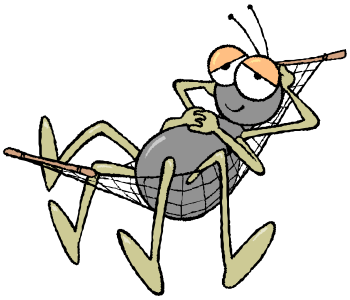


Nature's Web

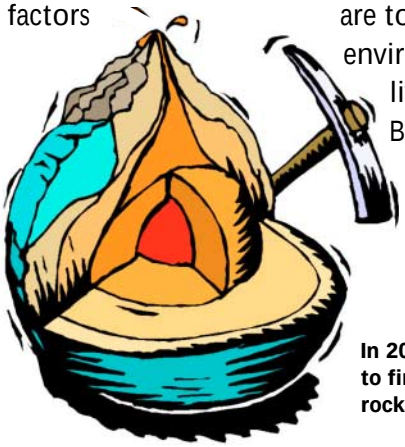
Issue No. 8 Winter 2007

Inside This Issue...

2008 Celebrates Planet Earth

The Universe is massive – it is so big that it is hard for most of us to imagine its size. There are billions of more stars than we can see and it is quite possible that somewhere out there there is a solar system just like ours. Within our solar system and from what we know of it, we are the only planet to have conditions suitable for human existence. These conditions took millions and millions of years to become established. We now have clean water to drink, pleasant climates and land on which to grow food. All these factors have made it possible for us as humans to live here. You might say that we should be continuously celebrating how lucky we are to have such an environment in which to live and this is true. But sometimes we need to make a special effort to remind ourselves of the beauty of planet Earth. The year 2008 has been selected as the year where the people who have studied the planet and who work in the Earth Sciences (people such as geologists and hydrologists), want the rest of us to understand the Earth a little more. You can read about the International Year of Planet Earth (IYPE) on page 14 and how you can become involved.

Photo courtesy of NASA



In 2008, challenge yourself to find out more about the rocks in your area.

Editor's Page

Photo: © Robbie Murphy

The Giant's Causeway

One of our most memorable trips in recent years, was to Co. Antrim, where we were lucky enough to see the Giant's Causeway. It is such a fascinating place. It is made up of some 40,000 massive black basalt columns sticking out of the sea. These rocks were formed sixty million years ago, when volcanic activity forced fluid molten rock up through the chalk floor. Water rapidly cooled the molten rock, forming it into the hexagonal-shaped columns we see today.

Legend has it that the Irish giant Finn MacCool built the causeway so that he and his rival, the Scottish giant Benandonner, could test their strength against one other. Building the causeway was so tiring that Finn fell asleep from exhaustion. While he slept the Scottish giant arrived and on seeing the truly gigantic Benandonner, Finn's wife Oonagh realised that Finn was no match for him. She quickly dressed the sleeping Finn as a baby and when Benandonner shouted for Finn to come out, Oonagh warned the giant not to wake the baby. Benandonner panicked when he saw such a large baby and could only imagine the size of the baby's father. In great fear, the Scottish giant make a hasty retreat across the causeway, destroying it as he went.

Seafood Recipe

Garlic Stuffed Mussels

Photo courtesy of BIM

Brought to you by BIM.
For more recipes visit **www.bim.ie**

What you need:

- 2 kg cooked Irish mussels
- 250g butter
- 4 / 5 cloves garlic – crushed or finely chopped
- 120g (4 handfuls / 16 tablespoons) fine white breadcrumbs
- 2 tablespoon chopped fresh parsley
- Salt and pepper
- Juice and zest of one lemon

What to do:

- Rinse mussels and drain
- Remove the top shell from each mussel and arrange the bottom shell and flesh on an ovenproof dish or baking tray
- Melt the butter; add crushed garlic, parsley and lemon juice.
- Mix through the breadcrumbs and season with salt and pepper
- Use a spoon or clean hands to place a small amount of the crumb mixture onto each mussel, just covering the meat
- Grill or bake until golden brown and crispy (Approx 2 / 3 mins)
- Serve with lemon wedge, garnish with herbs of choice

Serve approx 12 mussels per person

Welcome to the Winter Edition of Nature's Web!

Dear Reader,

Welcome everyone to the winter issue of Nature's Web. In this issue, we focus a little on Planet Earth. We take a closer look at some rocks, how fossils are formed and how they have helped calculate the age of the planet. Fionnuala Ní Mhairtín from the Geological Survey of Ireland tells us about the fascinating world of geology. And Tommy Prawn answers a couple of questions about the largest structures in the world and the hottest and coldest places! Check out nature news from around the world on page 11 and enjoy a giggle with the jokes on page 13.

We would love to hear your views and comments and suggestions for future articles. Have a good read!

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Layout and Design:
Susan Murphy Wickens
Photographs & Clipart:

Cormorant

Latin: *Phalacrocorax carbo*
Irish: Broigheall

Fact File

Colour: Mostly black, with green, blue or bronze sheen. White patch on thighs in summer.
Length: 77-94 cm
Diet: Crabs and fish, such as wrasse and flatfish.
Habitat: Nests on cliffs, islands and near lakes and feeds on the open sea, estuaries, rivers and lakes.

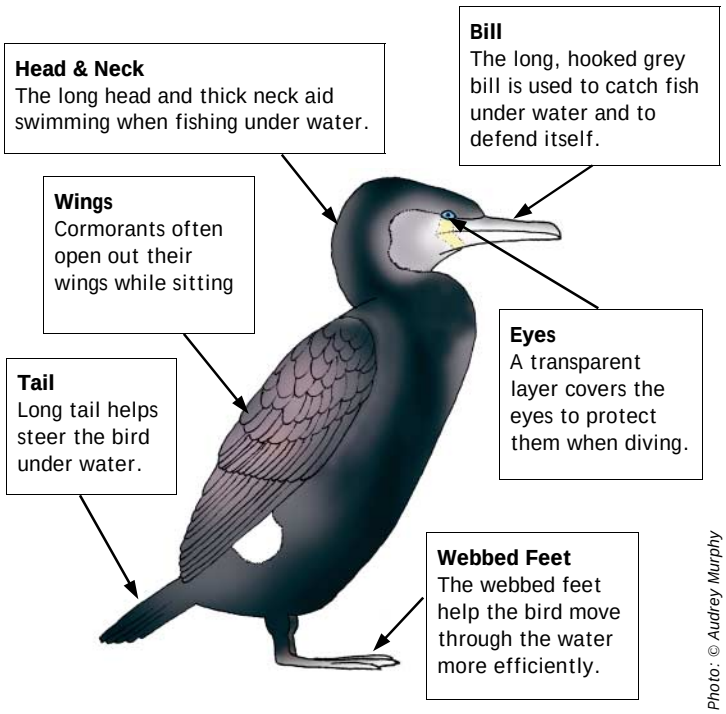


Photo: © Audrey Murphy

Cormorants are seabirds, which live along the coast They are also seen near estuaries, lakes and rivers, and inland in trees (where they sometimes breed). There are many species of cormorant but the one found in Ireland is *Phalacrocorax carbo*, which is sometimes known as the Great Cormorant.

The cormorant is a large bird. It has dark foliage, mostly black, with a green, blue or bronze sheen.It has a white throat with a yellow patch at the base of its beak, and a white mark on its thigh during the breeding season. It has a long neck and a hooked grey beak that helps catch the large amount of fish that it eats. Cormorants were once considered pests because of the amount of fish they ate but they have been protected since 1976. Since then their population has greatly increased.

Cormorants live in large colonies in the south and north west coasts of Ireland. They are very strong swimmers, using their webbed feet to push themselves through the water in search of food.

Cormorants and shags are closely related, with the shag being smaller than the cormorant.

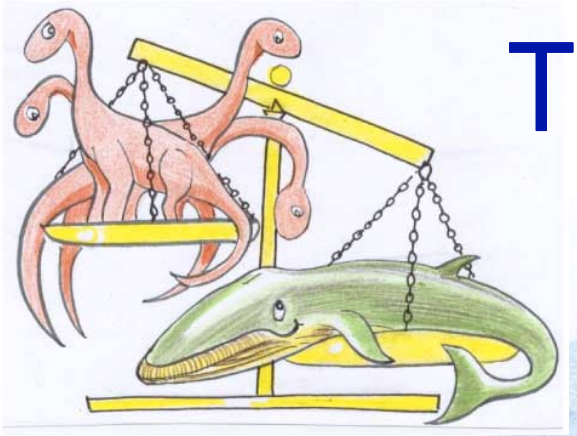
Photo courtesy of Miya - cc-by-sa-2.5

Cormorants are often seen on the rocks with their wings spread wide. Some believe that this is to dry their wings, while others think that it may aid digestion. No one is really sure.

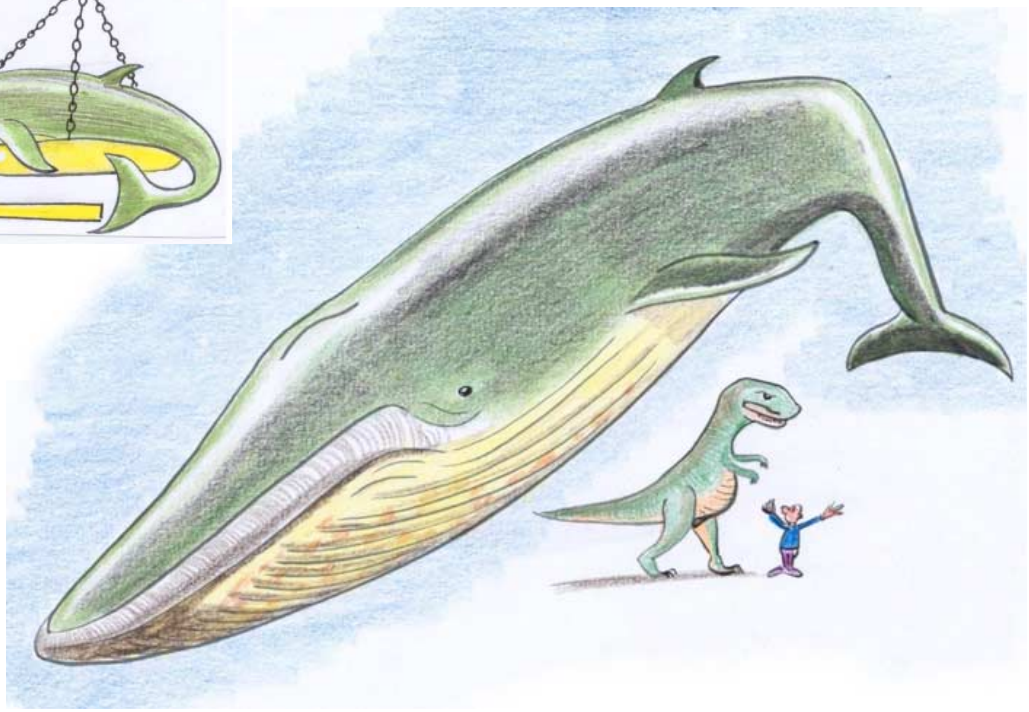
Flightless or Galapagos Cormorant

The Galapagos Islands are a chain of volcanic islands distributed along the equator, approximately 950 kms west of Ecuador in the Pacific Ocean. The islands are filled with strange and wonderful wildlife which have adapted to life on the islands and which are found nowhere else on earth. One such creature is the Flightless or Galapagos Cormorant. This is the only species of cormorant to have lost its ability to fly, having wings about one-third the size necessary for flight. With only 1500 individual in existence, this cormorant is one of the world's rarest birds.

Bigger than the biggest dinosaur...



The Blue Whale



The blue whale is the largest animal that EVER lived; the largest ever caught was 29 metres long and weighted 158 tonnes. Its heart would have been as big as a Volkwagen "beetle" car and its aorta (the largest blood vessel in the body) wide enough for a person to crawl through.
The largest dinosaur that ever lived – the brontosaur – weighed only 30 tonnes – a quarter of the weight of the average fully grown blue whale.

Today the blue whale is protected by the International Union for the Conservation of Nature and Natural Resources (IUCN) as an "endangered species".

Captain Cockle's Log

Welcome aboard shipmates! Together, we'll be taking a look at the world's greatest natural resource – one that covers two-thirds of the earth's surface – the sea!
Words & pictures by John Joyce

For more adventures from Captain Cockle, visit his website at
www.captaincockle.com

BLUE WHALES RECOVERING
Scientist believe the Antarctic population of blue whales could be three times larger than it was 25 years ago – rising from 500 a quarter of a century ago to 1,500 now – according to the International Whaling Commission.

... Louder than the loudest rock band

Blue whales are the loudest animals on earth. When they call to each other, their low frequency whistles rise up to 188 decibels – louder than a jet engine (at 140 decibels) and MUCH louder than human shouting (at only 70 decibels). Any sound over 120 decibels is painful to the human ear.

Fossils

What are fossils?

Fossils are the remains of plants and animals that lived on Earth a long time ago. They are usually found preserved in rock, such as shale and limestone.

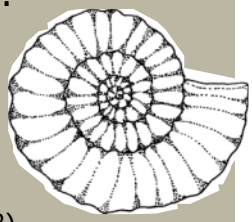
Where can I see fossils in Ireland?

Often the best place to collect fossils is from loose stones found on beaches, but do not over collect and only go to places which are safe and where you have permission to go. If you find anything unusual please contact your nearest geological museum for help identifying your specimen. Many fossil sites in Ireland are now protected by law and it is illegal to remove any geological specimens from them.

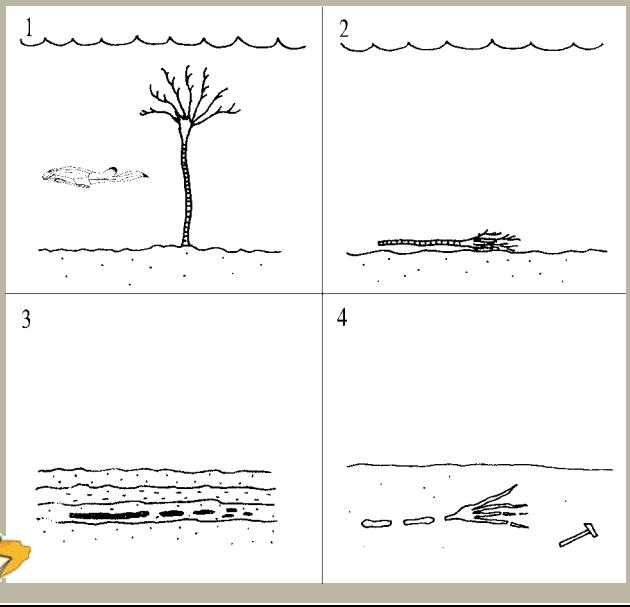
You can see fossils in the Geological Museum of Trinity College, Dublin, the Ulster Museum, Belfast, the Geological Survey of Ireland, Dublin, the National Museum of Ireland, Dublin; the James Mitchell Museum, National University of Ireland, Galway; and the Department of Geology, University College, Cork.

The study of fossils is called **palaeontology** and a person who studies them is a **palaeontologist**. They describe fossils and also use them to date rocks and to discover the environmental conditions that occurred on Earth in the past.

How do fossils form?



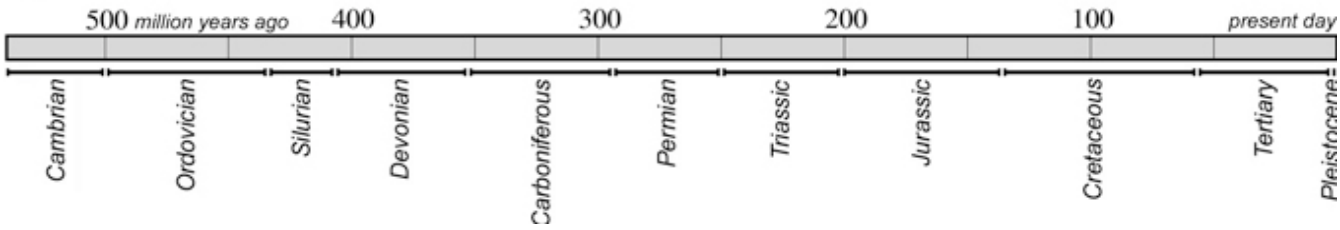
Millions of years ago there lived many different types of plants and animals (1). When an organism died it fell and lay on the sea floor (2). As time went on it became covered with sediment (3). Often shell, bone or the structure of the organism dissolved away and was replaced by minerals from the sediment around it. What was left was either an impression or mould of the original organism. Fossils often became flattened by layers of sediment pressing down on top of them. After many years and dramatic earth movements, these rocks have risen above sea-level where erosion from wind and rain has exposed the fossils hidden inside (4).



Fossils and the geological timescale

Fossils are useful in that they can help scientists work out the age of the rocks in which they are found. The Earth is at least 4,567 million years old and fossils (and isotopes – different forms of atoms of the same element) have been used to divide up this time into a number of Eras and shorter Geological Periods. The timeline below shows how the these shorter Geological Periods have been divided in time since the Cambrian period, which began 545 million years ago:

Timeline



Information adapted from "Fossils Colouring & Guide Book"

Holly

Holly is an evergreen tree, which means that it doesn't lose its leaves in winter time. It can grow up to 10-25m high and is well know for its glossy, prickly leaves and scarlet berries. The prickly leaves prevent damage from animals.

In order to produce berries, holly trees need to have a male and female tree growing near each other. The male tree fertilises the flowers on the female tree, which are small and white and which appear in May. Once the flowers fade, they are replaced by pale green berries, which change in colour to scarlet as winter approaches. These colourful berries attract birds, who feed on the berries and pass the seeds out of their bodies. When the seeds fall elsewhere, some will grow into seedlings and mature into trees. The holly tree is popular in gardens, where it is grown as an ornamental tree.There are other varieties of holly, some with multicoloured leaves - partly green and partly yellow or white. Sometimes people keep the holly tree as a hedge, by keeping it trimmed.

***Latin**: Ilex aquifolium*

Irish: Cuileann

Photo: © Susan Murphy Wickens

The Holly Tree

The wood of the holly tree is hard, heavy and white. It is used for making small pieces of furniture, as well as decorating other pieces of wood and for the white chess pieces.

Holly & the Christmas Tradition

In Ireland we connect holly with Christmas, but why? This tradition may come from a few different sources. The Romans presented holly boughs to the God Saturn, whose festival occurred in December. When Christianity took over, the tradition was kept on and became a symbol of Christmas. The pagan Druids viewed holly as a sacred plant with healing powers, and something designed to keep the earth beautiful during the harsh winter. Others saw holly as a symbol of Christ, the prickly leaves representing His thorny crown and the scarlet berries, His blood.

Buying "Green" Holly

If you are buying holly at Christmas time, try to make sure the holly was cut from trees that were planted especially for this purpose. Sometimes holly that is for sale is cut from trees without permission, often leaving the tree in a very poor state.

SEA HOLLY

Latin: *Eryngium maritimum* **Irish:** Cuileann trá

Though its name is similar and its leaves are prickly, Sea Holly is not related to the festive red-berried holly that we all know. Sea Holly is found growing on coastal beaches and on sand-dunes, where it is well adapted to the dry and difficult conditions. It is a member of the carrot family and its spiny blue-green leaves and powder blue flowers are unmistakable. Its flowering season is from July to August, but its unique leaves help to identify it at other times of the year. It is a perennial plant, which means it grows and flowers over several years.

All in a Day's Work

Fionnuala Ní Mhairtín - Geologist at the Geological Survey of Ireland

PROFILE

Fionnuala Ní Mhairtín studied geology in University College Cork. She went on to complete a Masters degree in Water and Environmental Management at the University of Brighton in England, before taking up her position as a geologist at the Geological Survey of Ireland, Ireland's National Earth Science Agency.

Photos: © GSI

A Day in the Life of Fionnuala Ní Mhairtín

Where do you work at present?

I am working on a project about old mines for the Geological Survey of Ireland (GSI). We are investigating old and abandoned mines in Ireland to see if they are polluting the environment. It is a great project as my duties involve lots of field work along with some laboratory and office work.

What does a day in the office involve?

A typical day in the office entails mostly computer work. I use GSI's old mine records as well as photographs taken from the air to plot old mine sites. I use a G.I.S (Geographical Information Systems) software package to produce maps. These maps help me to identify and investigate mine sites in the field. Also any information gathered from the samples we take in the field is entered into this GIS computer database.

What do you do in the field?

There is a lot of field work in this project as we have to gather all the information possible on the mines we visit. I examine each site looking for the metal content (i.e. pollution).Three different samples are collected at a number of places at each mine site. First I take a water sample from rivers and water coming from the mine. Then I take sediment samples (e.g. mud, sand or gravel) from the bed of the river. Finally I carry out waste analysis which is looking at spoil heaps and old areas worked in the mines.

Can you explain how samples are collected?

Collecting a water sample involves filling two bottles with water, one filtered and one unfiltered. I use a syringe with a small filter on the top to collect the filtered water. Unfiltered water is just filling a bottle from the river. Also at location of each water sample I have to take a number of readings, e.g. the temperature, the pH level, the electric conductivity and the dissolved oxygen. This is done using two different meters. Gathering sediments involves taking sediment from the river bed through two different size sieves to get the very fine sediment. Sediment is sieved into a bucket and taken back to the lab. Finally I use an XRF machine which basically x-rays the mine waste to tell me what metals are in it and how much. All the spoil heaps and mine wastes around a site have to be analysed with this machine and I take some samples back to the lab.

What do you do in the laboratory?

The lab work which I do is based in the offices of the GSI where I analyse the sediment and the waste analysis samples. Firstly the samples have to be dried. This is simply done by placing them in an oven for a period of time. Following this, I normally crush the sample into a very fine powder. Then I can analyse it with the XRF machine. All the water samples are sent away to an outside laboratory for testing.

Above: The engine house at the copper mines in Allihies, Co. Cork.

Right: Taking water samples at the coalfields in Geevagh, Co. Sligo.

Do you travel much?

Yes, there are many mine sites to be found around Ireland. This means I have travelled all over Ireland, from Mizen Head to Malin Head, from the mountains to the coast. There are coal mines in Connaught (Sligo and Leitrim), Leinster, and Munster. Copper mines were popular at one point in Ireland and the best examples can be found in Avoca, Co. Wicklow and Allihies in West Cork. Lead and Zinc mines are found in places like Galway and Limerick. I have been very lucky to travel so much with this job. It gave me the opportunity to see many parts of Ireland and fantastic views, some of which I have not seen before.

Do you enjoy your work?

Thankfully I am very fortunate, I love my job. I love geology and our environment so I really enjoy what I do. Being outdoors is very important to me, this job has been great. I must admit winter is hard at times, standing in freezing cold water taking samples in the lashing rain however you always remember those bright, sunny days when being out in the field doesn't feel like you're working at all!

Wordsearch

Nature's Web Wordsearch

Try out this giant wordsearch containing words found in this issue of the newsletter.

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ANSWERS: (Over,Down,Direction): African grey parrot (19,2,S); blue whale (9,9,NW); Captain Cockle (1,18,E); clam (8,4,NE); cormorant (4,15,N); Fionnuala Ní Mhairtín (1,8,E); fossils (11,4,E); geology (15,11,S); Giant's Causeway (6,16,N); Great Barrier Reef (16,6,W); holly (17,7,W);Latin (14,11,NW); mining (12,7,SW); mussels (9,12,SE); Planet Earth (17,5,W); rocks (8,17,N); sea holly (4,16,NE); stone-skimming (18,1,S)

African grey parrot

blue whale

Captain Cockle

clam

cormorant

Fionnuala Ní Mhairtín

fossils

mussels

geology

Giant's Causeway

Great Barrier Reef

holly

Latin

mining

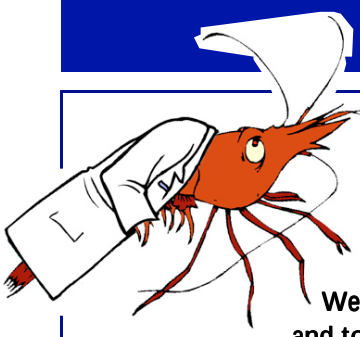
Planet Earth

rocks

sea holly

stone-skimming

Tommy Time



Hi Kids, I'm Dr. Tommy Prawn, I'm a mad scientist that lives in the river Shannon in Ireland. My good friends at Nature's Web rang me on the watermobile and told me ye had a few questions about science and asked if I could answer them. I told the gang at Nature's Web "no probs, of course I would try to answer the questions you asked." So here I go…….. Enjoy!
Remember, if you have any other science questions, just send them into editor@naturesweb.ie and they'll pass 'em on to me!

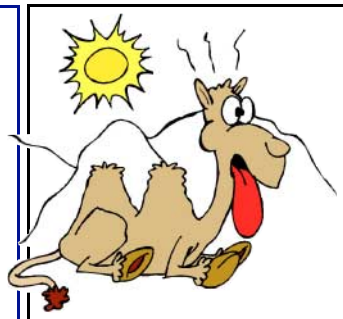
Dr. Tommy

What is the Largest Living Structure on Earth?

This is an odd question because it is known that the blue whale is the biggest creature, but living *structure* is different. Then I remembered my brothers Mattie and Evan Prawn. They share a room back home in the Shannon river. My mother always says that their room is walking with the dirt, so maybe their room is the biggest living structure – the dirty things! Not like there older brother here, who I might add is spotless.

Dwarfing even the mighty blue whale, the largest living structure is the Great Barrier Reef, a mass of coral off the northeastern coast of Australia that extends some 1,250 miles. The reef supports an amazing array of life that includes approximately 2,000 species of fish. Coral is made by millions of tiny carnivorous (meat eating) animals called polyps. Polyps live in groups called colonies.

So if you ever get the chance to see the barrier reef do, and remember what I told you. Also seeing as you will be in Australia, your toilet water will flow down the opposite way as it does here!!!

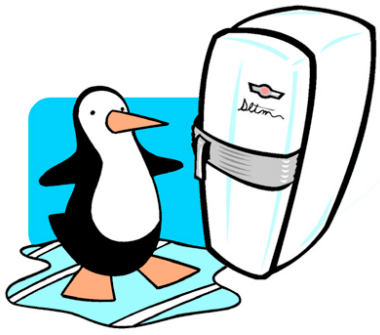


What are the Hottest and Coldest Places on Earth?

This world seems like it is huge to all of us living on it, but in terms of our solar system this planet is tiny. Jupiter is the biggest at near 90,000 miles across, earth is only about 8,000. Still there are some very hot and very cold places. My second cousin Gillian Shrimp told me she was locked in a fridge at 4º C for a week and she was shivering with the cold but then she read the answer below and that shut her up fairly fast.

Going on averages over the year, the hottest place on earth is Dallol, Ethiopia average temperature is 34 °C (93.2 °F). However, the hottest recorded temperature was El Azizia, in Lybia, in 1922, where the temperature hit 66º C. Hot Stuff. The coldest place on average is Eureka, Nunavut, Canada daily average temperature is -19.7 °C (-3.46 °F). That's like constantly living in your mother's deep freeze. The coldest ever recorded temperature is Vostok, Antarctica, dropped to nearly -89.2 °C (-127 ºF).

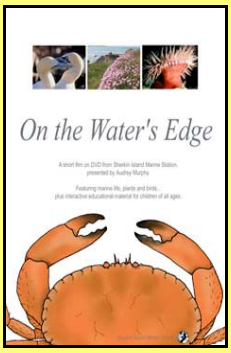
My grandfather Paddy Prawn told me once he spoke to a penguin in Dublin Zoo, who was born in Antarctica and he told him that he had just bought a new fridge before he moved over to Dublin from Antarctica. My grandad said what did he want a fridge for in those temperatures, and the penguin said, to keep his food warm!!!!



Dr. Tommy Prawn would like to acknowledge the help of his good friend James Ring. Text: © James Ring

Learn More

Sea Life DVD!!

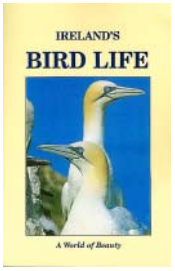


"*On the Water's Edge*"

Sherkin Island Marine Station has launched a new dvd called '*On the Water's Edge*'. It is made up of a short film on life beside the sea and is presented by Audrey Murphy. It includes hours of interactive material for children of all ages. *Available from: Sherkin Island Marine Station, Sherkin Island, Co Cork €12.00 plus €1.30 p&p.*

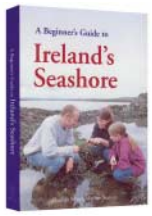
A collection of photographs of Ireland's bird life, featuring over 200 colour photographs taken by one of Europe's finest wildlife photographers, Richard Mills. *160pp*

€16.00 including postage



A Beginner's Guide to Ireland's Seashore is a pocket-sized guide, suitable for beginners of all ages. This book will help you to explore the wonders of marine life found on the shores around Ireland. *206pp*

Only €6.97 including postage

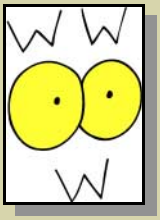


Only €1.75 each including postage or €10.50 for all seven! *32pp each*

Sherkin Island Marine Station has published a range of colouring books, guides and activity books for children. Each thirty two page *Colouring & Guide Book* gives you the chance to colour, identify and learn about the wildlife around Ireland. *My Nature Diary* and *Safety Sam* activity book will keep you busy for hours.

To order books, send your name and address along with a cheque or postal order made payable to Sherkin Island Marine Station to:

Matt Murphy,
Sherkin Island Marine Station,
Sherkin Island,
Skibbereen, Co.Cork. Ireland.
sherkinmarine@eircom.net



Useful Web Addresses

There are lots of websites to be found on the internet that will give you further information on topics we have covered in this newsletter. Here are a few that may be of interest:

The Giant's Causeway: www.giantscausewaycentre.com

Cormorant: http://www.birdwatchireland.ie/Default.aspx?tabid=145
http://www.rspb.org.uk/wildlife/birdguide/name/c/cormorant/index.asp

The Blue Whale: http://www.enchantedlearning.com/subjects/whales/species/Bluewhale.shtml
www.captaincockle.com

Fossils: http://www.discoveringfossils.co.uk/Whatisafossil.htm http://www.fossilmuseum.net/

Holly: http://en.wikipedia.org/wiki/Holly

Life as a Geologist: www.gsi.ie

Alex, the African Grey Parrot: http://www.sciencedaily.com/releases/2007/09/070911154520.htm

Oldest Living Animal: http://news.bbc.co.uk/2/hi/science/nature/7066389.stm

Rocks: http://www.fi.edu/fellows/payton/rocks/create/index.html

Leopard Frogs: http://proteus.pca.state.mn.us/kids/c-april.html

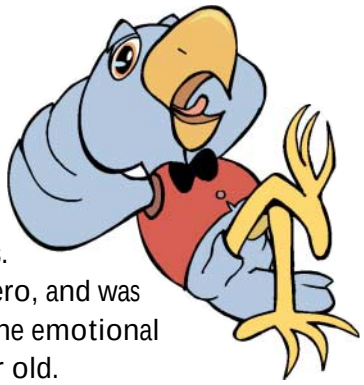
2008 International Year of Planet Earth: http://www.planetearth.ie

What's in a Name?: http://simple.wikipedia.org/wiki/Taxonomy http://www.linnaeus2007.se/

The World Around Us

"Foreign Correspondent" Michael Ludwig reports on some strange goings on in the natural world.

An Exceptional Parrot



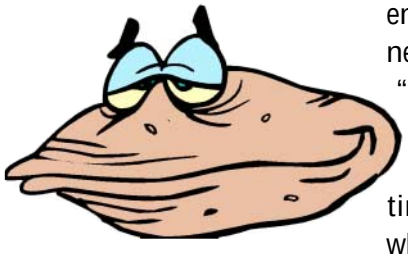
Alex, a famous African Grey Parrot died recently, at the age of 31. Since he was bought in a pet shop in 1977 by scientist Dr. Irene Pepperberg, someone has worked with him 8 to 12 hours every day of his life, teaching him how to identify 50 objects, seven colours and five shapes. He also learned to count amounts up to six, including zero, and was able to express certain feelings. When Alex died he had the emotional age of a 2 year old human and the mental age of a 5 year old.

A New Record for Stone-skimming!

On visits to the water's edge, many of us enjoy skimming stones. But there is a new world record by a man called Russell "Rock Bottom" Byars, in Pennsylvania, USA and will be hard to beat. He threw a stone that skipped on the water 51 times, breaking the previous record which was 40. The stone travelled about 250 feet and though he threw 40 stones that day, his first throw was the one that broke the record.

Hot Water May Help Heat Northern Ireland

In Larne, Co. Antrim, scientists at Geological Survey NI have discovered a hot water source 3,000 metres beneath the earth, where the water is said to reach temperatures close to boiling point. Hot rocks deep under the surface of the earth heat the natural groundwater. It is hoped that the energy generated from the hot water could be used to provide heat and electricity for towns and cities in Northern Ireland.

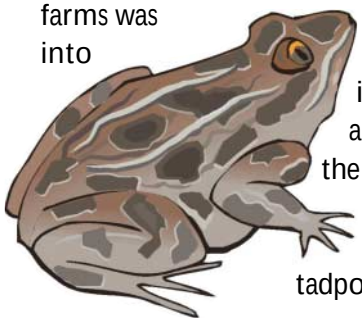


The World's Oldest Living Animal

The oldest living animal to have been discovered is a clam that was dredged up off the coast of Iceland. Scientists from Bangor University in the UK calculate the age of the clam to be 405 to 410 years old! They were able to put an age on the clam by counting the rings on its shell - similar to counting rings on a tree. Because the clam was born when the Ming Dynasty was in power in China, they have nicknamed it "Ming".

Frogs Suffering from Farm Pollution

More than 10 years ago, school children in the US found that half the leopard frogs in a pond that they visited were either missing limbs or had extra limbs. Scientists researched the problem and recently discovered that pollution from farms was partly to blame. Nitrogen and phosphorous flowed into the water starting a cycle that resulted in parasites infecting tadpoles. The parasites live in snails that eat algae. The pollution caused algae to grow very fast in the water. Because the snails had lots of food, they ate more and reproduced more. With more snails came more parasites and these parasites infected the tadpoles, resulting in deformed frogs.



Rocks

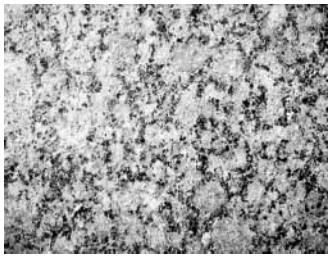
Rocks are the building blocks of the Earth. They shape our mountains and the very ground that we walk on. The outer layer of the Earth's crust is made up of different types of rock, formed in different ways. Rock can be divided into three main types, based on the way they were formed:

Igneous rocks, Sedimentary rocks and **Metamorphic rocks.**

All **Igneous rock** begin as molten rock or magma. Depending on how the molten rock cools, it will change in appearance – crystals can form in the rock if it cools slowly and glass if it cools quickly. Sometimes the molten rock is forced between other rocks underneath the Earth's surface where it cools. Other times molten rock is forced out of the Earth with the help of geological activity, such as volcanoes, and is cooled by water or air.

Sedimentary rocks are formed when layers of sediment (such as mud and sand) build up over time on the sea or lake floor. As the layers build up, crystals grow in the sediment, binding the layers together and forming them into hard rock.

Metamorphic rocks are formed when cooled rocks are heated by molten igneous rock or the heat from inside the Earth. The heat causes the rocks to crystalize or to recrystalize. This transformation is called *metamorphism* and produces metamorphic rock.



Granite

Igneous Rock

Granite is an igneous rock and is formed inside the Earth. As the molten rock cools, crystals are sometimes formed and become part of the rock. Depending on the minerals in the granite, it can be pink, dark grey or even black. Granite is a hard rock and is hardwearing. Because of this it is used for such things as buildings, counter tops and headstones. Granite can be found in the Wicklow mountains.

Basalt

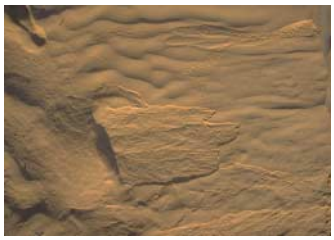
Igneous Rock

Basalt is also an igneous rock but it is formed when molten rock flows out of the Earth and is cooled by either water or air. The best example of basalt rock in Ireland is at the Giant's Causeway. There the molten rock cooled rapidly and as it did so it contracted (or shrunk), causing vertical cracks and columns to be created.

Limestone

Sedimentary Rock

Limestone is a sedimentary rock and is made from sediment and a mineral known as calcite. Calcite comes from sea creatures, such as algae and coral. Remains of these creatures would have settled on the ocean floor and mixed with the mud and sand, eventually forming into rock. The Burren in Co. Clare is a good example of limestone rock. Limestone is easy to work with so is used for building, as well as in the manufacture of cement.



Sandstone

Sedimentary Rock

Sandstone is also a sedimentary rock and is made up of sand-sized grains of minerals and rocks. It forms when sand settles on a seabed and is compacted over time. Crystals in the sand bind the layers together forming rock. Like limestone, sandstone is also used for building as it is easy to work with. Sandstone can be found in the Munster mountains.

Marble

Metamorphic Rock

Marble is a metamorphic rock. It was originally limestone, but was transformed by great heat. The heat causes the rock to crystalize and these crystals make the rock very decorative, particularly when polished. It has been used for thousands of years for the carving of sculptures and as decorative building material. Marble can be found in Connemara.

Fun Page

How much did you learn?

The answers to all these questions can be found in the newsletter...see if you can remember!

1 What are the three main types of rock?

2 What common language do scientists around the world use to name animals and plants?

3 A cormorant has webbed feet to help the bird move through the water. True or false?

4 What do you call someone who studies fossils?

5 Are holly and sea holly related?

6 In which county in Ireland is the Giant's Causeway?

7 2008 is International Year of what?

8 What is Dr. Tommy Prawn's grandfather's name?

9 What is the largest living structure in the world?

10 How many colours could Alex, the African Grey Parrot, identify?

11 On which islands in the world can you find Flightless Cormorants?

12 In stone-skimming, how many skips of a stone did the current world record holder make?

13 What shellfish is used in the current BIM fish recipe?

14 Name the largest animal to have ever lived?

15 In what type of places does the geologist Fionnuala Ní Mhairtín test for pollution?

16 What nickname has been given to the clam that is the world's oldest living animal?

Answers: (1) Igneous, sedimentary & metamorphic (2) Latin (3) True (4) A palaeontologist (5) No (6) Co. Antrim (7) International Year of Planet Earth (8) Paddy Prawn (9) The Great Barrier Reef (10) Seven (11) The Galapagos Islands (12) 51 skips (13) Mussels (14) The Blue Whale (15) Mines (16) Ming.

What are we saying....?

Have fun with your friends making up a title for this picture of cormorants on the rocks.

Nature Jokes

Why do penguins carry fish in their beaks?
Because they haven't got any pockets.

Where do you find giant snails?
On the ends of giant's fingers.

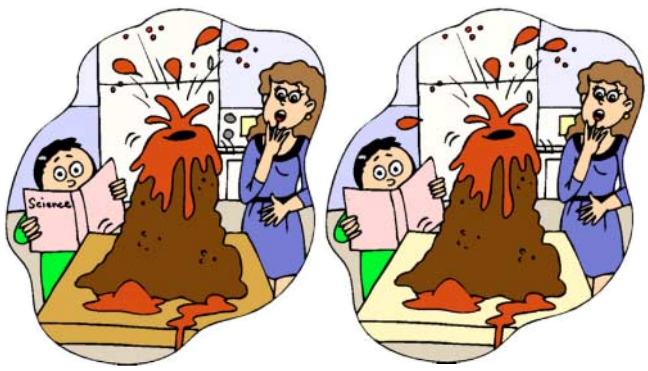
What is a geologist's favourite type of music?
Rock music.

How do you know that carrots are good for your eyesight?
Have YOU ever seen a rabbit with glasses?

Why did the cat put oil on the mouse?
Because it squeaked.

What did the earthquake say to the volcano?
It's not my fault.

Do cormorants have babies?
No, they only have cormorants.



Spot the five differences!

2008 International Year of Planet Earth

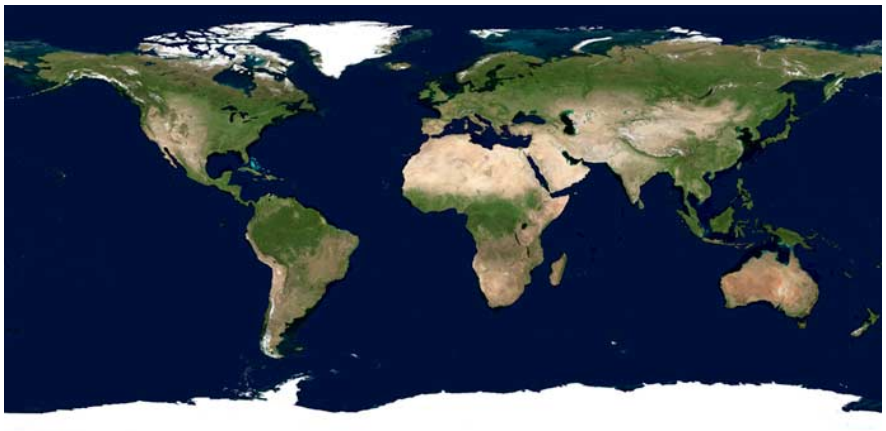


Photo courtesy of NASA

It has been decided by the United Nations that 2008 should be International Year of Planet Earth. The year hopes to highlight the work of the Earth sciences. These Earth sciences, also known as Geosciences, are areas such a geology, hydrology, meteorology, oceanography and many more.

Scientists who work in Earth sciences are involved in exploring, discovering and looking after the Earth. They explore and are responsible for how we find and use natural resources such as oil, gas, coal, minerals, water and soil. They help to preserve and protect the natural environment, as well as helping to predict natural disasters and repair environmental damage.

The knowledge that these scientists collect is really important as it helps to create a picture of how healthy the Earth is and how our human activity is affecting it.

By highlighting the Earth sciences, we can learn more about what work is carried out and therefore more about our planet.

Geology in Ireland

In Ireland, International Year of Planet Earth is being promoted by the Geological Survey of Ireland (GSI), which is the National Earth Science Agency in Ireland. It is responsible for giving out geological information and advice and for collecting data which helps provide this service.

The GSI want to make us more aware of the importance of the Earth Sciences and it hopes that this new awareness will encourage more people to work in this area and make more use of the information gained from such work.

Geoparks in Ireland

Learn more about geology in Ireland by visiting Ireland's two Geoparks - The Copper Coast Geopark in Co. Waterford (www.coppercoastgeopark.com) and The Cuilcagh Mountain & Marble Arch Caves Geopark, Co. Fermanagh (www.marblearchcaves.net). These geoparks are part of a European network promoting areas of outstanding natural geological interest, through education and tourism.

What Will Be Happening?

During 2008 many events will be organised throughout the island of Ireland to highlight the International Year of Planet Earth. All primary schools in the country will receive a set of planet earth posters and a rock set. The posters will be designed to simply and colourfully explain key themes/events of planet earth such as plate tectonics or volcanoes. The rock sets will consist of 6 samples of Ireland's main rocks, simply explained and mounted in a nice display frame. There will be public lectures, Planet Earth Walks & Talks, a Planet Earth TV series, schools competitions, conference exhibits and much, much more. Details will be advertised and will also be available on a continually updated Calendar of Events on the website

www.planetearth.ie

What's in a Name?

A robin is familiar to all of us. However, if you were talking with someone in America about the robin, things could become very confusing. You see, although we are both using the name "robin", it is not the same bird. The robin that is common in Ireland, and in the rest of Europe, is the European Robin. The American Robin, though similar, is not related. There are many other examples where names can be confusing. Take the Mountain Lion – this big cat is also known as the panther, cougar or puma - very confusing if you know it as one or the other! In some cases, language may be the only problem - in Ireland we all know the flower called the "daisy" but in France it is known as a "pâquerette". If you didn't speak French you won't know which flower was which.

Photo courtesy of Bill Tyne (wiki) cc-by-sa-2.0

The European Robin
Erithacus rubecula

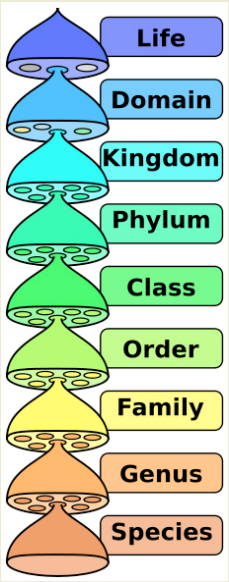
Photo courtesy of Jesse Hickmann (KirinX) cc-by-sa-2.5

The American Robin
Turdus migratorius

So how do scientists know which animals are which when they come together to discuss them? Well, to avoid any confusion, they use a common language and that is Latin. Every animal and plant has been given a Latin name.

In the 1700s, Swedish scientist Carl Linnaeus developed a system for naming plants and animals, a system which is still used by scientists today. Away back then Latin was a common language among scientists and so Linnaeus used it for his naming system.

Life is mostly divided into two main kingdoms - the animal kingdom and the plant kingdom. Each **kingdom** can be divided into categories that contains animals (or plants) with similar characteristics. Each category is known as a **phylum** (there are several phyla in a kingdom). An example of one phylum is Chordata – a category that contains animals with backbones (mammals, fish, birds, amphibians and reptiles). Another phylum is Arthropoda, which includes insects, spiders and crustaceans e.g. crabs.



http://commons.wikimedia.org/wiki/Image:Biological_classification_L_Pengo_vflip.svg

Next, each phylum is divided into **Class** - more familiar groups such as mammals Mammalia (mammals), Amphibia (amphibians), Aves - (Aves) etc.., then into **Order** - where each Class can have one or more Orders - for example Mammalia can be broken into Carnivora (dogs, cats etc..), Primates (monkeys), Rodentia (rats & mice) etc....

Class is then divided into **Family**, with animals such as cats in the Felidae family, dogs in the Canidae family and bears in the Ursidae family.

Families are then divided in **Genus**, containing animals (or plants) which are closely related, for example, in the cat family (Felidae) there are Felis (domestic cats), Panthera (lions and tigers), Acinonyx (cheetah) and many more.

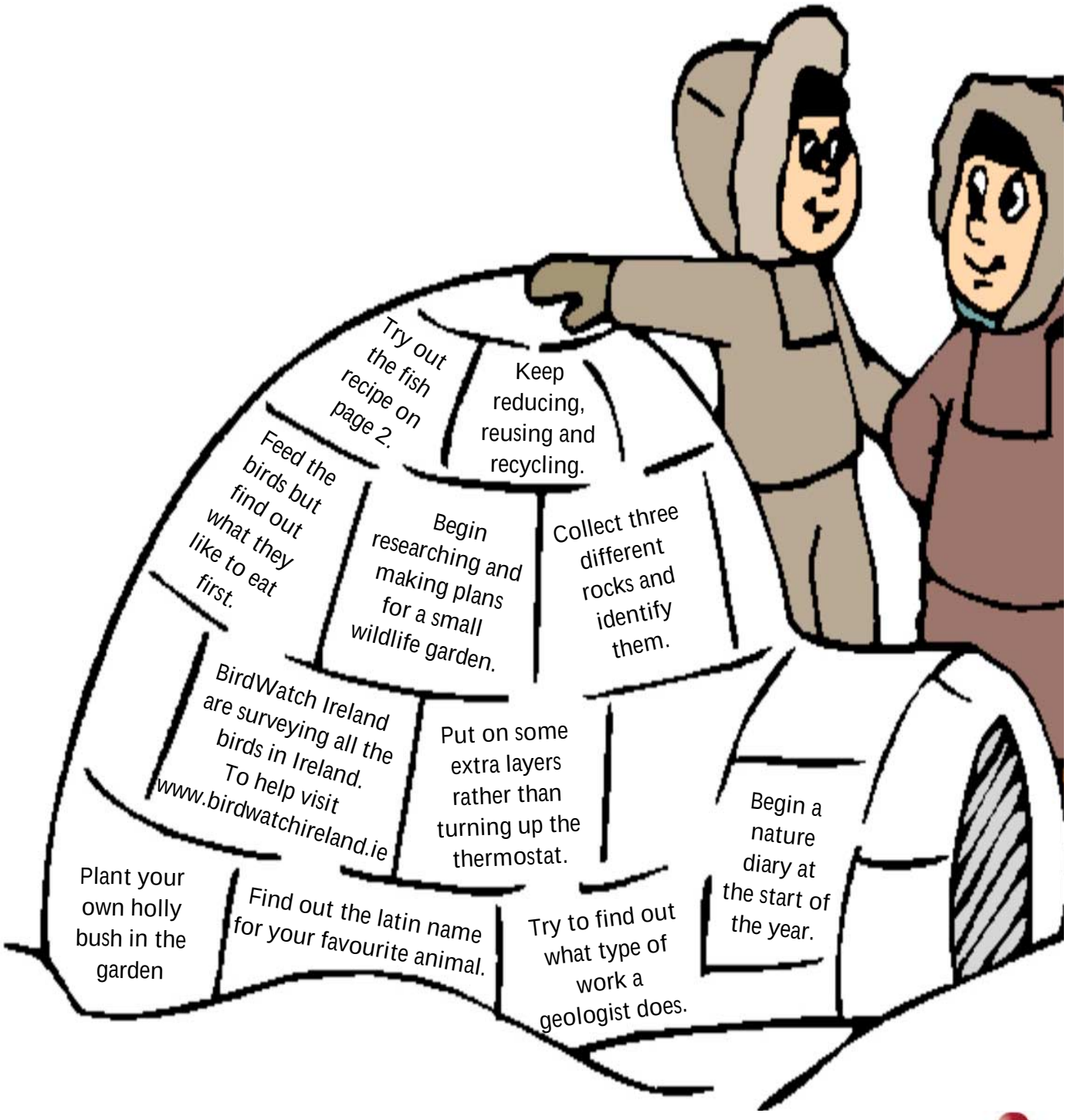
Within a Genus, animals (or plants) are finally divided into **Species**, which gives you a name for each individual animal. For example, dividing the genus *Panthera* (lions and tigers) gives you such big cats as the tiger (*Panthera tigris*), lion (*Panthera leo*), jaguar (*Panthera onca*).

The genus accompanies the species names, with the genus name coming first, beginning with a capital letter, and the species name second, beginning with a lower case letter. The genus and species are usually written in italics e.g. *Panthera onca* (the jaguar)

The system of arranging animals and plants, with similar characteristics, into sets or groups is called **classification**. The science of naming and classifying animals and plants is called **taxonomy**.

Nature's Noticeboard!

Winter 2007



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