

# Citizens Count

**Cultivating Environmental Citizenship  
in Youth through Birding & Citizen  
Science**





**This booklet is designed to help teachers with students aged 10-14 foster student environmental citizenship by engaging in the annual bird count and participating in citizen science.**

The first two sections of the booklet present the key concepts of environmental citizenship and citizen science.

The third section provides suggested class activities in four parts:

1. Getting to know local birds
2. Birds under threat
3. Kids count
4. Activating environmental citizenship

## Key concept: Environmental Citizenship

**Teachers with students aged 10-14 have the opportunity to foster environmental citizenship in the students.**

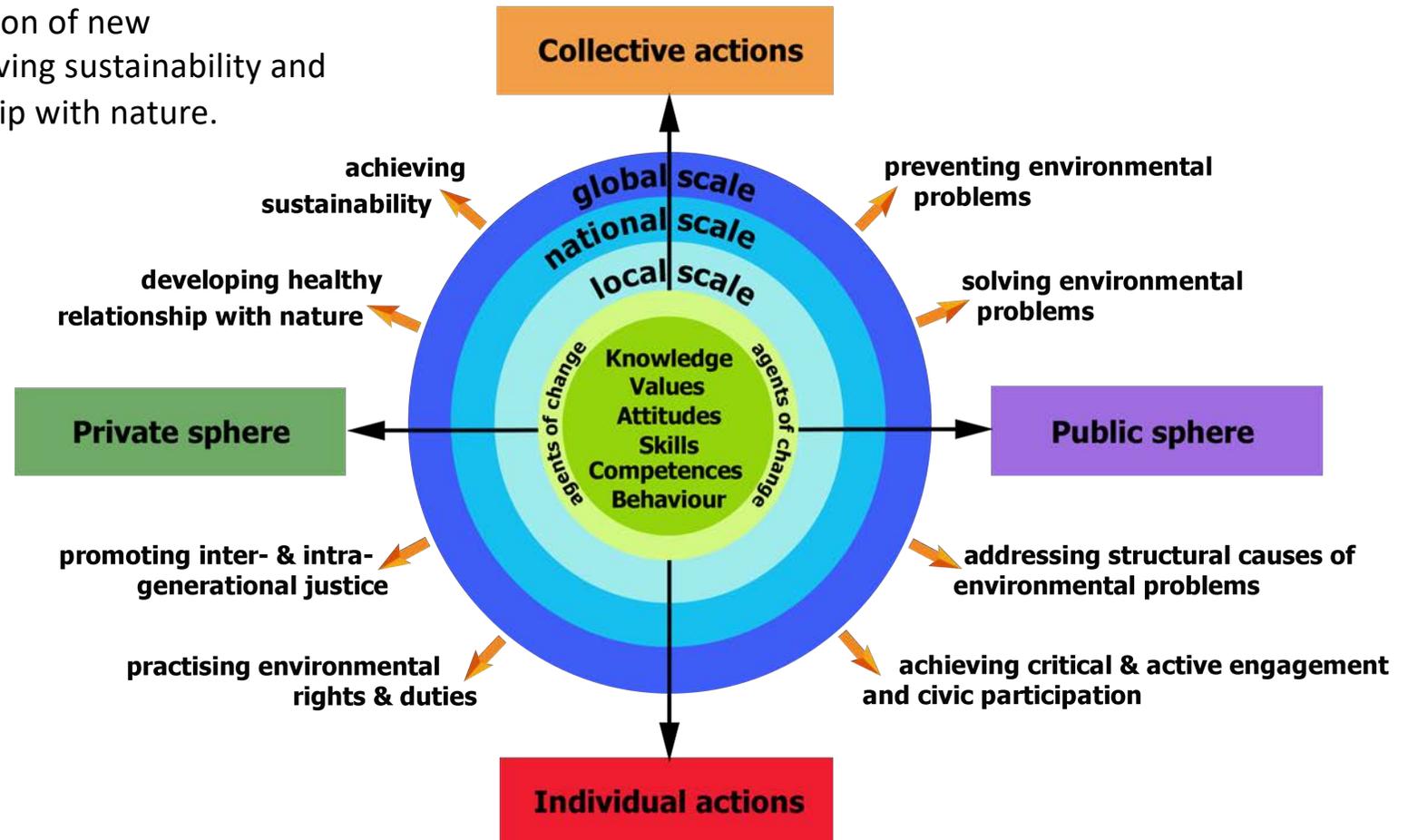
Environmental citizenship is both about increasing awareness of environmental problems and raising ability to contribute to bettering environmental conditions.

Environmental citizenship is crucial for achieving environmental sustainability and requires effective citizen engagement and civic participation.

Students as existing and future citizens can adopt environmental attitudes and behaviors, make green choices, increase civic participation, and to be aware of and apply their environmental rights and duties.

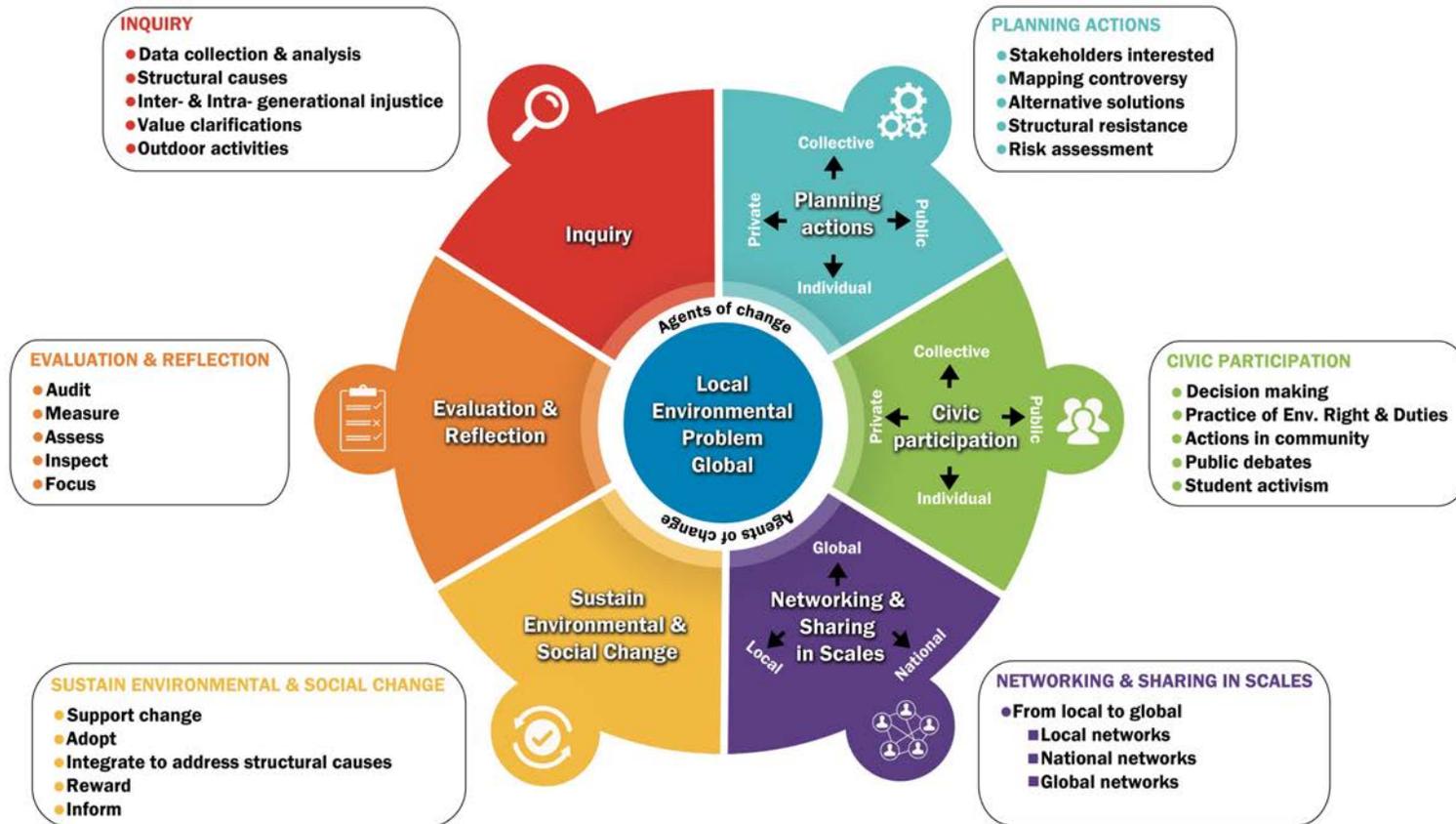


**Environmental Citizenship** is the responsible environmental behavior of citizens who act and participate in society as agents of change in the private and public sphere, on a local, national and global scale, through individual and collective actions, in the direction of solving contemporary environmental problems, preventing the creation of new environmental problems, achieving sustainability and developing a healthy relationship with nature.



Further reading:  
 Hadjichambis et al., *Conceptualizing Environmental Citizenship for 21st Century Education* (Springer, 2020)

# Education for Environmental Citizenship Pedagogical Approach



**Education for Environmental Citizenship** (EEC) is the type of education that promotes environmental citizenship. This requires our students to be aware and understand the impact of their decisions and actions as well as the environmental challenges faced and be able to recognize their capabilities and how these can result in sufficient environmental and social changes. In order to be able to do so, students need be equipped with the necessary knowledge, skills, values, attitudes, behaviors and competences.

## Nature Connectedness

Environmental citizenship builds on nature connectedness.

Nature Connectedness is about our relationship with nature – how we think about, feel about, and experience nature. When we feel very close to nature, we recognise ourselves as part of the natural world, and value our relationship with it.

Nature Connectedness includes three aspects:

- Cognitive: refers to how integrated one understands nature.
- Affective: an individual's sense of care for nature.
- Behavioural: an individual's commitment to protect the natural environment.



From Richardson, M., & Butler, C.W. (2022). *The nature connection handbook: A guide for increasing people's connection with nature*. United Kingdom.

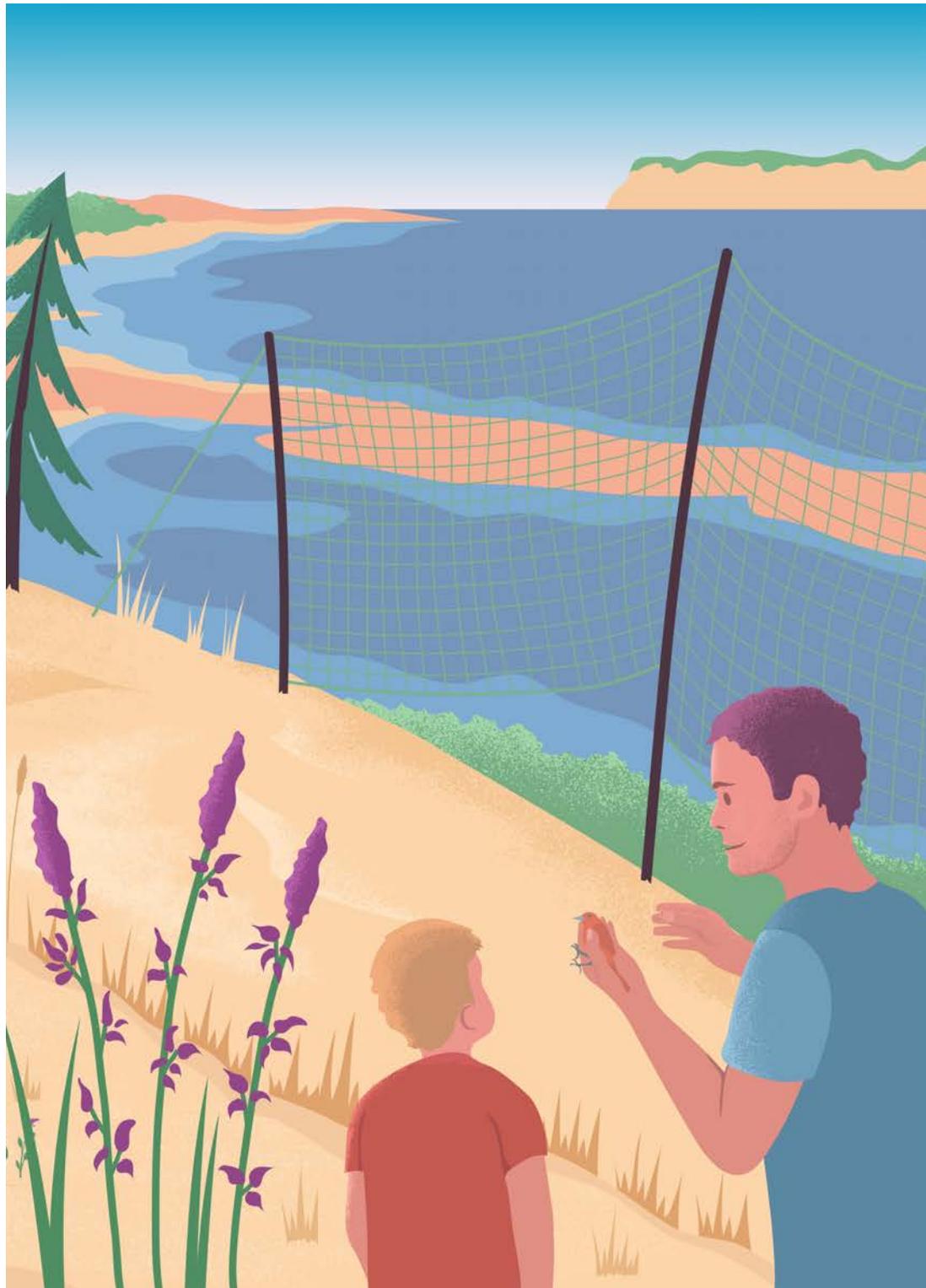
## Key concept: Citizen Science

**Students have the possibility to be engaged in the annual bird count and participate in citizen science.**

Citizen science is scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions.

Because scientists often want to gather and analyse lots of data, but don't have the ability to do it all themselves, they depend on volunteers to help out. In turn, participants learn from taking part, and get to contribute to genuine science outcomes.





## Birds and Citizen Science

Scientists regularly study birds in order to get more insights into where birds go, how many there are, and what kind of threats they face. They regularly ring birds as a way to track and identify them from place to place and over the years. There are also projects that mount electronic trackers on birds in order to capture their migrations better than ring marking can.

Every year ordinary people around the world count birds in their area. This information is then collected so that scientists can see which birds are in different places at the same time. The [Great Backyard Bird Count](#) run by Cornell Labs in the US is a global effort to collect this kind of data. There are national-based organizations in Europe that collect data too.

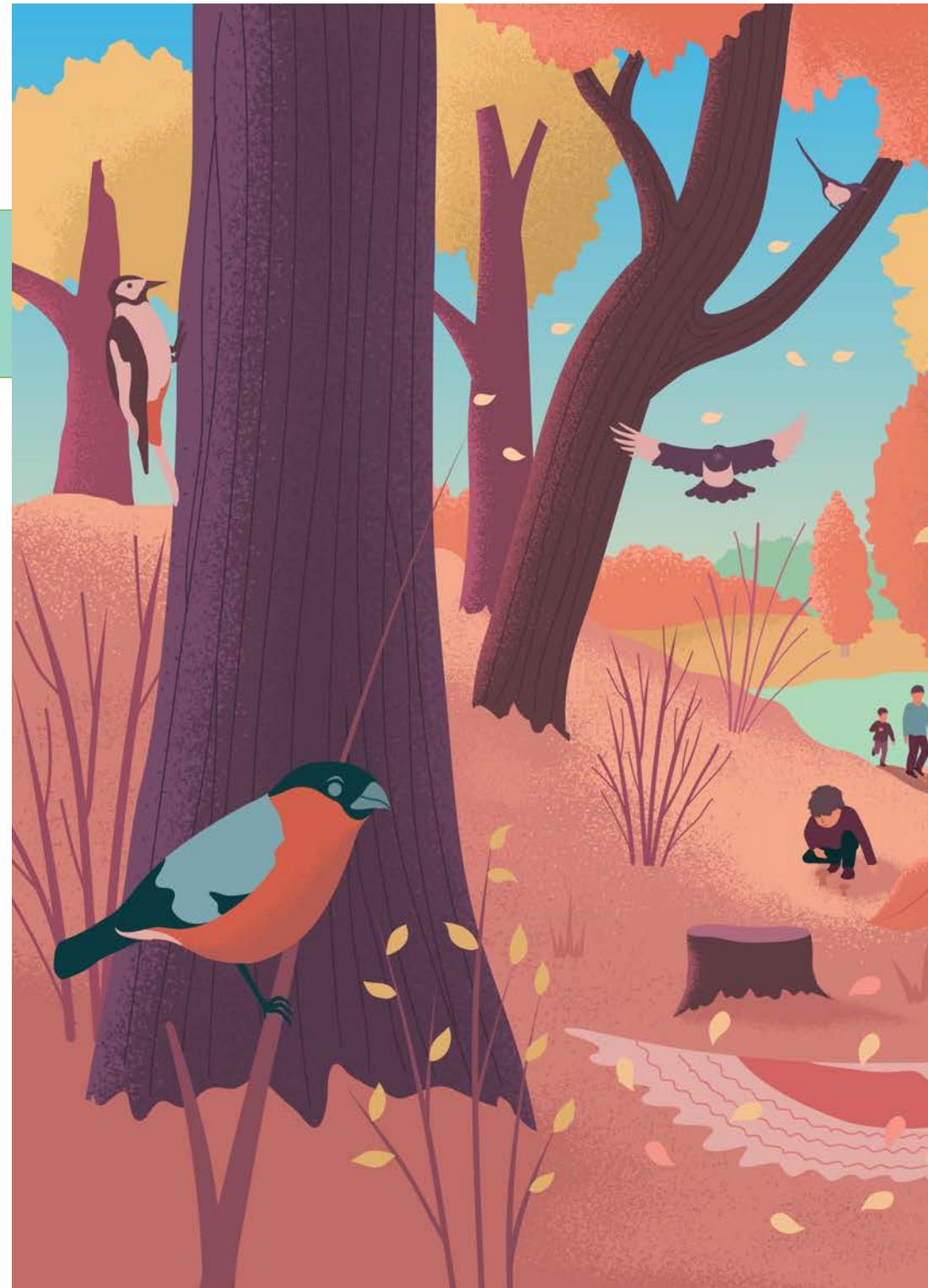
# Student Activities to Make Citizens Count

**Do something for the environment that is practical and fulfilling!**

We have designed four sections to the Citizens Count student activity program:

- 1. Getting to know local birds**
- 2. Birds under threat**
- 3. Kids count**
- 4. Activating environmental citizenship**

We encourage teachers to integrate these activities into teaching over the course of the autumn so that students are ready to participate in the official bird count in January/February.





## 1. Getting To Know Local Birds

In order to meaningfully be able to participate in citizen science activities involving birds, students will need to gain familiarity with their local birds.

Europe is home to about 530 bird species. Which ones appear in each area is dependent on many factors, including climatic conditions, food availability, nesting sites. In a given urban area, there will be much fewer types of birds that regularly appear, so students can learn to identify the 20 most common local birds.

But rather than thinking of bird identification as belonging only to the science curriculum, we encourage the inclusion of bird activities across the curriculum, including art and literature.

## Activity: What birds are in your area?



Have students go to the [Bird Count database](#). Find your country and click on it. This will bring up the list of species seen in your country.

Students can then click on the names of species to bring up pictures and information about it.

Which of these birds might be found feeding at a bird feeder around their homes or school?

Have the students identify 10 of these birds with the common names in their native language. Use local resources to help with this.

## Activity: Observing birds

Take students on walk through your neighborhood or somewhere else nearby. Have a local map printed out for each student. Have them mark the local map where they see birds and what birds they are (work together to identify them). This activity can also easily turn into a digital version, marking a digital map such as Google maps with spots where a bird was cited and even add pictures of the birds the student see.

Even if students can't go outside and look for birds locally, they can engage with birds in a digital investigation by watching birds online, There are many bird cams available. Try [www.allaboutbirds.org/cams](http://www.allaboutbirds.org/cams), [www.youtube.com/kotkaklubi](http://www.youtube.com/kotkaklubi), and [explore.org](http://explore.org)

Glottismi modulationum: sibilo exprimendi in Luscinia obseruati Iconisimus III. fol. 30

The page contains several staves of musical notation with labels such as *Pigolismus*, *Glazismus*, *Teretismus*, *Chromatico-enharmonicum nescio*, *quid affectans*, *Diuersarum uolucrum voces notis musicis expressa*, *Vox Cuculi*, *Vox Coturnicis*, *Vox parurientis Gallinae*, *Gallinorum*, *Cuculicium*, *Cuculicium A*, *Gallina conuocans pullos*, *Gucu gucu gucu gucu E*, *bikebik bikebik bikebik D*, and *Xoipe*.

Illustrations include a rooster (A), a hen with chicks (B), a quail (E), a quail (D), and a parrot (Xoipe).

## Activity: Identifying bird song

Birds are incredible and diverse singers. Students can engage with bird song both as a way of learning to identify birds (we can often hear birds even if we don't see them) and as a way of thinking about music.

There are bird song apps available on mobile phones as well as websites that let students play the bird calls. Try [Birdsong identification for beginners: 20 common songs and calls](#) from the Natural History Museum London as a starting place for students to hear common bird sounds and see the birds they belong to. The webpage has a quiz that the students can take after hearing the calls.

Ask students to consider the rhythmic and musical qualities of the bird songs. How are these similar or dissimilar from the music they listen to?

## Activity: Where do birds go?

Have students go to the [Bird Migration Map](#). The map is interactive. Students can pick different bird species and watch them migrate.

Have students look up the countries where the birds start from. Think about the environmental connections between those places and the countries that the birds fly to. What might be the threats to birds along the route?





## Activity: Can we find birds in culture?

Explore the [online collection of birds in art](#) at the Rijksmuseum in The Netherlands. (Click the “More birds” button to see a big selection of works.) What kind of birds are featured? Is there a difference in the way wild and domestic birds are portrayed?

Ask the students to do some research to find famous paintings or novels that feature birds in your country.

Students might want to explore the online exhibition [“Women writing birds: Pioneering American ornithologists of the 19th century”](#) as part of an English course. The works published by American women ornithologists prove how nature writing provided an effective tool for raising environmental awareness and creating an alternative method of scientific enquiry, centred on female-led observation in the open air, outside the academic institutions from which they were banned.



## 2. Birds Under Threat

Environmental citizenship involves solving contemporary environmental problems, preventing the creation of new environmental problems, achieving sustainability and developing a healthy relationship with nature. This means that students need to understand the problems that birds face because of environmental change.

Birds are under threat in many places in Europe because of lack of food, lack of places for hedging, lack of biotopes where birds can live (due to human demands on natural habitats) such as increased efficiency in agriculture, windmills, construction sites, deforestation, building highways, and highways through wetlands. Changing climate makes it difficult for birds to be able to find food at the right times.

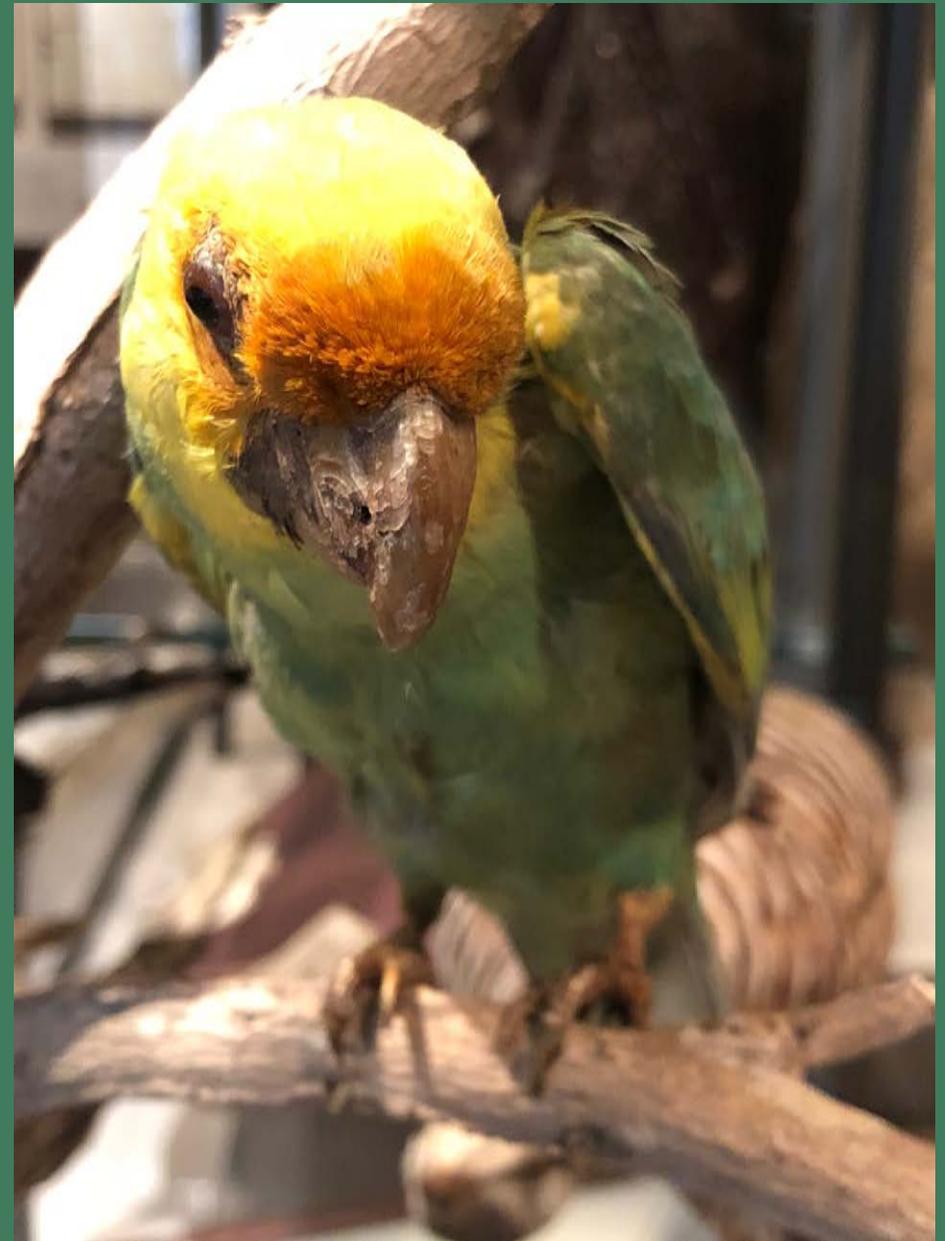
## Activity: Visit a natural history museum

Visit a local natural history museum or take a virtual visit to a museum such as the [Naturhistorisches Museum Wien](#), [Natural History Museum in London](#), or [Grand Gallery of Evolution in Paris](#).

Ask the students to look for birds on display that are extinct or in danger of going extinct. Why did they become extinct or are in danger of extinction? What do humans need to do to conserve them?

Students might also reflect on the displays themselves. What do they think about taxidermied birds on display? What information is given about the species?

During the visit, ask students to take pictures. When they return to the classroom ask them to choose one as their favorite. Have them do research about that bird and its conservation status and threats. One place to start is the [IUCN Red List](#).





## Activity: Provide for birds

Making a birdhouse or a feeder together is something that the students will definitely remember.

There are many possibilities of making recycled bird feeders from different materials as milk cartons or plastic packages etc. The important things are to have a place for the birds to perch and a design that keeps the seed dry in rain. It is common for bird feeders to allow for more than one bird to feed at the same time, as many small garden birds prefer to flock.

Hang a birdfeeder near the school and have students observe the birds that use it.

If you want students to build a birdhouse, they will need to decide on the target bird species then do research about that bird's needs (hole diameter and height, cavity depth, floor size). Those needs should be taken into account in the design.

## Activity: Birds of the Anthropocene

The Anthropocene is a label that has been proposed for the geologic era in which we currently live. This name was chosen to represent the deep changes that humans have made to the Earth's environment.

Plastics are one of the new materials that humans invented within the last 150 years. They are now often found in the stomachs of birds, who accidentally consume plastics.

Take a walk with students on a beach, in a park, or in a forest to collect plastic litter. Be sure to do this safely and have students use gloves. Clean the collected plastics. Have students create bird drawings out of the plastics.



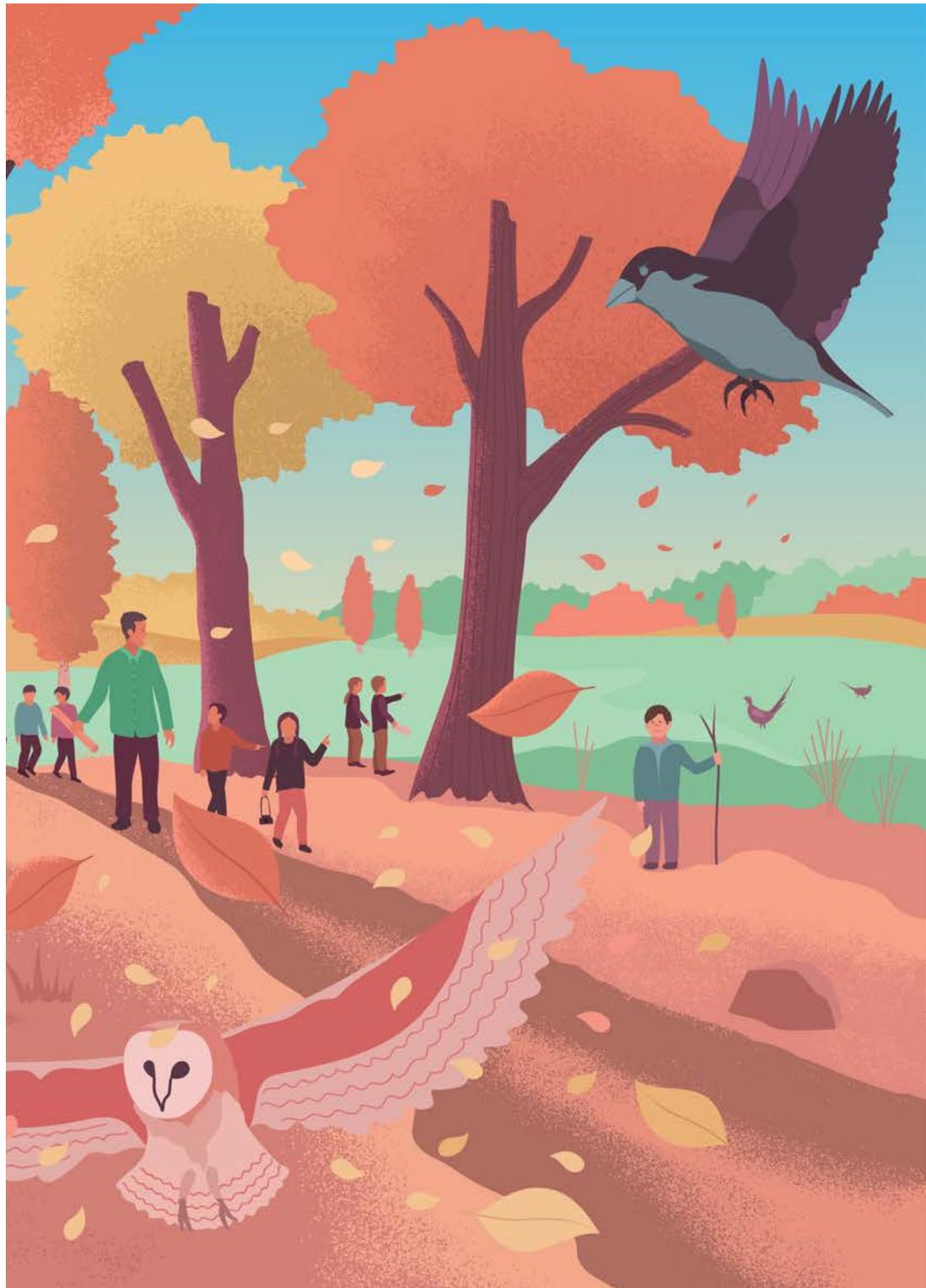


### Activity: Caring for birds

Birds live alongside humans in both urban and rural areas. From accommodating nesting swallows to feedings pigeons in the park, humans interact birds and often try to provide for them.

Ask students to interview their parents, other relatives, or neighbours about their memories of interacting with birds. What kind of birds do they remember? What kind of interactions did they have? Did they feed the birds? Did they make birdhouses for them? Did they care for them in other ways?

Have the students reflect on the interview(s) and consider what ways they might be able to care for birds in the future.



### 3. Kids Count

After becoming familiar with local birds, students have the opportunity to contribute meaningfully to the collection of scientific data about birds. This data is useful for scientists to assess risks and threats to bird populations across Europe and the world.

During the citizen science activities, students are encouraged to think about their local environment and ways that it might be made more habitable for birds.

## Activity: Counting garden birds

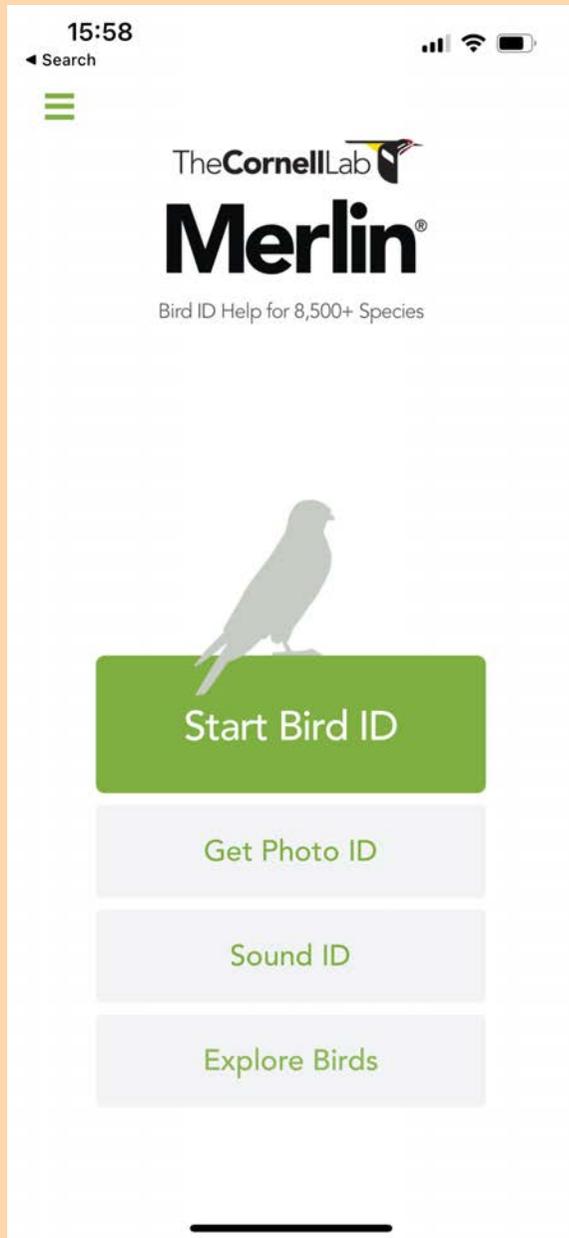
Every year at the end of January, there is a count of garden birds across Europe. Non-scientists are invited to participate in collecting sightings.

Look up the designated Bird Count Day(s) for your country. Have students make a worksheet to use for the count.

Ask the students to participate in the bird count by watching in a space at or near their home for one hour during the Bird Count. Students are encouraged to work in groups. Students should record all the birds they see. They can use a bird identification chart to help.

Ask them to reflect on how the birds they see are using the environment. Are there things that they or others could do to help make the environment better for birds?





## Activity: Uploading Bird Count results

After collecting the data from the Bird Count, the students can upload their data for scientists to use.

This data can be added into the Great Backyard Bird Count international database. Students can use the Merlin Bird ID app to easily upload the sightings. The instructions for this are [online](#).

Your country might also have a database of bird sightings. This is generally run by the national ornithology organization.

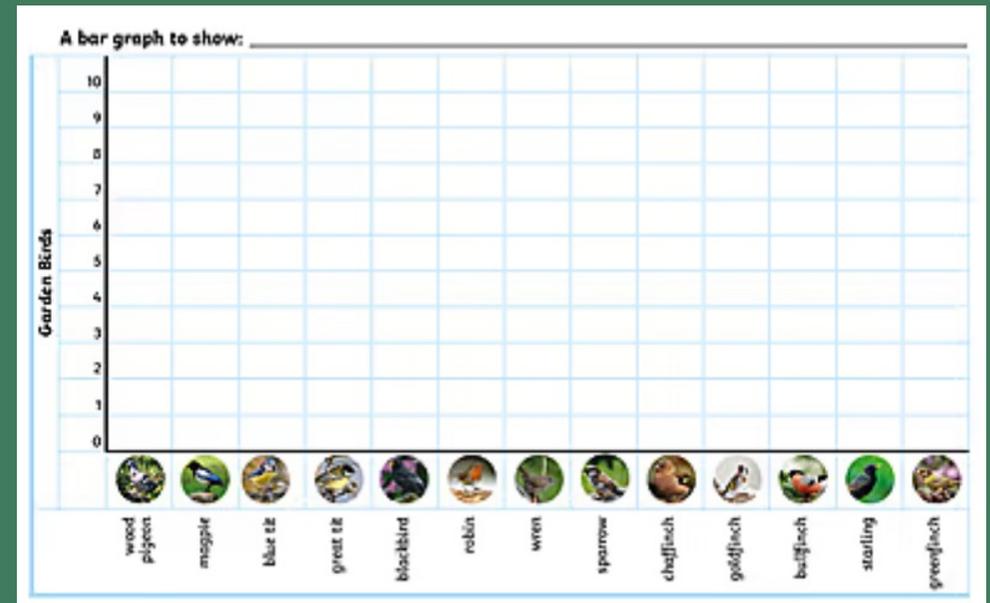
## Activity: Mathematics of the bird count

If the students have completed the bird count individually, they can compare their results to others in the class as well as creating a class summary.

Make a table of all the birds seen by the students. Have students add their individual/group sightings to a class tally.

Students can calculate percentages of the total for each type of bird both on their individual sightings and in the class total. They can compare these percentages to see where differences lie. What might explain these differences?

Students can create a series of bar charts or pie charts to visualize the class sightings.





## Activity: Kids Count Reflections

After completing the bird count, students can reflect on the activities undertaken in the program and make creative artistic reflections.

You might have students create a TikTok or You Tube video about their favourite bird, a series of Instagram posts with photos from their local walks, a podcast about one of the class activities, or drawings about environmental actions.

These artistic works could be posted for other students to see, perhaps in the hallway of the school, or organize an event for parents and communities members to see the results.



## 4. Activating Environmental Citizenship

Stretching beyond birds, students have the opportunity to make a difference to their local environment.

Students need to feel empowered to work individually and collectively to improve environmental conditions. They need to be involved at all stages of the process, from inquiry and planning to direct action and evaluation.

## Activity: Investigate local environments

Invite students to consider their local environment. Is there a waterway or forest or prairie or some other environmental feature nearby that they could visit?

Have the students go there and look for things that could be improved. Is there environmental damage? Litter? Pollution?

Have them develop a plan for environmental improvement, identifying which people (governmental agencies, community leaders, residents, etc.) need to be involved. Have them draft a petition to that group or write an editorial for the local newspaper outlining their plans.





## Activity: Consumption mapping

This activity is about taking responsibility for choices that can affect the environment.

Have the students consider their own use of resources—energy, food, plastics, etc. What are their consumption habits? Where do those materials come from? How do they get to them?

Then have the students consider ways that they could reduce their own consumption, as well as consumption at the school. What measures could be implemented to reduce consumption? How might things be reused? How might waste be reduced?

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Cultivating Green Engagement



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