ANSWERS

Designed by Amrine Dubois Gafar

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

museum
National Museum of Ireland
Ard-Mhúsaem na hÉireann

Down To Earth – Exploring Ireland's Geology exhibition
Geology extravaganza worksheet

Floor map

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)

   ____

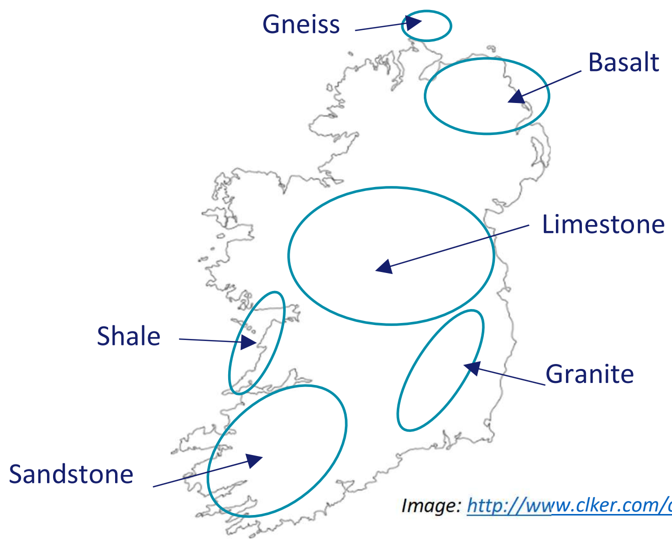
   c) Where are the oldest rocks in Ireland found? They are found on an island.
   (Hint: The rocks at the bottom of the legend, but <u>above</u> the igneous intrusions, are the oldest)

   Inishtrahull / County Donegal (on legend: number 12)
   ____

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

   Northern Ireland (on legend: number 83)
   ____

   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)



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

ANSWERS

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
You can see crystals/ minerals rather than grains. These can either be coarse (big) or fine (small) in size

Giants Causeway basalt

Pillow lava/ pillow basalt

Granite

Metamorphic
You can see evidence of the high heat and/or pressure the rock has experienced e.g. banding of minerals, 'fusion' of minerals

Schist

Gneiss

Quartzite

Sedimentary
You can see individual grains e.g. sand, pebbles. Other features present include fossils and layers

Limestone (sample on LHS of map)

Limestone (sample on RHS of map)

Chalk

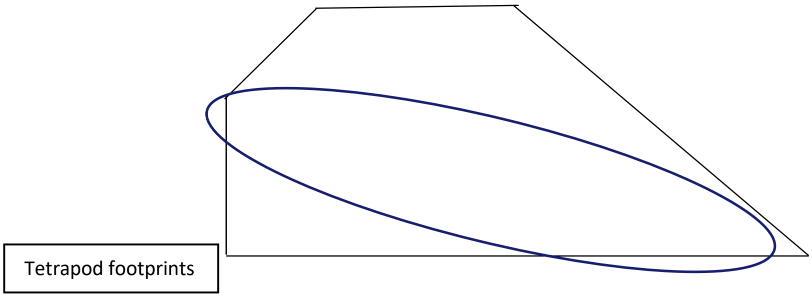
Sandstone (sample on LHS of map)

Sandstone (sample on RHS of map)

Conglomerate

ANSWERS

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?



3. Circle the examples of tetrapods:

Horse Snake Human Chicken Dog

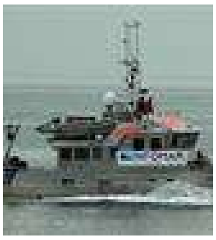
Spider Lion Newt Salmon Chimpanzee

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

Shows evolution of life moving from ocean to land
____

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

Tellus plane


RV Keary


Drone


Magnetic susceptibility instrument


Satellite


Compass-clino


Drill rig


Auger

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)

They map the sea floor by sonar, sampling and geophysics

ANSWERS

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?

When it rains = water table moves up (water being replenished)

Using well = water table moves down (water being used)

Minerals

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

e.g.






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?

____

ANSWERS

Designed by Amrine Dubois Gafar

Geological Survey Suirbhéireacht Gheolaíochta Ireland | Éireann

museum National Museum of Ireland Ard-Mhúsaem na hÉireann

Tellus

Geoheritage

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 *(microwave meals)*
Scouring pad	Lithium, zinc *(batteries)*
Soft drink	Zeolites *(washing powder)*
Washing powder	Fluorite, apatite *(toothpaste)*
Microwave meals	Iron, tin *(chopped tomatoes)*
Chopped tomatoes	Oil, steel, quartz glass *(driving)*
Batteries	Iron *(scouring pad)*
Driving	Aluminium *(soft drink)*

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)

Named places e.g. Cliffs of Moher, Dingle Peninsula, Ring of Kerry, Connemara, Giants Causeway, Wicklow Mountains
Other places e.g. beaches, mountains, lakes, rivers, fjord, bogs

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.

The larger peaks record the earthquake (when someone has jumped)

Geohazards

16. When was the last time a tsunami reached Ireland's shores?

1661 1761 1861 1961

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

Volcanoes Earthquakes Landslides Sinkholes

ANSWERS

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.

____

____