



Dia daoibh, a chairde! As winter sets in across Europe, we look back on several key events, and forward to a green new year. This festive edition of BEST brings some seasonal cheer alongside big-picture news: from the updated EU Bioeconomy Strategy to the outcomes of the COP30 climate summit, to classroom activities and cultural traditions. Grab a hot chocolate and enjoy our end-of-year roundup of sustainability stories! By the way, you can continue to find all the past editions of the newsletter [here](#).

### **COP30 Wrap-up: Climate Action in Brazil**

In November, countries from around the world met in Belém, Brazil for COP30, the annual meeting where governments discuss climate and nature. Delegations shared plans for protecting forests, oceans and communities, and explored ideas for cleaner energy and sustainable farming.



Photos from COP30 in Belém, Brazil

COP30 also included participation from many groups, including Indigenous communities. These groups shared their concerns about forest protection, land rights, biofuels and the impacts of climate change on their communities. Their presence highlighted the importance of including different voices and experiences in climate discussions.

Several new initiatives were presented during the summit, including projects to support ocean protection, improve forest management, conserve peatlands and coastal areas, and encourage renewable energy development. Countries also discussed ways to help communities prepare for extreme weather events.

One of the topics of discussion was the future use of fossil fuels such as coal, oil and gas. Countries expressed different views on how to approach this issue, and a collective agreement on a global plan was unfortunately not reached.

COP30 showed how many different groups, governments, scientists, educators, young people and communities, are involved in conversations about caring for the environment.



# Ag Glanadh suas agus Ag Tuilleamh: Gleann Uiseann



Scríobh Emer, Laura agus Niamh an t-alt seo, is scoláirí oideachais iad i Rionn Froebel, Ollscoil Mhá Nuad.

Nuair a chríochnaigh Electric Picnic i Srath Bhaile, d'ímigh an ceol agus an spraoi, ach fágadh radharc salach ina ndiaidh. Bhí cannaí, buidéil agus málaí plaisteacha scaipthe ar fud na bpáirceanna. Chonaic Gleann Uiseann deis sa radharc seo. Le Scéim Taisce agus Fillte, bhí airgead le déanamh as gach canna agus buidéil plaisteach, rud a léiríonn prionsabal na bitheacnamaíochta, úsáid acmhainní nádúrtha agus athchúrsáilte go héifeachtach. Bhí deis acu cabhrú leis an gclub agus an timpeallacht a chosaint ag an am céanna, ag úsáid ábhar bithbhunaithe agus ag cur béime ar chiorclaíocht ábhar.

Shocraigh baill an chlub lámh chúnta a thabhairt. Thóg siad málaí móra agus lámhainní agus thosaigh siad ag bailiú. Ní raibh sé éasca. Bhí an pháirc fliuch agus na málaí trom. Ach d'oibrigh siad le chéile, ag gáire agus ag spreagadh a chéile. D'fhéadfaí an smaoineamh seo a leathnú trí dhúshlán ranga: bheadh comórtas idir ranganna chun níos mó bruscar a bhailiú agus acmhainní a athchúrsáil

De réir a chéile, líonadh na málaí. Bhailigh siad 70,000 cannaí agus buidéil agus fuair siad níos mó ná €15,000 don chlub. Bhí lúcháir agus bród ar gach duine. Thaispeáin an tionscadal cumhacht an chomhoibríthe agus conas is féidir le bithbhunaitheacht, ciorclaíocht agus bitheacnamaíocht an timpeallacht a fheabhsú.

Le linn an tionscadail, d'fhoghlaim baill an chlub scileanna nua, d'oibrigh siad níos fearr le chéile agus thóg siad spiorad pobail. Rinne siad difríocht mhór! Ní neart go cur le chéile! Léirigh siad cumhacht an phobail, ciorclaíocht agus bitheacnamaíocht, agus d'athraigh siad bruscar ina acmhainn luachmhar. Is scéal dóchasach é seo. Spreagfaidh an scéal seo pobail eile sa todhchaí.

Comhghairdeachas le Gleann Uiseann!





# Cleaning Up and Earning: The Story of Killeshin G.A.A.



Emer, Laura, and Niamh wrote this article; they are education students in the Froebel Department, Maynooth University.

When Electric Picnic (Music Festival) ended in Strathbaile, the music and fun were over, but it left a messy scene behind. Cans, bottles, and plastic bags were scattered across the fields. Killeshin G.A.A. saw an opportunity in this. With the Deposit and Return Scheme, there was money to be made from every can and plastic bottle, which shows the principle of the bioeconomy, using natural and recycled resources effectively. They had a chance to help the club and protect the environment at the same time, using bio-based materials and focusing on circular use of resources.

The club members decided to lend a helping hand. They took large bags and gloves and started collecting. It was not easy. The field was wet, and the bags got heavy quickly. But they worked together, laughing and encouraging each other. They showed how even a small action, like taking part in the bioeconomy, can make a big difference for the environment.

Step by step, the bags filled, and the field became clean again. They collected 70,000 cans and bottles and raised over €15,000 for the club. Everyone was happy and proud. It wasn't just about the money; the project showed the power of teamwork and how bio-based, circular, and bioeconomic ideas can improve the environment.

During the project, the club members learned new skills, worked better together, and built community spirit. They showed that even a small action can make a big difference when people work together. In the end, Killeshin G.A.A. and the Strathbaile community had a real success story. They didn't just clean one field; they showed the power of community, bio-based materials, circularity, and the bioeconomy, turning waste into a valuable resource. It was a story full of hope, pride, and hard work, a story that will inspire other communities in the future.





# EU Policy Spotlight: Sustainability Due Diligence



The European Union is discussing updates to the Corporate Sustainability Due Diligence Directive (CSDDD). The purpose of this law is to guide large companies in checking their supply chains and taking steps to prevent pollution, deforestation and unfair working conditions.

In November, the European Parliament reviewed a new proposal that would change how the directive works. The updated proposal would:

- apply only to companies above a higher size threshold than originally planned,
- remove the requirement for companies to publish climate transition plans, and
- adjust how companies report on environmental and human-rights impacts.



Ursula von der Leyen  
Photo: Thierry Monasse/Getty Images)

Because of these changes, the number of companies covered by the directive would be smaller than in the original version agreed in 2024. Supporters of a broad directive say this could reduce the overall reach of the law. Others argue that the adjustments make the rules clearer and easier for companies to follow.

EU institutions will continue discussing the proposal. The final agreement will shape how sustainability due diligence is applied across Europe and how companies contribute to responsible global supply chains.

If the updated proposal is adopted:

- Fewer companies would be required to carry out sustainability checks.
- Climate transition plans would no longer be mandatory for covered companies.
- Reporting obligations would focus on a smaller set of businesses.
- These changes may affect how widely sustainability due diligence is applied across industries, as well as how supply chain impacts are monitored.



Campaigners stage a protest in Brussels.





# New EU Bioeconomy Strategy:



## A Strategic Framework for a Competitive and Sustainable EU Bioeconomy

The European Commission has released an updated EU Bioeconomy Strategy, outlining how Europe plans to use land, biomass, biotechnology and circular systems over the next 15 years.

The Strategy identifies four main priority areas:

- Innovation and investment - supporting new technologies and approaches in biotechnology and bio-based production.
- Creating markets - encouraging the growth of bio-based materials such as plastics, textiles, chemicals, construction products, fertilisers and plant protection solutions.
- Sustainable biomass supply - focusing on circularity, improved monitoring, and support for farmers, foresters and coastal communities.
- International cooperation - working with partners around the world to develop fair and resilient bio-based value chains.



The Strategy describes how the bioeconomy can contribute to Europe's development in areas such as industry, rural communities and research. It also notes that the sustainable use of natural resources remains an important consideration when planning future activities.



# Conas Líon Taibhreamh a Chruthú!



Réamhrá: Bailíonn líon taibhreamh gach brionglóid a bhíonn agat agus tú i do chodladh! Le do líon taibhreamh féin beidh tú in ann gach brionglóid a choimeád. Sa saothar ealaíne seo, baileoidimid ábhair nádúrtha ón timpeallacht agus cuirimid iad le chéile. Déan cinnte go n-úsáideann tú do shamhlaíocht, is iomaí ábhair atá ar fáil, tá moltaí luaite sna treoracha. Go n-éirí leat!

Cad atá le cruthú roimh ré? Cloichíní daite agus duilleoga as cré

Oideas: Cloichíní daite agus duilleoga as cré



Na hábhair: (Chun 6 choirnín a chruthú)

- Salann – Spúnóg bhoird amháin
- Plúr geal – Dhá spúnóg bhoird
- Uisce te – Leath spúnóg bhoird
- dathúchán bia – Spúnóg bhoird (roghnach – is féidir leat do dhathúchán féin a chruthú as biatas más mian leat)
- Briogúin
- Ceithre bhabhla
- Oigheann (teocht 100 céim)
- Scian (do na duilleoga)

Na treoracha:

- Measc an salann agus an plúr le chéile i mbabhla amháin.
- Cuir leath spúnóg bhoird d’uisce te leis
- Scaip amach an taos agus cuir iad i dtrí bhabhla difriúla.
- Cuir dathúchán bia i ngach ceann
- Cruthaigh na cloichíní anois!
- Fág iad ar na briogúin chun triomiú nó cuir iad san oigheann ag 100 céim ionas go mbeidh siad cruá.
- Le haghaidh na nduilleog, úsáid na céimeanna céanna.



# Conas Líon Taibhreamh a Chruthú!



## Liosta de na hábhair:

- Bataí crainn (bailithe ón talamh)
- Duilleoga
- Sreang in-bhithmhille (ildaite)
- Cléití
- Duilleoga as cré
- Mála
- Cloichíní daite (cruthaithe as taos salainn)



## Na treoracha:

1. Ar dtús, téigh go dtí páirc nó coill.
2. Bailigh na hábhair éagsúla atá thuasluaite agus níos mó más féidir iad a aimsiú.
3. Píoc suas bataí crainn ón talamh
4. Cuir na hábhair go léir sa mhála ionas nach gcailltear iad.
5. Ina dhiaidh sin, téigh ar ais go dtí do sheomra ranga.
6. Leag gach rud amach ar an mbord.
7. Bailigh na bataí le chéile agus faigh sreang ildaite.
8. Úsáid an tsreang chun na bataí a cheangail le chéile cosúil leis an bpictiúr.
9. Nuair atá na bataí curtha le chéile cosúil le triantán, faigh an t-ábhar eile atá bailithe agat.
10. Tosaigh ag maisiú do líon taibhreamh féin.
11. Úsáid an tsreang arís chun na maisiúcháin cosúil leis na cleití, agus na duilleoga as cré is na cloichíní daite a cheangail le chéile.
12. Chomh luath is atá na maisiúcháin curtha le chéile agus tá tú an-sásta le do dhearadh, faigh níos mó sreang.
13. Cruthaigh patrún leis an tsreang idir na bataí.
14. Déan lúb ar bharr do líon taibhreamh.
15. Sa deireadh, bain triail as do líon taibhreamh a chrocadh ar an mballa. Úsáid an lúb atá cruthaithe agat.





# How to Make a Dreamcatcher



Dreamcatchers collect your dreams while you are sleeping! With your own Dreamcatcher you will be able to keep all of your dreams safe. For this artwork, we will collect natural materials from the environment and we will put them together to create the Dreamcatcher. Make sure to use your imagination. There are a lot of materials available with suggestions in the instructions. Good luck!

What needs to be created in advance?  
Coloured beads and leaves made of clay!



## Instructions: Colourful beads and leaves made of clay

Materials:

For every 6 beads:

- One tablespoon of salt
- 2 tablespoons of white flour
- Half a tablespoon of hot water
- Food colouring (optional - you can create your own colouring from beetroots if you wish)

Other materials:

- Skewers
- 4 bowls
- Oven (at 100 degrees temperature)
- Knife (for the leaves)

Instructions:

- Mix the salt, hot water and flour together in one bowl.
- Add up to half a teaspoon of hot water more if your dough is too thick.
- Spread out the dough and place them in three different bowls.
- Add different food colouring to each one but mix it lightly so that the beads and leaves can blend in with nature.
- For the beads, roll out small pieces of dough like little balls.
- Leave them on the skewers to dry or put them in the oven at 100 degrees so that they harden.
- For the leaves, use the same steps.
- Use the knife to decorate the leaves!



# How to Make a Dreamcatcher



## Materials:

- Sticks from a tree (collected from the ground)
- Leaves
- Biodegradable string (multi-coloured)
- Flowers
- Feathers
- Leaves made of clay
- Bag
- Beads made of clay



## Instructions:

1. First, with your teacher, go to a park or forest near your school.
2. Collect the different materials that are listed above and other items you would like if you can find them.
3. Pick up sticks from the ground and make sure you are not taking them directly from the tree!
4. Put all your materials in a bag so you don't lose anything.
5. After that, head back to the classroom.
6. Lay everything out on a table.
7. Collect the sticks together and grab some string.
8. Use the string to tie the sticks together like the picture.
9. When the sticks are tied together, grab the other materials you have collected.
10. Start to decorate your Dreamcatcher.
11. Use the string again to tie the decorations, such as the clay leaves, beads and feathers.
12. As soon as the decoration is put together and you are happy with your design, grab one more piece of string.
13. Make a loop at the top of your Dreamcatcher.
14. Finally, try hanging your Dreamcatcher on the wall using the loop you created.
15. Show off your Dreamcatcher!



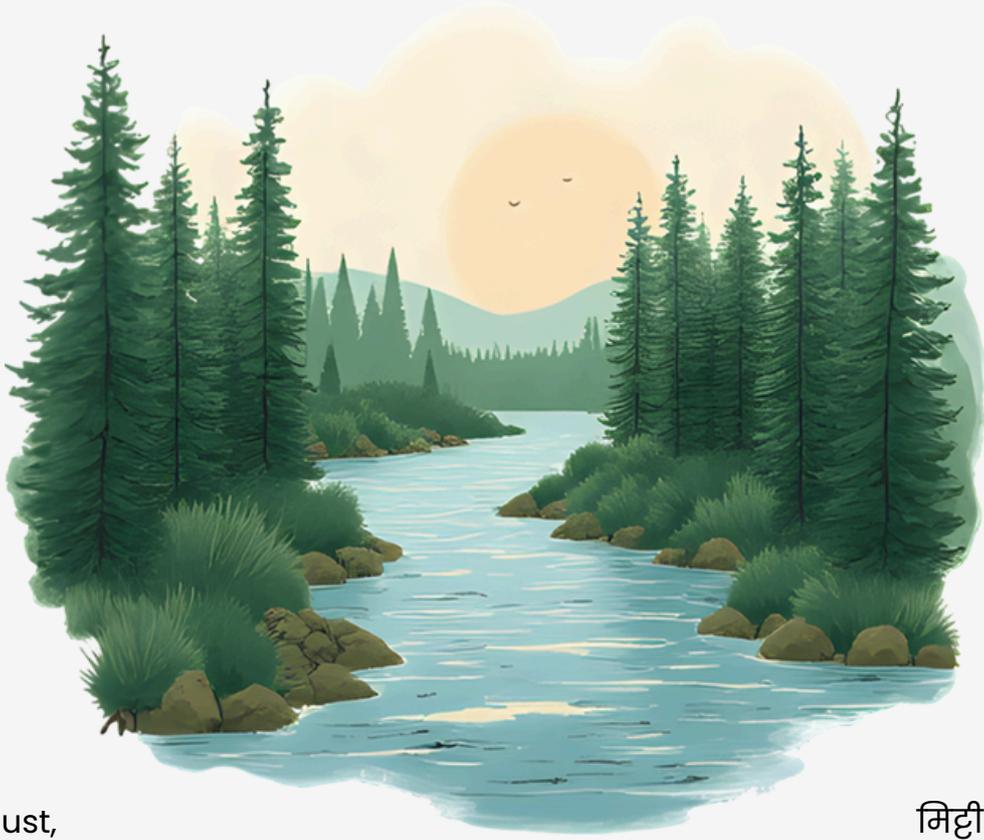
# Words for Nature:

## An Environmental Reflection in Hindi

By Sakshi Anand

Hindi is a modern Indo-Aryan language, with its roots in Sanskrit, Prakrit, and Apabhramsha. It is written in the Devanagari script, one of the world's oldest continuously used writing systems. Today, Hindi is spoken by hundreds of millions of people across India and beyond, and continues to evolve through everyday use.

हिंदी एक आधुनिक भारतीय-आर्य भाषा है, जिसकी जड़ें संस्कृत, प्राकृत और अपभ्रंश में मिलती हैं। यह देवनागरी लिपि में लिखी जाती है, जो विश्व की प्राचीन और आज भी प्रचलित लिपियों में से एक है। आज हिंदी भारत सहित दुनिया के अनेक भागों में बोली जाती है और निरंतर विकसित हो रही है।



Soil is not just dust,  
it is a living system,  
where microorganisms store water,  
nourish seeds,  
and regulate Earth's temperature.  
Rain is part of the water system,  
connecting rivers, forests, and farms.  
Wind is a dynamic force,  
enabling energy flow, pollination, and breathing.  
Nature is an interconnected system,  
where soil, water, air, and life  
depend on one another.  
Protecting this balance  
means protecting both Earth and our future.

मिट्टी केवल धूल नहीं है,  
वह एक जीवित प्रणाली है,  
जहाँ सूक्ष्मजीव जल सँजोते हैं,  
बीजों को पोषण मिलता है,  
और पृथ्वी का ताप संतुलित रहता है।  
बारिश जल-चक्र का हिस्सा है,  
जो नदियों, जंगलों और खेतों को जोड़ती है।  
पवन एक गतिशील शक्ति है,  
जो ऊर्जा, परागण और श्वसन को संभव बनाती है।  
प्रकृति एक आपस में जुड़ी हुई प्रणाली है,  
जहाँ मिट्टी, जल, वायु और जीवन  
एक-दूसरे पर निर्भर हैं।  
इस संतुलन की रक्षा करना  
धरती और भविष्य - दोनों की रक्षा है।

# Career Profiles

**Name:** Stefano Bertacchi

**Location:** Milan, Italy

**Role:** PhD, Industrial Biotechnologist |  
Researcher | Assistant professor (RTDa) |  
Science communicator | former EU  
Bioeconomy Youth Ambassador | Book  
author | Science writer and speaker | TedX  
speaker | Content creator



## AN OVERVIEW OF YOUR JOURNEY SO FAR:

Honestly, when I chose my university course, I wasn't particularly passionate about biotechnology. I simply liked "life sciences", but I definitely didn't want to study medicine, and biotechnology seemed more intriguing than biology. Fortunately, I later discovered that I really loved this subject... I then turned to scientific communication after realising that biotechnology, and more generally genetic modification and related topics, were not very popular with the Italian public. I therefore felt the need to share information on the subject to counter the spread of misinformation. In the end, training and developing my communication skills also proved useful for my career as a researcher.

## YOU'RE KNOWN FOR USING MEMES AND HUMOUR TO EXPLAIN SCIENCE. HOW DID THAT IDEA START?

It all started with my first experience in popularising science as the curator of a Facebook page. On the one hand, as a user, I have always appreciated entertaining content; on the other hand, as an administrator, I realised that this was the most engaging and best content for the growth of the page. Over time, they became my trademark when I continued my "solo" career as a science communicator, as I observed that associating complex and even divisive topics, such as those related to biotechnology, with laughter, or at least a positive feeling, facilitates their assimilation. I also understood that, on the one hand, comedy has its own timing and styles, and on the other, that memes are a real language to be used and valued to convey important messages. Or simple entertainment, because in the end, that is the primary purpose of social media.



# WHAT IS THE BIGGEST MISUNDERSTANDING PEOPLE HAVE ABOUT BIOTECHNOLOGY OR BIOECONOMY?

Although they are closely linked, I get the impression that people consider them to be very disconnected, at least in Italy...and few Italians know what the bioeconomy is. When I explain it, I get the impression that many people automatically associate the topic with environmentalism, which is obviously not a bad thing, but it is certainly limiting. At the European level, I think the primary misunderstanding is the perception that the bioeconomy necessarily wants to eliminate traditional sectors, which are deeply rooted in tradition, and replace them with something that is only apparently green, even though the issue is obviously much more complex. But communicating complexity takes time, presence and a willingness to listen on the other side.



## WHY IS IT IMPORTANT THAT YOUNG PEOPLE — NOT JUST SCIENTISTS — UNDERSTAND CONCEPTS LIKE THE CIRCULAR BIOECONOMY?

It is crucial simply because today's young people will be tomorrow's scientists. But not only scientists, also managers and politicians, so it is essential that children are exposed to the bioeconomy from an early age. This does happen, but it is often not labelled as "bioeconomy", making it more difficult to connect the dots. At the same time, young people are the ones who, more than any other generation, are and will continue to suffer the effects of man-made crises, so their voice is crucial. But they also need to be aware that the bioeconomy can be one of the important tools in mitigating and adapting to these situations.



## What advice would you give to students who want to combine science with creativity or social media?

It may seem trivial, but the first tip is to have fun. After all, social media was created for sharing and entertainment... We need to evolve our thinking and understand that these are very powerful means of communication. The other tip is not to give up after the first few failures, but to keep trying.. Each of us is an influencer in our own circle (both real and virtual), so knowing how to communicate important messages is relevant. I would add that being inventive and thinking outside the box is a good way to stand out and get noticed.

Lá Amuigh

# MARGADH NOLLAG



Scríobh Sinéad, Mary, Noeleen agus Pádraic an t-alt seo. Is scoláirí oideachais iad i Roinn Froebel, Ollscoil Mhá Nuad.

## Margadh Nollag Inbhuanaithe sna Gairdíní Luibheolaíochta

Ag an deireadh seachtaine, thug go leor teaghlach cuairt ar Ghairdíní Luibheolaíochta Náisiúnta Bhaile Átha Cliath. Bhí Margadh Nollag Inbhuanaithe ar siúl ansin Dé Sathairn 13 Nollaig agus Dé Domhnaigh 14 Nollaig 2025. Tháinig daoine ó áiteanna éagsúla chun an margadh a fheiceáil.

Bhí an margadh suite i nGlas Naíon, i measc crann, plandaí agus gloineadán. Ba é aidhm an mhargaidh ná a thaispeáint do dhaoine gur féidir linn an Nollaig a cheiliúradh agus aire a thabhairt don chomhshaol ag an am céanna. Bhí béim ar an mbitheacnamaíocht, áit a n-úsáidtear acmhainní nádúrtha ar bhealach freagrach.



Ar dtús, shiúil na cuairteoirí timpeall an mhargaidh. Dhíol na díoltóirí bronntanais lámhdhéanta. I measc na mbronntanas bhí bréagáin adhmaid, coinnle, gallúnach, málaí, maisiúcháin Nollag agus ealaín. Rinne gnólachtaí beaga Éireannacha formhór na rudaí seo. Bhí go leor bronntanas bithbhunaithe nó athúsáidte ann, ruda léirigh ciorclaíocht, áit a n-úsáidtear ábhair arís in ionad iad a chaitheamh amach. Chabhraigh sé seo le dramhaíl agus plaisteach a laghdú.

Níos déanaí sa lá, bhí córtha ag canadh amhrán Nollag. Bhí atmaisféar álainn ann. Chuaigh roinnt daoine ar shiúlóidí geimhridh timpeall na ngairdíní freisin. D'inis na teoraithe do dhaoine faoi chrainn agus faoi phlandaí agus faoi conas a mhaireann siad sa gheimhreadh.

D'iarr na Gairdíní ar dhaoine siúl, rothaíocht nó bus a úsáid chun teacht chuig an margadh. D'úsáid go leor díoltóirí málaí páipéir. Sheachain siad an plaisteach. Bhí sé seo níos fearr don phláinéad.

Faoi dheireadh an deireadh seachtaine, dúirt go leor teaghlach gur bhain siad an-taitneamh as an margadh. Thaitin na stalláí ildaite agus an dúlra go mór le páistí. Thaispeáin an Margadh Nollag Inbhuanaithe gur féidir Nollaig shona agus inbhuanaithe a bheith againn.



Day Out

# CHRISTMAS MARKET



This piece was written by Sinéad, Mary, Noeleen and Pádraic. All of whom are students of the Froebel Department in Maynooth University.

## Families Enjoyed a Sustainable Christmas Market at the Botanic Gardens

At the weekend, many families visited the National Botanic Gardens in Dublin. A Sustainable Christmas Market took place there on Saturday and Sunday. People came from different places to see the market and to enjoy a nice Christmas day out.

The market was located in Glasnevin, among trees, plants, and glasshouses. The aim of the market was to show people that it is possible to celebrate Christmas while also taking care of the environment at the same time. There was a strong focus on the bioeconomy, where natural resources are used in a responsible way.



At first, visitors walked around the market and looked at the stalls. The stallholders sold handmade and environmentally friendly gifts. Among the gifts were wooden toys, candles, soaps, bags, Christmas decorations, and artwork. Most of these items were made by small Irish businesses. Many of the gifts were bio-based or reused, which showed circularity, where materials are used again instead of being thrown away. This helped to reduce waste and plastic. Later in the day, people stopped to listen to choirs singing Christmas songs. The music created a happy atmosphere at the market. Some people also went on winter walks around the gardens. The guides told people about trees and plants and how they survive during the winter.

The Gardens asked people to walk, cycle, or use the bus to travel to the market. Many stallholders used paper bags or no packaging at all. This was better for the planet.

By the end of the weekend, many families said they really enjoyed the market. Children especially liked the colourful stalls and the natural surroundings. The Sustainable Christmas Market showed that we can have a happy and sustainable Christmas.







# About the BEST Network

## Bioeconomy Education and Sustainability Teachers Network

The BEST Network brings together teachers, educators, researchers and partners who are interested in exploring the bioeconomy and sustainability in Irish and European education.

### Our Mission

The BEST Network aims to:

- support teachers in integrating bioeconomy and sustainability into their teaching,
- share good practice, classroom ideas and resources,
- build links between schools, universities, industry and communities,
- encourage creativity, critical thinking and active citizenship, and
- promote transdisciplinary work across subjects including arts, music, science and social studies.



Follow the BEST Network on LinkedIn!

You can now follow the [BEST Network on LinkedIn](#) for updates, resources, event news and teaching ideas:

We invite all teachers, partners and supporters to follow the page and join the conversation.

### What We Do

Members of the BEST Network collaborate on:

- workshops for teachers,
- classroom and community projects
- share resources and teaching ideas
- research and knowledge exchange
- links to events such as the Bioeconomy Summit.
- share papers such as our submission to the NCCA titled: "Embedding Bioeconomy Education: A Case Study for an Interconnected Curriculum"



### Get Involved

Teachers, educators and partners are welcome to [join the BEST Network](#) to:

- take part in events or projects,
- share resources or ideas,
- connect with others interested in bioeconomy education.



A BEST Network webpage on the BiOrbic website is currently being developed and will include resources, upcoming events and contact information.



# The Beo and Raja Comic Series!

## Catch up on all our adventures below. Just click to download or read online!



### [Finding Beo](#)

[Back to the Future with Beo and Raja](#)

[Answering the Curlew's Call](#)

[Beo, Raja and The Butterfly Effect](#)

[Beo and Raja's BioBus Adventure](#)

[Beo, Raja agus Éifeacht an Fhéileacáin](#)

[Tóraíocht Bheo](#)

[Ar Ais chuig an Am atá le Teacht le Beo agus Raja](#)

[Ag Freastal ar Ghlaio an Chrotaigh](#)

