

GEOSCIENCE FOR LEAVING CERTIFICATE GEOGRAPHY

Continuing Professional Development Course 2021



WHAT LIES BENEATH? LESSON PLAN

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iCRAG

SFI RESEARCH CENTRE
IN APPLIED GEOSCIENCES



Geological Survey
Suirbhéireacht Gheolaíochta
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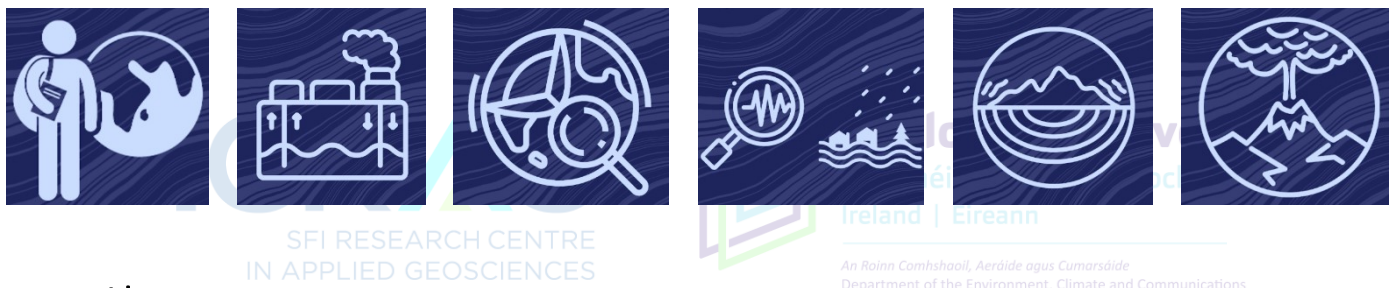
An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

About the programme

The aim of this resource is to encourage the teaching and inclusion of geology in Leaving Certificate Geography classrooms. To achieve this, iCrag and Geological Survey Ireland developed this CPD course which partnered up 6 Leaving Certificate teachers with 12 geoscience practitioners across Ireland. The course involved a series of talks by the geoscience practitioners which informed the teachers of current and ongoing geoscience research happening in Ireland. They then worked together to create either a classroom-based or field-based lesson or module plan for a particular subject area, complete with presentation and teacher and student notes. The teachers brought in their expertise and experience with teaching Leaving Certificate Geography and how the various aspects of geoscience can be linked to the curriculum, and the geoscience practitioners contributed their knowledge and relevant applications of geoscience at a classroom level.

The subjects covered by these 6 resources include a Glendalough field study, geothermal energy, an introduction to geology, Irish geohazards, seismic activity, and volcanoes.

The CPD course was led by Elspeth Sinclair and Fergus McAuliffe, from iCrag, and Siobhán Power and Amrine Dubois Gafar, from Geological Survey Ireland. We would like to thank Peter Lydon for his help in recruiting our wonderful teachers.



About us

Geological Survey Ireland, a division of the Department of Environment, Climate and Communications, has been mapping Ireland since 1845. They continue to map the Irish land and marine territories, as well as mineral and groundwater resources. They have responsibility for actions in the current Climate Action Plan including monitoring coastal change, the Just Transition in the midland counties, and providing data for de-risking offshore renewable energy. Irish geoscience research, particularly as it contributes to the development of government policy, is an important part of their work and they fund and co-fund many research projects, including some of the iCrag research work. Their data and maps are freely available to all at www.gsi.ie.

iCrag, the Science Foundation Ireland (SFI) Research Centre in Applied Geosciences, are a team of researchers creating solutions for a sustainable society. They develop innovative science and technologies to better understand Earth's past, present, and future and how people are connected to it. iCrag drives research into areas that are critical to society, including:

- The minerals and metals we need for decarbonisation and sustainable energy.
- Securing and protecting groundwater and marine resources.
- Protecting society from Earth's hazards, such as floods and landslides.

Further information is available at: www.icrag-centre.org

About this resource

What Lies Beneath? (An Introduction to Geoscience)

This resource has been created by Jennifer O'Sullivan from Killorglin Community College alongside geoscience professionals Dr Tiernan Henry from iCRAG at NUIG and Dr Eamon Doyle from the Burren and Cliffs of Moher UNESCO Global Geopark. This is an introductory resource for classes just starting their geoscience learning journey. It is aimed for a double class and is suitable for Leaving Certificate level students, though younger students may also benefit from this resource.

Disclaimer

Every effort has been made to ensure that the information in this book is accurate. Data, links, and maps are accurate as of January 2022. The publishers cannot accept responsibility for any consequences arising from the use of this book. The publishers are in no way liable or responsible for any injury or loss to any person using this book.



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Lesson plan: Introduction to online rock identification using the Geological Survey Ireland map viewer

Links to curriculum

Core unit 1 Tectonic cycle

- Seismic activity and measurements of seismic activity

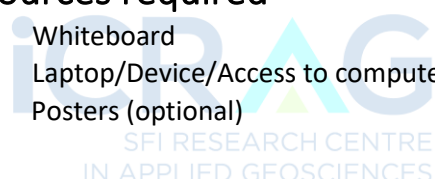
Learning Outcomes

Students should be able to:

- Navigate the Geological Survey Ireland map viewer website i.e. the layer list
- Be able to find their local area (geographical location) on the Ordnance survey map (accessed through the GSI map viewer)
- To become familiar with the different layers e.g. relief, bedrock etc
- Identify the different rock types in their area & across Ireland

Resources required

- Whiteboard
- Laptop/Device/Access to computer room
- Posters (optional)



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Links required

- Geological Survey Ireland Map Viewer:
<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbd e2aaac3c228>
- You may also want to watch the Geological Survey Ireland Map Viewer video tutorial before the lesson: <https://www.youtube.com/watch?v=gTKxX0cEL2U>

Literacy and Numeracy

- To assist with Literacy, you could put key terms up on the board. Flash cards would also be an option to use (Dependant on student's level) For example: bedrock, relief etc.
- To build on the student's computer literacy
- To assist with numeracy, the student can give a grid reference for their home or school location.

Differentiation

- I will divide the class into pairs or groups depending on the number of devices available to the class. The groupings will be done strategically so everyone will be able to participate in class.
- Depending on the class ability specific tasks can be reduced down or increased.
- ***This class could just be a starter class before beginning rocks

Introduction to online rock identification: Teacher Notes



Introduction to teacher notes

This lesson provides a simple and accessible guide to learning about the different rocks in your local area. Students will learn about the geology of their area using maps, images and data from the Geological Survey Ireland website.

What's down there? An accessible guide to the ground beneath our feet

Lesson goal:

- To make geology accessible and recognise links to local information, features etc.

| Content | Methodology |
|--|---|
| <p>Introduction [10 mins]</p>  <p>What is GSI?</p> <p>Hands up anybody who has heard of GSI?</p> <p>What does it stand for?</p> |  <p>Introduce the objectives of the lesson (See Powerpoint Slide 2)</p> |
| <p>Development</p> <p>[10 mins]</p> | <p>Introduce the students to the GSI website www.gsi.ie</p> <p>Watch a short demo carried out by the teacher on the whiteboard- how to navigate the website</p> <p>(Optional) Opportunity to go over Ordnance Survey features/grid reference of local area, school, etc.</p> |

