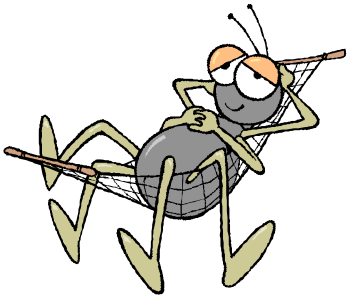

Nature's Web

Issue No. 4 Winter 2006

Inside This Issue...

Cool Waters

Winter is upon us and it is a time for snuggling in by the fire and keeping warm. The planet is full of extremes in weather. Luckily we live in a mild climate that is neither too hot nor too cold. Our animals and plants do not have to put up with too many extremes in temperature. Our summers are warm and often damp, and our winters rarely go below freezing.

Photo: US Fish & Wildlife Service

Polar bear cubs sheltering in the ice of the Arctic.

In some parts of the world, however, animals and plants have to cope with extremely high and extremely low temperatures. In *Nature's Web* this season, we're focusing on some of the colder climates of the world. We find out about the icebergs that float fast and furiously in the polar regions. We get a glimpse of the life of Antarctic scientist, Rachael Shreeve, and learn about one of the largest four-legged carnivores in the world, the polar bear.

Photo: © Rachael Shreeve

Antarctica, where scientists constantly search for clues about our planet's environment.

Editor's Page

Rudolph on Surveillance!

Photo: © Terry Farnell

With Christmas fast approaching, it appears that Santa has been sending out his reindeer to do a spot of surveillance before the big night! Some weeks ago, a deer was spotted on Sherkin Island, causing great excitement amongst the locals. Some thought it was a story invented with the approaching of the festive season, but no! Spotted by a number of reliable witnesses and captured on camera by Terry Farnell, we have definite proof of the presence of a full-antlered male fallow deer on the island. It is believed that the deer, spotted earlier in Baltimore, may have swam from a nearby point on the mainland to explore the island. Nothing has been heard of the deer for some time now and it may well have returned to the mainland, perhaps making its way back home before a busy season!

Photo: © Robbie Murphy

Summer Memories

Ok I know I'm bragging a little but on Sherkin Island we're really lucky with our weather. Sherkin Island Marine Station has been recording weather for over 30 years for Met Eireann, the Irish National Meteorological Service. The weather on Sherkin Island often tops the monthly records, published by the Met Office. For example, in August this year, we had the most hours of sunshine, with 205 hours, compared to the lowest at Ballyshannon in Co. Donegal, with 86 hours. Thankfully, August was warm everywhere this year. Wasn't it great to get out in the sunshine. For once, the summer felt like a "real summer"!

Seafood Recipe

Smoked Salmon Turrets

with Seasonal Greens in a Honey Orange Sauce

Photo: BIM

What you need:

8 x 75g/3 oz smoked salmon slices
4 tablespoons mixed red, green and yellow peppers
1 tomato - skinned and seeded
1 orange segment
Assorted lettuce greens - lollo rosso, oakleaf, frisée

Dressing
1 tablespoon honey
1 tablespoon orange juice
1 tablespoon wholegrain mustard
1 tablespoon white wine vinegar
3 tablespoons virgin olive oil
Salt & freshly milled pepper

Brought to you by BIM. www.bim.ie

What to do:

- Make dressing - place mustard in large bowl, add vinegar and other ingredients, mixing well. Season.
- Add in finely chopped peppers, tomato and orange.
- Check seasoning and add salad greens, gently mixing.
- Place generous portion of salad in centre of each salmon slice.
- Roll up and arrange on serving plates.
- Served chilled. *(Serves 4)*

Welcome to the Winter Edition of Nature's Web!

Dear Reader,

Welcome everyone to the winter issue of Nature's Web. While putting this newsletter together, we've enjoyed learning about many aspects of colder climates, but a number of other articles have also fascinated us. In particular, we have found a new respect for nettles (page 6) and are more determined to try and reduce our carbon footprint as much as possible (page 14). 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!

Susan & Audrey

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Hungry Birds

Fresh coconut is very useful for feeding birds. The shell can be cut in two and hung on its side, to prevent the rain getting in, and the birds can then pick away at the white flesh. The empty shells can be used as hanging containers, holding either food or water. Similarly discarded grapefruit shells can be used as containers.

A very simple bird table would be a square of wood nailed onto the top of a pole, with the pole then dug into the ground. More advanced bird tables would have little roofs in order to prevent larger birds eating all the food. If a bird table is too adventurous a large piece of wood or old door will do nicely. Some type of lip around the edges would be preferable. This will prevent food from falling off. When placing the wood on the ground try to raise it about 2 inches so that the grass underneath can breathe.

During the winter months hanging baskets for flowers become redundant. This is an ideal place to leave out chunks of stale bread and old fruit.

Winter is a hungry time for many birds. The hardened ground and snow falls make it hard for birds to find food. One way of helping birds to survive is to put out food. Another way is to plant your garden with trees, shrubs and flowers that produce berries and seeds which will supply a winter feed for birds.

When feeding birds, a table is great. It keeps the food away from the ground so that vermin cannot get at it. It also provides security for the birds as they have a better view of their surroundings and can keep out of reach from cats. This is important to keep in mind when you are positioning a table in the garden. Do not place it too near trees or shrubs where cats can hide. However, place it close enough to a window so you can see the birds and what they get up to.

Most household scraps can be thrown out to birds. These include fat, bacon rind, cheese, stale cake, biscuits, cooked potatoes, breakfast cereal, oats, cooked rice, fresh coconut, raisins, sultanas and other fruit. It is important to avoid salty and mouldy foods and particularly desiccated coconut, and dried food. When water is consumed it swells up inside the bird's stomach.

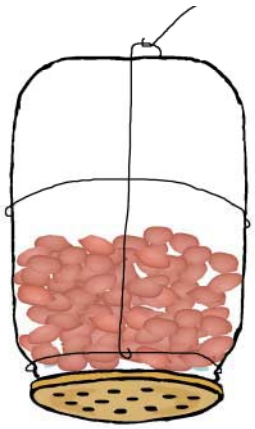
Once a bird table has been set up in the garden it is important to keep it stocked on a regular basis. Birds will begin to rely on the food and may travel great distances in order to obtain it. No food means a wasted journey, and that means wasted time and energy which cannot be spared in bad weather. If food disappeared from the table early on in the day restock the table for the evening. Water is also an important feature. During harsh winters the ground can freeze up. Water should be provided for drinking and also for bathing. Clean well-oiled feathers will help to keep a bird warm. Ideal containers would be a saucer or flowerpot holder or dustbin lid. Something shallow is important so that they can walk around in it. But keep it topped up with fresh water.

Birds should only be fed in wintertime and not from May to September. It is not wise to feed birds then, as this is the time when the young are born and unnatural foods could kill them.

If you do decide to feed the birds in your garden this winter, it will make the birds happy and increase their chances of survival.

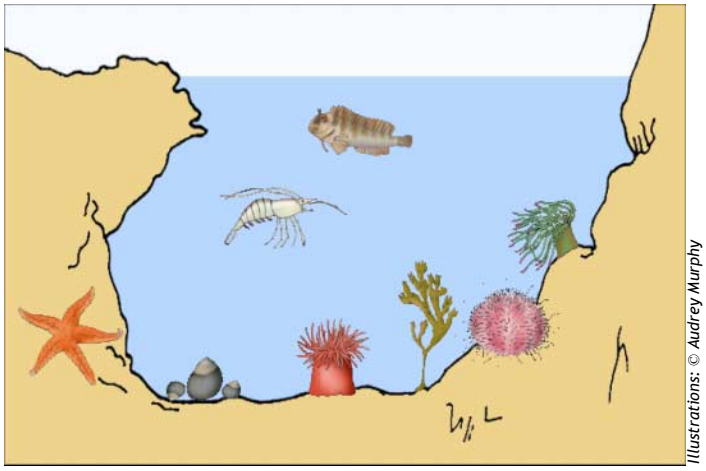
Thread peanuts on a string or hang a bag of peanuts on a tree or washing line, using an old red nylon mesh onion bag.

Provide water so the birds can drink and bathe.



Jars can also serve a purpose. (Plastic peanut jars would be the safest). Drill holes in the top of a jar, large enough so that a bird can pick out the nuts (make sure the holes are smooth) and the jar can then be hung on a branch. A small number of birds enjoy feeding in this way and it will discourage larger birds from eating the food.

Rockpools



Illustrations: © Audrey Murphy

Pools are formed when the tide goes out and water is left behind in hollows in the rocks. Each one varies in size and many animals and seaweeds take advantage of this special habitat to prevent them drying out in the sun when the tide goes out.

Pools that are high up on the shore only refill with water on very high tides, called spring tides. Spending longer in the sun, these rockpools can be quite warm and the heat can also cause some water to evaporate leaving behind a very salty pool.

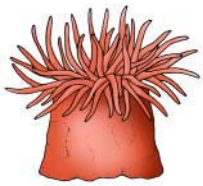
Rockpools can be stressful for animals as conditions can change quickly. A heavy rainfall, an overnight frost, a very hot day or a very rough day can influence what can survive in a pool. Less area to grow, less room to escape from predators, changes in the salt content, constant changes in temperature every time the pool fills up with cold water and then heating up again in the sun, all mean that many rockpools are not ideal habitats for animals and plants.

Some rockpools do however support a huge variety of animals and plants. Sea lettuce, crabs, hermit crabs, small fish, shrimp, anemones, starfish and sea urchins can all be found in pools. Some rockpools further down the shore provide a habitat for kelps, serrated wrack and other large seaweeds.

Some animals and plants often found in rockpools

Many seaweeds are strong enough to survive the often unpredictable conditions in a rockpool.

When the tide is in, the limpet lifts up its shell and moves around, grazing on seaweed. When the tide goes out, the limpet attaches itself firmly onto the rock so that it will not dry out.



When the tide is out or if disturbed the anemone hides away its tentacles inside its body. This protects it from drying out and from predators.

Edible Periwinkles can survive quite a while without food or water. Each periwinkle has an operculum, which is a round cover that blocks the opening to make sure the animal does not dry out.

Photo: © Paul Kay

Polar Bears

FACT FILE

Length (from nose to tail): Male - 200 to 340 cm
Weight: Male 400-680 kg (Females are half the size of a male polar bear)
Diet: Ringed seals, bearded seals, harp seals, young walrus & whale, fish, seabirds.
Offspring: Usually 2 cubs
Habitat: Circumpolar Arctic in Alaska (US), Canada, Greenland, Russia and Norway. Polar bears do not live in the southern hemisphere.
Latin name: *Ursus maritimus* (meaning "sea bear")

Photo: Steve Amstrup, US Fish & Wildlife

Polar bears are found throughout the circumpolar Arctic on pack ice, along or near coasts, and on islands. They share this habitat with indigenous peoples, and animals such as ringed seals, arctic foxes, narwhal, beluga whales, and millions of migratory birds.

There are believed to be at least 22,000 polar bears worldwide, and about 60 per cent of these are in Canada. Tracks have been reported as far north as the pole, but scientists believe few bears travel beyond 82° north latitude. The World Conservation Union (IUCN) recently listed polar bears as "threatened" species.

The northern Arctic Ocean has little food for them. Polar bears spend much of their time at or near the edge of the pack ice. This is where they are most likely to find food. As the southern edge of the arctic ice cap melts in summer, some bears will follow the retreating ice north to stay close to seals and other prey. Other bears spend their summers on land, living off body fat stored from successful hunting in the spring and winter. When the ice returns in the autumn, the bears leave land and return to the sea ice.

A healthy diet for polar bears consists of about 2 kg (4.4 lbs) of fat per day. Ringed seals, with their high body fat content, are the polar bear's main food, but they will feed on other animals when these are scarce. Ringed seals are a particularly energy-rich food source, especially for hungry mothers and their growing cubs. Polar bears can devour huge amounts of fat when prey is plentiful (usually between late April and mid-July), helping the polar bears build up body weight to survive the ice-free season.

The polar bear is under threat from climate change. With the Earth's temperature rising due to air pollution, sea ice in the Arctic is melting earlier and forming later each year, reducing the length of time that polar bears can feed.

Polar bears evolved from brown bears during the Pleistocene, the time period that spanned from 1.8 million to 11,000 years ago. They have adapted to life in the north where temperatures do not exceed 10°C (50°F) in summer and typically fall to -30°C (-22°F) during winter. Their thick coat is made up of water repellent hairs that conserve heat. Under their dense fur is black skin, good for absorbing the rays of the arctic sun. A layer of fat up to 11 cm (4.3 in) thick keeps the bears warm, especially while swimming. Polar bears are so well insulated that they have to move slowly to avoid overheating.

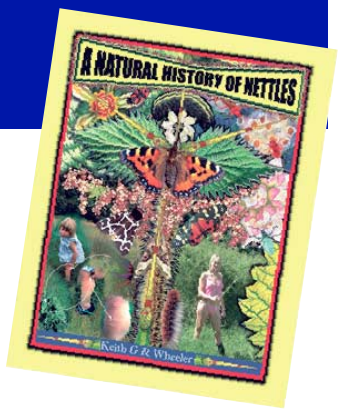
These bears have enormous paws that function like snowshoes, distributing their weight to keep them from breaking through ice and snow. The pads of their feet are covered with soft, tiny growths called papillae, which increase friction between paw and ice and reduce the chance of slipping.

They have sharp, jagged back teeth, and canines that are larger and sharper than grizzly bear teeth, but they swallow their food in large chunks rather than chewing.

Polar bears are usually solitary animals but in southern areas of the Arctic they gather together on land during the ice-free season. Breeding pairs remain together for about a week then separate. In the late autumn, pregnant females dig dens in deep snow drifts on land while the rest of the population remains active on the ice through the winter. After about two months, the cubs are born in the den. There are usually two cubs, which stay with their mother for about 2.5 years before striking out on their own.

For the last three years, WWF has tracked polar bears in the Arctic. Their positions are beamed from collars on the bears' necks, via satellite to scientists, and then to the WWF website. It allows them to get regular updates about how the polar bears behave in their arctic environment and how they may be affected by climate change.

Read about the WWF Polar Bear Tracker at http://www.panda.org/about_wwf/where_we_work/arctic/polar_bear/tracking/index.cfm



Keith has written a book "A Natural History of Nettles", which is packed with loads of information about this fascinating plant!
ISBN: 1412026946
Trafford Publishing

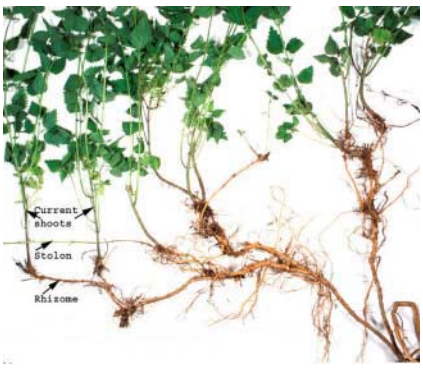
Photos: © Keith GR Wheeler

Nettles

Why are they so important for our wildlife?

By Keith GR Wheeler

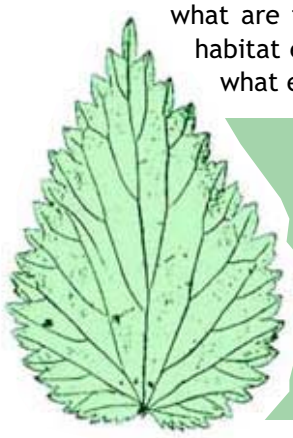
"Nettles are ugly, they have no flowers and they sting you", I hear you say. As a nettle lover I say "Why not try to look at them closely and you might find they have a hidden beauty". *Be sure to wear gloves* and look at them carefully through a hand lens. In early summer look at them for webs of caterpillars of our two most beautiful butterflies the small tortoiseshell and peacock. Collect some caterpillars to follow their amazing life-cycles. It might surprise you to know there are 107 different insects that need nettles but how do they avoid being stung? Why don't grazing cattle in a pasture eat the nettle clumps? Look at nettle hairs from the stem under a lens or better still the microscope to see nature's first beautiful hypodermic syringe. Did you know nettles are like humans, they have separate male and female clumps. Find the flowers in early June, and look for differences between females and males.



Nettles have a large underground root system.

Other flowering plants do live in nettle clumps. In the spring whilst the nettles are small look for the golden flowers of the lesser celandine and the purple flowers of the ground ivy. Later in the year look for the white flowers of the cow parsnip and the very tall stinking and poisonous plant the hemlock. Make a list of other flowering plants growing amongst nettles. Early in the year look at nettles for woolly bears, caterpillars of the beautiful garden tiger moth and the green caterpillars of the pink and green angle shades moth. In late June find nettle clumps growing alongside a river, place a white sheet along the edge of them, beat them gently with a stick towards the sheet and you will be amazed at the number of small animals which fall onto the sheet. Collect some and try to identify them with a field guide.

Deer, especially the does, will often eat nettle tops; find out why. Ducks, pheasants and other small birds e.g. the whitethroat nest in nettles; why do they choose nettles? Moles commonly burrow under nettles; what are they looking for? Try to work out some simple food chains that are found in the nettle habitat e.g. nettle - woolly bear caterpillar - cuckoo - peregrine falcon. If nettles were wiped out what effect would this have on our wildlife?



Find out more about nettles from books and the Internet to answer the following questions; Are there tropical nettle trees? Which nettle is the world's worse stinger? Why are giant puffballs commonly found in nettle patches on farms? Why were nettles collected in England and Germany in World War I and II? Which countries in Europe are growing nettles to make clothes and what other uses are there for nettles? Why are nettles increasing in Britain?

http://www.nettles.org.uk/ http://www.ienica.net/crops/nettle.htm

All in a Day's Work

Rachael Shreeve – Marine Biologist

PROFILE

Rachael studied Marine Biology at Newcastle University, which is where she developed a passion for plankton. From there she went to Sherkin Island Marine Station where she worked on the plankton projects. After this she moved on to work for the British Antarctic Survey (BAS), and has been there for the last 14 years and it is there that she obtained her doctorate.

Photos: © Rachael Shreeve

A Day in the Life of Rachael Shreeve

When did you first become interested in marine biology?
As a child I loved nothing better than to play on a beach, just as most children do! I would poke around in rock pools and just generally had fun. This laid the foundations for the rest of my life. As a teenager I took an interest in sharks, whales and seals, and decided I would like to work on these when I grew up. I worked hard and went to university and in my final year there, I really discovered plankton. Plankton are all the tiny plants and animals that float about in the sea, which although you can hardly see with a naked eye, are the bottom of the food chain. This means everything else that lives in the sea, like fish, sharks and whales depend on them, just as we on land depend on things like grass and sheep. I have been fascinated by plankton ever since.

Above: The RRS James Clark Ross

What is your favourite animal?
Baby crab or baby starfish .

Where does the work take you?
Mostly to the Antarctic. Ten months of the year I work at the BAS Headquarters in Cambridge, in the UK, spending the other two months on board our research ship, the *RRS James Clark Ross*, working at sea in the Southern Ocean, Antarctica. This year I have also spent three weeks in Peru, South America, teaching students out there about Antarctic plankton, and two weeks in Sweden, working on a pilot project for use in the Antarctic next year.

What is the best thing about your job?
Collecting plankton samples, and looking at them for the first time. You never know what you might find in them. It is like Christmas every day!

What is the worst thing about your job?
Anything that keeps me away from the microscope, such as meetings, office work and management work.

What is the best bit of advise you have ever had?
At school I was put off taking up this career by teachers, who thought that there were few jobs in marine biology going and even fewer for women. But one careers advisor said 'if you want to do something just go for it. You will get there'. I have never forgotten this, and apply this to everything I want these days. It is amazing how far hard work and persistence will take you.

What is a typical day at sea like?
We work, play and sleep on the ship for up to two months at a time. The ship works all hours, so a working 'day' may actually mean working through the night. This is when it is easiest to catch animals. Things often break on the ship, which have to be mended before you can carry on, and bad weather may throw the ship all over the place, stopping work. Mostly though we get up and get to work straight away. It might be your turn to deploy one of the nets, so you have to put on lots of warm, waterproof clothes, a hard hat and a harness and get out on deck. You have to be very careful out there, keeping an eye out for things swinging about. The harness is to stop you falling overboard when putting out the nets. Once we have samples back onboard we sort through these under a microscope. Not easy on a moving ship! We make lots of notes, and then do it all again the next day in a different place, to see how things change from one place to another.

Do you work alone or as part of a team?
A bit of both really. On the ship it is very much a team effort and we all pull together to get things done. Back in Cambridge, we still work as part of a team, but much more time is spent working alone on your own projects.

What would you do if you weren't a marine biologist?
Have a smallholding, growing all my own food. My aim would be to avoid polluting the world as much as possible.

FENOR NS

FENOR, CO. WATERFORD

Photos: © Fenor NS

Students from Fenor NS, with their Principal, Mr. Tim O'Byrne, taking pride in their local environment.

Fenor NS is a rural village school situated on the Dungarvan to Tramore Coastal Road in Co. Waterford. The school is a four teacher school, with a total of 100 pupils. In 1999 the school received their first Green Flag for their work on Waste and Litter and went on to renew their flag on the Energy and Water themes.

As part of the Green Flag programme, the school has a committee to run the programme. The committee is made up of 20 students from Senior Infants to Sixth Class, two teachers, a member of the Board of Management, a parent and a representative of the local Tidy Towns Committee. The elected committee is divided into smaller committees, each of which look after various areas, such as Litter Co-ordination, Composting, Indoor, Outdoor, Recycling etc.. They meet every Friday for 20-30 minutes to monitor and evaluate and to make the forthcoming week's work rosters, for example, in the case of litter wardens - cleaning of the hall and classrooms and school yard boundaries.

One of the actions from the school's action plan was to become a Coastal Care Group. They have visited their local beach (Kilfarrassey) to carry out litter surveys, identifying types and amounts of litter present and clearing the beach of this litter.

They carried out a survey of people over a three-day period, which included joggers, walkers, horse riders, bathers, surfers, fishermen and boaters. The school promotes the beach through their school newsletter, beach clean-ups, fun activities on the beach such as sand sculpturing, seashell collection and bird watching. The school actively promotes the beach as a place that all the family can go to. Fenor NS put together a beach management plan to restore the aesthetic appearance of Kilfarrassey beach and to increase the amenity and economic value to the whole community and visitors. In addition, sixth class pupils organised a five-a-side soccer tournament during the summer months of 2005, which was a great success!

The school plays an important role in the life of Fenor. The school hall is used for all parish meetings and is therefore the hub of life in the parish. They are very proud of their achievements and want to give back to their community through schemes such as:

- Cleaning the graveyard.
- Restoring the Church Bell Tower Area.
- Cleaning the local beaches.
- The Litter patrol (5th & 6th) in the village, April to August (seven days a week).
- Cake sales... in aid of new score board in GAA field.
- Regular weeding of roadside kerbs and bog walk areas.
- Clean the scenic area of Ballyscanlon.
- Helping to sand & paint seats.
- Planting shrubs on walls.
- Planting trees around different areas in the village.
- Recycling campaign to recycle paper, cardboard, plastic containers.
- School Project work - highlighting topics such as illegal dumping and recycling.

If you would like to contact Fenor NS, check out their website at http://www.claneire.com/connected/default.asp?com=dfba&org=fns

We won't solve Waterford's waste problem by finding new places to dump rubbish or a magic machine to burn it. Instead of producing mountains of waste, we must Reduce, what we produce, Reuse whatever we can and Recycling everything we can.

Compiled by Fenor Green School Committee

The aims of Fenor NS Green School Committee

Through the Green School Programme, which will be continuous, we as teachers hope to educate, to inform and to influence the children under our care to respect the environment by promoting responsible behaviour within our school and their own local environment and the wider community. By the end of sixth class we hope that each child should be an environmentally aware citizen able to take independent and critical initiatives regarding their own local environment.

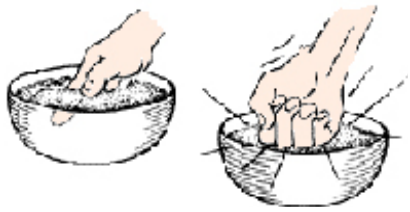
Experiment With Nature

Here are some activities you can try at home or at school. Please ask for permission from a grown-up before you begin.

Starch Molecules

What you need:

1 1/2 cups cornflour
1 cup water
Bowl
Heavy spoon
Rubber glove
Scissors



What to do:

Mix the cornflour and water in the bowl. Slowly dip your finger into the gooey mixture; then try slapping it hard with your hand or a heavy spoon. Then try letting some of the goo flow across a piece of rubber sheet cut from a rubber glove. Stretch the rubber slowly, then stretch it fast, and notice what happens each time. Pour some of the mix from a spoon. Can you snip the stream with the scissors?

What happens and why?

The molecules in the starch (the cornflour) are very large compared with the molecules of water, or other ordinary molecules. When you slap the surface quickly, the large and small molecules get tangled in each other, and this stops them splattering. In this way the mixture behaves more like a solid. If you move them slowly, or let them flow, they can run past each other, and so the starch behaves like a liquid. (Custard can also be used for this experiment but splashes may stain!)

No Sucker

What you need:

A jar, with a lid
A drinking straw
Plasticine

What to do:

Fill the jar with water. Poke a hole in the lid big enough for a straw. Put a straw into the water through the hole in the lid and seal up the space around the straw with plasticine. Now try to suck water through the straw. Be sure there are no leaks.

What happens and why?

When you drink from an open glass of water, air pressure allows the water to travel up the straw. When you reduce the pressure inside your mouth (by sucking on the straw), the surrounding air pressure pushes down on the water and forces the liquid up the straw. But when the air pressure on the water is blocked (when you seal the jar lid), there is no air pressure to help push the water up the straw.

Stacking Liquids

What you need:

1/3 cup golden syrup or treacle
1/3 cup oil
1/3 water
A glass jar
A piece of plastic
A grape
A small cork

What to do:

Pour the golden syrup into the glass jar, followed by the oil, followed by the water. Drop in the piece of plastic, then the grape and then the small cork.

What happens and why?

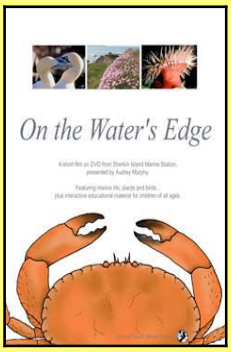
The liquids have different densities.

The most dense (golden syrup) will be at the bottom, the least dense (oil) will be at the top, with the water in between. Each object will sink to the level of the liquid that has the greater density than the object. The object will then float on that layer.

The water and golden syrup will mix, which is why you add the oil first, so the water just drifts down and sits on top of the syrup. The syrup will slowly diffuse into the water over time, and vice versa.

Learn More

Sea Life DVD!!

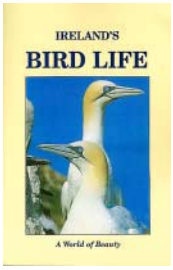


"On the Water's Edge"

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. €16.95 post free.*

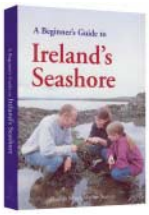
A collection of photographs of Ireland's bird life, featuring over 200 colour photographs taken by one of Europe's finest wildlife photographers, Richard Mills. *160pp*

€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

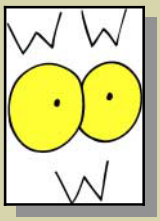


Only €1.75 each including postage or €10.50 for all seven! *32pp each*

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.



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:

Hungry Birds: www.birdwatchireland.ie

Rockpools: www.devonwildlifetrust.org

Polar Bears: www.biologicaldiversity.org/swcbd/species/polarbear/index.html

Nettles: www.abc.net.au/science/k2/moments/s243639.htm
www.umm.edu/altmed/ConsHerbs/StingingNettlech.html

Life as a Marine Biologist: www.antarctica.ac.uk www.coolantarctica.com

Tracking Great White Sharks: www.wcs.org/international/marine/marineafrica/gws/trackingwhitesharks

Grey Whale Migration: www.learner.org/jnorth/tm/gwhale/MigrationRoute_Map.html

www.acsonline.org/factpack/graywhl.htm

"Once-in-1,000-years drought": www.bom.gov.au/lam/climate/levelthree/c20thc/drought.htm

Moths: http://ukmoths.org.uk/

Your Carbon Footprint: www.carbonfootprint.com www.sei.ie/index.asp?locID=519&docID=-1

Icebergs: www.uscg.mil/LANTAREA/IIP/home.html

We cannot be responsible for the content of external websites, so please observe due care when accessing any site on the internet.

The World Around Us

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

Great White Shark migration

Scientists, trying to conserve great white sharks (*Carcharodon carcharias*), are using space technology to help them learn more about these killers. Attaching satellite based tracking devices to an animal that grows to be more than seven metres long, weighs over 3200 kilograms and eats people is a challenge but several great white sharks have been successfully tagged (without injury to scientists or sharks!). One of the sharks, nicknamed Nicole, stunned scientists by crossing the Indian Ocean from South Africa to Australia and then returning home in just nine months! Up until Nicole performed that behaviour it was thought that great white sharks kept to the coastal regions. But this new information is troubling. Nicole's journey to Australia was direct but the stay short. As food is plentiful in South African waters, the scientists think that she may have made the journey for mating reasons. If the journey is a regular one for these sharks, the scientists are worried that the already vulnerable great white shark population may be at greater risk than previously thought because they can be captured on both coasts as well as by long-line fishermen in-between. However, with each passing day of satellite recording, knowledge and management options regarding the species increase. Safe travels, Nicole.

"One-in-1000-years drought"

While Ireland is enjoying a typical wet winter, Australia is in the middle of another blistering hot and dry summer. Lack of rain, particularly during the period when it is expected (June and July, down under) and, often, most needed, is another sign that our planet's weather patterns may be changing from those we have grown accustomed to seeing. Many areas of Australia are suffering from a severe drought that began in 2002 which scientists are calling a "one-in-1,000-years drought". In the historical record dating from 1900, 2006 was the driest August to October period when averaged across Southern Australia. In 2005 there were rains but they did not fall evenly across the country. Western Australia received less than 40 percent of its average rainfall in July. The drought is affecting drinking water supplies and having an affect on crops, also. The largest drinking water reservoir supplying Australia's capital, Sydney, is only 40 percent full and many surrounding towns have even less. More than half of Australia's farmland is experiencing drought. Water supplies are so strained that the government held an emergency summit to discuss ways to help humans and farms and prepare for the range fires that have swept across the plains in the last few years. And, with limited water supplies, how will the fires be controlled?

Good News for Forests

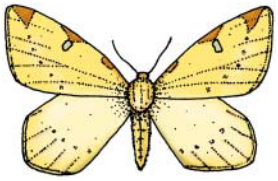
After hundreds of years of decline, forests appear to be making a comeback. Forestry scientists have discovered that of the worlds 50 most wooded nations, more than half are showing an increase in the number of trees per hectare (density), with the greatest recoveries in China and the US. Although some countries are still destroying their forests faster than any recovery can occur (Indonesia and Brazil) the overall increase in trees is encouraging. Because trees produce oxygen and absorb carbon dioxide (CO_2) during the day, they are collecting one of the main gases causing global climate change. All the more reason to encourage people to plant an extra tree or two.

Missing Grey Whales

Earthwatch Institute, Maynard, MA, USA, 20 October 2006 — Finding one thirty-ton animal in the vast North Pacific may be as hard as finding a needle in a haystack. But when the entire estimated population of 17,000 grey whales is hard to find, it is cause for concern. Researchers reported very few sightings in the grey whales' traditional summer feeding grounds last season. The grey whale (*Eschrichtius robustus)* usually spend summers feeding in the plankton-rich waters of the North Pacific, along the west coast of Canada, migrating 9,500 to 11,500 kilometres each year to the warm wintering lagoons off Baja California, where they breed and have their calves. It is one of the longest migrations known to man. Scientists, however, are concerned because for the second summer in a row, very few sightings of members of the population have been reported on the summer feeding grounds. They hope that the whales have found new feeding grounds, as the usual feeding grounds have suffered from the effects of global climate change over the last ten years. But scientists feel the whales will have had to look hard to find good feeding areas and the researchers will be studying the grey whales of the eastern Pacific Ocean closely for weight loss when they return to Baja California this winter.

MOTHS

Moths are insects and are closely related to butterflies. Both moths and butterflies belong to a group known as **Lepidoptera**. A person who studies moths and/or butterflies is called a **lepidopterist**.
There are some ways to tell a butterfly from a moth but there are always exceptions. Butterflies are usually seen during the day whereas moths are more often seen at night. Moths generally rest during the day and tend to have dull colours to hide them in daylight hours. Some moths however, do come out during the day and are often mistaken for butterflies as they can be just as colourful. Butterflies tend to fold their wings vertically above themselves when resting whereas moths tend to keep their wings flat and tucked into their body. There are some moths though that, when resting, will hold their wings vertically like butterflies. Most butterflies have the same type of antennae (also known as feelers) – long and straight with a little 'bubble' or 'club' at the end. The antennae of moths are sometimes feather-like and generally do not have a 'bubble' or 'club' at the end.



Brimstone

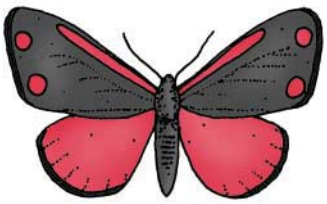
Opisthograptis luteolata Leamhan ruibheach

Like many other moths the Brimstone flies at dusk and is often attracted to light. The caterpillar is a 'looper' like the Garden Carpet whereby it lifts or loops the middle of its body as it moves. It is approximately 30mm long and has a pointy growth on the middle of its back.

Poplar Hawkmoth

Laothoe populi Conach poibleoige

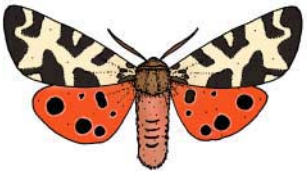
The Poplar Hawkmoth is very well camouflaged, making it difficult to see when sitting on a tree trunk during the day as it looks like a dead leaf. The adult moths do not feed. The caterpillar goes underground to pupate in a chamber.



Cinnabar Moth

Tyria jacobaeae Leamhan flanndearg

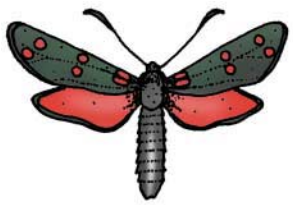
Both the moth and the caterpillar of the Cinnabar are brightly coloured to warn predators that they are poisonous to eat. It can therefore be seen out in the open during the day as it is not at risk of being eaten.



Garden Tiger

Arctia caja Leamhan tíograch garraí

The Garden Tiger moth varies so much in colour and markings that it is very rare to find two moths that are identical. The female is usually larger than the male.
It flies late at night and many can often be seen flying towards light. Because of its dark and hairy appearance the caterpillar is often known as 'woolly bear' and it can sometimes be seen sunbathing on warm sunny days or running along the ground.



Six-spot Burnet

Zygaena filipendulae Buirnéad sébhallach

The adult moth and caterpillar of Six-spot Burnet can produce poisonous toxins to warn off predators. It can often be seen flying during the day. The caterpillar creates a straw-coloured cocoon on a blade of grass, inside of which it changes into a moth.

Sketches & Text: "Butterflies & Moths Colouring Book" ISBN:1 870492 92 7 © 2005

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. Are moths most active at night or during the day?
2. When an iceberg breaks off a glacier, what is this action called?
3. What fruit juice is mentioned in the "Smoked Salmon Turrets" recipe?
4. What can form in hollows in the rocks when the tide goes out?
5. Name the ship that Rachael Shreeve works on at the Antarctic.
6. What animal recently made a surprise visit to Sherkin Island?
7. When do nettles usually flower?
8. What does CO_2 stand for?
9. Where can you bring decent clothes that you no longer need?
10. Is it good to feed salty, mouldy and dried food to birds?
11. Are polar bears found in the Antarctic?
12. What did the children of Fenor NS survey as part of their Green School Programme?
13. What environmentally unfriendly gas do trees absorb?
14. What is the current drought in Australia being called?
15. What could you use instead of cornflour for the "Starch Molecules" experiment?
16. What name did scientists give the great white shark that stunned them by crossing the Indian Ocean from South Africa to Australia?

Answers: (1) At night (2) Calving (3) Orange juice (4) Rockpools (5) RRS James Clark Ross (6) A fallow deer (7) Early June (8) Carbon dioxide (9) Irish Charity Shops (10) No (11) No (12) Their local beach at Kilfarrasey (13) Carbon dioxide (14) "Once-in-1,000-year Drought" (15) Custard powder (16) Nicole.

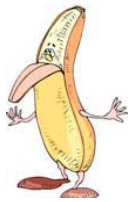
What am I saying....?

Have fun with your friends making up a title for this picture of a pod of walruses.

Photo: US Fish & Wildlife Service

Nature Jokes

What do you get if you cross an owl with a skunk?
A bird that smells but doesn't give a hoot.



Why did the banana go out with the prune?
He couldn't find a date!

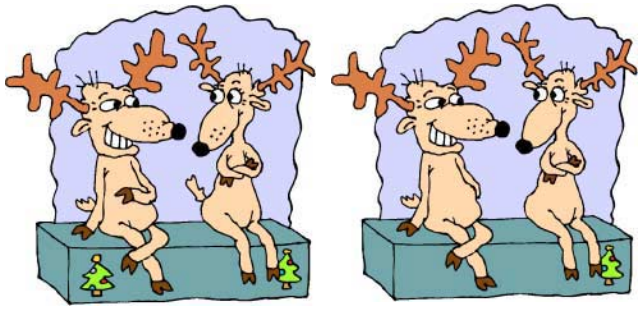
What is the wettest animal in the world?
A reindeer!

What sort of fish are afraid of dogs?
Catfish.

Why did the man throw the butter out of the window?
He wanted to see the butterfly!

What should you do if you find a gorilla asleep in your bed?
Sleep somewhere else!

What do you get if you cross a tiger with a snowman?
Frostbite.



Spot the five differences!

Your Carbon Footprint

People talk a lot about the weather, which is not surprising as it affects our mood, how we dress and what we eat. 'Climate' however is not the same as the weather. It is the average pattern of weather for a particular region over a long period of time. The climate has and will always vary for natural reasons. Natural causes of this include tiny changes in solar radiation, volcanic eruptions that can cover the Earth in dust, reflecting heat from the sun back into space, and natural fluctuations in the climate system itself.

However, natural causes can explain only a small part of this warming. Many scientists agree that the rising concentrations of heat-trapping gases in the atmosphere, known as greenhouse gases, are being caused by human activities.

The atmosphere acts in a similar way to the walls of a greenhouse, letting in the visible light and absorbing the outgoing infra-red energy, keeping it warm inside. This natural process is called the "greenhouse effect." Without it, the global average temperature on earth would be -18°C, whereas at the moment it is +15°C.

Energy from the sun warms the earth's surface and, as the temperature increases, heat is radiated back into the atmosphere as infra-red energy. Some of the energy is absorbed within the atmosphere by 'greenhouse gases'.

However, human activities are adding greenhouse gases, particularly carbon dioxide, methane and nitrous oxide, to the atmosphere, which are increasing the natural greenhouse effect and making the world warmer. This man-made extra warming is called the "enhanced" greenhouse effect.

"Climate change" is the term that describes both the warming of the earth and all the consequences of this warming.

Climate change is already having an affect. It is increasing temperatures and melting polar ice caps, which is raising sea levels and causing more frequent storms and floods. If we do not take action, climate change will cause more and more damage and disrupt the way our natural environment works, affecting our supplies of food, raw materials and other vital resources.

It is not too late to do something. But we have to act now if we want to limit climate change. It will take time for the changes we make now to take affect. Climate change is everyone's problem, and everybody is part of the solution - that includes YOU & ME!

Even small changes in our daily behaviour can help reduce the amount of greenhouse gases we produce without affecting our quality of life. In fact, they can save us money.

The European Commission's website gives us a long list of very practical ways we can reduce our carbon footprint. In short, we should **Take Control, Turn Down, Switch Off, Recycle** and **Walk.**

These are just a selection of their suggestions and many more can be found on their website: **http://ec.europa.eu/environment/climat/campaign/**

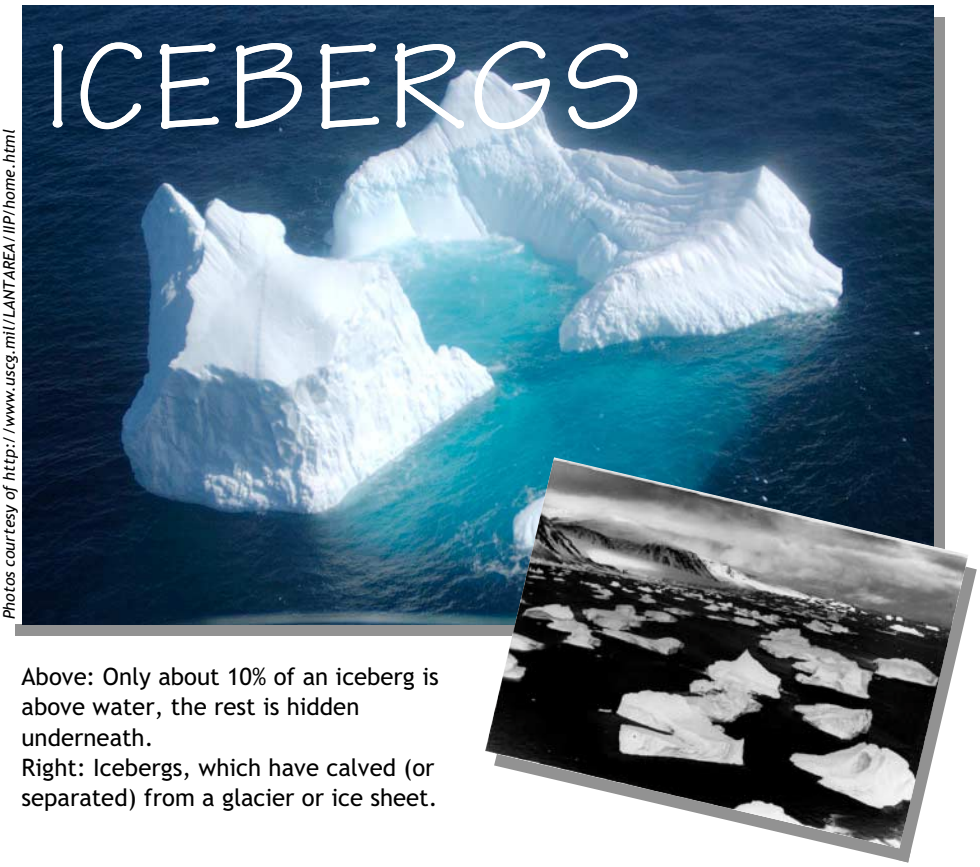
- **Switch off the lights when you don't need them.** Switching off 5 lights in hallways and rooms in your house when you don't need them can save around € 60 a year and avoid about 400kg of CO_2 emissions per year.
- **Do not leave appliances on standby** – use the "on/off" function on the machine itself. A TV set that's switched on for 3 hours a day (the average time Europeans spend watching TV) and in standby mode during the remaining 21 hours uses about 40% of its energy in standby mode.
- **Unplug your mobile charger when you're not using it.** Even when it is not connected to the phone, it is still draining electricity. There are estimates that 95% of the energy is wasted when you leave the charger plugged in all the time.
- **Use a tumble dryer only when absolutely necessary** – each drying cycle produces over 3kg of CO_2 emissions. Drying clothes naturally is by far the best way to do it.
- **Boil less water.** If you only boil just enough water for your cup of tea, you could help save a lot of energy.
- **Turn off your tap.** If you turn off the tap while brushing your teeth, you can save several litres of water.
- **Avoid putting hot or warm food in the fridge.** You save energy by letting it cool down first before placing it in the fridge.
- **Reduce waste.** Most products we buy cause greenhouse gas emissions in one or another way, e.g. during production and distribution. Using a reusable lunch box instead of a disposable one, saves the energy needed to produce new lunch boxes.
- Try one of the following ways to get to school/work: **cycling, walking, car-pooling, taking public transport, tele-working** *(obviously your teacher might not like this one!)*. On average, for each litre of fuel burnt in a car engine, more than 2.5kg of CO_2 is released.
- **Plant a tree.** One tree of average size absorbs about 6kg of CO_2 per year, so over 40 years it soaks up about 250kg of CO_2.Before you print a document or an e-mail, **consider whether you really need to print it**. We use around 20kg of paper per month!

Special Feature

An iceberg is a large mass of floating ice, which has broken off glaciers or polar ice sheets laid down over 15,000 years ago. Icebergs in the Northern Hemisphere mostly originate from Greenland, and those in the Southern Hemisphere from Antarctica.

Icebergs mainly occur during the spring and summer seasons in each hemisphere, when the weather warms up. The breaking off or separation of an iceberg is called calving and about 10,000-13,000 icebergs are calved each year from the Greenland coast.

Icebergs are made of fresh water, which is slightly less dense than seawater, allowing icebergs to float in the sea. However, only about 10% of an iceberg is visible on the surface, with the rest hidden underneath.



Photos courtesy of http://www.uscg.mil/LANTAREA/IIP/home.html

Above: Only about 10% of an iceberg is above water, the rest is hidden underneath.
Right: Icebergs, which have calved (or separated) from a glacier or ice sheet.

Icebergs are mostly white. The ice is full of tiny air bubbles and the surfaces of these bubbles reflect white lighting, giving overall white appearance. Blue streaks through some icebergs are areas of ice that do not contain air bubbles and so reflect blue in a similar way to the sky. Icebergs are classified by their shape and size. They can range from flat-topped to domed to having a central pyramid and have interesting names ranging from "Growler" (which is a berg less than 1m above the sea surface and less than 5m in length) to a "Very Large Berg" (which is greater than 75m above the sea surface and greater than 200m in length). Icebergs from Greenland and the North Atlantic are more often peaked and irregular in shape, while those from Antarctica are more often flat-topped with straight sides.

It is hard to predict how long an iceberg will survive before it melts. Weather conditions play a big part. If an iceberg remains in cold waters, it can survive for many, many years, only melting a little during the summer months. However, if the iceberg drifts into warmer waters it will melt rapidly, helped by wind and wave action.

Did you know...!

The tallest iceberg in the North Atlantic was located in 1958 off the coast of Greenland. It measured 168m and was the same height as a 55-storey building.

The biggest iceberg on record is an iceberg covering more than 4,000 square miles, which broke off the Ross Ice Shelf in Antarctica, in early 2000. It measured 183 miles by 22 miles.

Icebergs from Greenland can move upto 7 km per year. On average, about 375 icebergs float into the North Atlantic shipping lanes each year, where they are a hazard to navigation, particularly because so much of an iceberg is hidden under water.

Following the loss of the *Titanic* in 1912, due to a collision with an iceberg, a patrol of the North Atlantic shipping channels began in 1914. 13 nations came together and agreed to fund an *International Ice Patrol*, which would be managed by the United States Government. Each year, they monitor the icebergs that threaten the main shipping routes in the North Atlantic, between Europe, the US and Canada. This is usually between the months of February and July.

Nature's Noticeboard!

Winter 2006

Sherkin Island Marine Station would like to thank *Pharmachemical Ireland* for their support in making this newsletter possible. We would like to thank those who have contributed to this newsletter especially Terry Farnell, Michael Ludwig, Robbie Murphy, Tim O'Byrne, Rachael Shreeve and Keith Wheeler.

Visit the Sherkin Island Marine Station website **www.sherkinmarine.ie**