

Inquiry-based learning in the local environment: curiosity, connection and action for sustainability.



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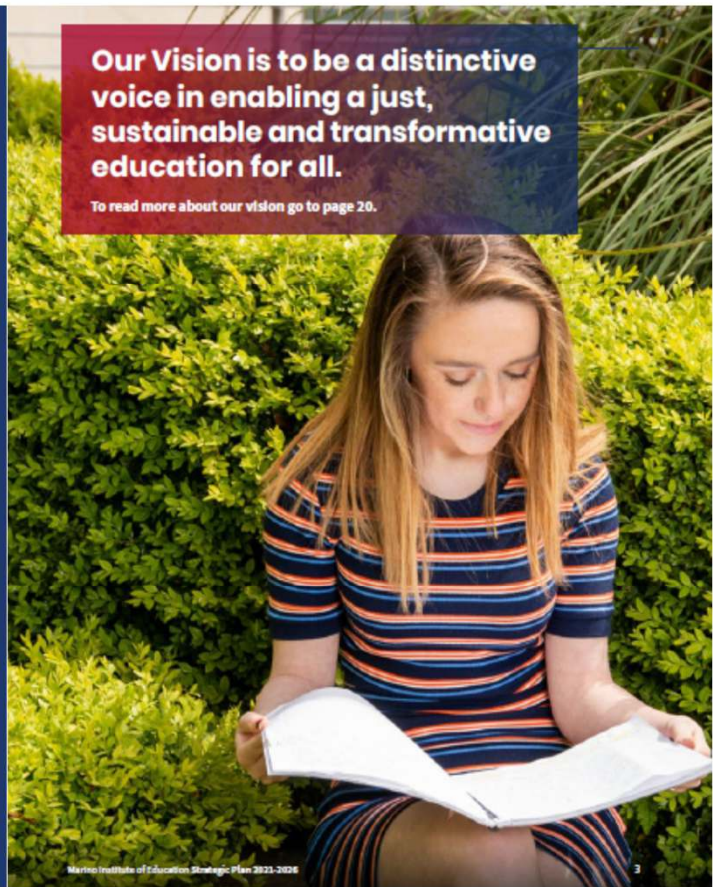
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STRATEGIC PLAN 2021-26

Our Vision is to be a distinctive voice in enabling a just, sustainable and transformative education for all.

To read more about our vision go to page 20.



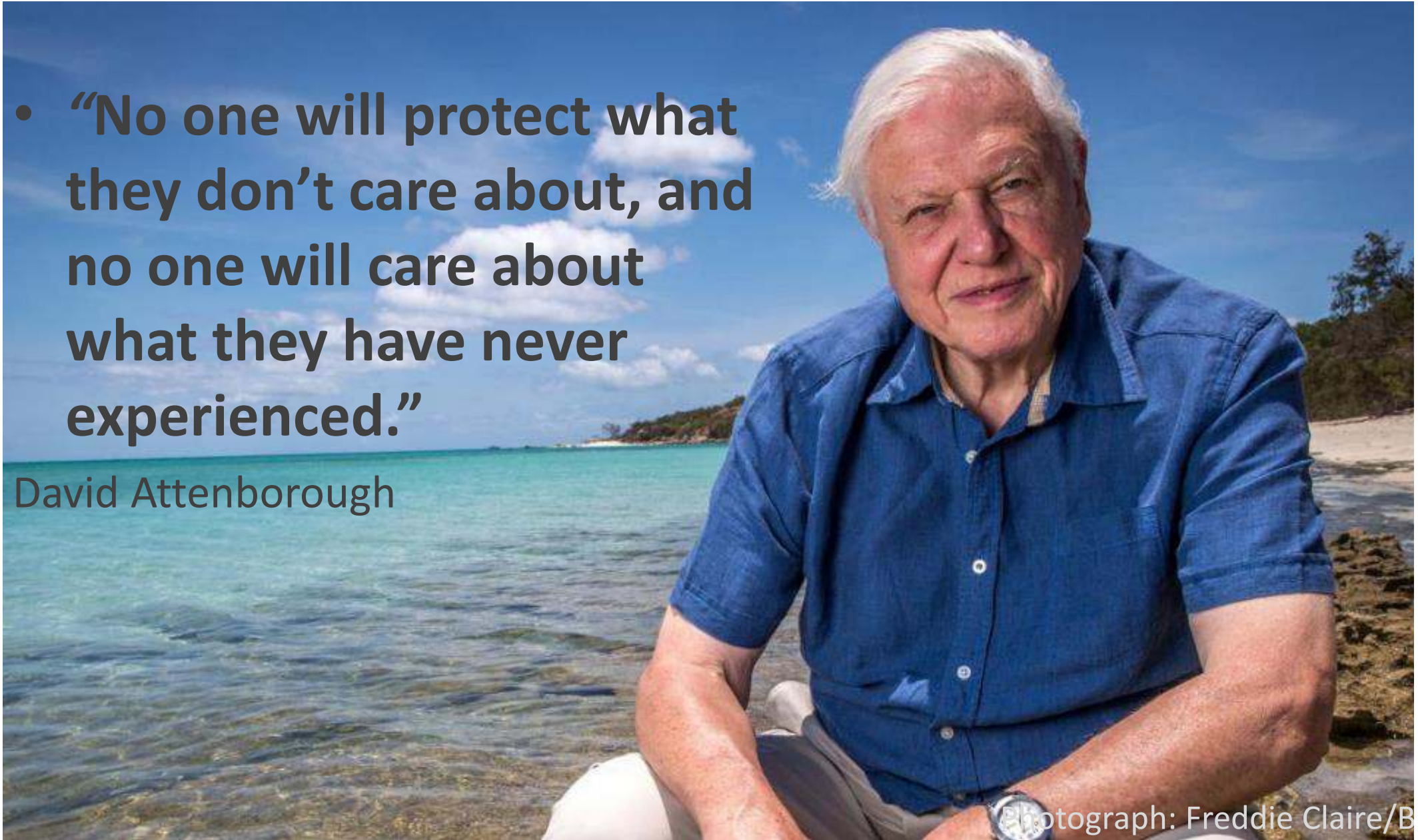
Marino Institute of Education Strategic Plan 2021-2026



Conserving Wonder

- **“No one will protect what they don’t care about, and no one will care about what they have never experienced.”**

David Attenborough



Photograph: Freddie Claire/B

Connection and Empowerment

- We prematurely ask children to deal with problems beyond their understanding and control, teaching them too abstractly, too early. [David Sobel, Beyond Ecophobia, 1996]
- If we want children to flourish, we need to give them time to connect with nature and love the Earth before we ask them to save it.

Place-based and Vernacular Learning



- Embracing messiness
- Everyday encounters
- Connecting with locality
- Intrinsic value to the natural world
- Common Worlds

Inquiry...

.....is understood as the ways in which curious learners actively and seriously engage with the social and physical environment in an effort to make sense of the world, and the consequent reflection on the connections between the experiences encountered and the information gathered, leading to thoughtful action. Such engagement is rigorous but also captures the elements of excitement and wonderment as articulated in the questions of the learners which are addressed through hands-on investigation leading to sometimes tentative answers.

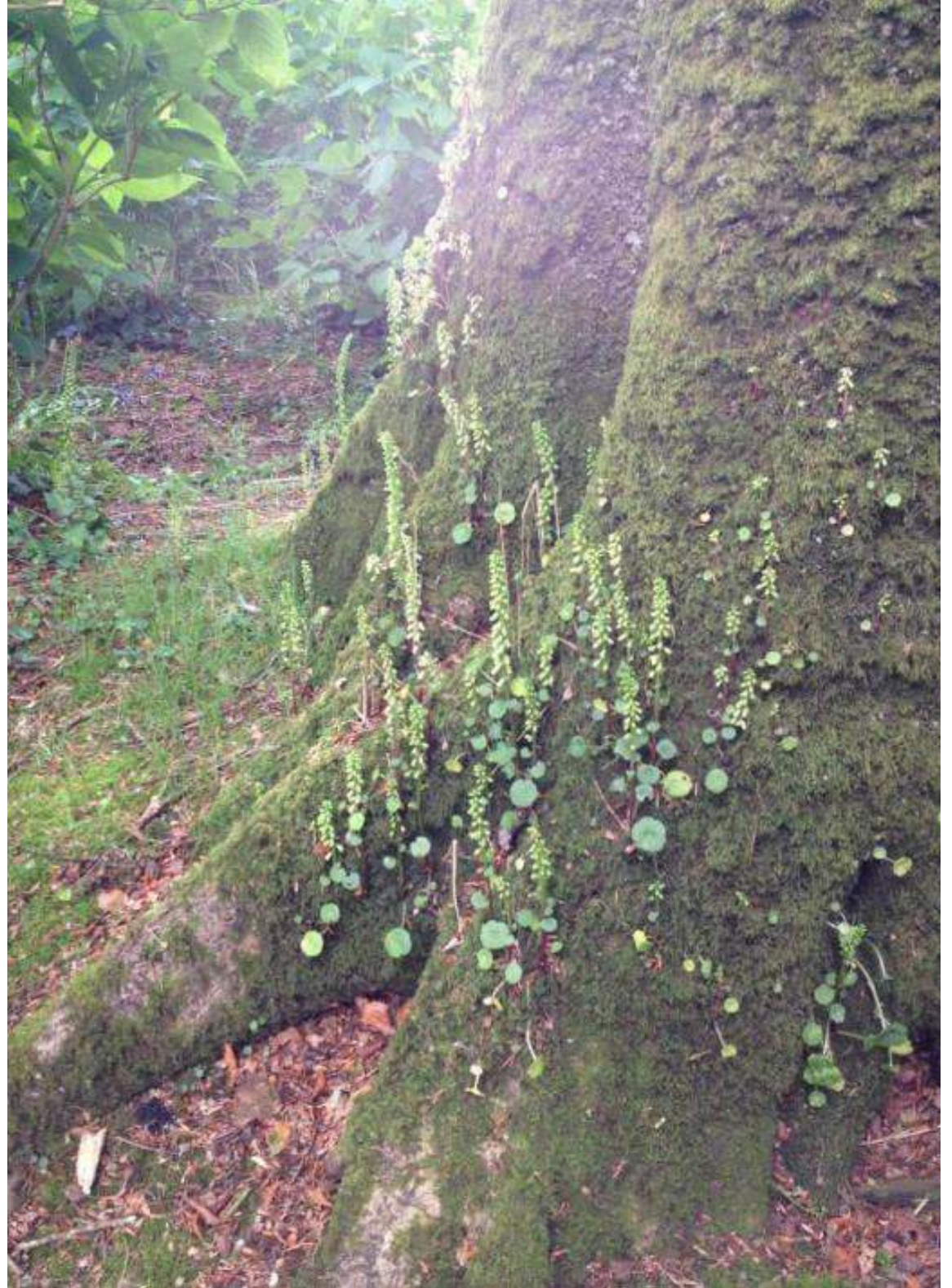


[Short, K., 2009; Murdoch, K., 2015; Pedaste, M et al., 2015]

Welcome to the Imaginarium...



*What do you imagine
these might be?*



Attention to Place



“Seeing”
differently...



Taking Action
Reaching a wider audience,
changing own and others'
ideas, attitudes, behaviour

Tuning In/Connection
Relating to everyday life,
past experiences, current
knowledge and
understanding

**Invitation/Creating a
need to know**
Generating ideas,
speculating, planning,
hypothesising

Inquiry

Reflection/Valuation
Evaluating learning,
identifying new possibilities,
seeking improvement

**Finding
Out/Investigation**
Gathering evidence,
sorting data

Sorting Out/Making Sense
Analysing, interpreting,
describing, comparing,
reaching conclusions

A cycle of inquiry

[adapted from Murdoch (2015), Roberts
and Geographical Association (2003) and
Short (2009)]

Tuning In: Taking a Walk



Inviting: Marino Wonder Wall

padlet

SESE • 1yr

PME1 Our questions about Marino

Made with curiosity

Question 4

Where is the boundary of marino?

Why aren't there more benches?

Are there many cyclists in the area?

Why were there more cars than other forms of transport?

Was there a difference between the traffic from each group?

How do the residents on Grace Park Terrace feel about all the cars taking short cuts down their road?

Who built the houses?

Question 3

Who uses this place? Who lives here?

Are there many young families walking around the area at mid-day on a school day?

Why is Griffith Ave such a busy road?

Why were there so many MALE cyclists?

What bus goes through Marino?

If you did the Traffic Survey for 10 min in the evening, would it be different?

Which shop is the

Question 1

What are the traffic patterns for Marino? What is the traffic like in Marino?

What is the population of Marino?

Could the weekend be just as busy traffic-wise, or is it just exceptionally busy due to the student population?

Is there more traffic going TO or FROM the city centre?

Length of traffic lights? Time? Traffic congestion? Extend time?

Why is the area so busy?

Why are all the deliveries at the same time?

What is the big green used for? Who maintains it?

Does the time of day relate to the age of the people out and about?

Would the traffic be heavier if it was raining?

How many pedestrians passed us on the streets?

Where were all the motor bikes?

Why was the lane system built?

Has the development been beneficial to the area?

When were the different housing estates built?

What is the most common age group that lives in the area?

How many people live in the area?

Is the traffic system the best it can be?

Does it get busier/quieter during different times of the day?

Why were there so many cars on such a small road?

Is the traffic in the area affected by the shops? Is that why it is very heavy?

Why was that section zoned?

Investigating: Streetwork



Making Sense

Streetwork - Personalisation of homes

We noticed more personalisation of homes in Philipsburgh than in Croydon Terrace.

Philipsburgh

Decorative house number in glass over the door.

Dark green front door with a wreath of white flowers.

Mural made of bricks on the front of a house.

Red front door.

Croydon

Front door made of vertical wooden panels.

Shrub on one side of the front wall of a house.

→ We chose not to take pictures of the houses for the purpose of privacy for the homeowners. →



Reflecting

Reflection Stems

« Looking back »

This was a good learning experience because...

My favourite part was...

I enjoyed learning this because...

I could have...
One thing I didn't expect was...

This experiment showed me that I can...

My mistake was...

What surprised me about this was...

From completing this, I now understand...

The pattern shown suggests...

What I knew before this was...

I enjoyed this investigation because...

Before this, I did not know that...

During this investigation, I learned that...

The easiest part was...

The hardest part was...

I have proved that...

Doing this work made me wonder about...

I forgot to...

The importance of learning this is...

This is good for me to know because...

Having carried out this investigation, I realise that...

This was a good thing to learn because...

Reflection Stems

« Looking forward »

This has inspired me to look into...

If I want to get better at this, I have to...

To improve my understanding of this, I will...

I needed to understand this because...

If I was doing this again, I would change...

Having done this work, it will help me...

From making this mistake, I will change...

In the future, I will make sure...

The one thing I would improve on if I was doing this again...

To get better at this, I need to...

The importance of knowing this is...

I need to practice this to...

Having done this topic, I need to...

The one thing I would like to learn more about is...

I will work harder on...

What would be helpful in the future...

Next time, I will investigate more variables

I think my results were really good because...

To understand this, I need to...

I wonder...

I want to find out why... happened so that I can...

Transformation: inquiry leading to thoughtful action

“I have already made a personal commitment to get the children outdoors much more regularly.”



Photograph: A. Nolan

Participation

Social
Solidarity

Modelling

Questioning

Challenging



Den-building while building a community of inquiry

A reservoir of ideas

Using Inquiry based learning to deepen pupils' learning

Inquiry based learning (IBL) is a dynamic and emergent process that builds on pupils' natural curiosity about the world in which they live. As its name suggests, IBL places pupils' questions and ideas, rather than solely those of the teacher, at the centre of the learning experience. Pupils' questions drive the learning process forward. At its best, inquiry sees children playing, building, researching, and designing investigations that test their current understandings.

Alan's story

In January 2020, as part of my MES research, I began planning an inquiry in the school's local environment that would explore the impact of IBL on the motivation and engagement of young learners. I was inspired by an article by Anthony Barlow called *Geography and history in the local area*, where he discussed using local geography as a lens for learning about the wider world. Barlow argues that, while the geography curriculum calls for an understanding of faraway places, deep and meaningful connections can only be made through understanding local geography.

While IBL is often child-led and rooted in pupils' natural curiosity and their

Alan Bedford tells his story of venturing outside with his class and seriously engaging with the local environment. This inquiry is particularly timely and relevant, as during the COVID pandemic many of us gained a deeper appreciation for the beauty that is on our doorsteps. The children at the centre of the story, through the inquiry process, gain the confidence and sense of empowerment to take greater ownership of their learning.

connections to the world, this doesn't negate the need for a clear plan and objectives. Having identified water as a central theme, I had to decide on the main focus of the inquiry. Essentially, the big idea was 'water plays a crucial role in the local environment'. The great thing about IBL is that it is trans-disciplinary in nature, allowing us the freedom as a class to really devote a good amount of time to an in-depth study, confident that we would be meeting many curriculum objectives.

The first part of call in our inquiry was a visit to a local angling club at Ashdown Lake reservoir, the former water supply for Wicklow Town. The reservoir is off the beaten track, a gem for local fishing enthusiasts and dog walkers. This initial

visit was planned as the catalyst for the children's inquiry, allowing them the freedom to find an area of study they were curious about.

During the visit, the children were guided around the reservoir. It was amazing to see the children's natural curiosity as we journeyed around the lake. I was really able to step back and oversee the learning that was taking place without me saying anything! The children enjoyed hearing about different ecological initiatives at the reservoir, and examining buckets of water taken from the reservoir for different water bugs. One of the children had particular knowledge of the creatures and was able to describe them in detail.

Back in class, we then discussed key

areas of interest so that they could break into research groups. The class decided upon the following lines of inquiry:

- The reservoir was home to a famous local Olympian, Peter O'Connor, whose father was the gatekeeper.
- How the mechanics of the reservoir functioned.
- The biodiversity of the reservoir – water and plant life.
- Tracking the stream from the reservoir to the sea (parts are hidden underground).
- Eco-friendly initiatives such as a solar pump and lighting, and a purposely untouched wooded area.
- The human impact – litter and pollution at the reservoir and along the stream.

In early March, with COVID closures looming, we embarked on a second field-trip to track the course of the stream for our inquiry. This proved to be our last whole-class excursion because of the closures, and had this been a teacher-led project, progress might then have halted completely. However, the children were now deeply engaged with the 'big ideas' and lines of inquiry, and my role continued more as facilitator of the children's learning. We used apps (Flipgrid, Book Creator and Seesaw) to help communicate ideas and wonderings and document learning. With the help of technology, the children continued their inquiries from home, allowing parents to experience their children's learning in a hands-on way. Some also embarked on their own field-trips to local streams.

It was amazing to see the children's natural curiosity as we journeyed around the lake

IBL allowed the children to take ownership of their own learning. Interviews with parents and children highlighted how this kind of learning was more collaborative, meaningful and led to a deeper level of engagement and understanding. One child shared with me, "It was interesting, because it was more fun than just walking by a stream. We actually got to work there." This child had written pages about the different creatures he had found in the stream, some of the best work he had ever done. In a picture sent by his parent you can see him deeply engaged in his work. Similar to Barlow's study, I think that part of the reason why the children were so engaged in this inquiry was that we were exploring their own local area. They know the area well, they live in the locality and so have deeper connections to it than somewhere faraway. Curricular strands such as environmental awareness and care, living things or continuity and change were addressed naturally because the children had a close sense of connection with their local environment. It was fantastic to be able to participate in their journey, facilitated by technology, although we did miss the opportunity to share and discuss investigations in person.

There is a certain irony that we mostly spend our five hours and 40 minutes a day teaching about the wider world, its



Children observe the water creatures using a guide from Inland Fisheries Ireland.



A student engages in his own stream inquiry.

wonder, complexities and constantly evolving nature, from within the confines of an indoor classroom. What IBL has shown me is that enabling the children to steer their own course and getting outside to engage with the world we are teaching about, creates a more meaningful, deeper, concept-driven educational experience for all.

Advice I would give to teachers thinking of embarking on an outdoor inquiry: just do it! The benefits are enormous and classroom issues such as behaviour or difficulty maintaining focus seem to completely dissipate. You don't need loads of green space or access to water. As Zanobia Barlow says "You don't need to be in the wild to use the environment for learning. Life is erupting everywhere. Woods grow out of cracks in the cement."

ALAN BEDFORD, Wicklow Educate Together, completed his MES in 2020. DR KARIN BACON is a lecturer in the areas of science and social studies education at the Marine Institute of Education, where she co-ordinates the Masters Programme on Inquiry Based Learning. Further information on the programme can be found at www.mie.ie/ee/study_with_us/



Hopeful Futures



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References

Austin, S. (2021). Education about, through and for the environment: A scientific inquiry approach. In A. M. Kavanagh, F. Waldron & B. Mallon (Eds.), *Teaching for social justice and sustainable development across the primary curriculum*. Oxford, UK: Routledge.

Austin, S. (2020). Inquiry about and being with the natural world in education for sustainable development. *Constructivist Foundations*, 16(1), 024-026.

Short, K. (2009). Inquiry as a stance on curriculum. In S. Davidson, & S. Carber (Eds.), *Taking the PYP forward*. (pp. 9-26). Woodbridge: John Catt Educational Ltd Glasgow.

Murdoch, K. (2015). *The power of inquiry: Teaching and learning with curiosity, creativity and purpose in the contemporary classroom*. Northcote, Australia: Seastar Education.

Pedaste, M et al (2015) Phases of inquiry-based learning: Definitions and the Inquiry Cycle. *Educational Research Review*. 14, 47-61.

Boxley, S., Clarke, H., Witt, S., & Dewey, V. (2015). Talking with trolls: A creative and critical engagement with nature-naivety. In K. Winograd (Ed.), *Critical literacies and young learners: Connecting classroom practice to the common core*. (pp. 70-85). Oxford: Routledge.

Gruenewald, D. A. (2008). The best of both worlds: A critical pedagogy of place. *Environmental Education Research*, 14(3), 308.

Kingsnorth, P. (2012) Confessions of a recovering environmentalist. *Orion Magazine*, Jan/Feb

Selby, D. (2017). Education for sustainable development, nature and vernacular learning. *CEPS Journal*, 7(1), 9-27.

Payne, P.G., Wattchow, B. (2008) Slow pedagogy and placing education in post-traditional outdoor education. *Journal of Outdoor and Environmental Education* 12, 25–38.