How to Be a Good Birdwatcher
For ages birds have been the objects of our interests due to many different reasons. They are all around us, they have the ability to fly and they enrich our lives with their singing and chirping. They delight and impress us with their richly coloured plumage, their flying ability, or with the way they gather their food and build their nests. These traits and also their great activity and mobility have always encouraged people to observe birds’ lives and behaviours. Birds are one of the biggest vertebrate groups, made up of circa 10 thousand species, distributed among all the continents. Thanks to the fact that birds are warm-blooded and have the ability of thermo-regulation, they are able to inhabit very different places climatically on Earth, showing incredible adaptive skills.

Birds are the most frequently observed and studied vertebrate group. This is undertaken both by professional scientists and by groups of amateurs, the so-called birdwatchers. Time showed that these seemingly unimportant studies became the basis of ecology and ethology.

Pinpointing birds’ characteristics and assigning them to this particular vertebrate group should not bring any difficulties. Evolving forelimbs into wings, the presence of plumage that almost covers a bird’s entire body, keratin beak that covers a bird’s jaw and replaces teeth, are all traits visible with the naked eye and typical for all birds. Nevertheless, it is important to note that even though many of these traits are common among all birds, there still is a huge variety of modifications in this particular group of animals. This is reflected by their adaptations to different environments, behaviours and ways of gathering food. A good example that illustrates this diversity is a bird’s beak, which not only is used to gather food but also to prepare it, for instance by removing a seed’s hard coat or a calcium shell; bone crushing; ripping soft tissues.
apart etc. How specific these adaptations of beak type to food type can be, can be observed in crossbill’s beak (Figure 1) that is perfect for taking out seeds from a cone. Inserting the beak between a cone’s scales and twisting its head, it can widen them and extract the seed. Birds’ hind limbs are as diverse as beaks. In water-birds, hind limbs function as a swimming limb and are equipped with additional structures that enlarge their surface area (Figure 1 – webbing, goose); in birds of prey hind limbs have a function in obtaining food, they can be clawed and are used not only for catching and holding the prey but also for ripping it apart (Figure 2 – claws, eagle owl). Two opposable pairs of fingers in woodpeckers make it easy for them to climb tree trunks. In flightless birds, like ostriches or emus, hind limbs are their main and highly efficient locomotive organs (Figure 3 – ostrich). A running ostrich can reach 70 km/h.

WHERE TO FIND BIRDS?

Taking into consideration birds’ universality, we can encounter birds almost everywhere. By this we mean both in different climates and in different environments. If we are just starting our adventure with birdwatching, we should begin our search in our closest surrounding. Great places for observations in the city include: city parks, bird feeders, house gardens, suburbs or water tanks. In rural areas observations can be done on farms, fields, meadows or in near-by forests. Birdwatching is a great way of using a child’s natural sense of observation and curiosity of the world. It allows to familiarise children with some general rules of nature and to attract their attention to the need of protecting nature. Traits typical for a bird watcher are: first and foremost patience, meticulousness and being systematic. Observations may be restricted to only one outing to the field. Systematic observations may be done too, during which the presence of different species and their behaviours throughout the year will be recorded.

It is important to prepare for birdwatching. A birdwatcher should wear camouflage clothing that is adequate to the weather conditions (unless observations are conducted indoors), should be equipped with a pen or a pencil and a notebook where a note regarding the date, time and
weather (temperature, precipitation, wind etc.) should be made. More advanced birdwatchers can use a pair of binoculars or a telescope. For the beginning such an equipment should be easy to use and it is best to learn how to use it before going out to the field, for instance, by a kindergarten building or a school building. A useful thing to have is a bird atlas. In many available volumes the birds’ traits that allow to distinguish one species from another are marked together with the traits allowing to determine the bird’s age and sex. If we do not have an atlas while observing, it is good to write down all the traits and behaviours of a bird that later may be helpful to identify its species. The animal’s height is important to note (the easiest thing to do is to relate it to a bird with a known size, for example a bird of a sparrow’s size, a bird of a pigeon’s size) and also the bird’s characteristic marking. In the case of markings, it is important to note the observed colours on a sketch. Before going to the field, we can prepare silhouettes of birds in which the colours can be marked.

Meanwhile, we can tell children that a bird’s markings are not always colourful: they are often different among sexes, individuals in different ages and they can change throughout the year. A female’s colour is most often more modest because of the fact that she incubates eggs and takes care of the young. Such a ‘discreet’, protective colouration allows a bird to hide from a potential predator (camouflage). Hatchlings of birds that nest in open nests on the ground, for example ptarmigans or lapwings, can also benefit from camouflage, matching their colour with the surrounding environment (mimicry). It is also important to note that camouflage is a commonly used passive defence strategy. Many animal species mimic their surrounding environments with their appearance and colour and finding them can be a great test of the nature-lovers’ perception.

Different morphological traits that are important to note while determining the name of a species are the length and shape of a beak, the length of legs and that of a tail. One should also remember where a given bird was observed (on a tree, in a birdfeeder, on the ground, on a roof, on a green belt, etc.) and the way the bird behaves (pecks grain, sits on a branch, walks on a watertank’s shore, attacks another individual etc.). In the further determination of a bird’s species a very helpful thing is to take a photo of it as long as that bird is not on or near its nest.
during its mating season.

Apart from observing birds, one can also try tracking the tracks of their presence, meaning footprints, lost feathers, egg shells, traces of feeding or birds’ nests or their remains. Each species has their own characteristical limb structure, when their size and shape is considered, and that allows, just like in the case of mammal species, finding out the exact species that left the footprint on snow, wet sand or mud. It is not easy but one strategy that helps with recognising the tracks is making a gypsum imprint of the track, then measuring it and using a key with pictures to identify the owner of the tracks. Based on such an imprint, we can also determine the way the bird moves (jumping, striding), the direction of the movement and if the bird is linked with a water environment (webbing between toes).

Winter is a good time for looking for nests of some species. First and foremost, this is applicable to big birds, such as birds of prey (buzzard, white-tailed eagle), the crow family (crow, rook, magpie) and also some smaller species whose nests are durable and are not destroyed in winter, for instance a song thrush’s or a blackbird’s nest. Trees, at this time leafless, make the localisation of nests which size, shape and the way it is built (type of material a nest is built from, the presence of a given padding, the way twigs are braided) allow determining the species that built this nest. Descriptions of nests made by pupils are sources that highlight the diverse “building” skills that birds possess.

The children’s love of collecting can be used to create one’s own bird specimen collection, for example by collecting egg shells or feathers. If the collections are to be created by children, it is important to remind them to write down the place and the date of finding the specimen and to properly secure it. Delicate egg shells should be dried and placed on a soft mat in containers/boxes with hard walls. They should not be exposed to light so that they would not lose their colour and markings. Feathers, also dried and described, are best to be placed in zip lock bags of a proper size. If feathers are not secured properly, they may be endangered to destruction by clothes moths. That is why before placing feathers in zip lock bags they should be kept in cold temperature or sprayed with anti-moth spray. In the case of the traces of clothes moths appearing, the treatment should be repeated. When collecting egg shells, it is important to tell children about the camouflage colour of eggs that are laid on the ground or the cone-like shape of eggs laid on rock shelves that prevents them from moving.

One should remember about the necessity of abiding by the rules of behaving around birds and, above all, of avoiding flushing out birds and being near nests where there are hatchlings or where the eggs are incubated.
This material was prepared as part of the project „We live in harmony with nature. The educational program for teachers of pre-school and primary education”. The project involved selected non-governmental organizations involved in the protection of birds associated as part of the international BirdLife International federation. In addition to the National Society for Bird Protection, which ran the project, the Spanish Ornithological Society (SEO), the Slovak Ornithological Society (SOS), the Macedonian Ecological Society (MES), the Czech Ornithological Society (CSO) and BirdWatch Ireland (BWI) were involved. The University of Gdańsk became the substantive partner of the project responsible for creating materials for teachers.

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**BLOCK 1: BIRDS LIVE NEAR OUR HOMES**

**Background:** Atmosphere is built in the classroom by placing depictions of birds (drawings, photographs or models) around the classroom and providing a basket with binoculars, a photo camera, a scope and bird guides. After each return from the field the decoration can be changed (with participation from the children) - only the bird species seen in the field are retained.

<table>
<thead>
<tr>
<th>DETAILED PROBLEMS</th>
<th>WHAT IS A BIRD? HOW TO KNOW THE PRESENCE OF BIRDS IN THE FIELD?</th>
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</thead>
<tbody>
<tr>
<td><strong>Activities in the field</strong></td>
<td>Animals use different methods of camouflage, which is why observations require attention and concentration. Practice perception in the natural environment with the help of a card.</td>
</tr>
<tr>
<td></td>
<td>Be a sharp observer of nature (S1 / A / 1).</td>
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<td></td>
<td>Work in the field requires compliance with certain rules.</td>
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<td></td>
<td>Practice them in the field using the card.</td>
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<tr>
<td></td>
<td>How to observe birds in the field? (S1 / A / 2).</td>
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<tr>
<td></td>
<td>Birdwatching requires patience, knowledge and a bit of luck. An important part of it is the ability to see the traces of their presence. The most common are footprints - that is, the footprints of a bird left on a soft surface such as mud, damp sand or snow. It is worth collecting various artifacts that are other traces of the presence of birds or document them photographed.</td>
</tr>
<tr>
<td></td>
<td>Collector’s guide (S1 / A / 3) may be helpful.</td>
</tr>
<tr>
<td><strong>Observations and experiments in rooms</strong></td>
<td>The exercise is designed to reveal the children's personal knowledge - Which animals are birds? (S1 / A / 4) Children can return to this exercise after solving problems and see if there is anything to improve.</td>
</tr>
<tr>
<td></td>
<td>Multimedia presentation provokes observation and thinking about what a bird is? (S1 / A / 5)</td>
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<tr>
<td></td>
<td>Even the youngest children can use optical equipment.</td>
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<tr>
<td></td>
<td>However, observation in nature can pose some difficulty.</td>
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<td></td>
<td>Practice with children how to use a pair of binoculars (S1 / A / 6) in especially simplified conditions.</td>
</tr>
<tr>
<td><strong>Artistic tasks</strong></td>
<td>Performing a drawing with descriptions of the characteristic parts of a birds body can be a brilliant learning exercise.</td>
</tr>
<tr>
<td><strong>Literary tasks</strong></td>
<td>Suggest to children the fun of arranging nursery rhymes to help you remember the characteristics of birds, for example:</td>
</tr>
<tr>
<td></td>
<td>Big or small, every bird has Two legs, two wings and one beak and feathers are countless,</td>
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<tr>
<td></td>
<td>Look carefully, do not shout</td>
</tr>
<tr>
<td><strong>Math tasks</strong></td>
<td>Other animals hidden among the birds (S1 / A / 7), find them and count them.</td>
</tr>
</tbody>
</table>
BE A SMART NATURE OBSERVER

Task 1. Tracing hidden animals (P)
Let children look for small animals in a garden or park – butterflies, ants, grasshoppers, flies, bees, wasps, spiders, or bigger animals like birds, frogs, toads or mice. They should try answering the following questions:
• What is this animal doing?
• Is this animal trying to hide?
• How is it doing it?
Pay attention to the colours and patterns on the bodies of the animals. They use them to look like their surroundings, to be less visible. Talk about camouflage.

Task 2. “Find me” game.
What do you need?
• several models of snails cut out of paper in the colours of nature (green, brown, grey), distributed around the garden
• several vividly coloured ladybirds (yellow, red, blue)
• a small bag for collecting paper animals, for every child

Tasks and questions
In five minutes, the children should collect as many hidden animals as possible. The child that collects the biggest number of animals is the winner. Which of the paper animals were the easiest to find, and which ones where the hardest? Why?
If the children haven’t found all the animals, give them another 5 minutes to find the remaining models. You can use any way of giving clues leading to the places the animals are hidden.

Think:
What do the children think about the meaning of camouflage now?
Why do animals use camouflage?
What to look at?

1. What size and shape is the bird? Is it big? small? long? round?
2. What colour is it? Does it have characteristic traits on the back, belly or head?
3. What shape and colour is the beak? Long? Short? bent?
4. What is it doing? Is it high in the trees? is it looking for food on the ground? Is it fluttering its wings?
5. Is it making any sounds? If it is, what does its song sound like?
6. If you hear a bird singing, get your binoculars and start looking to see where the song is coming from.

Who will be less visible to the birds?

How will you dress, to hide from the inhabitants of the forest or meadow?
How to behave?

1. Always go with an adult. If you get lost, stand where you are and wait for them.
2. Don’t behave loudly, don’t sing, don’t shout.
3. Don’t run, don’t jump. Don’t attract attention.
4. Walk slowly and with caution. If you spot an interesting bird stop and stay as calm as you can, so you don’t scare it.
5. Don’t go close to nests or nesting colonies.
6. Don’t litter. Take everything you brought along, back with you!
TRACES OF BIRDS – FIELD GUIDE

What You Need?

- plastic boxes (lunch boxes); string bags.
- tweezers
- magnifying glass
- bags
- quick drying plastermould for making bird feathers

These will be useful:
Laminating machine and laminating foil or ziplock bags, camera.

Tasks and Questions:

Your task will be to document the traces that birds leave in the field. The task lasts for the entire school year, but some of the traces (nests, hollows, feeding tracks, tracks) will be most easily documented in the winter. It is up to your perceptiveness to determine how rich your collection will be. The Collector’s guide below will help you with the task.

Practical considerations for the collector:

- The egg shells you find should be well-preserved in the described boxes - eg boxes or jars.
- If you find an empty bird nest dropped to the ground, eg. by the wind, you can take it for display in the class room.
  NEVER TAKE A NEST DOWN FROM SHRUBS OR TREES EVEN IT APPEARS EMPTY. IT MAY ALWAYS BE USED AGAIN BY ANOTHER BIRD OR ANIMAL.
I. COLLECTION OF BIRDS EGGS

In the spring and summer, an attentive observer can find egg shells ejected from the nests after the young ones have hatched.

Maybe you can find and recognize some of them?

<table>
<thead>
<tr>
<th>EGGS BIGGER THAN A COIN</th>
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<tbody>
<tr>
<td>Magpie</td>
<td></td>
<td></td>
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<tr>
<td>(33-24 mm)</td>
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<td></td>
</tr>
<tr>
<td>Blackbird</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(29,5-21,5 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood pigeon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(29-20 mm)</td>
<td></td>
<td></td>
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<tr>
<td>Mallard</td>
<td></td>
<td></td>
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<tr>
<td>(60-44 mm)</td>
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<tr>
<td>Rook</td>
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<tr>
<td>(40-29 mm)</td>
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<tr>
<td>Song thrush</td>
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<tr>
<td>(27-20 mm)</td>
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<table>
<thead>
<tr>
<th>EGG SIZE OF 50 GR COINS</th>
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<tbody>
<tr>
<td>House Sparrow</td>
<td></td>
<td></td>
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<tr>
<td>(21,2-14,6)</td>
<td></td>
<td></td>
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<tr>
<td>Great tit</td>
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<tr>
<td>(17,2-13,4 mm)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>EGG COIN SIZE 2 GR</th>
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</thead>
<tbody>
<tr>
<td>House martin</td>
<td></td>
<td></td>
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<tr>
<td>(18,5-12 mm)</td>
<td></td>
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</tbody>
</table>

QUESTIONS AND TASKS:
1. Where was the shell found?
2. When was it found?
3. What did the shell look like?
II. FEATHERS

Bird feathers can be found throughout the year. Some of them are easy to recognize due to their color and pattern.

Questions and tasks
1. Where was the feather found?
2. When was it found?
3. Was it a single feather or more?
III. NESTS

Winter is the best time to investigate how many nests birds have built in the vicinity. Bring binoculars and a notepad. Look around carefully - look at the trees and shrubs. When there are no leaves on them, you can clearly see the abandoned bird nests. Count how many of them there are and draw them where you can see them. Look at them carefully (if you need to; through binoculars) – maybe you can recognize what bird they belong to.

REMEMBER! DO NOT REMOVE NESTS FROM TREES AND SHRUBS.

<table>
<thead>
<tr>
<th>YOUNG MAGPIES GREW UP HERE.</th>
<th>YOUNG SONG THRUSHES GREW UP HERE</th>
<th>THIS IS THE NEST OF A GREAT SPOTTED WOODPECKER</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Magpie Nest" /></td>
<td><img src="image2" alt="Song Thrush Nest" /></td>
<td><img src="image3" alt="Great Spotted Woodpecker Nest" /></td>
</tr>
<tr>
<td>(jv)</td>
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<td>(jv)</td>
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</tr>
<tr>
<td>Sand martins nest in earthen or sandy banks by burrowing small holes.</td>
<td>Generally birds nests are built so that only the host species can easily access them.</td>
<td>Swallows often nest in barns, sheds or old houses. They glue mud together with salivary deposits stuck to the under side of an eave or rafter.</td>
</tr>
</tbody>
</table>
IV. FEEDING HABITS

PERHAPS YOU CAN OBSERVE TRACES OF FEEDING BIRDS.

<table>
<thead>
<tr>
<th>Images</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image 1" /></td>
<td>Cones embedded in the bark of a tree and a lot of cones looking ruffled lying at its base could be a trace of the woodpecker’s activity.</td>
</tr>
<tr>
<td><img src="image2.jpg" alt="Image 2" /></td>
<td>Holes cut in walnuts and acorns could be the work of a great tit</td>
</tr>
<tr>
<td><img src="image3.jpg" alt="Image 3" /></td>
<td>Walnut husks lying on the ground can be evidence of crows feeding, they break the nuts by dropping them from a great height onto hard ground.</td>
</tr>
<tr>
<td><img src="image4.jpg" alt="Image 4" /></td>
<td>Large irregular holes in nuts may indicate the meal of a woodpecker.</td>
</tr>
<tr>
<td><img src="image5.jpg" alt="Image 5" /></td>
<td>Apples with eaten pulp and peel leftovers - probably indicate the feast of a blackbird or fieldfare.</td>
</tr>
<tr>
<td><img src="image6.jpg" alt="Image 6" /></td>
<td>Bird feathers scattered in disarray - a bird probably provided a meal for some predator here!</td>
</tr>
</tbody>
</table>
V. FOOTPRINTS

Birds walking on wet muddy/sandy ground (eg the sea shore, lakes, rivers) or on snow leave prints which can provide clues for us to figure out which species was present and even what direction they were going.

1. Examine the prints of your feet. To do this, prepare wet sand or use fresh snow - leave traces of your feet (shoes) on it, going forward, jumping on both legs, running, walking as if you were looking for something. Take a picture or draw it, like your footprints look.

<table>
<thead>
<tr>
<th>WE WERE MOVING FORWARD</th>
<th>WE ARE RUNNING</th>
<th>WE ARE JUMPING</th>
<th>WE WERE LOOKING FOR</th>
</tr>
</thead>
</table>

2. Now let's read the message left by the bird's feet on the seashore:

- The bird walked in different directions - probably looking for food.
- There is a membrane impression between the fingers (webbed feet) - it is a water bird.
- Traces are of one kind - it was probably one bird.

QUITE A LOT OF THIS INFORMATION, RIGHT?
3. This bird also went on the beach. What can you read from these tracks?

Questions and tasks:

1. How many birds were there?
2. Did the bird run, or maybe jump?
3. Is it a water or land bird?
4. Did he move forward or circulate - perhaps in search of food?
4. And what do you read from the following traces?

Questions and tasks:
1. How many birds were there?
2. Did the bird go, run or maybe jump?
3. Is it a water or land bird?
4. Did he move forward or circulate - perhaps in search of food?

Below: A place to draw the tracks that you found.
VI. YOU CAN MAKE BIRDS FOOT PLASTER CASTS

What you need?

• a clear imprint of the bird’s foot
• quick-setting gypsum
• bowl
• water
• cardboard strip
• Paper clips
• spoon for mixing gypsum
• cutting board

Tasks and questions:

1. Gently clean the trail where the footprint was found from twigs, leaves, etc.
2. From the cardboard strip, prepare a ring slightly larger than the trophy (pin it with a stapler).
   Prepare the prepared ring in the ground around the trail.
3. Mix the plaster with water, adding (a little) enough to make the mush.
4. Then pour the reconstituted plaster into the ring.
5. Now it’s time to wait patiently - after about 15 minutes the plaster will get tough.
6. Carefully lift the plaster with the ring and put it on a hard surface (eg chopping board)
   Show the class and put it down until the next day.
7. The next day, tear off the cardboard and clean the casting.

What did you see?

1 Based on R. Brown et al., Tracks and traces of birds, W-wa 2006
WHICH OF THESE ANIMALS ARE BIRDS?
HOW TO USE BINOCULARS?

Task 1. Observation with a limited field of view
What will you need?
• Several objects in different sizes
• A4 and A3 sheets of paper, rubber band

Tasks and questions:
1. Roll a piece of paper into a tube and secure it with a rubber band.
2. Find the object indicated by the teacher, using the paper tube you have prepared.
3. What can you see? Can you find the object you are looking for? When using the tube, can you also see other objects?
4. How fast can you find the friend you are looking for?

Task 2. Observing an unknown shape
What will you need?
• 10 boards with drawings of any chosen small and simple objects
• binoculars

Tasks and questions:
1. Explain to the students how to use the binoculars and how to focus the image.
2. Tell the children to stand 15 steps from the boards. Ask them to look through the binoculars and tell what they can see in the picture.
3. Change pictures and let the children try several times.

Task 3. Searching in the distance
What will you need?
• 10 charts with drawings of animals
• binoculars

Tasks and questions:
1. In selected places hide drawings of animals familiar to the children.
2. Make the children stand at a distance of 30 steps. The task is to recognize as many animals as possible in 3 minutes.
3. You can propose a competition for 3-5 person teams.
Task 4. Bird watching
What do you need?
• 2 tables – attached below
• binoculars

Tasks and questions:
Prepare pictures of birds and position them at a distance of 15 steps from the observation point. Ask the pupils to use the binoculars and answer the following questions:
1. Which bird has the longest neck?
2. What differences can you see between bird 1 and 2?

below you will find:
- a drawing of a male and female mallard duck
- a drawing of a male and female blackbird (or other birds)
OTHER ANIMALS ARE HIDING AMONGST THE BIRDS..

Can you find them?  How many are there?  How many birds are there in the picture?  How many beaks do they have?  How many pairs of legs do the birds in the picture have?  How many bird legs are there? Which bird has got the longest beak?
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