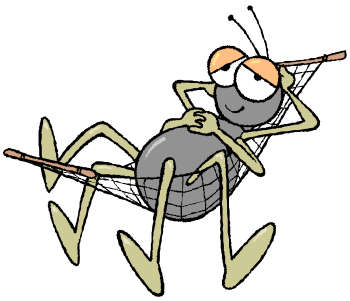

Nature's Web

Issue No. 32 Winter 2013

Inside This Issue...

Ivory Smile!

U.S. Geological Survey/photo by Sarah Sonsthagen

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Photo courtesy of Robbie Murphy

Editor's Page

Fly me to the moon!

It was a beautifully clear night on Thursday 10th October when my brother Robbie phoned, giving me two minutes' notice to run outside and see the International Space Station (ISS) passing in front of the moon. It took a moment to distinguish the ISS from the stars but it was exciting to see it moving at a steady pace right along the edge of the moon. Sadly, it was over in moments and the ISS continued on its course across the sky.

Luckily for us, Robbie was on Silver Strand on Sherkin Island with his high-tech camera and took this great picture. The path of the ISS is clear to see, appearing as a line from right to left across the moon. The reason it appears as a line is because Robbie used a 30-second exposure to capture the image. This means the shutter of the camera remained open for this length of time so the camera could capture as much light as possible from the night sky.

Photo courtesy of NASA

As Gaeilge! We are delighted to have teamed up with An Gúm, who have begun to translate Nature's Web into Irish. Check out the issues that are now available *as gaeilge*: http://www.gaeilge.ie/ForasnaGaeilge/An_Bhunscoil.asp

Herb Stuffed Whiting Wrapped in Crispy Bacon

Photo courtesy of BIM

What you need:

- 4 whiting fillets - trimmed
- 4 streaky rashers

Stuffing:
- 55g/2ozs butter
- 1 onion - finely chopped
- 55g/2ozs brown breadcrumbs
- A small bunch of parsley
- A few sprigs of dill/marjoram/thyme
- Salt and freshly milled pepper

What to do:

- Soften onion in melted butter, add all stuffing ingredients.
- Cut fillets in half lengthways.
- Place stuffing on each fillet and wrap a thin slice of streaky rasher around each roll.
- Place in buttered ovenproof dish, cover and bake for 15 minutes at 190°C/375°F/ Gas 5.
- Remove cover for last 5 minutes to crisp the bacon.

**You can substitute cod, haddock, hake, herring or mackerel.*

For more recipes visit www.bim.ie

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 learn about the work that marine geophysicist Kevin Sheehan carries out with the national seabed mapping programme. With the help of Captain Cockle, we find out even more information about the discoveries that this survey has made. We also look at two animals that live in colder climates, the walrus and the penguin, and in contrast we look at a 'hot' vegetable, the pepper, which has a scale of its very own to measure its heat!

You can 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, comments and suggestions for future articles. Have a good read!

Susan

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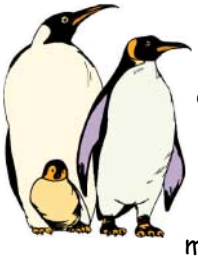
Photos courtesy of NOAA

The Emperor penguin (the tallest species of penguin) keeps its chick warm until its big enough to fend for itself.

The Penguin

English: Emperor penguin
Scientific Name: *Aptenodytes forsteri*
Irish Name: Piongain impireach

A penguin is typically black and white – its back, head and narrow wings are black and its front is white. Some species, such as the Emperor and King penguins, also have coloration around their neck. The penguin has a plump body on top of short legs, webbed feet and a short tail. It has to stand very upright to keep balanced and so walks with a waddle. The penguin does not fly as its narrow wings could not support its body in flight. In the water however it is very streamlined and its flipper-like wings help to guide and propel it. Capable of moving at great speed in search of fish, it catches them with it sharp pointed beak. It has few enemies but one of its most feared is the leopard seal.



Penguins and their young

Depending on the species, penguins lay one or two eggs. The Emperor penguin lays one egg that the female then leaves with the male to hatch while she goes off in search of food. The male places the egg on a fold of skin above its feet, which protects it from the cold and waits, often for weeks, until the chick hatches and the female returns to relieve him.

Keeping warm

As most penguins live in places where temperatures are low, their bodies have adapted to keeping the cold out. They have three layers that help to do this: short feathers on the outside, a thick layer of blubber on the inside and a layer of insulating warm air trapped in between.
Penguins live together in groups called rookeries. In the harsh weather of Antarctica, they benefit from having others around as they can huddle together for warmth. They take turns to go on the outside, where the worst of the weather is felt.

Other birds that do not fly

Besides the penguin, there are a few other birds that do not fly. Some of the most well-known are the ostrich, emu, rhea and kiwi. Many flightless birds evolved on islands where they did not have many predators to worry about. Flight has often been replaced by alternative skills, such as fast, powerful legs in the ostrich and powerful swimming ability in the penguin.

Where are they found in the wild?

There are approximately 17 species of penguin and though there are captive penguins in zoos and aquaria around the world, you will only find penguins in the wild in the southern hemisphere. The one exception is the Galapagos penguin, which lives on the Galapagos Islands at the equator. There are no penguins at the North Pole.
Many penguuins live on and around Antarctica, with only two species spending the winter there – the Emperor Penguin and the Adélie Penguin.
Some species live further north such as the Rockhopper Penguin, which can be found from Patagonia in South America to the edge of Antarctica and the Little Blue penguin, which can be found in South Australia, Tasmania and New Zealand. One penguin that has acclimatised to living in a warmer climate is the African Penguin, also known as the Jackass Penguin due to the donkey-like bray it uses to communicate. This penguin can be found in coastal waters and on islands from Namibia to South Africa.

Adélie penguins have distinctive white circles around their eyes.

The Chinstrap penguins (another species) get their name from strap-like colouring under their chin.

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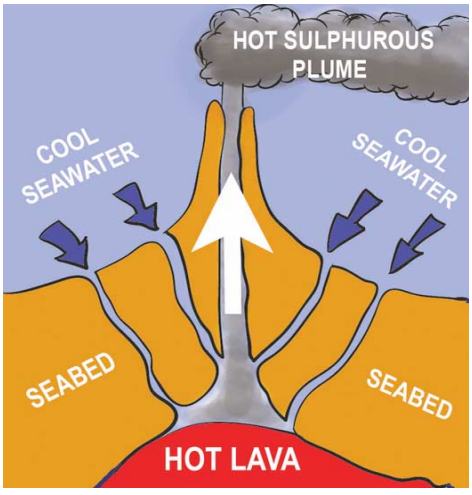
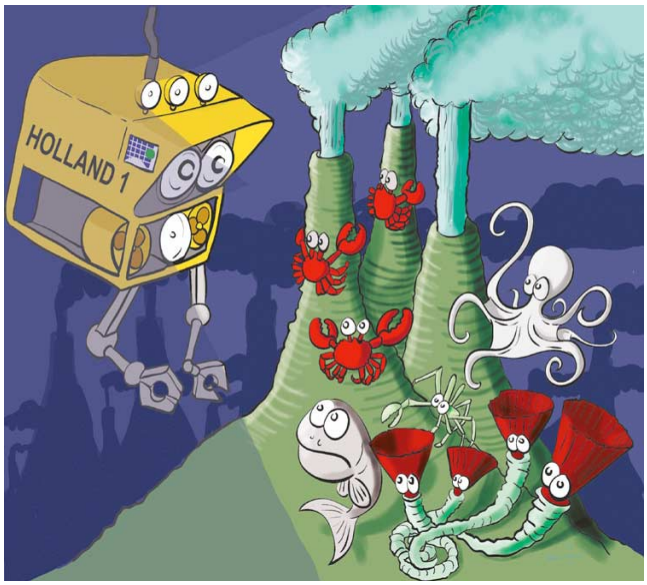
Life in Inner Space . . .

In August 2011 the Marine Institute's deepwater remotely operated vehicle (ROV), *Holland 1*, descended from the research vessel RV Celtic Explorer to a depth of three kilometres to film a field of 'black smokers' along the Mid-Atlantic Ridge. The expedition was led by University College Cork and filmed for the National Geographic Society's TV series Alien Deep.

Up until just over a hundred years ago, the view of science was that life could not exist in the deep oceans where sunlight could not penetrate. However, the area around the black smokers was teeming with life – from deepwater crabs and one-eyed shrimps that can 'see' heat in infrared to filter feeding worms and clams – not only in total darkness and tremendous pressure, but also at temperatures close to boiling point.

'Black smokers' are formed when cracks in the seabed around geological faults, such as the Mid-Atlantic Ridge, allow seawater to reach red hot volcanic material from the Earth's core. The resulting hot water, saturated with minerals, boils to the surface of the seabed in black, smoke-like clouds of copper, zinc, gold, iron and other minerals, creating a unique environment of towering 'chimneys' which derives its energy not from sunlight, but from heat. Bacteria, which feed on minerals, form a slime that in turn is food for filter-feeding worms and molluscs. These larger animals in turn are food for deepwater crabs, fish, octopi and squid creating an entire alien ecosystem in super-heated, darkness.





Images & text © John Joyce

Captain Cackle

by John Joyce

For more Fun Facts check out www.spindriftpress.com

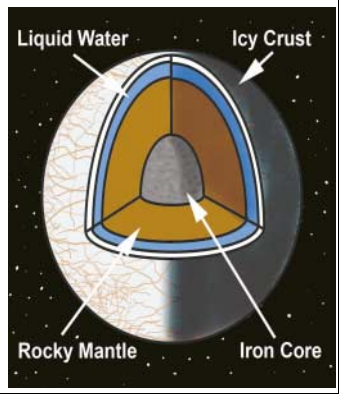
. . . and Outer Space

In 1989 the space probe Galileo surveyed Europa, one of Jupiter's moons, and found it to be covered in a sheet of ice. While the smoothness of the ice surface suggests that an ocean exists below it, nobody knows for sure if it is solid right the way through to the moon's surface or if it is simply a thin sheet covering a hidden sea – just as the ice at our planet's own North Pole covers the ocean below.

So far, no probes have actually landed on Europa but in 2022 the European Space Agency plans to launch JUICE – the Jupiter Icy Moon Explorer – to see if an alien ocean exists there.

Could it be, if JUICE is successful, that in some future mission to Europa, a specially adapted remotely operated vehicle like the Holland 1 will penetrate that moon's ice sheet into the ocean below?

And if it does, and if 'Black Smokers' exist there as they do on Earth, will the first extraterrestrial life we encounter in 'outer space' be a version of that which already exists in the 'inner space' of our deep oceans back here on our home planet?



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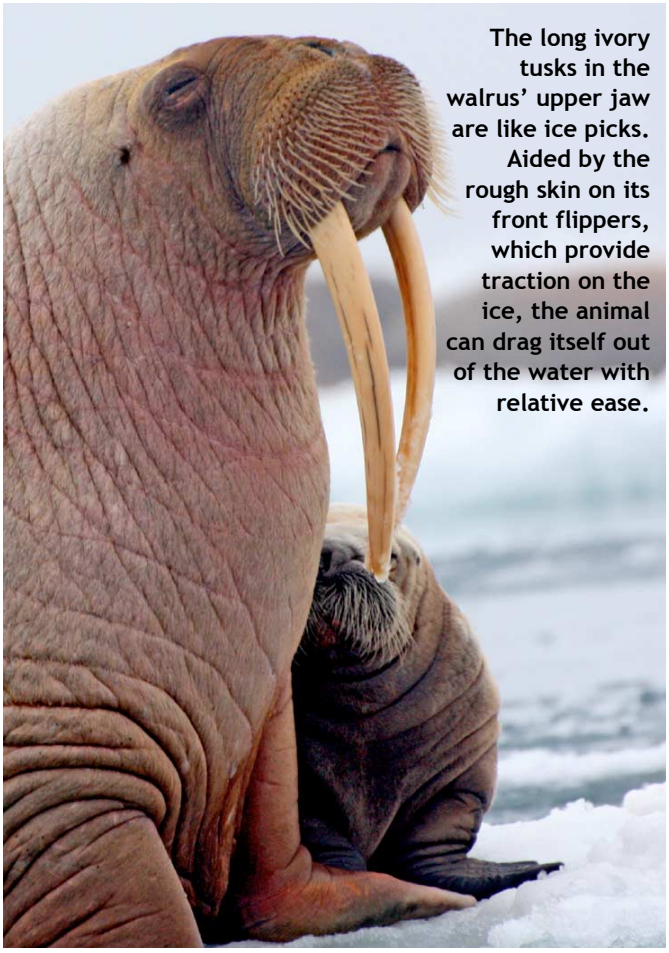
The Walrus

Scientific Name: *Odobenus rosmarus*
Irish Name: Rosualt



U.S. Geological Survey/photo by Sarah Sonsthagen

The long ivory tusks in the walrus' upper jaw are like ice picks. Aided by the rough skin on its front flippers, which provide traction on the ice, the animal can drag itself out of the water with relative ease.

The walrus is a relative of seals and sea lions. Collectively they are known as pinnipeds (a word which means fin or flipper-footed). The most striking feature of both the male and the female walrus are their tusks. These are really overgrown canine teeth. On the male they can grow very long - up to 1m in length. The walrus also has a huge and powerful body and needs to eat a lot every day. It does not use the tusks to feed. Instead it uses its mouth and tongue to suck up sea snails, worms, shellfish and krill from the seabed. With poor vision, it must rely on the sensitivity of its whiskers and snout to find the food while it blows a stream of water at the ground to stir up the prey.

The walrus can be clumsy on land but in the water it becomes streamline and agile, propelling itself with its hind flippers and using the front flippers to help it steer. It has a very thick skin, almost like an armour, covered in short, coarse hair. Underneath is a thick layer of blubber to protect it from the cold. It can dive up to 100m in depth and is capable of staying under water for up to 25 minutes.

Relatives

There are two very closely related walruses. One is the Pacific walrus, which is found in the North Pacific and Arctic Ocean. The other is the Atlantic walrus, which is found in the North Atlantic, from eastern Canada to Greenland to the Arctic Ocean.
A male is a **bull**, the female a **cow** and their young is a **calf**.

Keeping in with the crowd

Walruses are very social animals, hanging out in large groups. However males and females usually live separately, but come together on land to mate. Bulls court females with booming noises, which can often be heard up to 16 km away (10 miles).
During the mating season, males fight with other males for territory. The tusks creates lots of scars on the skin but these are not usually fatal.

FACT FILE:

Colour: Grey or cinnamon-brown. Turns red when sunbathing. The heat enlarges the arteries causing blood to rush to the skin & absorb heat.

Length: 3 – 3.6m. Males are larger than females.

Weight: 1.2 – 2 tonnes. Males are much heavier than females.

Diet: Sea snails, shellfish, worms, krill & slow-moving fish.

Habitat: In North Pacific, North Atlantic & Arctic waters, on ice floes & on the shoreline.

Lifespan: Approximately 40 years. Has few young. Usually born around April to June.

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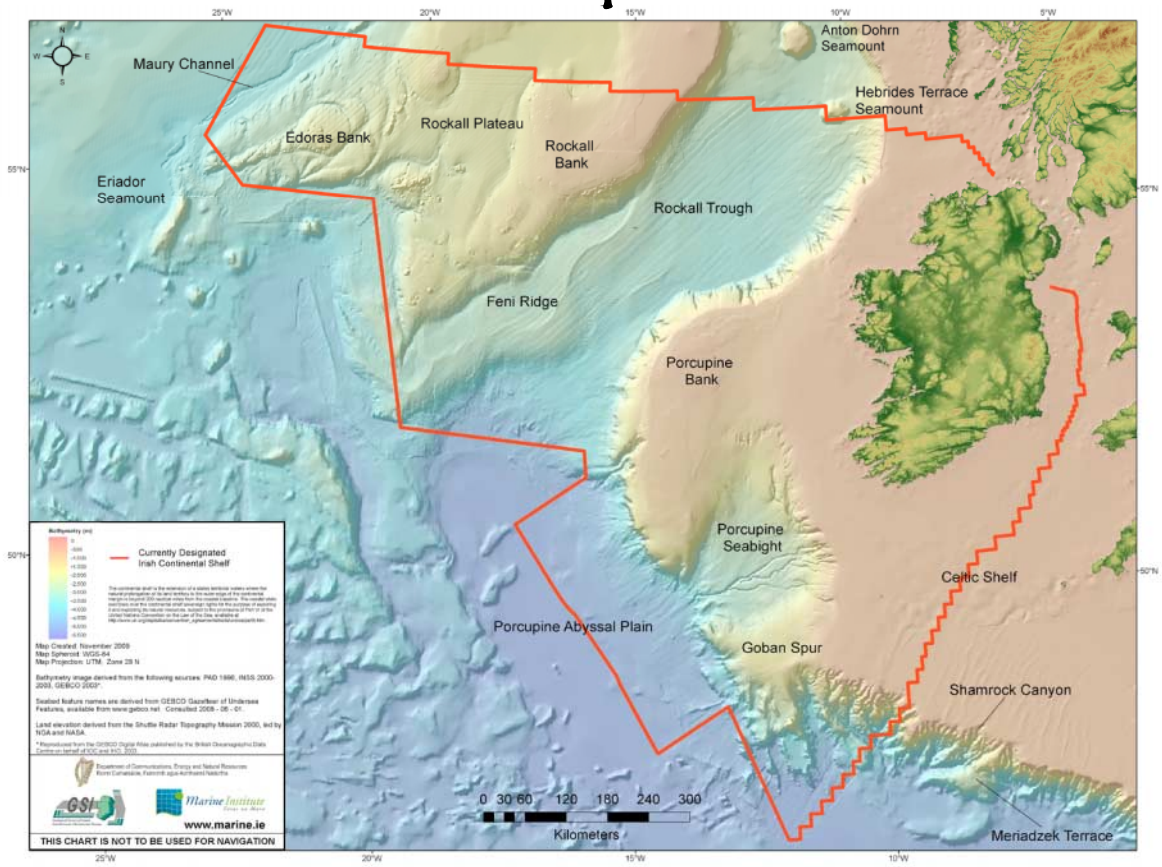
The Real Map of Ireland



The island of Ireland itself covers 20,863,360 acres of land. Ireland can also claim over 220 million acres of marine and undersea territory which is ten times greater than the size of the island of Ireland. Kevin Sheehan (page 7), who works for the Marine Institute, is one of the people helping to map this territory. Here is some interesting information on this valuable resource:

The Real Map of Ireland shows three areas under the sea which include:

- The continental shelf
- The continental slope
- The abyss

The Continental shelf: Ireland's continental shelf is a flat area of gently sloping land around the edge of the continents. Most of our fishing grounds are over the continental shelf as it is more fertile due to sediments washed out from rivers. This increases the amount of plankton for fish to feed on.

The Continental slope: Where the shelf changes to a slope the seabed is often cut by canyons.

The Abyssal plain: The Abyssal Plain lies beyond the Real Map of Ireland territorial zone. The Abyss is similar to the desert on land, it is scarred or featureless without a hill for thousands of square kilometres. It is intensely cold (-0.6°C to 3.5°C), dark and is under high pressure. The bottom of the abyss is covered with a slippery and cold substance called ooze.

Seamounts: Volcanic peaks can be found more than 1km above the Abyssal plain. These may also be called seamounts. Seamounts that have been flattened by wave erosion are called tablemounts.

Ocean ridges: Mid ocean ridges are a mountainous ridge that breaks the abyss. It is here that the new crust is formed by an up welling of magma from mantle below. In places these huge ridges appear above the surface of the sea to form islands. Iceland is an example of an island formed in this way.

Ocean trenches: Ocean trenches are formed where the mantle currents drag the plates towards each other and one sinks below the other. The deepest trench in the world, the Mariana trench is over 11,000m, this is in the Pacific.

The Gulf Stream: The Gulf Stream keeps Ireland warmer than would be expected in the winter by carrying heat in the form of warm water from the south western Atlantic near South America and Mexico. Any big weather event, such as a hurricane, typhoon, flood or drought, is generated by ocean conditions.

Children can learn more about the Real Map of Ireland through online worksheets and resources via the "Education & Events" link on the Marine Institute's website: www.marine.ie

Text and images courtesy of the Marine Institute

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All in a Day's Work

Kevin Sheehan – Marine Geophysicist

PROFILE

Kevin Sheehan

Kevin Sheehan works at the Marine Institute in Oranmore, County Galway. Kevin is a Marine Geophysicist, which means he studies the properties of the earth under the sea. Kevin works on the national seabed mapping programme called INFOMAR (INtegrated mapping FOr the sustainable development of Ireland's MArine Resource). **www.marine.ie**

Where do you work?

I spend 2 or 3 months of the year working offshore onboard the Marine Institute research vessels; the *RV Celtic Explorer* and *RV Celtic Voyager*. The remainder of my year is spent in our office, which looks out on Galway Bay.

What training did you do to get where you are today?

I studied Geology at the National University of Ireland, Cork for 4 years and then did a Masters degree in Geophysics at National University of Ireland, Galway, which took another year.

What is a day in your life like?

When we are working onboard the research vessels studying the ocean, we can spend up to four weeks at sea at any one time. I am usually the scientist managing the science team on board. As the survey runs 24 hours a day my first job when I wake up is to talk with the night shift team to check that everything went to plan during the night and there are no problems with any of our computers and equipment. I check the weather forecast, talk to the Captain on the Research Vessel and discuss a plan for the day ahead. I write a daily progress report and email it to the office management team. The rest of my day is spent planning the survey. Equipment attached to the bottom of the research vessel sends out sounds waves towards the seafloor. The time it takes these sound waves to return to the ship allows us to calculate the water depth. The amount of sound waves that return to the ship tells us about the hardness of the seabed. The harder the seabed is the more sound waves that are returned. The sound wave data is collected using special computers that can then make images of the seabed. We sometimes take samples from the seabed using equipment dropped from the vessel, so we can see what type of rocks and soil are on the seafloor.

What is your main aim?

Ireland has a sea area which is almost 10 times larger than its land area. The INFOMAR project aims to map Ireland's seabed. The information collected will: make our seas safer for navigation, help us discover new ship wrecks, improve our understanding of seabed habitats and help us protect important areas, allow us to find areas suitable for positioning wave energy devices and any seabed cables or pipelines and much more.

What do you like about your job?

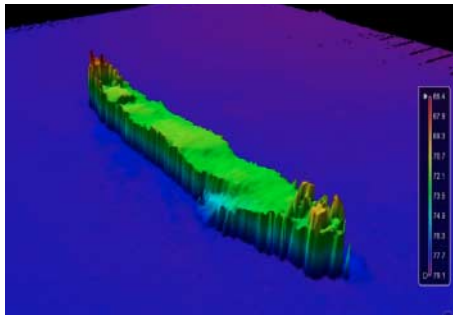
I get to see whales and dolphins in their natural environment. Dolphins often come right up to the ship and play in the waves created by our movement through the water. I also get the chance to discover new ship wrecks and to see images of the seabed that no one else has seen.

What don't you like about your job?

Feeling sea sick. It doesn't happen too often but when it does you've just got to lie down and rest for a while. It usually happens if the sea is rough on the first or second day of the survey. After that you get used to the ship's motion.

Do you work alone or as part of a team?

I work as part of a team. Everyone has their own role to play. We have Surveyors to tell the ship where to go, Engineers to put equipment in the water and fix things when they break. Data Processors use computers to make maps of the seabed. Depending on which ship I am on there could be between 4 and 12 scientists at sea together. Of course we have the ship's crew also and they take care of everything from steering the ship, looking after the engine to cooking and a lot more.



From top left (clockwise): The RV Celtic Explorer; Multibeam image of ship wreck on the seabed; Common Dolphins swimming alongside our ship; Seabed sample containing sand and gravel.

Images courtesy of the Marine Institute

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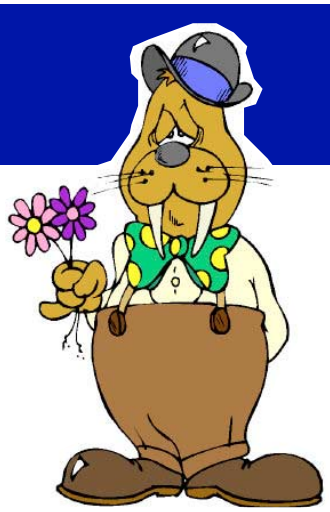
Wordsearch



Nature's Web Winter 2013

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

S G Z X N A H E E H S N I V E K D A
G E I Z F A Q L Z E V I J O L N L R
O O C A R D B O A R D W R E A T H C
D P X T F B M V V B D S P L C Q N T
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R J A I A T D H J G G T E N N A G I

ANSWERS:(OVER, DOWN, DIRECTION): Arctic Reindeer (18,1,S); Captain Cockle (15,16,W); Cardboard Wreath (3,3,E); Eucalyptus (3,13,NE); Gannet (17,18,W); Geophysicist (2,1,S); Gold Leaf (7,8,SE); Herb Stuffed Whiting (10,1,S); Kevin Sheehan (16,1,W); Meteorite (3,6,E); Penguin (13,4,S); Peppers (11,9,SW); Raining Cats and Dogs (1,18,N); Real Map of Ireland (2,16,NE); Scoville Scale (15,13,N); Space Station (17,15,N); Typhoon Haiyan (4,17,E); Walrus (7,12,NW).

Arctic Reindeer

Captain Cockle

Cardboard Wreath

Eucalyptus

Gannet

Geophysicist

Gold Leaf

Herb Stuffed Whiting

Kevin Sheehan

Meteorite

Penguin

Peppers

Raining Cats and Dogs

Real Map of Ireland

Scoville Scale

Space Station

Typhoon Haiyan

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Colour In

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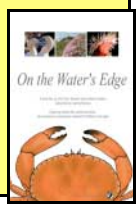
Learn More

Only €2.10 each including postage or €12.00 for all seven! *32pp each*

Sherkin Island Marine Station has published a range of colouring books, guides and activity books for children. Each 32-page *Colouring & Guide Book* gives you the chance to colour, identify and learn about the wildlife around Ireland. *My Nature Diary* contains lined pages to fill in a daily record of sightings and nature news.

Sea Life DVD: *"On the Water's Edge"*

Produced by Sherkin Island Marine Station, the dvd '*On the Water's Edge*', features a short film on life beside the sea. Presented by Audrey Murphy, it includes 6-10 hours of interactive material for children of all ages. *Only €7.30 including postage.*

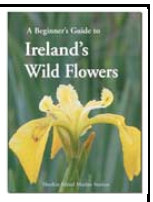


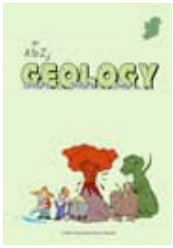
A Beginner's Guide to Ireland's Seashore is a pocket-sized guide, suitable for beginners of all ages. This book will help you to explore the wonders of marine life found on the shores around Ireland.

Only €8.00 inc. postage

A Beginner's Guide to Ireland's Wild Flowers With the help of this pocket-sized guide, beginners of all ages will be introduced to the many common wild flowers found around Ireland. *206pp*

Only €8.50 inc. postage



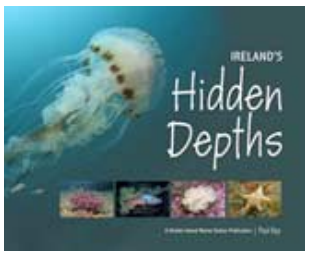


"An A to Z of Geology" explores the fascinating world of rocks and geology – a world of volcanoes, tsunamis, earthquakes, diamonds, gold and even dinosaurs! Produced by Sherkin Island Marine Station, in association with the Geological Survey of Ireland.

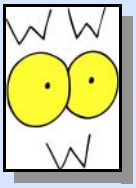
Only €5.99 plus €1.00 postage

Ireland's Hidden Depths has just been published by Sherkin Island Marine Station. Ireland's amazing marine life, glorious kelp forests and spectacular undersea scenery are featured in over 200 spectacular photographs by nature photographer Paul Kay. 277 x 227 mm 160 pps

Only €10.00 plus 3.00 postage



To order books, send your name and address along with a cheque or postal order made payable to Sherkin Island Marine Station to: Sherkin Island Marine Station, Sherkin Island, Co.Cork. Ireland. **Or Visit: www.sherkinmarine.ie where you can order by Paypal.**



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:

International Space Station: http://www.nasa.gov/mission_pages/station/main/index.html#.Undxj3CX1Nd
http://www.heavens-above.com/ http://www.nasa.gov/audience/foreducators/teachingfromspace/dayinthelife/index.html

The Penguin: http://www.antarctica.gov.au/about-antarctica/wildlife/animals/penguins
http://www.defenders.org/penguins/basic-facts http://www.penguins.co.nz/new-zealand/see/

Captain Cockle - Inner and Outer Space: http://www.spindriftpress.com/
https://www.marine.ie/NR/exeres/84C6DFD2-BA4F-4DBB-A40B-A6663879EED4,frameless.htm

The Walrus: http://www.marinemammalscience.org/index.php?option=com_content&view=article&id=512&Itemid=320
http://www.fws.gov/alaska/fisheries/mmm/walrus/reports.htm

The Real Map of Ireland: www.marine.ie
http://www.marine.ie/home/community/education/lessonplans/TheRealMapofIrelandIrelandsMarineResource.htm

Gold Leaf Eucalyptus Tree: http://www.abc.net.au/news/2013-10-23/an-gold-found-in-gum-tree-leaves/5039226

Arctic Reindeer: http://www.sci-news.com/biology/science-eyes-arctic-reindeer-01506.html

Russian Meteorite: http://www.skyandtelescope.com/news/Huge-Meteorite-Pulled-from-Russian-Lake-228116691.html

Bird's-eye View:
http://www.rspb.org.uk/community/placestovisit/ramseyisland/b/ramseyisland-blog/archive/2013/10/21/gannet-cam-the-grassholm-research-story-continues.aspx

Super Typhoon Haiyan: http://www.nasa.gov/content/goddard/haiyan-northwestern-pacific-ocean/#.Uonv7tKX1Nf

Peppers: http://pure-sauce.com/chilli-facts/ http://www.bordbia.ie/aboutfood/veg/pages/sweetpeppers.aspx

Craft Projects: http://www.enchantedlearning.com/crafts/

Raining Cats and Dogs:
http://www.accuweather.com/en/outdoor-articles/outdoor-living/infographic-things-falling-from-the-sky/63063

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The World Around Us

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

Bird's-eye View

Scientists have been carrying out research on the RSPB Grassholm Island, off the Welsh coast, for the last eight years. The uninhabited island has the fourth largest Northern Gannet colony in the world with just under 40,000 pairs of birds. Dr. Steve Votier of the University of Exeter in the UK, together with his team, have been using the Global Positioning System (GPS) for a number of years to help them build up a picture of the gannets' activities. Tiny units attached to the birds collect and record their movements when out at sea. Then Mark Bolton from RSPB came up with an idea of also attaching a video camera to some birds. While the GPS gave the position of the birds, the camera now allows the tracking team to see whether the birds are flying, feeding or resting on the surface of the water.

Through Different Eyes

You already know a certain reindeer who has a very red and shiny nose (and some would even say it glows!) but scientists have discovered that there is another reindeer organ that makes a surprising colour transformation. The Arctic Reindeer changes its eye colour from gold in the summer to deep blue in the winter. In summer, the gold colour reflects the bright sunlight but in winter the deep blue makes the eyes more sensitive to the night conditions, helping the reindeer see predators and find food. Built in sunglasses!

Finding Rock of a Special Kind

Remember the meteorite that roared across the Russian sky and plunged into an ice-covered Russian lake last February? Well, divers have pulled four or five pieces of it from the lake. The largest bit is 1.5m in length. The crust of melted rock on its surface confirms that these pieces are from the meteorite and not just any old rock. The crust formed as the fireball was racing through the Earth's atmosphere. Piece are actually for sale on the interest but watch out, not all the pieces are real!

Gold Leaf Eucalyptus Tree

Gold leaf is a term used for paper-thin sheets of gold used for such things as decorating mirrors and frames. But what if leaves themselves were made of gold? Well, scientists in Australia have actually found real gold in the leaves of some eucalyptus trees. They believe this gold shows that there is gold underneath the surface of the ground and hope to use this type of information in the future to locate suitable places to mine for gold. But how does the gold get into the leaves? Trees act like hydraulic (water) pumps, bringing water up from the soil to the leaves. Particles of gold in the water are carried from the surrounding rock, pumped up into the tree and then deposited in the leaves. Proving that money does grow on trees!

Super Typhoon Haiyan

Super Typhoon Haiyan struck the Philippines in the west Pacific Ocean on 8th November 2013. It was one of the largest and strongest storms ever recorded. The typhoon had estimated sustained peak wind speeds of 315 kph (192 mph), a storm surge (raised sea levels) and heavy rain. It caused massive destruction and loss of life. The area hardest hit by the typhoon was the island of Leyte, where the surge reached 5.2m in height. Is this an example of global climate change?

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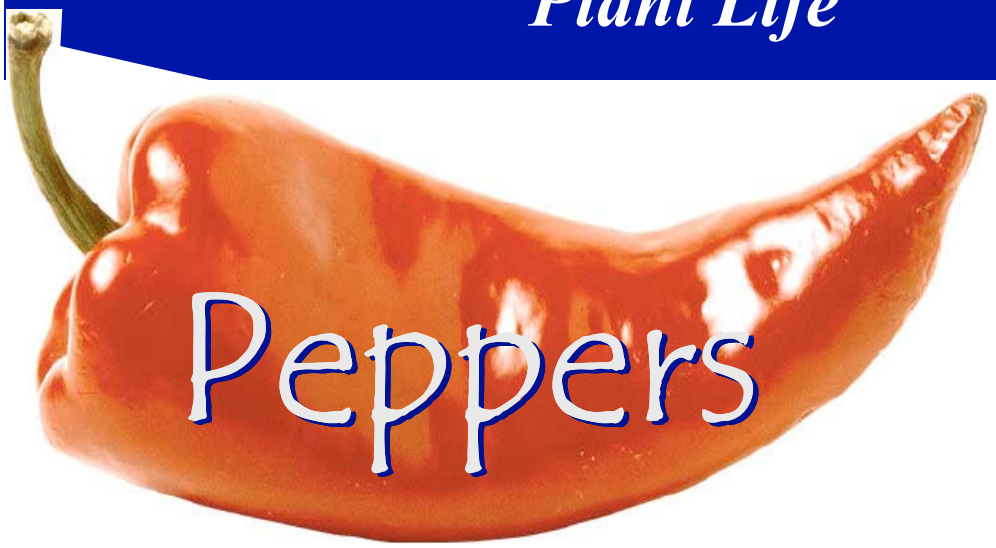


Peppers

Peppers are related to tomatoes, aubergines and potatoes. They come from a flowering plant native to the Americas that is now grown all over the world. The flowerheads of the plant develop into colourful fruits, inside which are seeds that allow the plant to reproduce. Despite the fact that they are fruits, peppers are usually found amongst the vegetables in the supermarket. In cooking terms they are considered to be a vegetable.

There are many varieties of pepper. Generally, the 'cool' peppers are known as bell or capsicum peppers and the 'hot' peppers are known as chilli peppers. In Ireland, the most frequently eaten pepper is the bell pepper, which comes in a variety of colours - red, green, yellow or orange.

Bell peppers

Turning up the heat

Other than the bell pepper, most peppers when eaten cause a burning sensation in the mouth. This is caused by a chemical substance known as *capsaicin*. Bell peppers are the only peppers not to contain this substance. The purpose of the heat is to protect the fruits from consumption by mammals. This allows birds, which are unaffected by the heat, to help the plant produce. Attracted by the rich colour, they eat the fruits and disperse the seed far and wide.

Medicinal

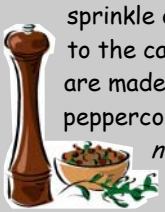
Peppers have been valued for their medicinal properties for thousands of years. They have been used to treat heart ailments, provide pain relief, reduce inflammation and treat colds and sore throats.

Cooking up a storm

Bell peppers are great for cooking and are very good for you as they have a very high content of Vitamin C. They can be eaten raw or cooked. Raw and chopped into slices, they are great in salads and in wraps. They are also great cooked in stir fries, stuffed and baked or in omelettes. Chilli peppers are used to add spicy heat to dishes but the heat can be too hot for some!

No Relation!

The white and black pepper that we sprinkle on food is not related to the capsicum pepper. They are made from ground peppercorns from the *Piper nigrum* vine, which is native to India.



Too hot to handle?

In 1912, William Scoville devised a special scale to measure the heat of a pepper. Known as the Scoville scale, it measures the amount of capsaicin (the heat-causing substance) in the pepper and records it in Scoville heat units (SHU). To give an idea of the scale here are some examples: the bell pepper contains no heat and measures 0 SHU on the scale. Original Tabasco sauce measures 2,500–5,000 SHU and cayenne pepper measures 30,000-50,000 SHU. The hottest pepper in the world is the Trinidad Moruga Scorpion pepper which measures over 1,200,000 SHU but this may change as scientists are continually trying to grow hotter and hotter varieties of pepper. Other peppers over 1,000,000 SHU include the Ghost Pepper (Bhut Jolokia), Naga Viper, Infinity Chilli and Chocolate 7-Pot. Contact with chilli peppers can cause severe irritation on the skin and in the eyes so great careful must be taken when handling them and hands should be washed immediately afterwards!

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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 Kevin Sheehan is a geophysicist. For which organisation does he work?

2 In the leaves of which type of tree did Australian scientists find gold particles?

3 Up to what length can the tusk of a walrus grow?

4 Peppers are high in which vitamin?

5 Which islands are home to the most northerly penguins in the wild?

6 How many times greater is Ireland's sea area than its land area?

7 What fell from the sky in the remote Australian town of Lajamanu in 2010?

8 Does the Scoville Scale measure the heat of peppers or curries?

9 How many empty toilet rolls are needed to make the wreath on page 14?

10 What two animals does Kevin Sheehan like to see at sea?

11 Penguins are very slow swimmers. True or false?

12 How far down did Holland I descend to film a field of 'black smokers" along the Mid-Atlantic Ridge?

13 Where was Robbie Murphy when he photographed the International Space Station passing by the moon?

14 In winter, what colour are the eyes of the Arctic Reindeer?

Answers: (1) Marine Institute. (2) Eucalyptus tree. (3) 1 metre (4) Vitamin C. (5) Galapagos Island. (6) Almost 10 times greater. (7) Fish. (8) Peppers. (9) 10. (10) Whales and dolphins. (11) False. They are fast swimmers. (12) Three kilometres. (13) Silver Strand, Sherkin Island. (14) Deep blue.

Think of a Title

Can you think of a funny title for this picture of two Black-Tailed Prairie Dogs, which was taken in Saskatchewan, Canada?

Courtesy of Alan D. Wilson www.naturespicsonline.com

Nature Jokes

Why don't walruses chase people on bicycles?
Walruses can't ride bicycles.

Why did the farmer take his cow dancing?
He was in the mood for a milkshake.

What do you call a kangaroo in Antarctica?
Lost.

What is the insect's favourite game?
Cricket

What's blue and has big ears?
An elephant at the North Pole.

What's the difference between an injured lion and a thunderstorm?
One roars with pain and the other pours with rain.

Why are some fish at the bottom of the ocean?
Because they dropped out of school!

Spot the five differences!

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A Cardboard Wreath

There are lots of materials in the home that instead of being thrown away could be recycled into something else. Empty toilet rolls, for example, are useful for lots of craft projects. Try making this decorative wreath to hang on your wall.

You will need:

- 10 empty toilet rolls or 5 empty kitchen paper rolls
- Pencil
- Ruler
- Scissors
- Glue or tape
- Poster paints or spray paint
- Decorative material such as buttons, coloured card, ribbons, glitter.

Tip:

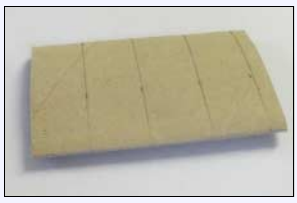
If you are using glue instead of tape, use clothes pegs to hold the petals together until the glue is dry.

Glue may give a neater finish as it can be hard to paint over tape, however tape makes securing the petals much easier and quicker.

Hang the individual flowers as ornaments on the Christmas tree.

1. Flatten an empty toilet roll or cardboard roll from kitchen paper and rub along the edges to get a sharp crease. It is important to use the same diameter roll for the whole wreath.

2. Mark 4 x 2.5cm strips. There may be a little leftover on a toilet roll so discard that. You will get more strips from a kitchen roll.



3. Cut the strips with a scissors (ask a grown up if you need help with this). Keep marking and cutting the rolls until you have 40 in total.

4. Use tape or glue to join two 'corners' together.

5. Keep joining the petals until they form a flower.

6. Join one flower to another at the same points each time and then join all the flowers until the last is attached to the first. They will naturally form a circle.

7. Paint the wreath with poster paints or spray paint and allow to dry. Decorate with ribbons, buttons, homemade holly leaves or however you like!

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Special Feature

Raining Cats and Dogs!

Submitted by Michael Ludwig

We're all familiar with the phrase "raining cats and dogs," but what about fish and frogs? Since biblical times, there have been reports of strange things falling from the sky. Some incidents have occurred more than once and others were more random and are less likely to repeat themselves. However all are the result of natural events.

Raw Meat

A few pieces of meat fell from the sky in Virginia, USA, last year, one landing on the head of a teenager in the middle of a horseback riding lesson. At the time experts guessed that a seagull was the culprit. But now it is thought buzzards, having regurgitated venison or mutton, caused the event now known as the Kentucky Meat Shower!

Money

A German woman collect "a substantial amount of money" that fell from the sky onto her car as she was driving. Of course she stopped and collected the "cash from heaven" and in what is a really impressive display of honesty, later turned it in to police!

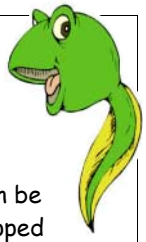
Fish

Typically, fish are scooped up by water spouts and dropped in bunches—and that's just what happened in the remote Australian town of Lajamanu in 2010.

Golf Balls

We all joke about golf-ball sized hail, but what about real golf balls? *Popular Mechanics* magazine quoted a *St. Petersburg Times* story that reported "dozens and dozens and dozens" of golf balls falling on the town of Punta Gorda on the gulf coast of Florida in 1969. Water spouts and an abundance of bad shots and golf courses were thought to have been the source for this strange event.

Frogs



Like fish, frogs are easy targets for updrafts and can be carried and dropped miles and miles away. In one 2009 incident, tadpoles rained down on a town in central Japan.

Mud

J.W. Moore of Easton, Pennsylvania, wrote to the editors of *Science Magazine* to recount a "mud shower" caused by a dust storm and subsequent rain that occurred on April 12, 1902. It happened again later that year, this time in New Zealand: According to a telegram from November 14, "The south train yesterday afternoon encountered a shower of red mud the whole way from Henley to Waihola."

Blood?

At least, that's what it looks like. This most recently happened last year in India. In an *Examiner* article that analysed the different "red rain" cases that have been reported over the past two decades, the publication quoted two scientists who concluded that "the mysterious red colour in the rain is caused by [an] unidentified life form that does not have DNA." Today, other scientific theories about how the rain turns red revolve around meteor dust and micro-organisms.

Worms

Water spouts were thought to be the cause of 120 worms falling in tangled bunches onto a group of students during gym class.

Sharks

In 2012, a shark fell on the 12th tee of a Southern California golf course. A course marshal found it and transported it back to the ocean, where it was successfully released. Witnesses say the shark had puncture wounds and concluded that it had been scooped up by a bird and carried over land before it was able to shake free.

Spiders

Spiders can't fly, but they can build a parachute with the best of them. In 2007, a group of them "rained" down upon some hikers in Argentina.

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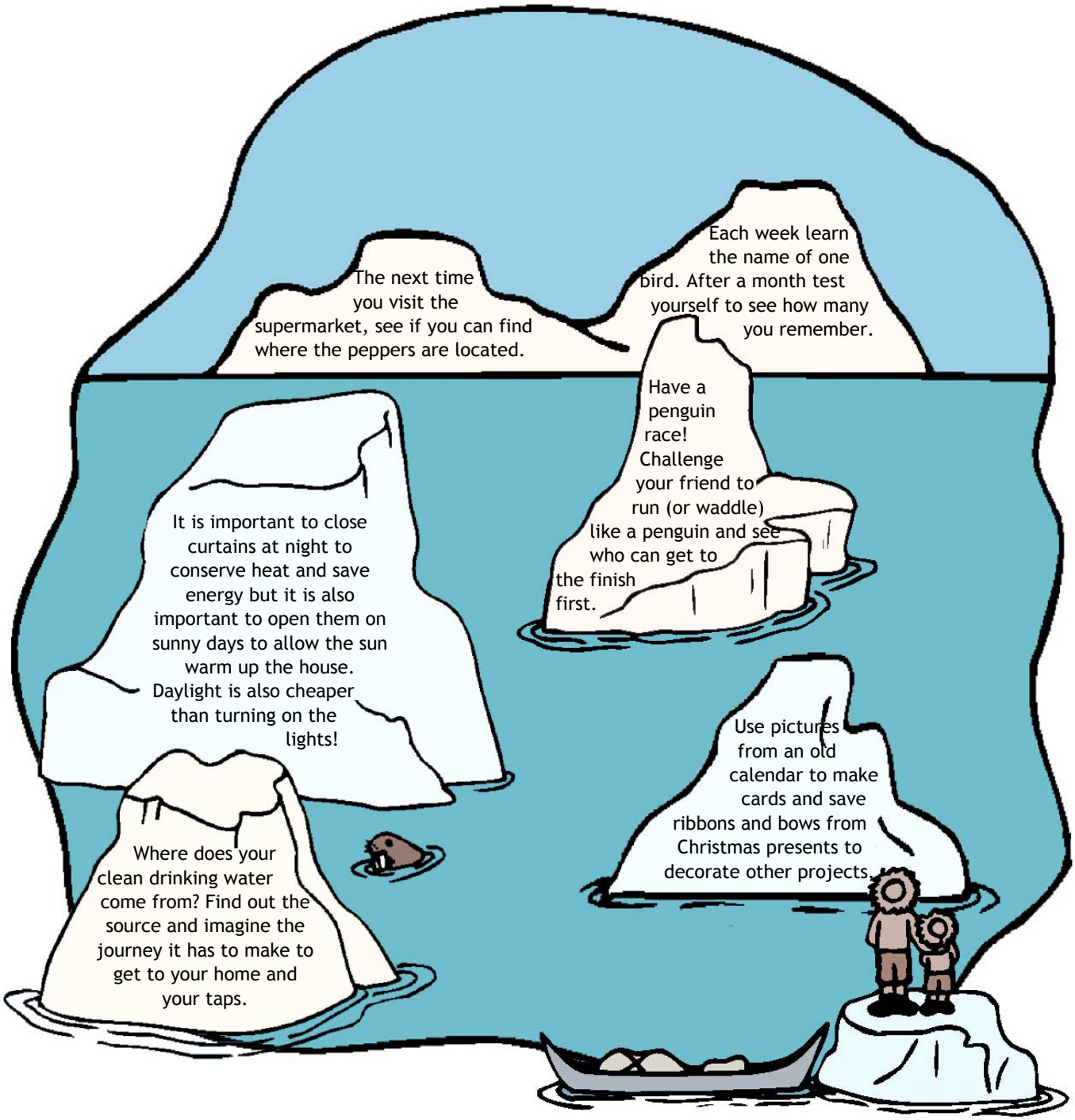
Nature's Noticeboard!

Winter 2013



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