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## BioBeo's 'Sustainable Fish in a Bioeconomy' Video: Guidance Notes

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# ‘Sustainable Fish in a Bioeconomy’ Video

(Ages: 7-15, adaptable)



## Sustainable Fish in a Bioeconomy



## Before Viewing...

### Introduction to the Bioeconomy

Begin by discussing the concept of the bioeconomy. Do the children know it? What do they know? You might then begin by explaining the concept of the bioeconomy to the children if necessary. Discuss how natural resources like plants, animals, and microorganisms are used to produce food, materials, and energy without harming the planet, in a much more sustainable way. Emphasise the importance of sustainability and circularity in these processes. Have the children ever heard of the following core concepts in this video:

- **Aquaculture** - Farming fish in water.

- **Hydroponics** - Growing plants in water without soil.
- **Aquaponics** - Combining aquaculture and hydroponics in a circular system.
- **Sustainability** - the practice of meeting present needs without compromising the ability of future generations to meet their own.
- **Bioeconomy** - the production, utilisation, and conservation of biological resources to provide sustainable goods, services, and energy.

## Exploring Interconnectedness

Discuss the idea that all elements of nature are interconnected. Discuss how actions in one part of the ecosystem can affect other parts. Use simple examples like how bees pollinate flowers, leading to the growth of fruits and vegetables. Build a tower of cards in groups. If one card falls, what happens to the others? Then discuss how things are made and how our food is produced. Where does it come from?

## Setting the Scene

Prepare the children for the video. Ask them if they know where Berlin is? Is it a city? Is it in Ireland? Invite them to think about these questions.

## During Viewing...

### Active Listening

Encourage children to listen carefully to the conversation between Beo and her friend in the supermarket.

### Visual Engagement

As the video plays, point out interesting images.

## Interactive Participation

Ask the students to identify the different elements of nature mentioned in the video and to discuss how they are connected. Invite them to write down key words, especially new ones they don't know!

## After Viewing...

### Discussion and Reflection

Lead a discussion about the key concepts. Ask the children what they learned about the bioeconomy and interconnectedness. Encourage them to share their thoughts and feelings about the video.

### Activities

#### GEOGRAPHY, MATHS (Human Environments, Map Skills, Numeracy)

**Activity:** Find Berlin & Trace the Journey

**Video Link:** *"Wow, this fish comes from around here? It's produced in BB...Berlin?"*

Use a globe or map to find Berlin. Can you map a journey from your school to Berlin? Could you take a sustainable trip? Walk, run, cycle, train? In groups, map it and budget it! Present your findings to your class. The group who creates the most sustainable journey will be crowned the *BioBeo Travel Champs*!

**Draw a simple supply chain:** Berlin → Supermarket → Beo & Raja.

**Extension:** Locate local fish farms in Ireland and compare food miles/journeys.

**Skills:** Mapping, local-global connections

#### SPHE, DRAMA (Myself & the Wider World)

**Activity:** Sustainable Choices Roleplay

**Video Link:** *"Let's buy this fish – it's sustainable!"*

**Prompt:** Remember when Beo and Raja read the food label? What would you choose in the shop – and why?

**Roleplay supermarket scenes:** Choosing local, sustainable vs. imported, unsustainable food.

Create a “Green Label Detective” activity.

**Skills:** Decision making, environmental awareness

## **PE, MATHS, LANGUAGE (Games, Outdoor Adventure)**

**Activity:** Aquaponics Relay

**Video Link:** *“The cycle goes from fish tank → grow bed → clean water → back to fish!”*

**Prompt:** Can you remember the order of the aquaponics cycle like in the video? Let’s act it out in a relay!

Children pass items (fish, water, nutrients, plants) in sequence across stations.

Use cones, labels, and buckets to represent different stages of the aquaponics cycle.

**Skills:** Coordination, cooperation, movement sequencing

## **DRAMA (Exploration and Expression)**

**Activity:** Re-enact “Beo & Raja’s Sustainable Day”

**Video Link:** Entire story arc

**Prompt:** Can you act out the scene where they discover the fish is from Berlin? What questions would you ask if you were them?

In pairs or small groups, re-enact scenes: supermarket, learning about aquaponics, celebrating their eco choice.

**Skills:** Empathy, storytelling, improvisation

## **MUSIC (Listening, Performing)**

**Activity:** Cycle Song: “Fish Feed, Plant Seed”

**Video Link:** *“It’s circularity!”*

**Prompt:** How did Beo and Raja learn the system was circular? Can you sing the steps of aquaponics?

Compose a class chant/song using simple rhythms to describe the cycle:

“Fish make waste, plants taste great! Pump it up, grow the crop!”

Use body percussion or instruments.

**Skills:** Rhythm, lyric writing, collaboration

## ENGLISH, ART (Oral, Reading, Writing, Drawing)

**Activity 1:** Storyboard the Adventure

**Video Link:** *“Let’s go home – I’m hungry!”*

**Prompt:** What did they discover at the end? Can you tell the story in your own words?

Children draw comic panels of Beo & Raja’s trip: supermarket → discovery → learning → decision → celebration.

Write captions or speech bubbles.

**Activity 2:**

Invite the children in pairs to put the key concepts into sentences:

- **Aquaculture**
- **Hydroponics**
- **Aquaponics**
- **Sustainability**
- **Bioeconomy**

**Skills:** Listening, writing, bilingual thinking

## GAEILGE (Labhairt, Léitheoireacht, Scríbhneoireacht)

**Activity 1:** Aistriúchán

**Video Link:** *“Okay, so based on the label...”*

**Prompt:** Cad a dúirt Beo nuair a léigh sí an lipéad? An féidir leat an scéal a insint i nGaeilge?



“What do we want to eat today? Let’s eat fish” - “Céard atáimid ag iarraidh a ithe inniu? Ithimis iasc”

Bain úsáid as spléach-chártaí le haghaidh focail nua: éisc ([fish](#)), inbhuanaithe ([sustainable](#)), lipéad ([label](#))

### Activity 2:

I bpéirí, tabhair cuireadh do na páistí na príomhchoincheapanna a chur in abairtí:

- **Aquaculture** - Dobharshaothrú
- **Hydroponics** - Hidreapónaic
- **Aquaponics** - Uisceadánaíocht
- **Sustainability** - Inbhuanaitheacht
- **Bioeconomy** - Bithgheilleagar

**Skills:** Listening, writing, bilingual thinking, translation

## HISTORY (Continuity and Change)

**Activity:** Farming Then and Now

**Video Link:** “...with *hydroponics – no soil is needed!*”

**Prompt:** In the video, they didn’t use soil – do you think people always farmed this way? What’s different now?

Compare traditional farming (soil, land) with modern methods (urban farming, aquaponics). Create a timeline from ancient fish traps to modern city tanks to aquaponics.

## ART (Drawing, Construction, Fabric & Fibre)

**Activity 1:** Nature-Sourced Aquaponics Mural

**Video Link:** “*Let’s have a closer look at this perch production cycle!*”

**Prompt:** In the video, the gravel cleaned the water. What outdoor material could you use to show that in your mural? What colours and shapes can you find in nature that represent the cycle?

**Outdoor Learning:** Take pupils to the school garden, playground, or a local green area. Gather natural materials (leaves, small stones, twigs, seed heads, dried grass, bark).



**Art Task:** In groups, use the found objects to construct a large-scale floor mural of the aquaponics cycle outdoors.

Label components with natural signs (e.g. pebbles for gravel bed, leaves for basil, shells for fish)

Photograph the mural from above to document it.

**Skills:** Research, Creativity, Collaborative

## **Activity 2: Textile Collage – City Farm in a Shoebox**

**Video Link:** “So the basil plants are fixed in hydroponic beds...”

**Prompt:** Could you make the perch out of fabric? What would the basil roots look like using thread? How would you show water moving through the system?

**Materials:** Shoeboxes, scrap fabric, string, recycled plastic, foil, netting, bottle tops, corks, etc.

**Art Task:** Construct a 3D diorama inside a shoebox to model a city-based aquaponics system (e.g. rooftop farm in Berlin). Use string to show pipes and flow. Create plant roots from wool or string, and fish from recycled card or fabric.

**Cross-over Option:** Art + Drama: Use the mural or shoebox to present the cycle as a drama narration, explaining what happens at each stage.

**Skills:** Drama, Mapping, Creativity

## **SCIENCE (SESE: Living Things, Environmental Awareness)**

**Activity 1:** Outdoor Aquaponics Investigation Station

**Video Link:** *“The good bacteria convert ammonia to nitrate...”*

**Prompt:** In the video, the basil didn’t grow in soil but in water. Can you test that? Which one grows better here?

Set Up in Schoolyard or Garden:

Use glass jars, rainwater, gravel and plants (mint, basil).

Let students test mini experiments:

1. Can basil grow in water only?

2. Where does basil grow better – in soil or gravel?
3. What happens when water from a fish tank is used?

**Skills:** Observation, Prediction, Testing variables, Comparing results

### **Activity 2: Nitrogen Cycle in a Jar**

**Video Link:** *“The bed gravel...filter, remove ammonia, nitrate...”*

**Prompt:** Remember how the nutrients moved through the system in the video? What happens to our plant over time? Can you draw a diagram like Beo and Raja’s cycle to explain what is happening in your jar?

**Materials:** Tall jars, gravel, water, aquarium drops (or safe nitrate testing strips), small water plants (like elodea or basil cuttings), goldfish if available.

#### **Steps:**

1. Fill jars with gravel and water. Or use a large fish tank!
2. Add plant cuttings.
3. Optionally, add a small fish in one jar.
4. Observe the plant and water changes over a week.
5. Compare growth in jars with and without gravel/fish.

**Add Outdoor Element:** Set up the jars near a window or outdoors. Encourage students to monitor temperature and rainfall (local conditions).

### **BONUS – Extend to ART + SCIENCE:**

“Perch Perspective” – Scientific Drawing Challenge

**Video Link:** *“Let’s have a closer look...”*

**Prompt:** What details do you notice about the fish’s fins or the plant’s roots? Are you a scientist-artist?

Research the perch fish and basil plant.

Outside or indoors, create scientific-style observational drawings of both, adding facts (diet, habitat, role in aquaponics).

## Assessment

**Observation:** Monitor children's participation during discussions and activities to assess their understanding of the concepts.

**Creative Work:** Evaluate the children's art projects and all other activities to gauge their comprehension and ability to apply the concepts.

**Reflection:** Review the children's work to assess their personal connections to the concepts of the video.

By following these guidance notes, educators can effectively use the 'BioBeo Sustainable Fish in a Bioeconomy' video to teach children about the bioeconomy and the interconnectedness of nature in an engaging and enjoyable manner.