Exploring Insects Through the Senses

Nessa Darcy Creative Entomologist

Kerry and Dublin Bay UNESCO Biospheres

Bithsféir Chiarraí
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Teachers' Resource

Introduction

We are delighted to announce the Nature Series Webinars for Primary Schools with Nessa Darcy Creative Entomologist. In this series we will explore insects through the five senses. Workshops will be held online via zoom starting April 26th, from 10 - 11am.

In this series we will learn amazing facts about insects through sight, taste, sound, smell and touch. The workshops are being delivered by Creative Entomologist Nessa Darcy whose mission is to reintroduce humans to their natural habitat through colourful encounters with insects.

In addition to Nessa's ecology work in Ireland and Madagascar, she is an artist and member of an intercultural choir, bringing creativity and inclusivity to her workshops. Nessa is also available to deliver workshops through the Heritage in School Scheme and provide teacher training through Europass Teacher Academy.

Teachers registering for the Exploring Insects Through the Senses webinars will be sent a resource list to help them gain the most benefit from the sessions. Students and teachers will have a chance to ask Nessa questions towards the end of each workshop. All sessions will be recorded and shared on the Dublin Bay Biosphere and Kerry Biosphere YouTube channels.

Registration is required for each webinar; links to register can be found here: https://kerrybiosphere.ie/news/89-nature-series-online-for-primary-schools

The workshops will focus on exploring insects through the five senses. Students will learn creativity, nature connection and lots of interesting facts about Irelands insects.

Nessa has created this series of workshops to suit primary school students from 3rd to 6th class. Students and teachers can pose questions in the Q&A function. We will endeavour to answer as many questions as we can.

Hello Hardworking Teachers!

Welcome to the colourful, tasty, musical, tactile, aromatic world of insects! Over this series of five webinars I will be introducing your pupils to aspects of insects they may never have encountered before, using all of our senses.

Each webinar will include activities to carry out in the classroom, and below you will find a list of the materials you will need for each of these. You will also find a list of links and further activities for continuing your insect exploration, identification and recording after the webinars.

Enjoy!

If you want to learn more about insects, you can book Nessa for a Heritage in Schools visit here!

What You Need for the Webinars

1. Sight - April 26th - Register here

Insect Identikit activity:

Drawing paper and colouring pencils/markers.

Flying Insect Timed Count:

Printed copies of the FIT Count field recording form (also attached).

2. Sound - May 10th - Register here

The Sound of Insects (Japanese song):

Print out the lyric sheet for the song at the end of this document, or write the pronunciation on the board.

Cross country poetry writing:

Paper and pen for writing

3. Taste - May 17th - Register here

Materials for making fruit bees:

Toothpicks (at least three per child)

Black/red grapes cut into slices

Green/yellow grapes cut into slices

Blueberries

Thin apple slices (Mix your apple slices with some lemon juice to prevent them from turning brown)

Give a selection of different coloured grape slices, a few blueberries and two thin apple slices to each child on a plate or bowl, along with the toothpicks. See if they can resist eating the fruit until the activity begins!

Optional: You could include some other insect-pollinated fruits if you want to get really creative. Try dried cranberries, figs, kiwi, mango, melon, peach, raspberries, blackberries, oranges. Mini marshmallows for eyes.

4. Smell - May 24th - Register here

What do insects smell like?:

A packet of fresh coriander leaves

A bottle of TCP liquid antiseptic

Some strips of filter paper or card

5. Touch - May 31st - Register here

Tactile experiments with slimy mini-beasts:

Collect large snails/slugs a day or two before the webinar. Keep them in a plastic box, terrarium or large jar, securely closed but with air holes in the lid. Include some vegetation, stones, bark etc. under which the snails can hide and prevent themselves from drying out. A sprinkle of rain water will also help.

They should be kept somewhere cool and shady. You can feed them some lettuce, cabbage, cucumber, apple or try other fresh fruit and veg and find out what they like best. Don't be alarmed if the larger snails eat the smaller snails, that's just nature…

You will also need a sharp edged knife and some blue tack!

Further Activities and Resources

Sight

Flower Insect Timed (FIT) Count:

https://biodiversityireland.ie/surveys/fit-counts/

Video tutorial on FIT Count:

https://youtu.be/lrKqKm3dRV8

Identifying different groups of insects:

https://youtu.be/jhRx6xV3Chw

Identification swatches:

https://biodiversityireland.ie/shop/

Identification charts:

https://www.field-studies-council.org/product-category/publications/?fwp_publication_type=fold-out-guide

Sound

More about The Sound of Insects, Japanese song:

https://www.mamalisa.com/?t=es&p=5059

Bat and Moths Game

Children all sit on the ground in a circle. One child is selected to crouch in the middle and act as the “sleeping bat”. They take a set of keys to symbolise the nectar of a night-flowering plant, and place it behind them.

Whilst they are in the middle of the circle with their eyes closed a "moth" is selected from the surrounding circle to go in and steal the keys. The moth must then tiptoe behind the giant to steal the keys. When they have picked up the keys in their hand they must run out of the circle (through the gap where they were previously sitting) and run around the outside as fast as they can and finally back into the middle through the same gap they came out of without the bat catching them.

The bat may only start chasing when they hear the keys being snatched. If the moth is successful then they become the bat. If not, the bat remains the same and a new moth tries to get the nectar (keys) without getting caught.

Taste

Cooking and eating woodlice:

https://www.woodlands.co.uk/blog/practical-guides/cooking-and-eating-woodlice-pillbugs-a-real-bushcraft-experience/

Dandelion Vinegar

Dandelions are one of the most important sources of pollen and nectar for bees and other insects. They flower early in the spring when queen bees are emerging to start new colonies and need as much food as they can get. Dandelions are also very nutritious for humans, as they are full of minerals including iron, calcium, magnesium, and potassium.

Pick some fresh dandelion flowers and leaves, wash them, and add them to a jar of organic apple cider vinegar. After a couple of weeks the acidity of the vinegar will have drawn out the minerals, flavour and colour of the dandelions to produce a delicious and nutritious addition to any salad or plate of chips. The flavour has a hint of dandelion nectar or honey.

Smell

Insect Pheromone Communication Game

You will need:

Lollipop sticks or paper straws (one per child)

Filter paper (two per child)

A selection of different essences or aromatic oils (e.g. vanilla, lemon, mint, lavender)

A cup of coffee grounds to refresh the olfactory senses when they get confused!

Prepare the pheromone kits a day in advance, and store the kits of each aroma in separate bags. To make a kit, glue a filter paper to each end of a lollipop stick/straw. Add a couple of drops of one essence to the filter paper, let them dry naturally. Repeat this process with the other essences. Store each “aroma” of kits in a different bag.

Get the children to form a circle. Give each child a kit of a random aroma. Ask them to smell and memorise the aroma of the essence they have received, without saying anything. Ask the children to find other classmates who have kits of the same aroma and form a group. If the children start to show any difficulty in finding their aroma friends, let them sniff the cup of coffee grounds to refresh their noses. To add an extra challenge, carry out this game with eyes closed!

Touch

An experiment to try at home

(A whole class of children would be a bit much for the ants to cope with!)

If you find a colony of ants running around on the ground, fetch a bluebell and *gently* tap the ants with it. What colour does the bluebell start to become? How are the ants causing this change?

Answer: The bluebells will start to have pink patches. Like litmus paper, the bluebell changes colour when it comes into contact with the formic acid released by the ants when they feel threatened by a child wielding a bluebell!

Try not to bother the ants excessively! Have fun!

The Sound of Insects

虫のこえ (Mushi no Koe) (Japanese song)

Pronunciation:

Mushi no koe

Are matsu-mushi ga naite iru
chin-chiro chin-chiro chin-chiro-rin
are suzu-mushi mo naki dashita
rin-rin rin-rin ri-in-rin

aki no yonaga wo naki toosu
Ah ah, omoshiroi mushi no koe.

Kiri-kiri kiri-kiri koorogi ya
gacha-gacha gacha-gacha kutsuwa-mushi
ato kara umaoi oitsuite chi
chon-chon chon-chon sui-chon

aki no yonaga wo naki toosu
Ah ah, omoshiroi mushi no koe.

English Translation:

Ah, the pine cricket began to chirp,
Chin-chiro chin-chiro chin-chiro-rin
Ah, a bell-ring cricket also began to sing,
Rin-in rini-rin riin-rin
They chirp throughout the long fall night
Oh, the voices of these funny insects!

Kiri-kiri, kiri-kiri, sing the crickets*
Gacha-gacha, gacha-gacha, the giant katydids sing,
Later the unicolor katydids** chime in
Chon-chon, chon-chon sui-chon
They chirp throughout the long fall night
Oh, the voices of these funny insects!

Japanese:

あれ松虫が　鳴いている
ちんちろ　ちんちろ　ちんちろりん
あれ鈴虫も　鳴き出した
りんりんりんりん　りいんりん
秋の夜長を　鳴き通す
ああおもしろい　虫のこえ

きりきりきりきり　こおろぎや*
がちゃがちゃ　がちゃがちゃ　くつわ虫
あとから馬おい　おいついて
ちょんちょんちょんちょん　すいっちょん
秋の夜長を　鳴き通す
ああおもしろい　虫のこえ

This is a Japanese Ministry of Education Song from 1910.

About the Insects:

まつむし 松 虫 - Pine Cricket - Matsumushi - Xenogryllus marmorata
すずむし 鈴 虫 - Bell-ring Cricket - Suzumushi - Homoeogryllus japonicus
こうろぎ 蟋 蟀 - kōrogi: Cricket (various kinds) [えんまこおろぎ] Gryllus mitratus
くつわむし 轡 虫 - Giant Katydid - Kutsuwamushi - Mecopoda elongata
うまおい馬追い: A long-horned grasshopper; a (unicolor) katydid - Umaoi - Hexacentrus japonicus

Source: https://www.mamalisa.com/?t=es&p=5059

FIT Count field recording form

A Flower-Insect Timed Count can be carried out at any time of day between the beginning of April and the end of September, wherever a suitable target flower can be found, and when the weather is dry and warm:

- If sky is **clear** (less than half cloud) the minimum temperature for a count is **13°C**
- If sky is **cloudy** (half cloud or more) the minimum temperature for a count is **15°C**

1. About you

Your name: _____

☐ I am new to identifying wildlife

☐ I am familiar with identifying some wildlife (e.g. birds or butterflies) but not most pollinating insects

☐ I am familiar with recognising the main **groups** of pollinating insect

☐ I am confident in identifying the commonly-occurring pollinating insects **to species level**

2. Date and location of count

Date of count: _____

Location name: _____ (e.g.town/village, not full address)

Grid ref if known (or select from online map later): _____

Habitat (tick one box that is the best match):

☐ Garden
☐ School grounds
☐ Parkland with trees
☐ Churchyard
☐ Grassy verge or hedgerow edge
☐ Grassland with wild flowers (e.g. meadow)
☐ Amenity grassland (usually mown short)
☐ Farm crops or grassy pastures
☐ Upland bog/heath
☐ Lowland bog/heath
☐ Waste ground
☐ Woodland

☐ Other habitat type (please describe): _____

Please use one of the 'target flowers' if you possibly can:

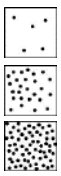
- Dandelion
- Buttercup
- Hawthorn
- Bramble/Blackberry
- Lavender (English)
- Common Knapweed
- Heather (*Calluna* or *Erica*)
- Hogweed
- White Clover
- Red Clover
- Ragwort
- Thistle (*Cirsium*)
- Buddleja
- Ivy

(only choose another insect-attracting flower if none of the above are available)

3. Target flower (from the list on the left if possible)

Which target flower have you chosen? _____

☐ Target flowers cover less than half of 50×50cm patch
☐ Target flowers cover about half of patch
☐ Target flowers cover more than half of patch

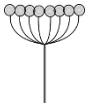


Number of flowers in patch: _____

I counted:

☐ individual flowers 

☐ flower heads 

☐ flower umbels 

☐ flower spikes 

Is your 50x50cm patch of target flowers:

☐ Growing in a larger patch of the same flower
☐ Growing in a larger patch of many different flowers
☐ More or less isolated

4. FIT Count

Once you are ready to start, check your timer so that you can record for exactly ten minutes. Please count **EVERY** insect that you see that **LANDS** on one of your target **FLOWERS** (if you're not sure what type it is just add it to the "Other insects" category). Please try to count each individual insect just once, and try not to lean over the flowers you are watching, as this can cast shadows and prevent insects approaching.

Time of count start: _____

Insect group	**Tally of number seen: 𝍸 || = 7, etc.**
Bumblebees	
Honeybees	
Solitary bees	
Wasps (including ichneumon wasps)	
Hoverflies (including 'non-typical' hoverflies)	
Other flies	
Butterflies and moths	
Beetles (larger than 3mm)	
Small insects (such as pollen beetles) less than 3mm long	
Other insects	

5. Weather conditions

Sky above your location:

- ☐ All or mostly blue
- ☐ Half blue and half cloud
- ☐ All or mostly cloud

During the 10-minute count, was your 50×50cm patch:

- ☐ Entirely in sunshine
- ☐ Partly in sun and partly shaded
- ☐ Entirely shaded

Wind strength (for all plants in area, not just target flowers):

- ☐ Leaves still/moving occasionally
- ☐ Leaves moving gently all the time
- ☐ Leaves moving strongly

Don't forget to **take a photo** of your target flower species and **add your counts** to the online form: https://records.biodiversityireland.ie/record/fit-count Please don't take photos during the count as this may disturb the visiting insects).

This survey follows the methodology of the UK Pollinator Monitoring Scheme. We thank them for their generosity in sharing resources.