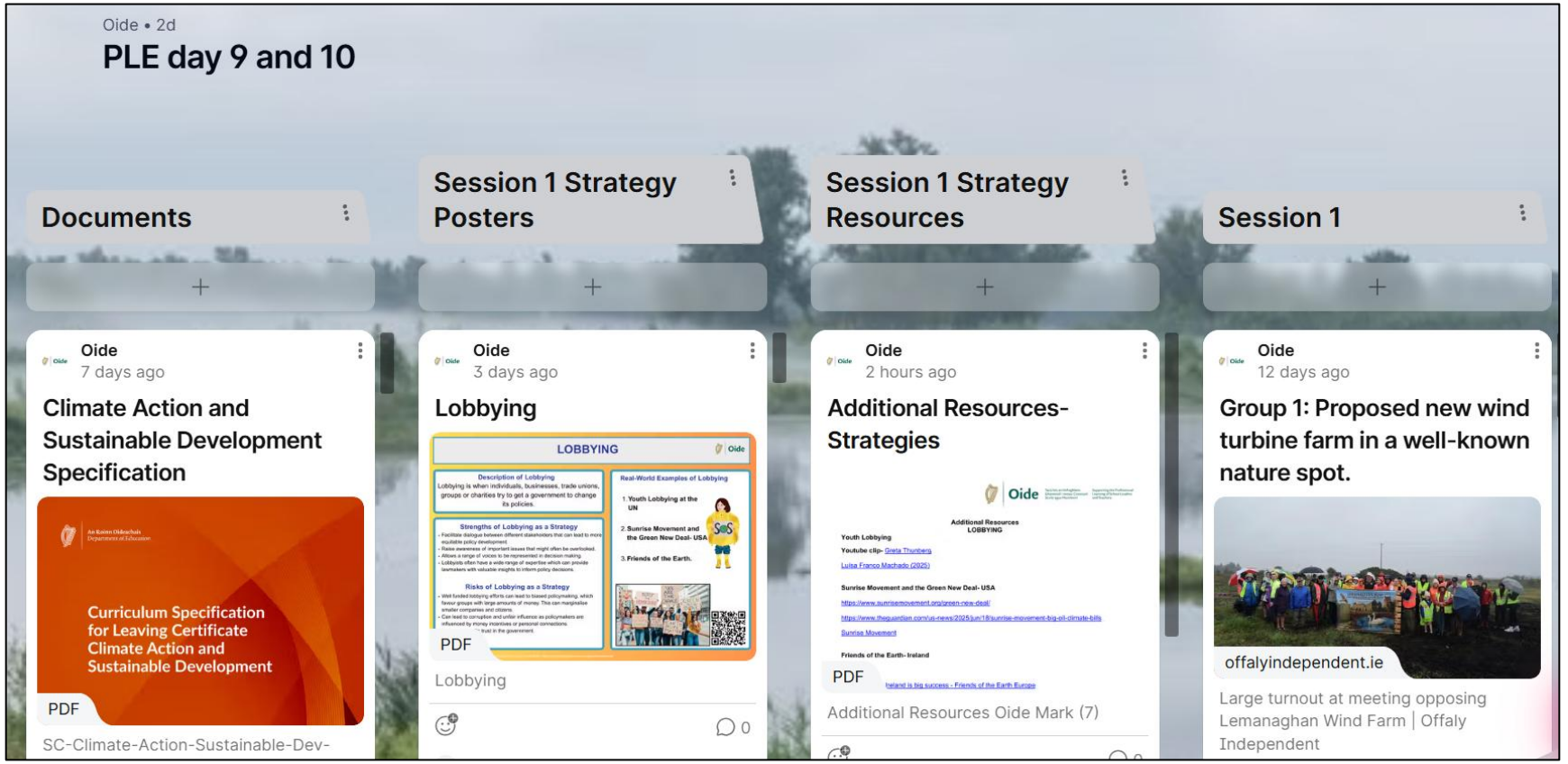
Planning and Action in Climate Action and Sustainable Development

PLE 10



Padlet PLE Day 9 and 10



https://tinyurl.com/2hrxhjem

Oide

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Supporting the Professional Learning of School Leaders and Teachers

Session 4

Local Ecosystems

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The focus of our day

- **Explain how ecosystems and human wellbeing are interdependent**
- **Survey an ecosystem and propose ways to protect or improve it**
- Plan an ecological survey of an ecosystem that can be found in your locality
- Review current plans and continue to develop a two-year roadmap which addresses all learning outcomes

Learning Outcome 1.9

Students learn about	Students should be able to

• how healthy ecosystems are interdependent with:
  • protection from climate change impacts
  • livelihood
  • health and leisure
  • aesthetic value
  • culture
  • realisation of human rights, etc.
	9. describe how a chosen local ecosystem and human wellbeing are interdependent

Describe	develop a detailed picture or image of, for example a structure or a process, using words or diagrams where appropriate; produce a plan, simulation or model

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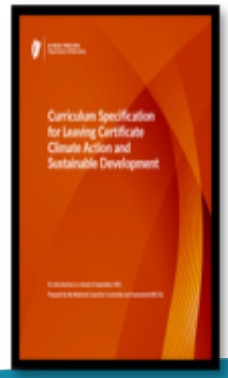


How might people benefit from this type of place?



What is an ecosystem?

- An ecosystem is a community of plants, animals and micro-organisms that live, feed, reproduce and interact together in the same area or environment.

- The biotic (living) parts of the ecosystem such as flora and fauna have a complex relationship with the abiotic (non-living) components such as soil, water and climate - changing one will lead to a change in the other.

Other examples of ecosystems



Source: Hugh Venables



Source: Mike Quinn

Healthy Ecosystems and Human Wellbeing

Oide

Livelihood

List and describe 5 ways people can earn money because of the park.

Health & Leisure

Explain how the park improves both physical and mental health.

Realisation of Human Rights, etc.

Discuss: Is access to green space a basic right? Why?

Consider the Universal Declaration of Human Rights and Universal Convention of the Rights of the Child during your discussion.

Protection from Climate Change

Create a simple labelled diagram showing how the park helps to reduce climate impacts.

Aesthetic Value

Describe (and annotate with symbols) how a green space makes a city more attractive.

Culture

Give examples of how the park has been/can be used for cultural activities.



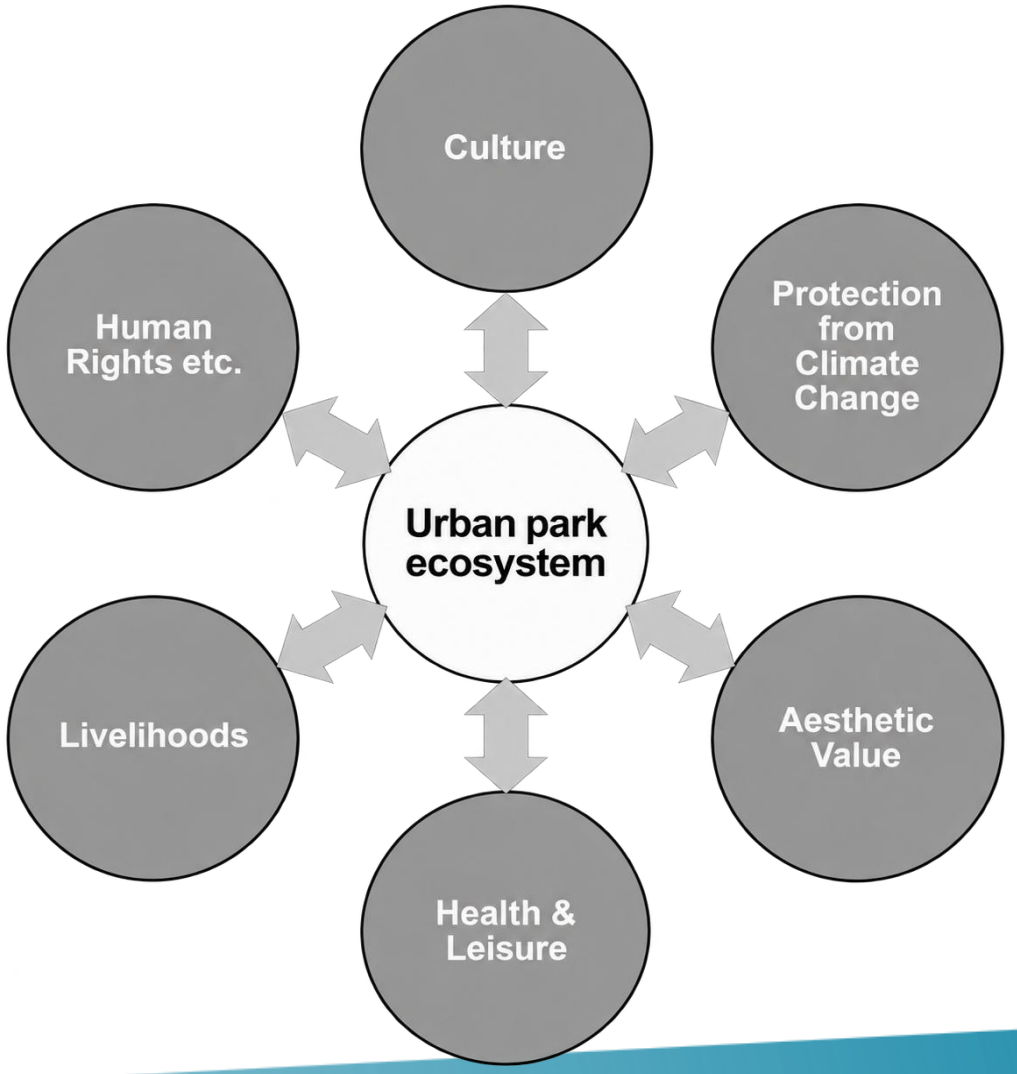
Urban greenspace ecosystem





The Phoenix Park

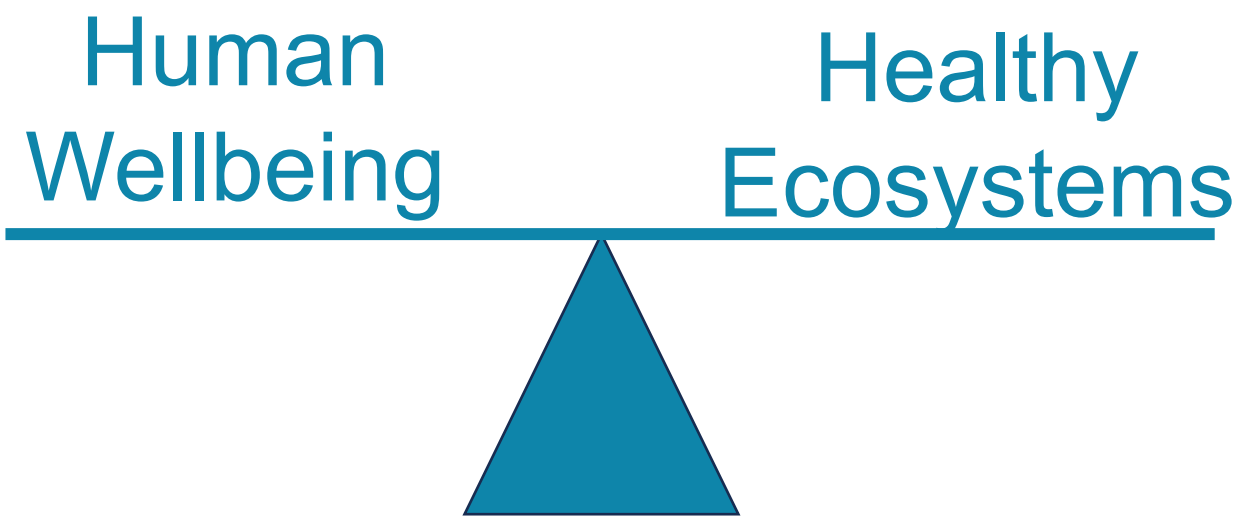
The interdependence of human wellbeing and this ecosystem







The interdependent nature of human wellbeing and healthy ecosystems



Learning Outcome 1.10

Students learn about	Students should be able to

• the impact of an environmental factor on at least one of the following in a local ecosystem:
  ◦ air ◦ water
  ◦ soil ◦ biodiversity
• ecological surveys – gathering qualitative and quantitative data
	10. investigate the impact of an environmental factor on a chosen local ecosystem, gather and use primary data to support conclusions
	11. outline actions to protect or improve the chosen local ecosystem

Investigate	observe, study, or make a detailed and systematic examination, in order to establish facts and reach new conclusions

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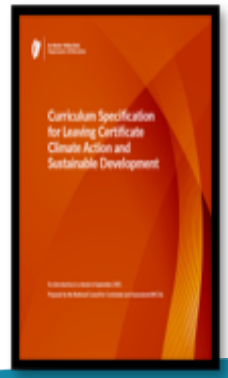


Environmental factors

Environmental factors are the conditions that influence how ecosystems function.

Here are some examples:

- Temperature
- Wind
- Aspect
- Human activity
- Humidity
- Rainfall
- Light intensity
- Soil pH
- Soil type

Gathering Primary Data

Group 1	• Impact of human activity on biodiversity
Group 2	• Impact of light intensity on soil

The impact of human activity on biodiversity

Primary Data Collection

Qualitative Data:

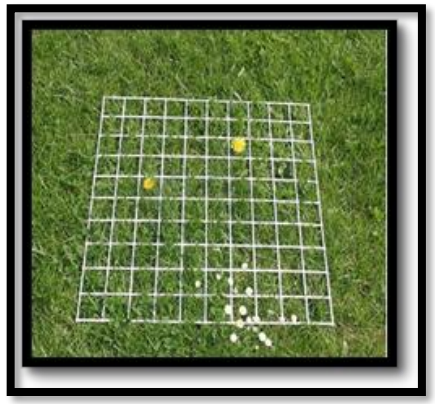
Observations re: litter/human activity

Frequency of species

Quantitative Data:

Number of named organisms

Percentage cover of an organism



The impact of light intensity on soil

Primary Data Collection

Qualitative Data:

Description of organic matter of soil

Quantitative Data:

Light intensity using light metre

Soil moisture content

Soil temperature (thermometer)



What is your Research Question?

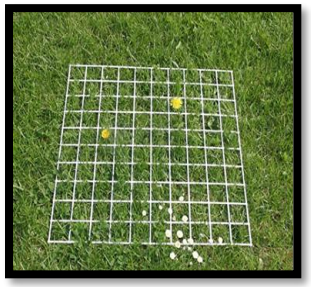
What is your hypothesis?



What do you aim to find out?

Time to practise







Oide

Data collection sheet

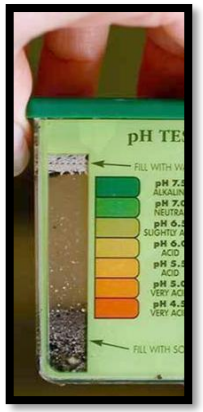
Ecosystem:

Location:

Date:

Site map/sketch (showing location of data collection points):

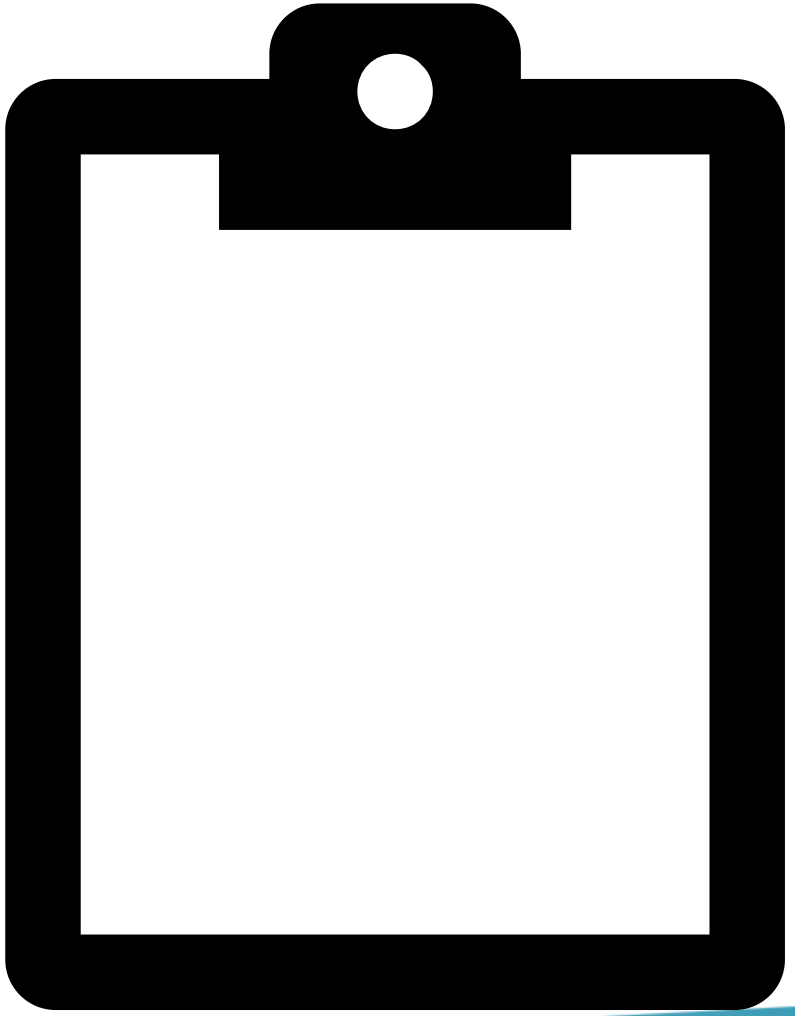
[Video of equipment]







Survey Time









Data Presentation

Not all graphs are suitable for all types of data.

Before presenting your data, you may wish to consider:

- What graphical representation of data will best support my hypotheses?
- What will show my data in a way that is both clear and concise?
- Will my graph allow for effectively identifying possible explanations or trends?

WHAT DO I WANT TO SHOW?	USUALLY CHOOSE...
1 Change over time	Line graph
2 Compare categories or locations	Bar / column graph
3 Compare several variables across categories	Grouped bar graph
4 Percentages or parts of a whole	Pie chart
5 Relationship between two variables	Scatter graph
6 Spatial / geographical distribution	Map

Data Analysis and Discussion

- What trends, if any, are displayed from the data in relation to the aim of the study?
- What are the overall findings of the investigation in relation to aim of the study?
- Do the results align or conflict with expectations?
- How might the results differ if investigated at a different time of year?





Oide



Coffee Break

Evaluation of the process

- What strengths or weaknesses can be identified?
- What factors may have influenced the reliability of the results and conclusions?
- Are there any ways the ecology survey could be improved?
- How might the ecology survey be extended to allow for a deeper level of understanding?



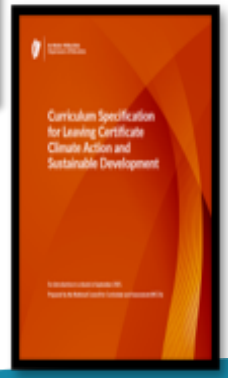
Learning Outcome 1.11

Students learn about	Students should be able to

• the impact of an environmental factor on at least one of the following in a local ecosystem:
  ◦ air
  ◦ water
  ◦ soil
  ◦ biodiversity
• ecological surveys – gathering qualitative and quantitative data
	10. investigate the impact of an environmental factor on a chosen local ecosystem, gather and use primary data to support conclusions
	11. outline actions to protect or improve the chosen local ecosystem

Outline give the main points; restrict to essentials

P.15



Actions to protect or improve this local ecosystem

Think back to the conclusions that were drawn after the ecological survey.

- Did the findings indicate any issues that may affect the local ecosystem?

- If so, what actions could be taken to improve or protect this urban greenspace?





Pressures on this local ecosystem

- List potential pressures on this local ecosystem.
- For each one, state which part(s) of the local ecosystem would be affected.





Actions to protect/improve the local ecosystem

- Explore three potential actions that could be implemented to protect/improve the local ecosystem.
- Identify who could be responsible for these actions.
- Which action is the most likely to be effective? Why?





Interconnections between nature and political, economic and sociocultural systems

What effects of human activities did we observe today that might positively or negatively affect biodiversity here?

Identify **one finding from the ecological survey** and link it to:

- a political factor
- an economic factor
- a sociocultural factor

ALT 3 LO 3

P. 24

Students learn about	Students should be able to
• using evidence to inform audiences on the interconnections between nature and political, economic and sociocultural systems	3. organise and communicate their research and investigative findings in appropriate ways fit for purpose and audience, using relevant terminology and representations

Oide

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Supporting the Professional Learning of School Leaders and Teachers

Session 5

Planning for an Ecological Survey

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The focus of our day

- Explain how ecosystems and human wellbeing are interdependent.
- Survey an ecosystem and propose ways to protect or improve it.
- **Plan an ecological survey of an ecosystem that can be found in your locality**
- Review current plans and continue to develop a two-year roadmap which addresses all learning outcomes

Learning Outcomes from Strand 1

Students learn about	Students should be able to

• how healthy ecosystems are interdependent with:
  • protection from climate change impacts
  • livelihood
  • health and leisure
  • aesthetic value
  • culture
  • realisation of human rights, etc.
	9. describe how a chosen local ecosystem and human wellbeing are interdependent

• the impact of an environmental factor on at least one of the following in a local ecosystem:
  • air
  • soil
  • water
  • biodiversity
• ecological surveys – gathering qualitative and quantitative data
	10. investigate the impact of an environmental factor on a chosen local ecosystem, gather and use primary data to support conclusions
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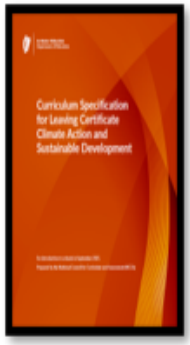

Assessment

- What do students need to know and be able to do to achieve the learning in LO1.10?
- How would you co-create success criteria with students for this learning outcome?
- What evidence of learning would you gather to show the students have achieved the learning?

Planning your ecological survey

Oide

Ecology Survey

Our local ecosystem:

Research Question(s):

Environmental factor(s) that we will investigate:

We will investigate the impact on (please circle):

Air Water Soil Biodiversity

Quantitative data:

Primary data to be gathered | Data Collection Methods

The learning space

Students can be supported in realising the learning outcomes of this specification through appropriate classroom and place-based experiences where they have opportunities to:

- take informed action both as individuals and in small groups, maximising the development of competencies necessary for effective action
- experience a holistic approach which considers students' emotions, thinking, and life experiences
- engage in democratic citizenship, involving critical reflection, democratic participation and informed action
- build a sense of belonging and connection to place, nature, and community
- build resilience in themselves and encourage resilience amongst their peers.

The variety of activities that students engage in will enable them to take charge of their own learning by setting goals, developing action plans, and receiving and responding to assessment feedback. Students vary in the amount and type of support they need to be successful. Levels of demand in any learning activity will differ as students bring different ideas and levels of understanding to it. The use of strategies such as adjusting the degree of competency required, varying the amount and the nature of teacher intervention, and varying the pace and sequence of learning promotes inclusivity. As well as varied teaching strategies, varied assessment strategies will support learning and provide information that can be used as feedback so that teaching and learning activities can be modified in ways that best suit individual students. By setting appropriate and engaging tasks, asking questions of varying cognitive demand and giving feedback that promotes learner autonomy, assessment will support learning as well as summarising achievement.

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Examples of ecosystems that can be found in Ireland

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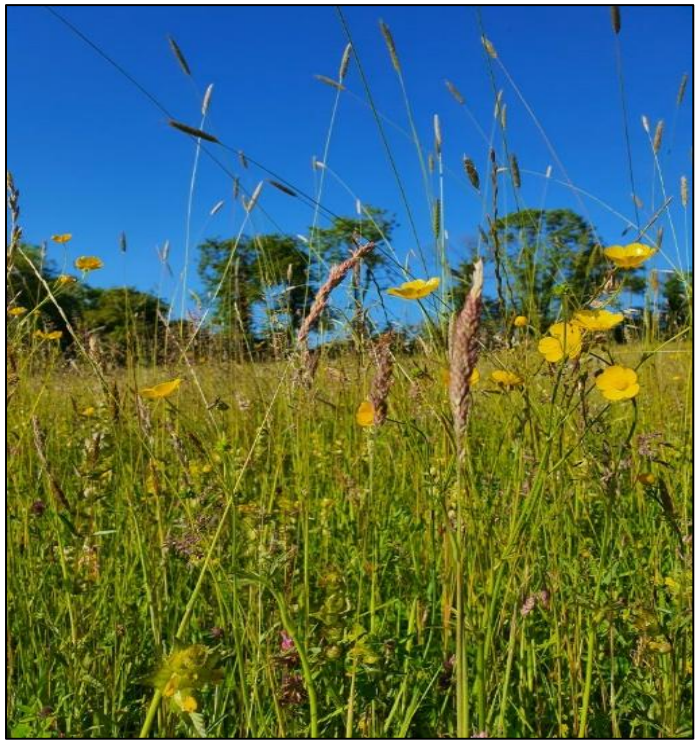
Grassland



Hedgerow

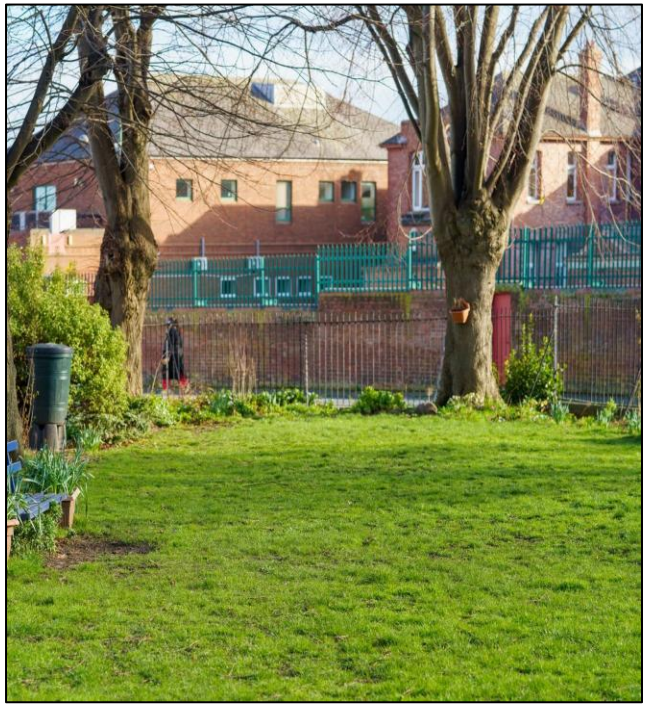


Woodland



Examples of ecosystems

Urban green spaces

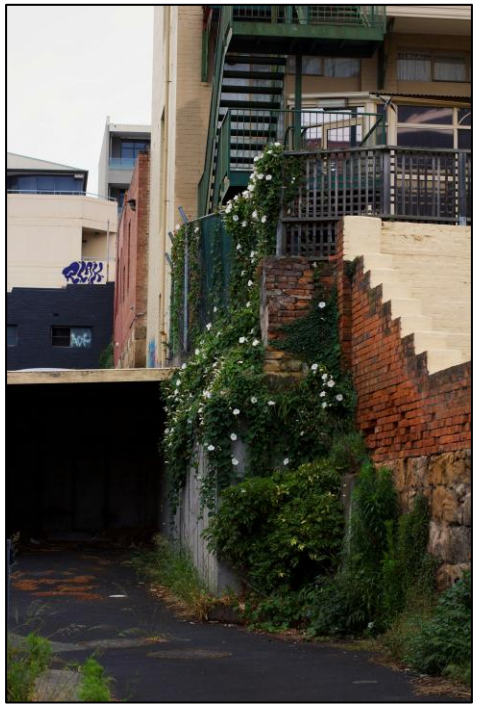


Source: William Murphy

Micro ecosystems

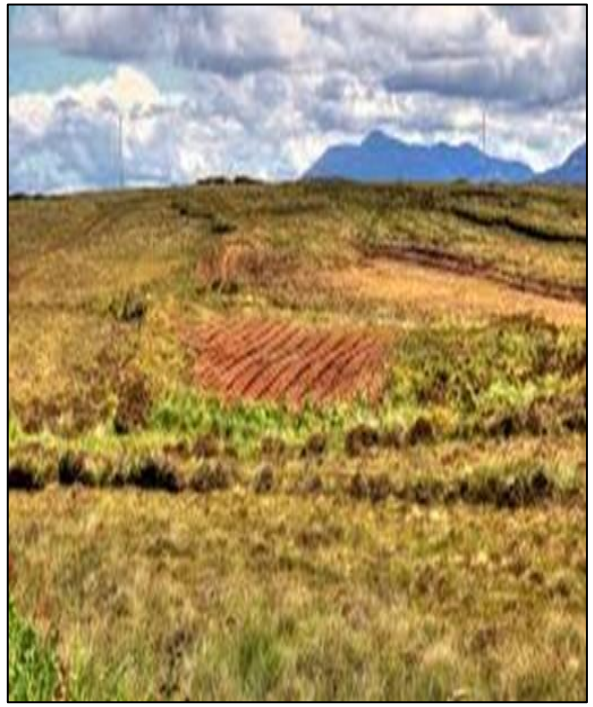


Source: rte.ie



Source:K8 on Unsplash

Peatlands/bog



Examples of ecosystems

Oide

Marsh or fens



River



Lake



Pond



Source: Nigel Cox

Examples of ecosystems

Oide

Sandy beach



Source: David Dixon

Estuary



Source: Jonjobaker

Rocky shore



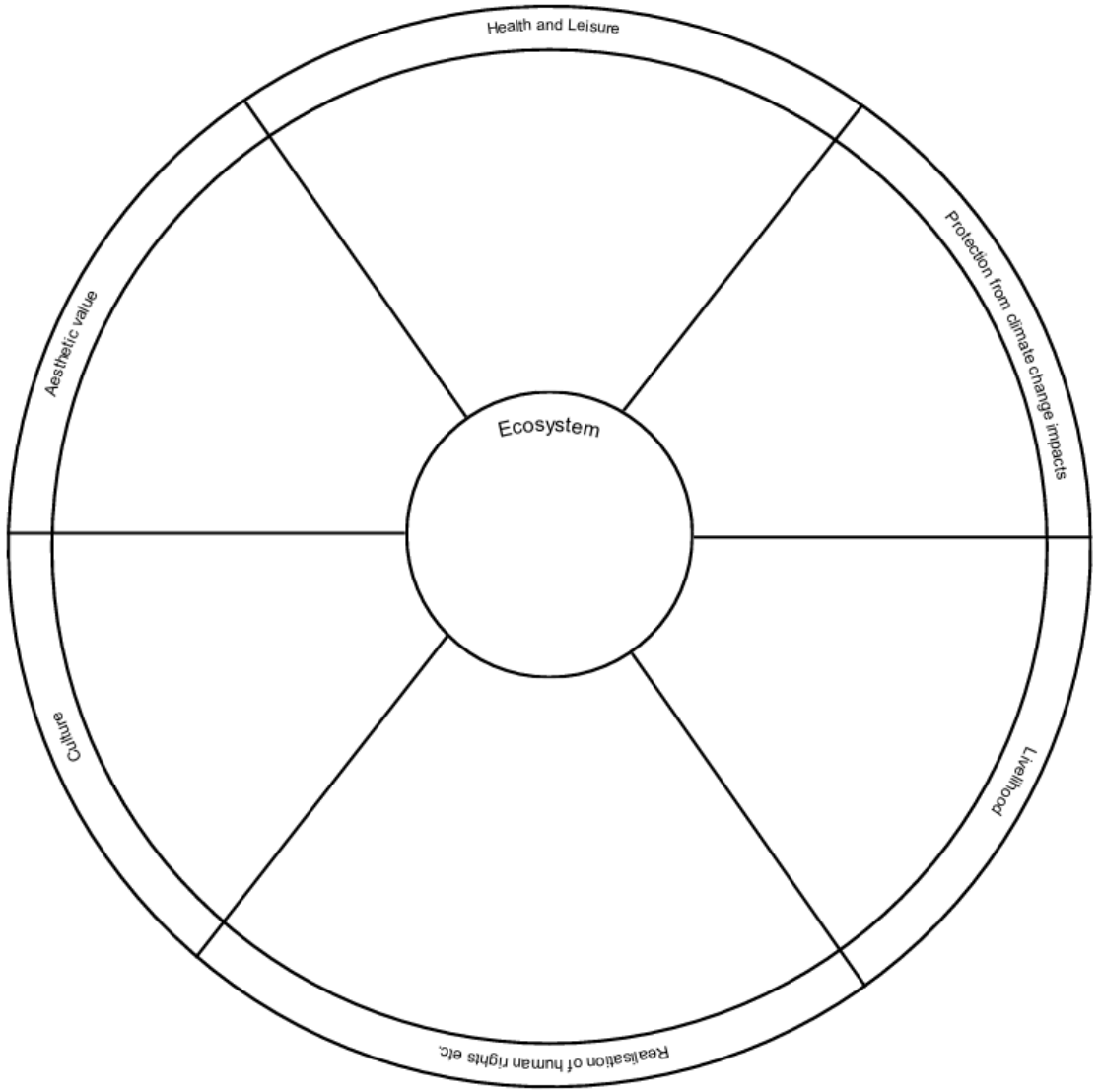
Source: Alastair Seagroatt

Your chosen ecosystem and human wellbeing

LO 1.9

P.15









What is your research question?

- What do you want to find out by undertaking the ecology survey?



Consider your hypothesis

- What do you expect?

Planning your ecological survey
L0 1.10

Oide

Which environmental factors impact your chosen ecosystem?

Some examples of environmental factors:

- Parasites
- Competition
- Predators
- Humidity
- Temperatures
- Light intensity
- Aspect
- Human activity
- Soil type
- Soil pH
- Rainfall
- Wind
- Currents
- Salinity (salt content)
- Oxygen concentration
- Humus content (organic matter)



Which one(s) will you investigate?

Where will you focus your investigation?

Oide

Consider the impact of your chosen environmental factor on your ecosystem?

- Air
- Water
- Soil
- Biodiversity

Choose at least one to investigate.



Gathering Primary Data

Qualitative primary data

- What qualitative data will your students gather?
- What methods will they use to gather the data?

Quantitative primary data

- What quantitative data will your students gather?
- What methods will they use to gather the data?





Sampling methods

- Why is sampling necessary?
- What are some different sampling methods?
- Which method(s) might suit your data collection?

Consider sample size to ensure data is representative of the total population.

Equipment for gathering data



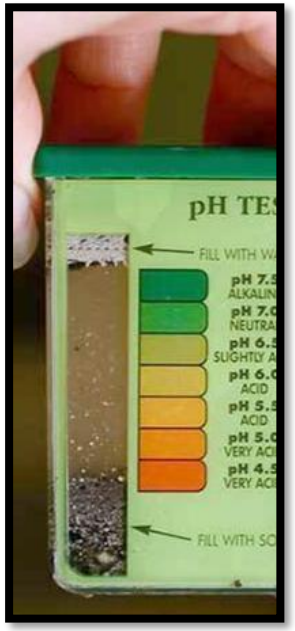
Soil moisture probe



Soil auger



Thermometer



pH indicator

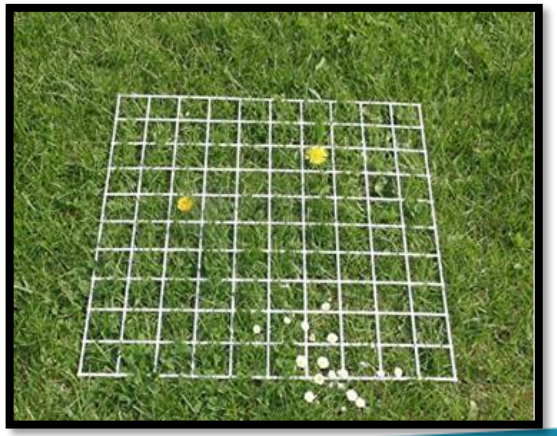


Quadrat



Light metre

Grid quadrat



How will your students gather data?

Oide

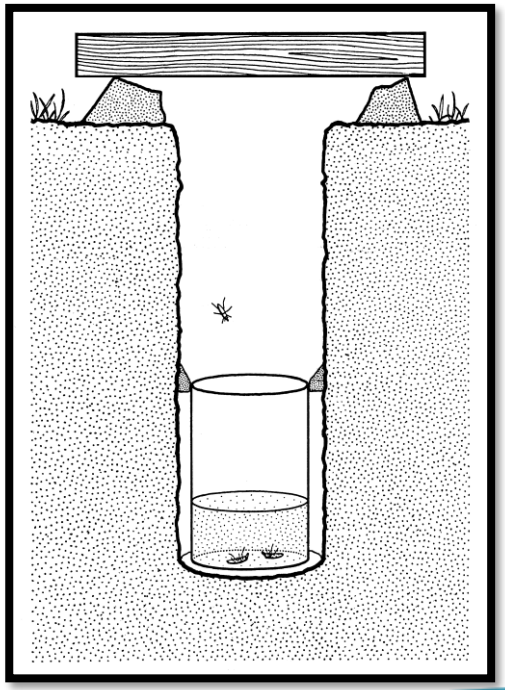
Anemometer



Nitrate and phosphate indicators



Pitfall trap





Sweep net

Safety Considerations

What do you need to consider in relation to health and safety, before undertaking your ecological survey?

- School policies (e.g. consent forms, pre-site visit, risk analysis, staff/student ratio)
- Access to the site
- Appropriate protective clothing e.g. plastic gloves, raincoat
- First Aid Kit
- Use of equipment.



Reflection

What impact would a similar experience in students' own locality have on their engagement and their connection to place and nature?



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Supporting the Professional Learning of School Leaders and Teachers

Session 6

Planning

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The focus of our day

- Explain how ecosystems and human wellbeing are interdependent
- Survey an ecosystem and propose ways to protect or improve it
- Plan an ecological survey of an ecosystem that can be found in your locality
- **Review current plans and continue to develop a two-year roadmap which addresses all learning outcomes.**

Student Experiences of CASD

In what ways are the aims and rationale realised through student experiences of Climate Action and Sustainable Development?

"Spending time in nature made me think about how beautiful and special nature really is and how day by day we are choosing to ruin it with our own actions. Nature is home to many animals and insects and every year we are killing it more."



CASD students from Coláiste Ghlór na Mara, Balbriggan

Student Experiences of CASD

In what ways are the aims and rationale realised through student experiences of Climate Action and Sustainable Development?

"An environmental challenge we explored this year was over consumption. Overconsumption is a big problem in today's world as people don't appreciate items they've bought nowadays and use items slightly before moving on to the next new trend."



CASD students from Coláiste Ghlór na Mara, Balbriggan

Student Experiences of CASD

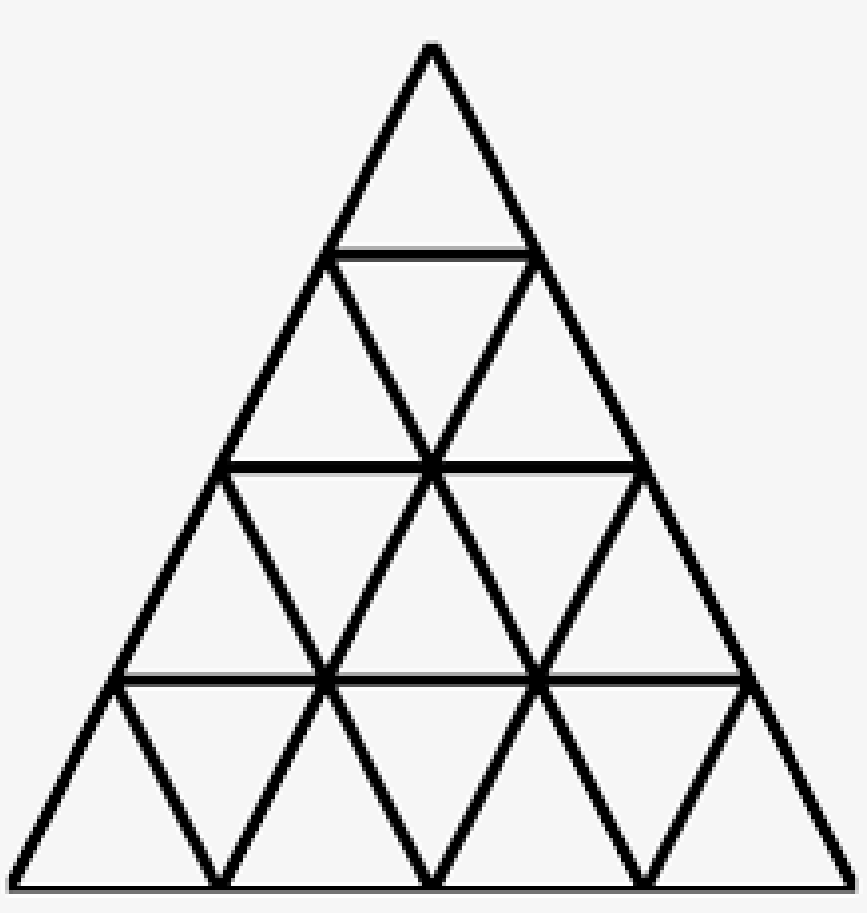
In what ways are the aims and rationale realised through student experiences of Climate Action and Sustainable Development?

"Something that has surprised me about CASD is the amount of knowledge you learn about real life daily occurrences of the world and how exactly we are damaging the planet but also teaching us real life useful information we can use outside of the classroom to secure a healthy future."



CASD students from Coláiste Ghlór na Mara, Balbriggan

Refocus on Key Terms



- Complete the puzzle by matching the key term to the definition.
- The completed puzzle should form a triangle shape.



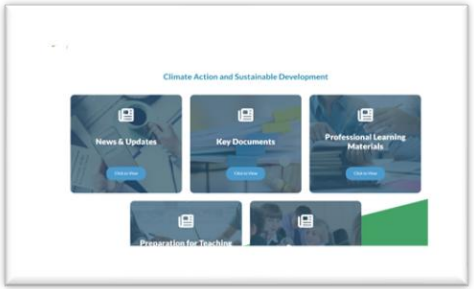


Planning in Previous PLEs

PLE 2: Create a learner experience on Climate Justice

PLE 3: Planning a Unit of Learning

PLE 4: Planning for Term 1



PLE 5: Planning for Term 2

Roadmap Review and Continued Planning

1. What learning outcomes have your students engaged with in Year 1?
2. What learning outcomes will your students engage with in Year 2?
3. When have you engaged with the ALT learning outcomes?

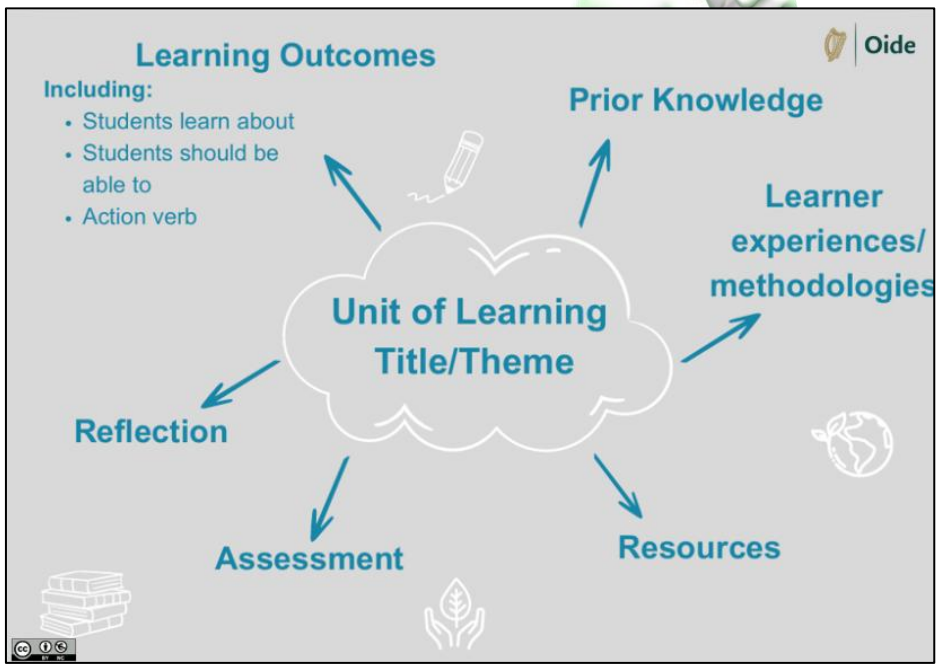
Reflection

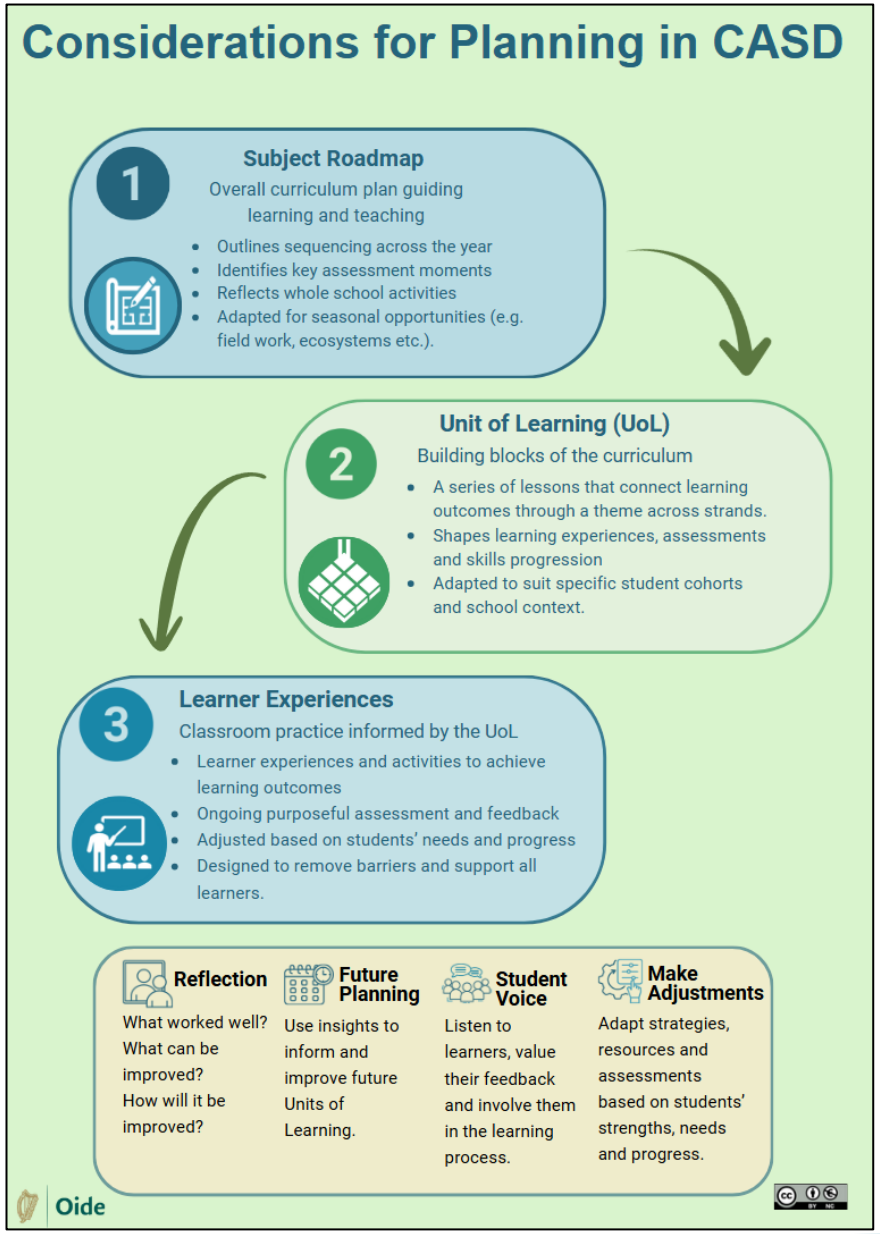
Reflecting on the past year, are there any changes you would make to your roadmap?






Planning


Learning Outcomes
Including:
• Students learn about
• Students should be able to
• Action verb
Prior Knowledge
Learner experiences/ methodologies
Unit of Learning Title/Theme
Reflection
Assessment
Resources
Oide


Considerations for Planning in CASD
1
Subject Roadmap
Overall curriculum plan guiding learning and teaching
• Outlines sequencing across the year
• Identifies key assessment moments
• Reflects whole school activities
• Adapted for seasonal opportunities (e.g. field work, ecosystems etc.).
2
Unit of Learning (UoL)
Building blocks of the curriculum
• A series of lessons that connect learning outcomes through a theme across strands.
• Shapes learning experiences, assessments and skills progression
• Adapted to suit specific student cohorts and school context.
3
Learner Experiences
Classroom practice informed by the UoL
• Learner experiences and activities to achieve learning outcomes
• Ongoing purposeful assessment and feedback
• Adjusted based on students' needs and progress
• Designed to remove barriers and support all learners.
Reflection
What worked well? What can be improved? How will it be improved?
Future Planning
Use insights to inform and improve future Units of Learning.
Student Voice
Listen to learners, value their feedback and involve them in the learning process.
Make Adjustments
Adapt strategies, resources and assessments based on students' strengths, needs and progress.
Oide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References

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- Venables, H. (2025) *Small Pond By Sandy Lane*. [Photograph] Available at: Small pond by Sandy Lane © Hugh Venables cc-by-sa/2.0 :: Geograph Britain and Ireland (Accessed: 10 June 2026).
- Images: Photo © Mike Quinn (cc-by-sa/2.0)