SEEING THE WORLD THROUGH NATURE

SCHOOL WORK SHEETS

BLOCK 4:

WINTER'S NOT SO BAD

Download the app

To complete some of the tasks outlined in the school work sheets you will need our special smartphone app, called [NAME HERE]. To download this app, please go to:

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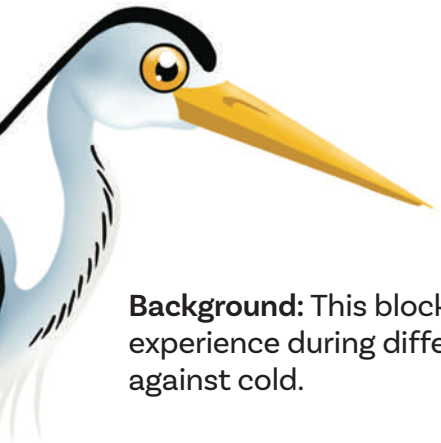

BLOCK 4
WINTER'S NOT SO BAD

Background: This block can be used to think about the different temperatures that birds experience during different seasons. You can collect materials used by humans for protection against cold.

DETAILED PROBLEMS	**What is the structure of a bird's feather? What types of feather are there? How does environmental pollution affect birds?**
Indoor observations and experiments	Feathers are unique to birds. For these activities, use feathers collected during the summer moult. Ensure that you collect different types of feathers (flight and tail feathers, coverts, down feathers). With your pupils, compare them and find differences and similarities **(S4/A/1** and **S4/A/2).** Use the short video **"FLIGHT: The Genius of Birds – Feathers"** to think about the function of feathers (**https://bit.ly/geniusfeathers**). The teacher should describe what is happening on the screen to blind pupils. Let the children match feathers to their respective locations on a model of a bird's body. Using a feather identification guide **(S4/A/3);** partially-sighted children can try to identify which birds the feathers come from. Check whether feathers can protect a bird from winter cold **(S4/A/4).** This activity needs assistance from the teacher. Bird feathers are perfectly adapted to their functions. They are lightweight, facilitate flight and dry quickly. However, they might lose their properties in a polluted environment. Have a look at features of bird feathers together with your students **(S4/A/5).** This activity needs assistance from the teacher.
Artistic tasks	The children can make drawings using feathers as brushes. Use a colour ink or poster paint, diluted to the density of cream. You can use feathers to create fairy birds. Use a paper model of the bird's body or make it out of modelling clay. Legs can be formed using bent paper clips. If you want to look at the structure and types of feathers more thoroughly, make a model of a bird.
Linguistic and written tasks	Feathers (mainly from geese) used to be used as writing tools. Try to write with feathers. Use unaltered feathers, then feathers with sharpened ends.
Mathematical tasks	Use feathers to count their types: how many flight, contour and down feathers are there? Which are more numerous? How many or each are there? Using a tape, measure the length of feathers from various bird species. Depending on the age of the children, sort them from shortest to longest, or classify them according to their length in centimetres. Explore the lightness of feathers in weighing games **(S4/A/6).**
Games and competitions	**Play the bird quiz** – a revision of bird names. Take a ball or a beanbag with you. Participants stand in a circle and throw the ball to one another. The child that catches the ball says the name of a bird. Instead of throwing the ball, for blind and partially-sighted children we suggest calling out a colleague's name to get a response. You can introduce additional conditions, e.g., only the birds that stay for the winter, only the birds that winter in warm areas, only colourful birds, only the birds with the letter "a" in their names, etc.

Additional information for teachers: For pupils interested in natural sciences, you can elaborate the topic by comparing feathers with other epidermal growths (such as claws, scales, hair or beak).

WHAT KINDS OF FEATHERS DO BIRDS HAVE?

What you will need

- A variety of different feathers. Bring along a bunch of feathers (e.g., flight and tail feathers, coverts, down feathers). You can fix feathers with glue onto a sheet of paper to give each student or group of students. You can also use a model of a bird to show the different feathers each bird has.
- A magnifying glass
- A feather identification book or website

Tasks and questions

1. Examine the feathers carefully
2. What can you say about their size and structure?
3. Order them according to your own ideas
4. What different kinds of feathers can you distinguish?
5. Compare the shapes of the feathers and speculate also about the size of the birds they belong to.

Think of the following aspects:

Do all feathers have the same structure? Find differences and similarities.
What could be the reason for this?

Guidelines for teachers

- If you can't find feathers, you can prepare models or tactile/embossed images of them. Bear in mind that tactile images or real feathers should be easy for students to differentiate when comparing them with each other, by being very different and not merely having slight differences (e.g., a very small and a very big feather, a broad and a narrow feather). Use no more than four different feathers.
- You can scale up the difficulty level of this activity to encourage students: give them two feathers that are totally different to compare, and then move on to feathers that are more similar.
- Differentiate tasks for partially-sighted and for blind students.
- If required, explain to the students the differences and similarities in the structure of feathers.

WHY DO BIRDS HAVE FEATHERS?

Your presumptions:

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What you will need

- Flight or tail feathers
- A magnifying glass

Tasks and questions

1. Look at the feathers carefully
2. Weigh them in your hand
3. Wave the feather. What do you feel?
4. What will happen if you pull the vane of the feather? Can you fix it again?

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Think of the following aspects:

1. Where are primaries and flight feathers located? What are they for?
2. Check your presumptions and watch the movie with voice-over, **"FLIGHT: The Genius of Birds – Feathers"** (**https://bit.ly/geniusfeathers**)
3. Why do birds have feathers? Which of your presumptions were right?

Guidelines for teachers

- The video is with English voice-over. You should describe what is happening on the screen to blind students.

A GUIDE TO SOME EASILY IDENTIFIED FEATHERS

Bird feathers can be found throughout the year. You can use the bunch of feathers you've prepared already. Alternatively, make your own feather identification guide.

What you will need

- A bunch of feathers
- A notepad, notebook, a small book or anything that may serve as a guidebook
- Fix feathers to sheets of paper, remembering to put the name of each bird next to each feather. Write the name in Braille and in high-contrast large print.

(MK)

These feathers were lost by a Jay

(MK)

These feathers were lost by a Great Spotted Woodpecker

(JV)

(JV)

(MK)

These feathers were lost by a Woodpigeon

(MK)

These feathers were lost by a Blackbird

(JV)

(JV)

(MK)

These feathers were lost by a Goshawk

(MK)

These feathers were lost by a Mute Swan

(JV)

(JV)

(MK)

These feathers were lost by a Buzzard

(MK)

These feathers were lost by a Mallard

(JV)

(JV)

DO BIRDS FEEL THE COLD?

Guidelines for teachers

- The teacher should assist students in order not to accidentally spill the water, and should make sure that the bottles close firmly.
- In order to avoid accidents, the teacher should make proper arrangements in the classroom (e.g., sit at round tables and in groups).
- If there's a mixed class of both blind and sighted students, the blind students should be asked to try the tasks first.

Your presumptions

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What you will need

- 2 plastic bottles with caps
- Warm (but not hot) water
- A string or a tape

Tasks and questions

1. Fill both bottles with water
2. Close the bottles carefully. Check the temperature. Is it the same in both bottles?
3. What will happen if we wrap one of the bottles with a down pillow and put both of them outdoors for a while?

Think about the following aspects:

- Do feathers protect birds from the cold? Is that important for birds?
- Do feathers also protect from the heat? How would you check this?

HOW TOUGH ARE FEATHERS?

Guidelines for teachers

- This exercise needs assistance from the teacher.

1. Can feathers get wet?

What you will need

- A tray
- Water
- Feathers
- A small piece of fabric
- A paper towel

Tasks and questions

1. Put the feathers and the piece of cloth on a tray
2. Pour water over them. What will happen? Will the feathers and the cloth both absorb the water?
3. Will the feather and the cloth both dry easily if you rub them with the paper towel?

Think the following aspects over:

- Do you have any idea what happened? What could be the significance for birds?
- Can birds fly during rain? Why?

2. Can feathers get damaged?

What you will need

- A tray
- 3 cups with water
- 2 feathers
- A dropper
- Oil
- Washing-up liquid
- A paper towel

Tasks and questions

1. Pour water into the cup. Immerse two feathers in it. Pull out and examine carefully.
2. Add a few drops of oil to a cup of water. Dip the feathers in it. What does the oil look like on the surface of the feathers?
3. Is it possible to clean the feather by gently pulling it through a towel?
4. Prepare two cups with water (hot and cold). Rinse the first feather well in cold water and the other one in warm water. Check if you have cleaned the oil off the feathers.
5. Is it possible to remove the oil if you add a few drops of washing-up liquid to the water?

Consider:

- What do you think happened? What does this mean for birds?
- What happens when ducks swim in polluted ponds?
- How can we prevent such situations? Why is it important to care for the environment?

LET'S PLAY A GAME: FEATHERWEIGHT

Guidelines for teachers

- This task needs some time and caution. To save time and to avoid unexpected risks, the teacher should prepare the bags before the lesson.

What you will need

- A coat hanger
- Some draw-string bags
- 250 ml plastic cup
- Feathers
- Oat flakes
- A selection of other substances
- Clothes pegs

Tasks and questions

- Put one cup of bird feathers into a draw-string bag. Close the bag.
- Put one cup of oat flakes into another draw-string bag. Close the bag tightly.
- What will happen if you attach the two bags to opposite sides of the coat hanger, using clothes pegs, and then spin it? How can you explain this?
- Repeat the process with other substances. Observe and draw conclusions.
- How would you arrange the products with respect to their weights?

LIGHTEST *HEAVIEST*

Consider:

- What does the saying "as light as a feather" mean?
- Which is heavier: 1 kg of feathers or 1 kg of flour?

These materials for teachers working with blind and visually impaired children have been prepared within the project "Seeing the World Through Nature." These are based on the educational resources that resulted from the project "Empowering Teachers and Pupils for a Better Life Through Nature," and the suggestions contained therein have been adapted to work with children with impaired vision in order to enable them to learn as much as possible about nature through direct contact with it.

Non-governmental organisations involved in bird protection, partners in international federation BirdLife International, participated in the project. The Polish Society for the Protection of Birds (OTOP) was the leader of this educational initiative, which also involved the associations BirdWatch Ireland, BirdLife Malta and BirdLife Cyprus. The Polish Association for the Blind was the partner cooperating in the field of adaptation of source materials for the needs of teaching blind and visually impaired children.

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BIRDWATCH IRELAND is the largest independent conservation organisation in Ireland. A registered charity, its aim is the conservation of wild birds and their natural habitats. It has over 15,000 members and a network of 30 local branches. It manages nature reserves which protect threatened habitats and their wildlife, works to conserve Ireland's biodiversity, and carries out education, survey and research work. For more information, go to www.birdwatchireland.ie