



NEXT STEP 02

NEXT STEP SCENARIO

Starter School Educational Scenario



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1. Introduction

Main aim

The NEXT STEP project is proposing a whole school approach to science learning. Building on previous successful European open schooling and STE(Arts)M initiatives, the project will bring about the NEXT STEP in education by providing a roadmap for the transformation of school classrooms into open and creative learning spaces. NEXT STEP methodological approach exceeds the state of the art regarding existing creative approaches and STEAM initiatives. In this framework the NEXT STEP project will design and set in operation the STEAM IDEAS' Square, an innovative learning environment which will be the nucleus of the school's activities. NEXT STEP will demonstrate how these environments a) can offer opportunities for deeper learning of STEAM, b) can improve the innovation and creative capacities of learners, c) can support the new role of teacher as a coach of the learning process, d) can facilitate effective cooperation with external stakeholders and e) can inspire policy-makers, school heads and school staff to imagine the schools of tomorrow.

Vision of the Project

The NEXT STEP vision for a creative and innovative school is the development of the creative and innovative classroom of tomorrow, the STEAM IDEAS' Square, in which education relies on an interdisciplinary, arts-based methodology within an entrepreneurship and design thinking framework.

STEAM IDEAS' Square - (SIS) which will be the main core of the school's creative and innovative activities will have two substances: digital and physical. In its premises and via its digital tools in-school interaction between STEM and other disciplines schoolteachers and among all the relative stakeholders (students, educators, parents, artists, scientists, local community authorities, industrial stakeholders, and policy makers) will be established with purpose to run complex and exciting real-life educational world projects. Teams of students (from the same or different classes) can also work and cooperate under SIS umbrella.

By connecting curious minds and specialists and lead them to think "out of the box" will help to speed up the flow of ideas to **transform the school and its classrooms to** a unique creative space for educational innovation and STEAM education.

Through collaboration and the appropriate pedagogies will be established prototyping, pedagogical innovation, creativity (along with distance learning opportunities) and well-being at school.

In addition, the capacity to work with external organizations so as to explore how such partnerships and networks can be built through a long-term strategy-based on trust and common objectives they contribute to key competence development.

A way to implement and use the ideas of NEXT STEP project is through developing a series of scenarios of use that are in line with the proposed approach and involve schools in a series of creative and innovative activities for the improvement of the local cities, settlements, and communities' physical and built-up environments, while engaging key stakeholders (experts, researchers, local communities, businesses etc.) in the process. Different scenarios about different school typologies will be created and these with the help of the right Strategies will help schools to evolve

One of these scenarios that is suitable for a STARTER school (according to our typology) is the one presented later in this document.



2. Essential Features of the STEAM IDEAS' Square

The development of key competences is further facilitated by the provision of context from other disciplines and can:

- a. offer opportunities for deeper learning of STEAM,
- b. improve the innovation and creative capacities of learners,
- c. support the new role as a coach of the learning process,
- d. facilitate the effective cooperation with external stakeholders and
- e. inspire policy makers, school heads and school staff to imagine the schools of tomorrow.

All the above in total in the context of a functional NEXT STEP STEAM IDEAS' square will drive to overcome the organizational and technical barriers and to integration of creative and innovative culture in every day school practices and to aggregate and create projects and activities customized to the specific needs of schools.

Deeper Learning Competences, as **defined in the Recommendation of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning (2006/962/EC)** as described by the Hewlett Foundation model (Pellegrino & Hilton, 2013) can be adopted in order to define the exact indicators needed to measure the efficiency of the project's objectives. A selection of certain deeper learning competences that correspond to a range of ages wider than the high school students (which is the main target group of the deeper-learning competences model) can be classified in the following three groups (Frans & Andreotti, 2018):

Group A: Cognitive competencies

- (1) Mastering rigorous academic content - A1
- (2) Thinking critically - A2

Group B: Interpersonal competencies

- (3) Working collaboratively - B3
- (4) Communicating effectively - B4

Group C: Intrapersonal competencies

- (5) Learning to learn (C5)
- (6) Developing academic mindsets - C6

As defined in the Recommendation of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning (2006/962/EC):

F1) Literacy competence (GA1)

F2) Multilingual competence

F3) F3M.Mathematical competence and F3S. competence in science, F3T. technology and F3E.engineering, F3MS, F3ST, (STEM=F3)

F4) Digital competence - F4

F5) F5P.Personal, F5S.social and F5L.learning to learn competence (C5)

F6) Civic competence

F7) Entrepreneurship competence

F8) F8C. Cultural awareness and F8E.expression competence

We use the Competences as Features taxonomy from the European Parliament and the Council's recommendation in our scenario.

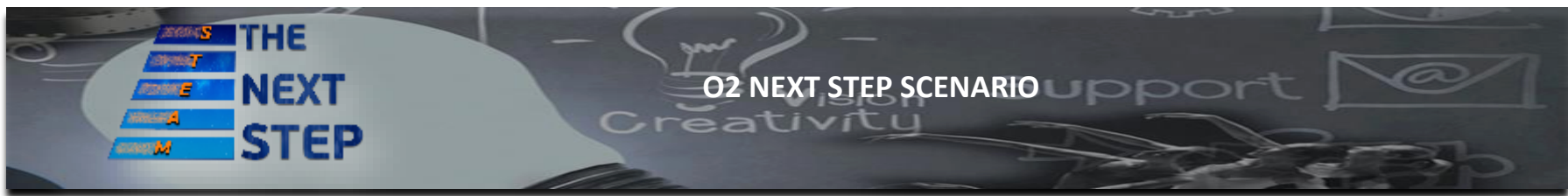


3. NEXT STEP Scenario Identification

(for the scenario with the title: Pollinator Power!)

3.1. Scenario of Use in a Starter School - General description.

Climate change is having a huge impact on pollinators and we can recognize this impact all around us, so this scenario will explore the role of pollinators through science and arts by using a series of eight different project oriented-activities. Through different presentation and discussion sessions students will gain an insight into the importance of pollinators in our life, and what characteristics pollinators have in common. Using this information, students will create pollinators, insect and hives using materials readily available in the classroom, as well they will create songs and soundscapes based on what they have learned. Finally, students will use software to generate posters on all they have produced and learned. This scenario is for primary school level, where there is usually one class teacher. These collaborations could take place in STEAM Ideas' Square physical premises or at any other electronic place

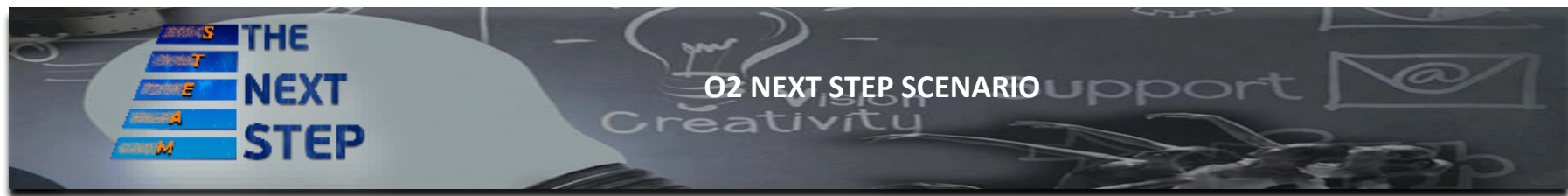


3.2 Scenario Identification Card

Category	Description
Title	<i>Pollinator Power!</i>
Teaching theme/problem	<i>The importance of pollinators will be explored through various scientific concepts using artistic and musical experience</i>
Keywords	<i>Pollinators, climate change</i>
Language	<i>English</i>
Thematic classification	STEAM oriented Education
Learning/Teaching main objectives:	<i>(S) the importance of climate change and its effect on pollinators to our world , (T) use of technology to learn and create, (E)design and make an insect hotel from recycled materials, (A)Use of arts and crafts and music to depict climate change effects, (M).</i>
Suggested age group	<i>8-12 (upper primary school)</i>
Estimated level of difficulty	<i>Easy</i>
Material and technical infrastructure needed	<i>Workshops can be easily set up and facilitated using equipment readily available in the classroom, laptops, interactive white boards</i>
School - Stakeholders Synergies	<i>Ireland's National Biodiversity Data Centre, Local Biodiversity experts from around the area, specialists from DkIT</i>
Typical intervention time	<i>Up to 10 hours</i>
Teaching level	<i>Upper Primary school</i>
Level of interactivity	<i>Medium</i>
Type of interactivity	<i>A mixture of physical, digital and educational visits/field trips</i>
Authors, Publisher name	<i>Dr Bridget Kelly, Dr Daithí Kearney, DkIT</i>
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3.3 Scenario Identification Image

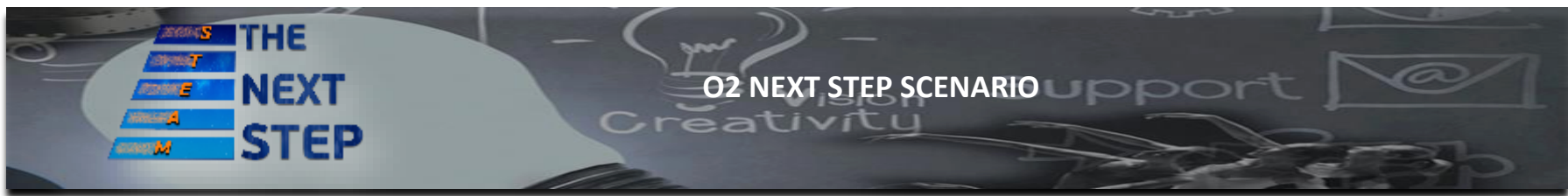




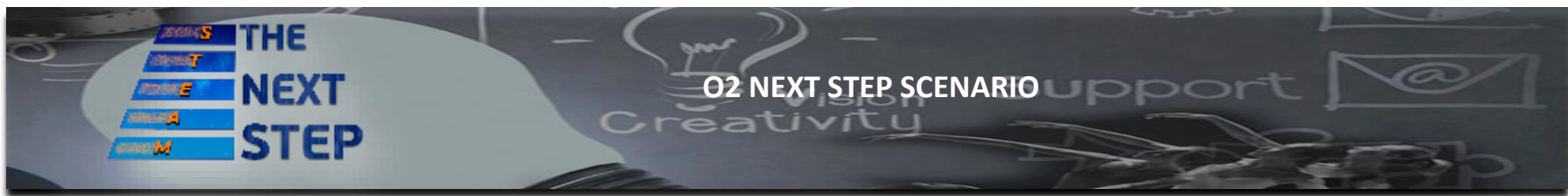
3.4 Make a pollinator

Feel Step






				
Act #	Description of activities, strategies, methods, means, resources and synergies		Learning goals and outcomes Features/Competences	STEAM Fields
A1	Primary Class teacher	Actions- Shows videos, presentations and pictures of different types of pollinators. Ask students questions based on these resources Tools: IWB,P	Educational Method Introduction to the theme and Socratic questioning	This activity will introduce students to the concepts around pollinators and their importance to mankind.
	Students	Actions- Think-pair-share activities, note-taking, word searches, Using 5.1.1. Main Project - Feel - Activity 1/2 Worksheet 1 - MP_F_A1_WS1 Tools: tablets, notebooks...	<ul style="list-style-type: none"> Can describe what pollination is Why it is important F1, F3S, F5P, F5S	
A2	Primary Class teacher	Allows students to taste different fruit, vegetables, jam. Ask students questions about the importance of these fruit/vegetables Tools: IWB, P., fruit, vegetables etc.	Educational Method Inquiry	This activity will allow students to see the relevance of pollinators and pollination in their lives, and the concept of no pollination equals no food. <ul style="list-style-type: none"> To learn about the products of pollination To learn about the consequence of no pollinators/no pollination To decide which fruit/vegetables are their favourite F1, F3S, F5P, F5S, F6
	Students	Think-pair-share activities, note-taking, using 5.1.1. Main Project - Feel - Activity 1/2 Worksheet 1 - MP_F_A1_WS1 Tools: tablets, notebooks	In classroom Duration 30-45m	



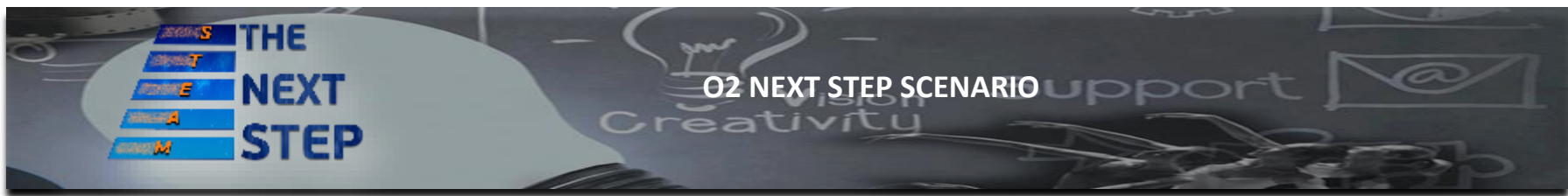
	(SIS) School Community synergies	During A1, A2 and after A1, A2, the primary class teacher will collaborate with other primary class teachers to create worksheets, online platforms, timeslots for using creative spaces (working in the STEAM Ideas' Square)	
	School-Stakeholders Synergies	Primary class teachers will be able to connect with the National Biodiversity Data Centre and contribute to the All-Ireland Pollinator plan (www.pollinators.ie).	






Imagine Step

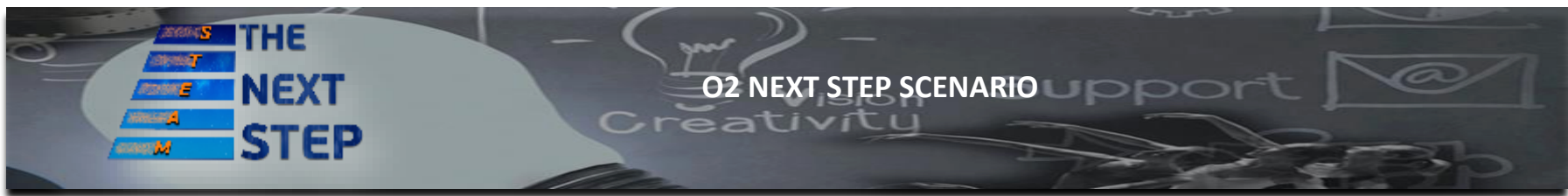
					
Act #	Description of activities, strategies, methods, means, resources and synergies			Learning goals and outcomes Features/Competences	STEAM Fields
A3	Primary class teacher	Show videos of different pollinators and ask questions about where they are found.	Educational Method <i>Inquiry</i>	<ul style="list-style-type: none"> To be able to describe different pollinators To be able to discuss the characteristics needed to be pollinators <p>F1, F3S, F5P, F5S</p>	  In classroom duration 30-45m
	Tools: IWB, P,				
	Students	Think-pair-share activities, answering questions, word searches, crosswords imagining new pollinators and what they would need to have, note-taking, using 5.1.2. Main Project-Imagine-Activity 1/2 Worksheet 1 - MP I A1/2 WS1			
Tools: tablets, notebooks...					
A4	Primary class teacher	Show videos of where pollinators live, beehives, nests etc, Talk about beekeeping and beekeepers	Educational method <i>Inquiry</i>	<ul style="list-style-type: none"> To be able to describe where pollinators live To be able to talk about beekeeping <p>F1, F3S, F5P, F5S, F6</p>	  In class duration 30-45 min
	Tools: IWB, P				
	Students	Think-pair-share activities, answering questions, , note taking 5.1.2. Main Project-Imagine-Activity 2 Worksheet 2 - MP I A2 WS2			
Tools: tablets, notebooks					
School Community Synergies	Primary class teachers can collaborate with teachers of younger students in the school. Class teacher can start gathering materials necessary for the next section of this scenario, materials to be recycled				
School-Stakeholders Synergies	School visit or online visit to beekeepers hives or butterfly garden				





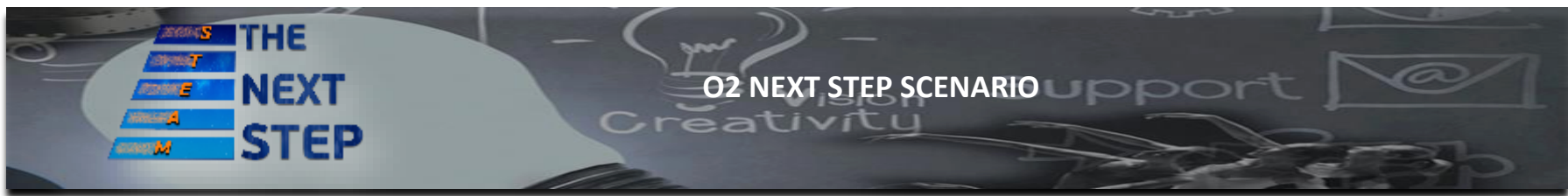
Create Step

					
Act #	Description of activities, strategies, methods, means, resources and synergies		Learning goals and outcomes Features/Competences	STEAM Fields	
A5	Class primary teacher	Guide students to make their own favourite pollinator using art and craft material as well as recycled material from the school	Educ Method <i>Guided discovery</i>	<ul style="list-style-type: none"> To choose different materials for making pollinators To be able to tell which pollinators would work best To learn the usefulness of recycled materials <p>F1, F3S, F3E, F5P, F5S, F6, F7</p>	 In classroom duration 30-45 min
	Students	Students will work in pairs to create their pollinators and will come up with reasons why the materials/colours they chose are important in the design of the pollinators	<p>Tools: IWB, P on different materials that would benefit pollinators</p> <p>Tools: tablets, notebooks, arts and craft materials, recycled material, using 5.1.3. Main Project-Create-Activity 1/2 Worksheet 1 - MP C A1/2 WS1</p>		
A6	Class primary teacher...	Guide students to make their own hive/insect hotel using art and craft material as well as recycled material from the school	Educational Method <i>Guided discovery</i>	<ul style="list-style-type: none"> To choose the best materials for making hives/insect hotel To learn the usefulness of recycled materials <p>F1, F3S, F3E, F5P, F5S, F6, F7</p>	
	Students	Students will work in pairs to create their hives/insect hotels and be able to explain their reasons for using the materials they chose, using 5.1.3. Main Project-Create-Activity 1/2 Worksheet 1 - MP C A1/2 WS1	<p>Tools: IWB, P on different types of hives, insect hotels, etc.</p>		



		Tools: tablets, notebook, arts and craft materials, recycled materials		
	School Community Synergies	Primary class teachers can collaborate with the greater school community to put up the insect hotels/hives around communal spaces		
	School-Stakeholders Synergies	An ecologist or specialist in biodiversity to come and talk with the children about the decline in pollinators and how the students can help, and discuss how building insect hotels/hives can be of use. This could happen during special pollinator events, e.g. World Bee Day in May		

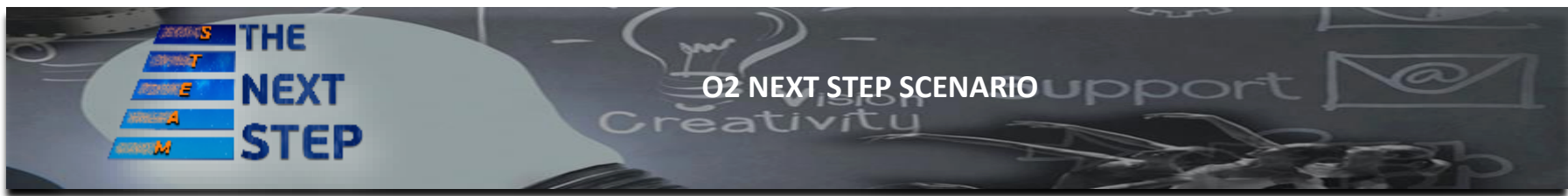




Share Step

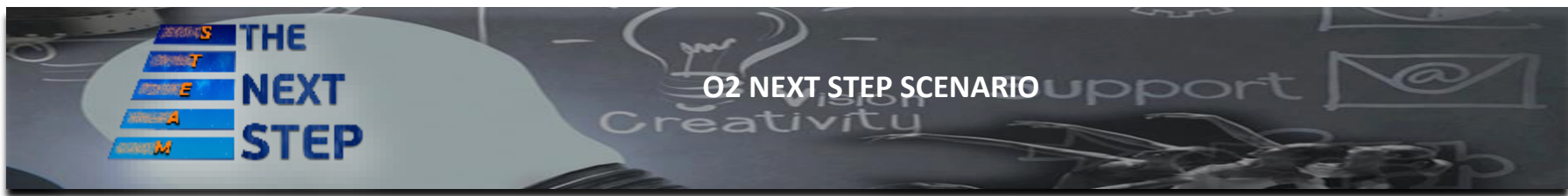


Act #	Description of activities, strategies, methods, means, resources and synergies		Learning goals and outcomes Features/Competences	STEAM Fields
A7	Primary class teacher	Go through the process of creating a song and soundscapes relating to pollinators	<ul style="list-style-type: none"> To create a song on the topic of pollinators To imagine pollinators journeys through soundscape activities F1, F3S, F5P, F5S, F7	 In classroom duration 35-40 min
	Tools: IWB, P, Musical instruments			
	Students	This activity will involve the students creating songs around the topic of pollinators as well as using their imaginations to create soundscapes around well-known pollinators using 5.1.4. Main Project-Share-Activity 1/2 Worksheet 1- MP S A1/2 WS1		
Tools: tablets, notebooks, musical instruments...				
A8	Primary class teacher	Show the process of using tools like CANVA to produce posters about all of the activities the students have done regarding pollinators	<ul style="list-style-type: none"> To create a poster To share it in the school and with the wider community F1, F3S, F5P, F5S, F6,F8C	 In class duration 35-40 min
	Tools: IWBS, P			
	Students	Students will work in pairs to create a poster outlining all that they have learned and produced in relation to this pollinator scenario using 5.1.4. Main Project-Share-Activity 1/2 Worksheet 1- MP S A1/2 WS1		
Tools: IWBS, P, PCs/laptops				
School Community Synergies	Primary school teacher and principal will share produced posters to the school and to the local community such as libraries, local shops etc.			



	School-Stakeholders Synergies	Primary school teacher will collaborate with appropriate stakeholder to have the posters shown at some local event during national or international pollinator week/day such as World Bee day in May
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4. References

Here you can add References that could support your scenario and you consider important to be included

5. ANNEXES

5.1 ANNEX 1 – Worksheets

5.1.1. Main Project - Feel - Activity 1/2_ Worksheet 1 - MP_F_A1/2_WS1

Class teacher discusses topics with students through Socratic dialogues and showing them some videos (below) to the IWBS.

Socratic dialogue examples

Do you know what a pollinator is? (Yes, No)

Have you seen any pollinators? (Yes, No)

What kind of pollinators are there?

What do pollinators do?

What would happen if there were no pollinators?

So, are pollinators important?

Examples of relevant videos

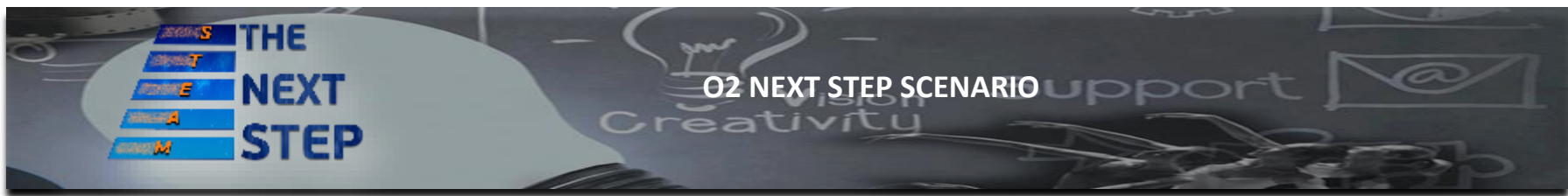
V1: <https://www.youtube.com/watch?v=MQiszdkOwuU>

V2: <https://www.youtube.com/watch?v=xmQmqi5ghjQ>

Students work in pairs, discuss and answer one by one to their own devices or notebooks.

- They answer the above questions and note them into their tablet/laptop/iPad or notebooks.
- The answers are collected and presented in IWBS by the teacher.
- Students are given types of pollinator word searches to complete

Essential Tip 1	If digital devices are not present for students to use, could use: https://get.plickers.com/
	See it here in progress: https://www.youtube.com/watch?v=bejiz2HzUz8
	Data can be extracted to: CSV format for Educational Data Analytics



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5.1.2. Main Project-Imagine-Activity 1/2_Worksheet 1 - MP_I_A1/2_WS1

...

Class teacher continues the discussions with students through Socratic dialogues and shows them some videos (below) to the IWBS.

Socratic dialogues

- Where do pollinators live?
- Are their homes in danger? Why?
- Do you know any beekeepers?
- Why are beekeepers important?

Examples of relevant videos

- V1: <https://www.youtube.com/watch?v=MQiszdkOwuU>,
- V2: <https://www.youtube.com/watch?v=xmQmqi5ghjQ>
- V3: <https://www.youtube.com/watch?v=FAuBhj11HJw>
- V4: <https://www.youtube.com/watch?v=FAuBhj11HJw>

Students work in pairs, discuss and answer one by one to their own devices or notebooks.

5.1.3. Main Project-Create-Activity 1/2_Worksheet 1 - MP_C_A1/2_WS1

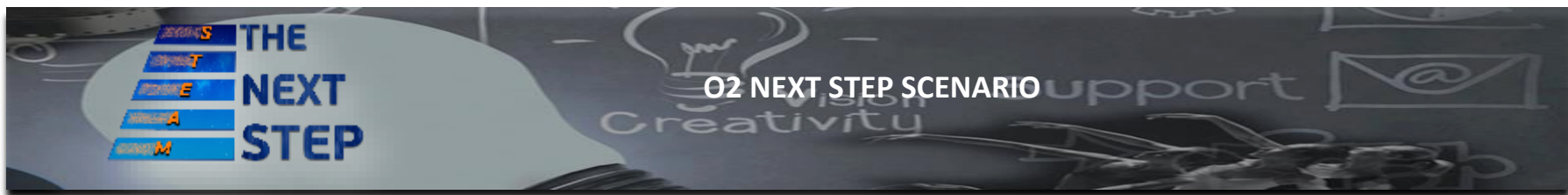
Class teacher and biodiversity expert continues the discussions with students through Socratic dialogues via videos (below)

Socratic dialogue examples

- What type of materials can you make bee hotels/insect hotels from?
- What size should it be?
- What do you fill the box with?
- What size should the filling be?

Examples of relevant videos

- V1: <https://www.youtube.com/watch?v=b9-gJuDgKnU>



V2: <https://www.youtube.com/watch?v=m0re9o1ZqX8>

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5.1.4. Main Project-Share-Activity 1/2_Worksheet 1- MP_S_A1/2_WS1

Class teacher will create songs and soundscapes around pollinators with the students using known songs, class teacher will ask students questions to figure out the best way to do this

Examples of discussion questions

What songs do you already know that could be used for this?

What pollinators or issues would you like to make a song about?

What kind of soundscape do pollinators have?

Is it possible to recreate the soundscape?

Suggested playlist for inspiration

Be My Little Baby Bumble Bee” by Julie London (<https://www.youtube.com/watch?v=d0KdpPXR5P0>)

“Honey Bee” by Tom Petty (<https://www.youtube.com/watch?v=0XH29RLi6IQ>)

“Wild Honey” by The Beach Boys (<https://www.youtube.com/watch?v=UVwNHCHRQ1c>)

“It’s All About the Hive” by Lucas Miller (<https://www.youtube.com/watch?v=nAgqiLLJFE4>)

20 Songs About Bees - Musical Mum (<https://www.musicalmum.com/songs-about-bees/>)

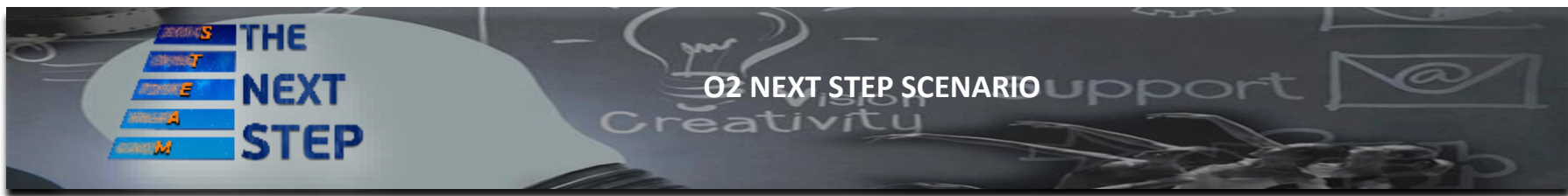
46 Songs About Bees (Pop, Rap & More) - Sound on the Sound (<https://www.soundonthesound.com/songs-about-bees/>)

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[20 Songs About Bees - Musical Mum](#)

[46 Songs About Bees \(Pop, Rap & More\) - Sound on the Sound](#)





6. Abbreviations, short terms, apps used in Scenario of Use

- SIS: STEAM IDEAS' Square
- Stakeholders: Parents, special scientists, external Educators, authorities, entrepreneurs,
- IWBS: Interactive White Board System, Video Projector and interactive whiteboard.
- P. Presentation (like a pptx created with Powerpoint).
- Tablets. Electronic devices for personal use, like Android tablets or iPads.
- Laptops. Either in a lab or in classroom
- PCs. Computers in a lab.
- Plickers. <https://www.plickers.com/>

Competences

- F1. Literacy competence
- F2. Multilingual competence
- F3. F3M. Mathematical competence and F3S. competence in science, F3T. technology and F3E. engineering //or/ F3MS, F3ST , (STEM=F3)
- F4. Digital competence
- F5. F5P. Personal, F5S. social and F5L. learning to learn competence
- F6. Civic competence
- F7. Entrepreneurship competence
- F8. F8C. Cultural awareness and F8E. expression competence



NEXT STEP Partnership



Western Norway
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