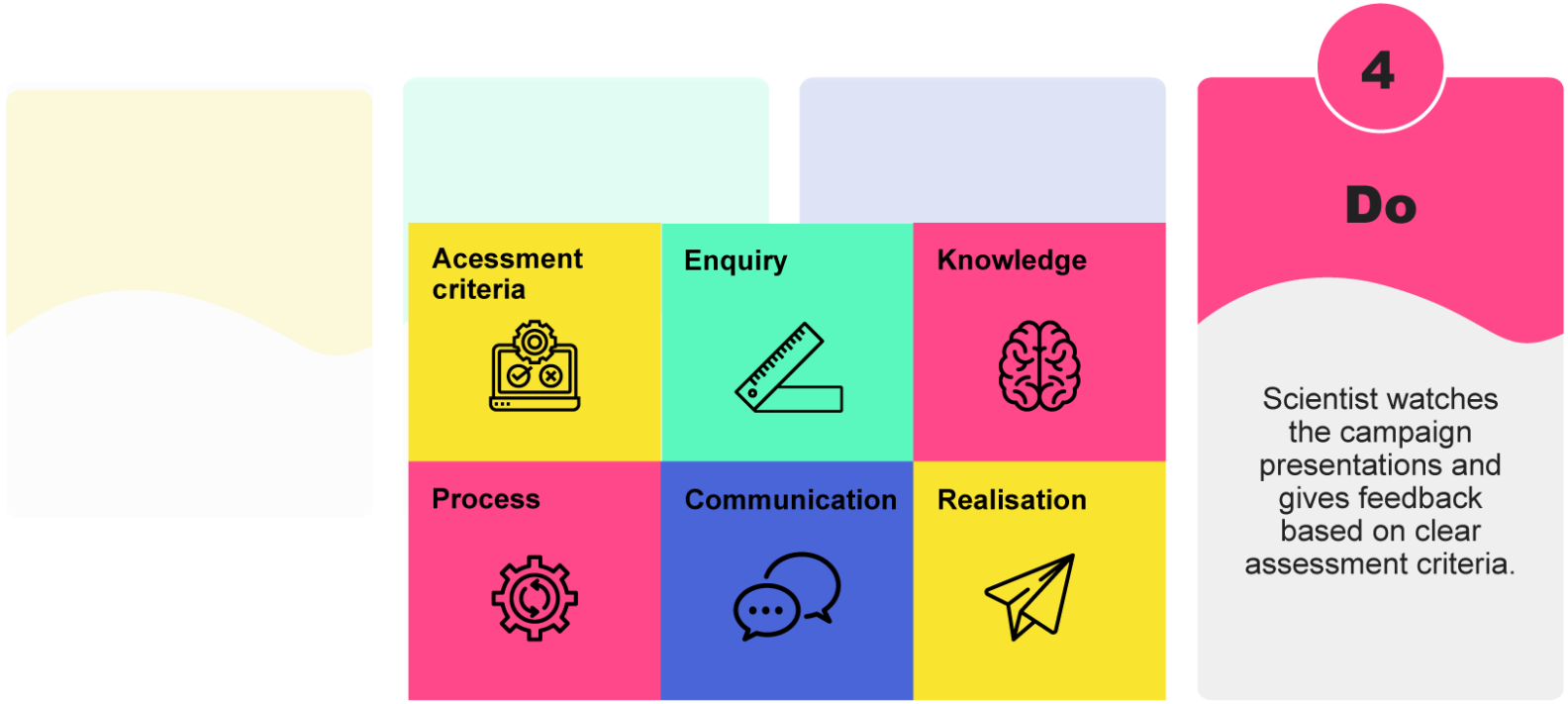
4

Do

Students plan their contribution to the campaign presentation.

Parents support them in this activity.

Judge the campaigns



4

Do

Scientist watches the campaign presentations and gives feedback based on clear assessment criteria.

Critical Environmental Education – Pantanal Brasil

6.2 Materials for Open-ended Scenario Pilot with participatory science resources

6.2.1 Teachers Guide

Open-ended scenario

Science action stage	Steps	Methods	Participants	Objective
Care	Framing		Students Experts / Scientists Local community Families	To simulate interest by framing and finding approach to community-based challenge
	Questions			
Know	Knowledge & opinions	Desk-top Interviews Stakeholder analysis	Students Experts / Scientists Local community Teacher UAB	Students acquire scientific understanding and through research and by inviting scientists and stakeholders to discuss alternative solutions
	Deliberation	Consensus format Jury format Informed survey Co-creation	Fellow students Experts / Scientists Local community Teacher	
Do	Recommendations		Students Experts	Student deliberation on recommendations and present these to the local community
	Dissemination	Open letter with recommendations Article	Decision-makers Media Stakeholders	

CONNECT works with a Care-Know-Do framework, which is set up to give students confidence in their scientific skills by intriguing students interest (Care), provide scientific skills and knowledge (Know) and help them apply this knowledge (Do).

The open-ended scenarios are structured in a way that will let the students work with local challenges they experience in their own community. By working with a local challenge, the students will acquire new scientific knowledge and skills and apply it to their community by presenting possible solutions for local policymakers.

These open-ended scenarios are built upon a model of six steps, two for every stage of the CONNECT science action Care-Know-Do framework. Teachers will facilitate the process and guide the students through each step of the model.

This open-ended scenario pilot will test this model. One combination of steps has been chosen to try out the model.

Students will get an understanding of:

- How to approach a challenge
- Gather information of the topic
- Map out and understand different interests at stake
- Participatory methods

24-26 hours are recommended to go through the 6 steps, excluding preparation.

Step 1 - **Framing**

CARE - This step will intrigue the students' interest by exploring local challenges in their community, to which the students can relate.

The purpose of this step is to choose a local challenge for the class to work with throughout the next five steps.

Before the assignment: discuss the project and the six steps with the students.

Home assignment (student sheet step 1)

First assignment will be a home assignment where students will discuss local challenges at home with their families.

Student workshop

The challenges discussed at home will be used in a workshop where the class will decide on one challenge for the class-project.

The teacher will guide the students through the three steps of the workshop:

1. Students will write the challenges they have come up with at home on sticky-notes and all will be displayed on the wall/blackboard
2. The class will then discuss and cluster the different challenges brought up
3. Finally, the students will vote on the challenges and decide on one challenge to work with onwards

Acquired skill:

- Understanding of local challenges

3 hours should be set aside for this step – 1 hour for making groups and introducing this new class project, the different steps, and assignments. 2 hours for the student workshop.

Step 2 - **Questions**

CARE – This step is set up to further stimulate the students' interest by having them explore their interest in the challenge.

The purpose of this step is for the students to define what they want to investigate and how they want to investigate it by writing 3-5 overall questions based on their interest in the challenge.

Before the group assignment: Discuss the challenge in class – what is at stake? Who is involved? How can it be approached? In order to help the students coin different approaches and useful scientific keywords.

Group assignment (student sheet step 2)

Each group will make 3-5 overall questions.

It is important that the teacher support the students in writing well-structured questions that approach the challenge in a meaningful way.

Acquired skills:

- Understanding of how to address a challenge they find interesting

2 hours should be set aside for this step – for groupwork and collecting up in class.

Step 3 - **Knowledge & Opinions**

KNOW – This step is set up for the students to gain knowledge and better understand the challenge from a scientific perspective.

The purpose of this step is for the students to gather information on the challenge and identify local stakeholders and experts.

Before the assignment discuss the task in class, make sure the students have the right keywords to research the challenge.

Group assignment (student sheet step 3)

Students will do research on the challenge through desk-top research, identifying local stakeholders and experts, and interviews with some of these stakeholders and experts.

It is important that the teacher helps the students move back and forth between the different methods of research, making it an interactive process with the different methods rather than a linear one.

Acquired skills:

- Research skills
- Understanding conflicts of interests

8-10 hours (e.g. 4-5 times 2 hours) should be set aside for this step – for the students to go back and forth between the different forms of research.

Step 4 - **Deliberation**

KNOW – This step is set up for the students to gain knowledge and understand the challenge from different perspectives.

The purpose of this step is for the students to prepare questions for the expert and stakeholder panel and to deliberate possible solutions with the panel.

Prepare questions (student sheet step 4)

At home

Students will discuss findings of their research with their families and find questions for the stakeholder and expert panel together with their families.

In Groups

Students will create a list with questions for the panel by prioritising the questions they have prepared at home.

Stakeholder and expert panel

The teacher will set up a 1 hour online call with 2-4 local experts, stakeholders and societal actors, based on the students' stakeholder analysis and interviewees – who did the students have good experiences talking to?

The teacher will facilitate the call and groups will take turns asking one question from their prepared list.

Acquired skill:

- Understanding of engagement format

3 hours should be set aside for this step – 1 hour the groupwork, 1 hour for deliberation with panel and 1 hour for collecting up in class.

Step 5 - **Recommendations**

DO – This step is set up for the students to take action and act on their newly acquired knowledge.

The purpose of this step is for the students to reflection upon the process – what have they learned, and to transform their new knowledge into concrete recommendations for how to approach the challenge.

Groupwork (student sheet step 5)

Recommendations
In groups students will reflect on their finding by formulating their recommendations with arguments (observations and assessment) for the challenge.

Feedback
Groups will go together two and two and take turns in presenting their recommendations (including observations and assessment) and give each other feedback.

Adjustment
Students will adjust their recommendations based on the feedback given.

Prioritising recommendations
The groups will present their recommendations (including observations and assessment) in class and by voting the class will create a prioritised list of recommendations.

Acquired skill:

- Formulate and write policy recommendations

5 hours should be set aside for this step – 2 for formulating the recommendations, 1 feedback and adjustments, 2 for presenting and prioritising in class.

Step 6 - **Dissemination**

DO – This step is set up for the students to take action, share their newly acquired knowledge and creating an impact.

The purpose of this step is for the students to share what they have learned from the process by sharing their prioritised list of recommendations with arguments (observations and assessment).

Before the groupwork: In class the students will choose a number of relevant experts, societal actors and policymakers found in step 3.

Open letter for town hall

The students' prioritised list of recommendations (including observations and assessment) will be the open letter for local policy makers.

Groupwork (student sheet step 6)

In groups the students will be assigned one of the following to send the open letter:

1. Town Hall
2. The local news paper
3. The panel from step 4
4. A number of local stakeholders, experts, societal actors and policymakers decided by the class

Acquired skills:

- Understanding of policy levels

3 hours should be set aside for this step – 1 ½ for disseminating the open letter, 1 ½ hour for collecting up on the project in class and discuss lessons learned.

6.2.2 Students sheets

STEP 1

Framing

AT HOME

Find a local challenge

Discuss with your family:

- What challenges do you see in your local community?
- What could be better?
- Which issues in your local community interests you?

Outcome

The challenge you and your family come up with will be used in class. We will chose one local challenge for our class-project.

LOCAL CHALLENGES

- Something that affects you, your family, or your neighbours
- It could be within the topics of health, food, the environment, energy, transportation, society

STEP 2

Questions

GROUPWORK

Writing questions

Come up with 3-5 five questions addressing the challenge. These questions will help you define how and what you want to investigate.

Start by discussing:

Why do you find this specific challenge interesting?

What would you like to know?

Outcome

A set of questions that will help you navigate through information.

Asking questions:

- Always ask open questions. Instead of questions that can be answered with yes/no, ask:
  - Why
  - How
  - What

STEP 3

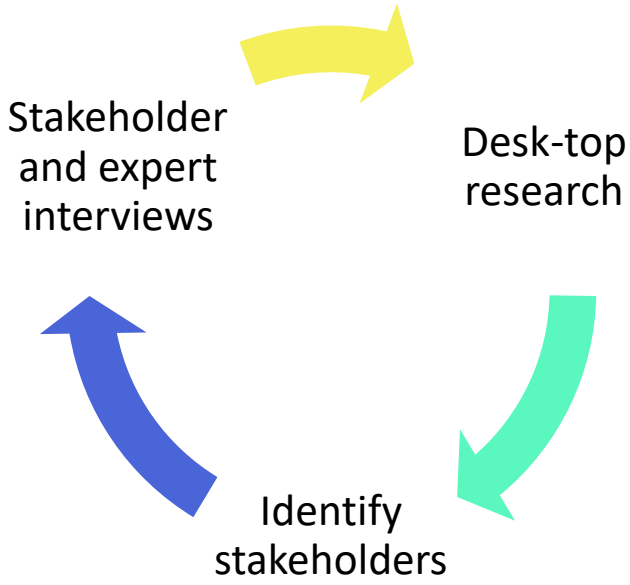
Knowledge & Opinions

GROUPWORK

Research

Gather information on the challenge through desk-top research, identifying stakeholders, and stakeholder and expert interviews.

This is not a tree-step process. You will have to go back and fourth between the three types of research.



Desk-top research

Find information about the challenge:

How and why did it arise?

What are the suggested solutions?

What disagreements are there?

Why are there disagreements?

Identify stakeholder

Map out local stakeholders and experts:

Who has something at stake in this challenge?

Who has something to lose or gain from the challenge and possible solutions?

Who has influence on the challenge and on possible solutions?

Interviews with stakeholders and experts

Set up interviews:

Prepare questions for an identified stakeholder or expert (remember the open questions from previous step)

Contact the identified stakeholder or expert. Tell them about the project and arrange an interview. Preferably face-to-face, but it can also be over the phone/online.

What is a stakeholder?

Someone who has something at stake. Local actors who has influence on or are influenced by a specific issue.

It can be: The local shopkeeper, an investor or a city council employee.

Outcome

Information from which you will formulate questions for an expert and stakeholder panel.

STEP 4

Knowledge & Opinions

AT HOME

Prepare questions

Discuss your research findings with your family. Prepare one or two questions for the expert and stakeholder panel together.

GROUPWORK

Prioritise questions

Put your prepared questions together and make a prioritised list of questions for the panel.

Outcome

Questions for the expert and stakeholder panel.

Asking questions

- Ask open questions: why, how, what, where, who, when
- Focus on solutions – what can be done about the challenge?

STEP 5

Recommendations

GROUPWORK

Recommendations

1 With previous steps in mind (questions, research and deliberation) formulate your recommendations for the challenge.

2 GROUPS TOGETHER

Feedback

2 One group presents their recommendations. The other group gives feedback:

What works well?

What could be better?

Do you agree? Why/why not?

Then the other way around: the other group presents and gets feedback.

GROUPWORK

Adjustment

3 Based on the feedback from the other group, adjust your recommendations.

The three steps of writing recommendations:

Observations – Which information do you find particularly important?

Assessment – What is your assessment of this information?

Recommendations – What recommendation does it lead you to?

Outcome

The class will vote and priorities recommendations which will be sent as an open letter for town hall, the local newspaper and relevant stakeholders and experts.

STEP 6

Dissemination

GROUPWORK

Sending the open letter

Each group will send the open letter with the list of prioritised recommendations to one of:

1. Town Hall
2. The local news paper
3. The panel from step 4
4. A number of local stakeholders, experts, societal actors and policymakers decided by the class

EXUS
Greece
www.exus.co.uk

OU
Uk
www.open.ac.uk

DBT
Denmark
www.tekno.dk

IRSICAIXA
Spain
www.irsicaixa.es/en/livinglabhealth

MSc
Uk
www.shop.masteryscience.com

VUT
Romania
www.valahia.ro

LOBA
Portugal
www.loba.pt

UNEB
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www.portal.uneb.br

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