Course document

Inquiry Scenario Plan Design form for the promotion of Sustainability Citizenship

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SYNAPSES

Title:

The Role of Honey Bee in Sustainable Citizenship

Short Description (Max 500 words):

This educational scenario explores the vital role honeybees play in promoting biodiversity and sustainable practices. Students will learn about the ecological importance of bees, their contribution to food security, and how beekeeping can support local economies and environmental health. Through a series of interactive lessons, students will engage in activities that foster systems thinking and problem-solving. They will also collaborate with local organizations to understand the broader impact of beekeeping on communities and ecosystems. This scenario aims to equip students with the knowledge and skills to become active participants in sustainability efforts.

Keywords (Up to 5):

Honey bees, Sustainability, Biodiversity, Beekeeping, Environmental Education

Information about the Implementation

Language of the students:

English

Age of the students:

☑9-12 ☐ 12-15 ☐ 15-18 ☐ 18+

Number of Lessons – Duration (per lesson):

Number of Lessons: 6 **Duration per Lesson:** 45 minutes

Is this activity a STEM Activity?

For which subject(s) the activity is usable, is it an interdisciplinary activity?

Science ☑

Physics ☐ Chemistry ☐ Biology ☑ Geosciences ☑ Environmental ☑ Other☐

Technology ☐

Engineering ☐

Arts ☑

Mathematics ☑

Information about the Scenario

Curriculum and country: Irish Primary Curriculum

Link of the current activity to the curriculum:

The activity aligns with the science curriculum, particularly the strands focusing on Living Things and Environmental Awareness and Care. It supports learning about ecosystems, biodiversity, and human impact on the environment.

Country: Ireland **Class:** 6th class

Topic: Ecosystems and Biodiversity

Learning Objectives (Max 100 words):

What do you want students to be able to know/understand/be able to do at the end of this lesson? (Please use action verbs)

Subject: SESE – Science & Geography

- **Science: Living Things & Environmental Awareness and Care**
  - Recognise the ecological role of honeybees and their importance in supporting plant reproduction and biodiversity.
  - Investigate the impact of honeybees on food production and food security.
  - Explore and evaluate sustainable environmental practices, including beekeeping, that contribute to the conservation of natural habitats.
  - **Biology**: Investigate the structure, behaviour, and life processes of honeybees and explain their role in plant pollination and ecosystem health.
  - **Environmental Studies:** Evaluate local and global threats to pollinators and propose sustainable actions that individuals and communities can take to protect biodiversity and ensure food security.
- **Geography: Environmental Awareness and Care**
  - Develop an understanding of human interaction with the environment, focusing on agriculture and ecosystems.
  - Examine local and global environmental issues, using honeybees as a case study to analyse sustainability challenges.
  - **Geosciences**: Explore how climate, landforms, and soil types influence the distribution of flowering plants and habitats suitable for honeybee populations, using maps and simple data interpretation.
- **Maths: Data**
  - Collect, organize, and interpret data related to bee activity and pollinator-friendly plants using tally charts, tables, and simple graphs, developing skills in data handling and measurement.
- **Arts: Visual Arts – Drawing, Construction, Fabric and Fibre**

- Create a visual representation (e.g., a poster, collage, or 3D model) that illustrates the life cycle of a honeybee and its role in the environment, using a range of materials to express understanding of biodiversity and ecological balance.

Resources / Materials (Max 100 words):

Which resources and materials (software, hardware) are needed?

Software	Hardware
Google Workspace for Education (Docs, Slides, Sheets) ● For journaling observations, creating presentations, and tracking data **Google Sites** – to build a class project website. **National Biodiversity Data Centre (NBDC) website** ● Great for pollinator identification tools. **Suno -** Create a song on suno about the importance of bees in sustainability (https://suno.com/s/NIXltXvVf6uyUzr1)	● Bee Hotel: Wood, bamboo canes, or drilled blocks. ● Tablet or Chromebook-compatible Camera ● USB microscope or magnifier camera ● Weather station sensor Outdoor solar-powered webcam

Use of School Infrastructure

How are school facilities and equipment used in your educational scenario?

School Infrastructure	School Materials
Pollinator-Friendly Plants ● Native, nectar-rich plants that bloom across the seasons. Examples: lavender, heather, foxglove, thyme, dandelion, apple trees **Gardening equipment** ● Raised beds or open soil space ● Compost and organic soil ● Watering cans / rain barrel ● Mulch for soil health **Chromebook Devices / Interactive Whiteboards**	**Signage and Educational Materials** ● Weatherproof signs explaining the bee project ● Lifecycle posters, pollination diagrams, safety reminders ● Magnifying glasses, clipboards, observation journals for pupils **Bee-safety policy for the school** **Staff training or an awareness session with a local beekeeper: Irish Beekeepers Association National Biodiversity Data Centre (NBDC) and Green-Schools Ireland.** **Live Webcam** **Composting station**

Green competences:

Which green competences are covered by the activity?

Embodying Sustainable Values	Valuing Sustainability	☑	Supporting Fairness	☑	Promoting Nature	☑
Embracing Complexity in Sustainability	Systems Thinking	☑	Critical Thinking	☑	Problem Framing	☑
Envisioning Sustainable Futures	Futures Literacy	☑	Adaptability	☑	Exploratory Thinking	☑
Acting for Sustainability	Political Agency	☑	Collective Action	☑	Individual Initiative	☑

The definition of the following terms can be found in GreenComp which is translated in all European Union languages.

Working with the community

Which external actors will be involved within the framework of the training scenario?

Organisation Type	**Organisation Name**
NGOs (Non-Governmental Organisations)	Dublin Beekeepers Association
PTA (Parent-Teacher Association)	Core Parents' Group
Local business	Olly's Farm
Other (please explain)	

How will the above-selected institutions help in the educational scenario?

Members from the "Dublin Beekeepers Association" will be invited to our school to do an educational workshop with the pupils.

Core group of parents will work with a team of pupils to construct a "Bee Hotel" and organise honey tastings in the school.

We will invite employees from "Olly's Farm" to visit the school to explain how their business works and the process from the "Bee Hotel" to the shop / cafe.

Detailed activity description

Fill in the table with the subjects contained in your training scenario. The educational scenario should follow one of the following active teaching strategies: Inquiry Based Learning, Challenge Based Learning or Place Based Learning (see here).

Number and name of courses	Course content	Teaching hours
Lesson 1: Introduction to Honeybees	Overview of bee biology and ecosystem role: ● Watch a short educational video or animation on honeybee anatomy and behaviour. ● Label a diagram of a honeybee and discuss its functions (e.g. wings, antennae, stinger). ● Inquiry discussion: Why are bees important to our planet? **Inquiry Approach:** ● Encourage questioning and predictions: "What might happen if there were no bees?" **Assessment:** ● Completion of labelled diagram; student-generated questions recorded in journals; teacher observation of participation.	45 mins
Lesson 2: The Impact of Pollination	Understanding pollination and food security: ● Hands-on demonstration using cotton buds and flowers to simulate pollination. ● Match foods with pollinators in pairs or small groups. ● Class discussion: What foods would disappear without bees?	45 mins

	Inquiry Approach: • Students explore "What if" scenarios: "What would our lunchbox look like without pollinators?" **Assessment:** • Completion of a simple food web map; participation in discussion; exit slip answering: "Why is pollination important?"	
Lesson 3: Biodiversity and Bees	Exploring bee contributions to biodiversity: • Walk around the school garden (or photo walk) to spot pollinator-friendly plants. • Create a class biodiversity map. • Investigate real-world pollinator threats using provided articles or slides. **Inquiry Approach:** • Pose the question: "Why do bees need a variety of plants?" **Assessment:** • Completion of biodiversity map; written or verbal reflection on why plant variety matters.	45 mins
Lesson 4: Sustainable Beekeeping Practices	Learning about eco-friendly beekeeping: • Explore a virtual beehive or guest video from a beekeeper. • Small group task: Compare traditional vs. sustainable beekeeping (e.g. hive materials, pesticide use). • Create posters advocating sustainable choices. **Inquiry Approach:** • Students evaluate: "How can we protect bees and still benefit from honey?" **Assessment:** • Group poster presentation; use of comparison chart with sustainable vs. unsustainable practices.	45 mins
Lesson 5: Community Engagement	Collaborate with local beekeepers • Invite a local beekeeper to speak (or virtual Q&A). • Prepare questions in advance and take notes.	45 mins

	• Plan a class action: plant wildflowers, build a bee hotel, or create awareness materials. **Inquiry Approach:** • Ask: "What can our school do to help bees in our area?" **Assessment:** • Question log from the guest speaker; class reflection on action taken.	
Lesson 6: Project Presentation	Presenting sustainable solutions • Create a group presentation, digital poster, or short video. • Present findings and solutions to another class or school community. • Peer feedback and self-assessment. **Inquiry Approach:** • Frame: "What can we do now and in the future to support pollinators?" **Assessment:** • Presentation rubric assessing clarity, creativity, and understanding; student reflections.	45 mins

Assessment (if any):

How will you assess learning (what could students say, make, create, do etc…)? What specific Assessment of Learning (AfL) and Assessment for Learning (AoL) strategies will you use to gather evidence of learning.

Ongoing Assessment

- Teacher observations, student journals, group discussions, and exit slips track progress in inquiry and reflection.
- Visual outputs like posters and biodiversity maps assess understanding creatively.

Final Assessment

Group presentations in Lesson 6 are assessed using a rubric focused on clarity, sustainability solutions, creativity, and teamwork.

- Self and peer assessment promote reflection and feedback skills.

AI-Enhanced Assessment Tools

- **Summarisation tools** help students distill learning.
- **Design apps** support visual assessments.
- **Voice-to-text** assists EAL learners and those with literacy needs.
- **Suno** Write a song about bees and biodiversity/sustainability using Suno
- **AI writing assistants** help students frame solutions and questions.

Reflection/Evaluation (if any)

How will you evaluate if the scenario was successful?
The success of the scenario will be evaluated through student feedback, participation levels, and the quality of student projects. Teacher reflection on student engagement and learning outcomes will also be considered.

Children involved in the project will present their project to the rest of the school at class Assemblies which are held monthly.

References (if any)

- "The Buzz About Bees: Biology of a Superorganism" by Jürgen Tautz
- Local Beekeepers Association materials

Sustainable Contact Details:

Name	Dublin Bees Association
Email	Secretary@dublinbees.org

School Informations:

School Name	St. Thomas Senior National School
City name	Tallaght, Dublin
Number of pupils and teachers	36 Teachers, 365 pupils
How many students and teachers will be involved?	4 Teachers, 48 pupils

Annex

Feel free to add any more information and material you have, indicatively photos from the activity, constructions needed or any handbook that may be available online.

https://dublinbees.com/

https://irishbeekeeping.ie/

https://irishbeekeepers.ie/wp-content/uploads/2021/01/IBAclg-Handbook.pdf

https://www.heritageinschools.ie/

https://greenschoolsireland.org/the-programme/themes/biodiversity/

https://pollinators.ie/schools/

https://www.ollysfarm.ie/

https://www.ulsterwildlife.org/help-wildlife/help-wildlife-home/help-pollinators/how-make-bee-hotel

https://www.twinkl.ie/resource/life-cycle-of-a-bee-differentiated-reading-comprehension-roi-oe-1679694941

https://www.twinkl.ie/resource/every-bees-birthday-ebook-t-e-1663322449