



Down To Earth – Exploring Ireland’s Geology exhibition

Geology extravaganza worksheet

In the Riding School: Down to Earth – Exploring Ireland’s Geology exhibition

1. Look at the big geological map on the floor (yes, you’re allowed to walk on it!)
- a) Can you find the bedrock where you live? What is it?
(Hint: The different colours represent different rocks. Look at the legend on the left-hand side of the map to see which rock the colour represents. Using the numbers also helps)

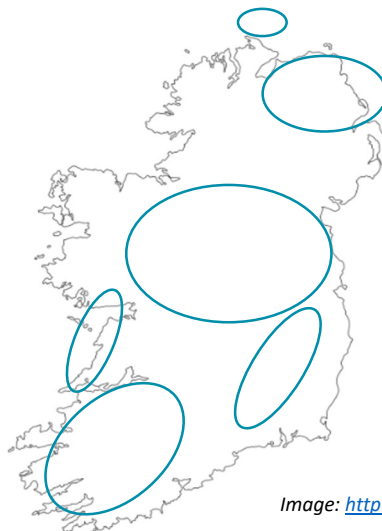
- b) Are there any other features where you live? e.g. faults (thick black lines), igneous intrusions (red lines = dykes, use legend for other igneous intrusions)

- c) Where are the oldest rocks in Ireland found? They are found on an island.
(Hint: The rocks at the bottom of the legend, but above the igneous intrusions, are the oldest)

- d) Where are the youngest rocks in Ireland found?
(Hint: The rocks at the top of the legend are the youngest)

- e) Can you match the rocks to where they can be found on the island of Ireland? Label them on the map.
(Hint: The floor map, legend and back wall will help you with this question)

Floor map



Rocks to use:
Limestone
Basalt
Sandstone
Gneiss
Granite
Shale

Image: <http://www.clker.com/cliparts/W/9/Z/p/N/3/outline-map-of-ireland-hi.png>

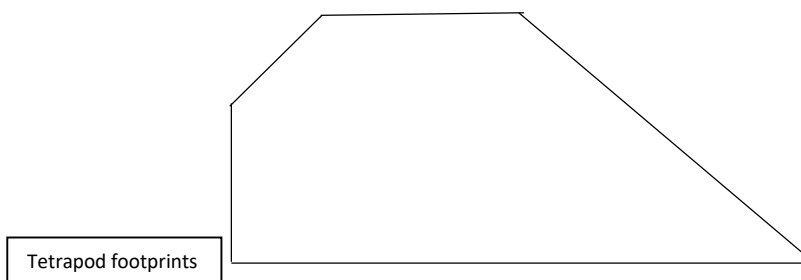


- f) Everyone can be a geologist – one of the skills involves describing what you see. Look at the rock samples around the floor map. Can you describe the rocks and put them in the rock group they belong to? Have you heard about any of these?
(Hint: The back wall will help you with this question)

Igneous <i>You can see crystals/ minerals rather than grains. These can either be coarse (big) or fine (small) in size</i>	Metamorphic <i>You can see evidence of the high heat and/or pressure the rock has experienced e.g. banding of minerals, 'fusion' of minerals</i>	Sedimentary <i>You can see individual grains e.g. sand, pebbles. Other features present include fossils and layers</i>

2. Look behind you at the 4-limbed animal and the big fossil to the left of it. Can you draw where you think the footprints are?

Tetrapod



3. Circle the examples of tetrapods:

Horse	Snake	Human	Chicken	Dog
Spider	Lion	Newt	Salmon	Chimpanzee

4. Why are the tetrapod footprints so important in our evolutionary history?

5. Name the equipment that Geological Survey Ireland use to map Ireland today. Keep an eye out for some of these as you go around the exhibition and don't forget to look up!

Words to use: compass-clino, drone, Tellus plane, magnetic susceptibility instrument, drill rig, auger, RV Keary, satellite



6. Continue onwards and to the right until you see the RV Keary.
 How do the survey boats map the sea floor? Can you draw how it works?
(Hint: Look out to sea and look at the screens on the bridge of the boat)

7. Thanks to mapping the sea floor, producing the 3D map you see behind you, we know the full size of Ireland's claimed territory. How many times bigger is the marine territory compared to the land?

5x

10x

15x

20x

Groundwater model

8. Go back the way you came and look at the Groundwater pump model.
 Press the different pedals to see how the water table moves. Can you draw how the water table moves from the position below when it rains and when it is being drawn up by the well?



Water table = the underground boundary between the saturated zone (i.e. groundwater within rock) and the unsaturated zone (i.e. no groundwater within rock)

9. Move on to the minerals section. Looking at the long cabinet, match the mineral to its usage. 2 are found in other cabinets in this section.

Lithium	Fireworks
Carbon	Ceramics
Sulphur	Non-stick coatings
Silica	Smartphones
Gold	Batteries (ion)
Clay	Glass
Copper	Pencils
Fluorite	Pipes

10. Draw some of the different shapes of quartz.

Minerals

11. Look at the back wall, and all of the different materials needed to make a mobile phone.
 Which 3 surprised you the most? Why?
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12. Go to the cross-section of the kitchen. Match the materials needed for the following:
 (Hint: Don't forget to check the kitchen wall!)

Toothpaste	Plastics from oil
Scouring pad	Lithium, zinc
Soft drink	Zeolites
Washing powder	Fluorite, apatite
Microwave meals	Iron, tin
Chopped tomatoes	Oil, steel, quartz glass
Batteries	Iron
Driving	Aluminium

13. Move back towards the entrance and stop at the Tellus section.
 The Tellus plane has flown the equivalent of _____ times around the world.

5 10 15 20

14. Name some of the geological places that tourists visit in Ireland. You may have visited
 some of these places on your holidays too!
 (Hint: The wall opposite the Tellus section may help you with this question)
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15. Go to the seismometer. Yes, it's that thing in the glass box made from Lego!
 Make an earthquake (jump!) and draw how the line moves.

Tellus

Geohazards

Geohazards

16. Carry on along the wall. When was the last time a tsunami reached Ireland's shores?
 (Hint: Don't forget to read the yellow box!)

1661 1761 1861 1961

17. Which geohazards are most likely to affect Ireland? There may be more than one

Volcanoes Earthquakes Landslides Sinkholes

18. Looking at the last wall, circle the ways Geological Survey Ireland is contributing to the Earth and its future

Mapping coastal change	Mapping the moon	Mapping the seabed
Looking at alternative farming jobs	Looking at alternative geoscience jobs	Looking at alternative energy sources
Contributing to the Just Transition	Data being freely available data to all	Contributing to policy

19. List 3 things which interested or surprised you the most about this exhibition.

Suggested answers can be found on our website, [here](#). Please click the link to be redirected to the relevant page on Geological Survey Ireland's website.