Lesson Plan 10: Surveying Insects

Objectives

In this lesson, students will:

- learn to identify our most common insect pollinators
- learn to identify some of our native flowers and shrubs
- learn how to complete a timed insect survey in the school yard, in their garden at home, or in a local park

Doing a Flower-Insect-Timed Count:

A Flower-Insect Timed Count (or FIT count) is a straightforward survey you can do in the schoolyard or local garden or park. The children simply watch a 50x50cm patch of flowers for 10 minutes and record how many insects visit.

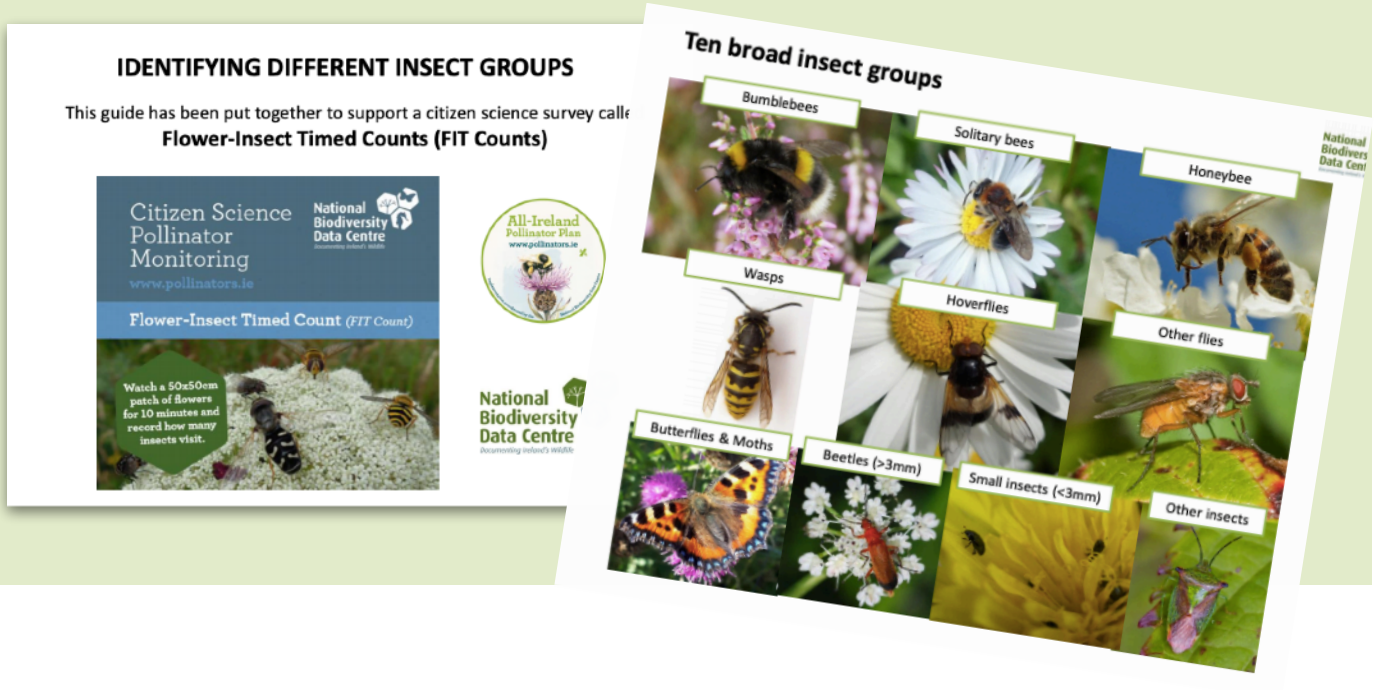
This survey runs from April to September and anyone can take part, so for schools, you could teach a little about identifying insects in March and then begin some surveys in April.

A Note to Teachers

First it will be helpful to familiarise yourself with the different types of insects you might see.

This video will help to explain the survey: https://pollinators.ie/record-pollinators/fit-count/

Download this guide to insect groups



Count those insects!

Watch a 50X50cm patch of flowers for 10 minutes and record how many insects visit!

We know that a lot of our insects are in trouble - each year we are seeing less bees, butterflies and flies, and some could disappear if we don't do something to help.

Scientists need lots of information about how our insects are doing and how many are flying about and visiting flowers, and you can help them by counting insects!

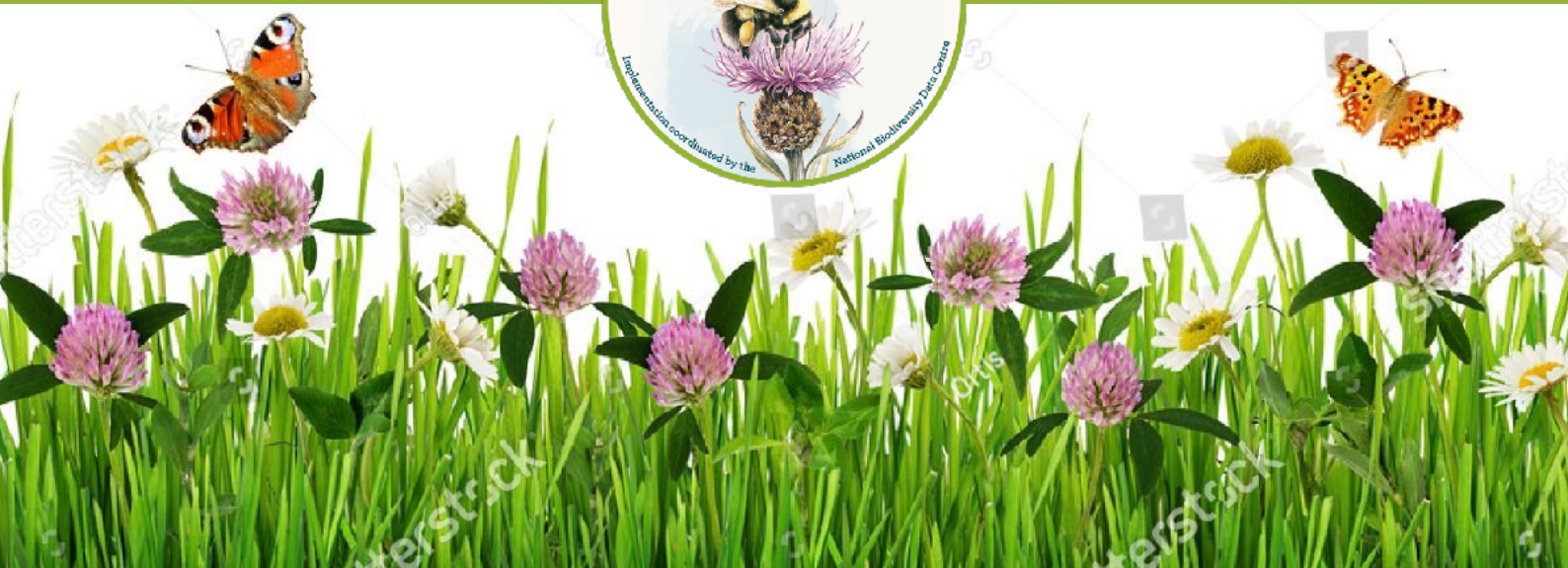
By doing some **Flower-Insect Timed Counts** (FIT Counts) you will be helping to gather information on the number of insects visiting flowers.

Why not get your class/school involved too? It's easy and will help our scientists track changes in our insect numbers across Ireland.
This booklet explains all you need to know to begin & to find out more, see www.pollinators.ie

All-Ireland Pollinator Plan
www.pollinators.ie

Implementation coordinated by the National Biodiversity Data Centre

National Biodiversity Data Centre
Documenting Ireland's Wildlife



When you do a FIT Count you are asked to count how many insects visit your patch of flowers and to record them within these 10 broad groups. You do not have to identify the insects to species level.

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	

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FIT Count Instructions

1. This survey takes place between the beginning of April and the end of September. Wait for a good day. The weather should be warm and dry. If the sky is clear (less than half cloud) the minimum temperature for a count is 13°C. If the sky is cloudy (half cloud of more) the minimum temperature for a count is 15°C.

2.  Find a location containing target flowers. Your location can be anywhere e.g., garden, farm, park, school. You will need to watch insects in a 50cm by 50cm square patch. Try to select one of these flowers: Buttercup, Dandelion, Hawthorn, Bramble, Lavender, Hogweed, Knapweed, Ragwort, White clover, Red Clover, Butterfly-bush, Heather, Thistle, Ivy. If you cannot find any of these flowers at your location it is fine to choose another flower that is attracting insects.

3. Take a photo of your target flower patch.

4. Use one of the recording forms in this booklet and fill in the background information about the weather and your flower patch.

5. Set a timer for 10 minutes. Stand close enough to the patch so that you can see insects landing on the flowers but don't lean over the top of the patch as this can prevent insects from visiting.

6.  Count every insect that **lands on** one of the flowers of your **target species** within the 50x50cm patch. Try to count each individual insect just once. If a bumblebee goes from flower to flower in your patch that just counts as one. Count the total number of insects. If you can, put them into the different groups on the recording form (we don't expect you to be an expert, we just ask that you do this as best you can).

7. Add your results to the online data submission system at: **https://records.biodiversityireland.ie/record/fit-count**

8. If you can carry out multiple counts e.g. once a month or even once a week during the year that would be fantastic and will add value to your data. The most useful counts are those that are repeated over time at the same location (or very nearby). You can use different target flowers at different times of year.

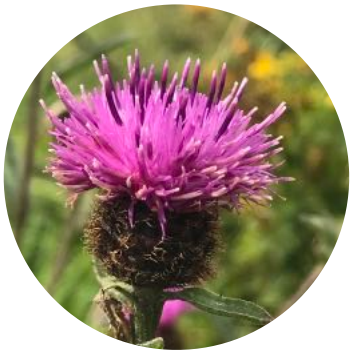
Where possible, try to do your FIT Count on one of the 14 flower species listed in the table below. You don't have to find a large patch of the target flower, and the target flower can either be growing in a patch all of the same flower, or among different flower species.

Main Flowering Time	Target Flower Name	Flower Type
Apr to Sep	**Buttercup** – *Ranunculus species*	individual flowers
Apr to Sep	**Dandelion** - *Taraxacum officinale*	flower head
Apr to Jun	**Hawthorn/Whitethorn** - *Crataegus monogyna*	individual flowers
May/Jun to Sep	**Bramble (Blackberry)** - *Rubus fruticosus*	individual flowers
Jun to Aug	**Lavender** (English) - *Lavandula angustifolia*	flower spike
Jun to Sep	**Hogweed** - *Heracleum sphondylium*	umbel
Jun to Sep	**Common Knapweed** - *Centaurea nigra*	flower head
Jun to Sep	**Ragwort** - *Senecio jacobaea*	flower head
Jun to Sep	**White Clover** - *Trifolium repens*	flower head
Jun to Sep	**Red Clover** - *Trifolium pratense*	flower head
Jul to Sep	**Butterfly-bush** - *Buddleja davidii*	flower spike
Jul to Sep	**Heather** - *Calluna vulgaris or Erica species*	flower spike
Jul to Sep	**Thistle** - *Cirsium or Carduus*	flower head
Sep	**Ivy** - *Hedera helix*	flower head

Apr to Sep **Buttercup** -

Apr to Sep **Dandelion** -

Apr to Jun **Hawthorn/Whitethorn**

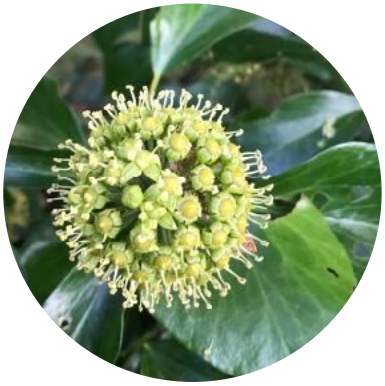


Jun to Sep **Common Knapweed** -

Jun to Aug **Lavender**

Jul to Sep **Heather** -

Jun to Sep **Red Clover** -



Sep **Ivy** -

If you cannot find any of these flowers at your location it is fine to choose another flower that is attracting insects.

Lavender

Bramble

Knapweed

Butterfly-bush

Using a quadrat with Dandelion as the target flower. This quadrat has 3 flower heads - don't count those that have gone to seed.

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	

FIT Count Field Recording Form

National Biodiversity Data Centre
Documenting Ireland's Wildlife

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): _____

3. Target flower *(from the list on the previous page if possible)*

Which target flower have you chosen?

- ☐ Target flowers cover less than half of 50x50cm 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 50x50cm 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.