

School Work
SHEETS



BLOCK 4:

**WINTER'S
NOT SO BAD**





Block 4: THERE'S NOTHING TO BE AFRAID OF IN WINTER

Context: This block can be used to think about the different temperatures during different seasons. You can collect illustrations of materials used by people for protection against cold.

DETAILED PROBLEMS	WHAT IS THE STRUCTURE OF A BIRD'S FEATHER? WHAT TYPES OF FEATHERS ARE THERE? HOW DOES ENVIRONMENTAL POLLUTION AFFECT BIRDS?
<p>Outdoor observations and experiments</p>	<p>Go for a walk on a winters day. Watch birds. Pay attention to:</p> <ul style="list-style-type: none"> • plumage colours and colour distribution, • colour of feathers in males and females, • birds with ruffled feathers and birds that are preening. <p>If it is windy, take flags or ribbons attached to sticks with you. Use them to see where the wind comes from. See how birds position themselves relative to the wind.</p>
<p>Indoor observations and experiments</p>	<p>Feathers are characteristic growths of the epidermis in birds. Carry out a thorough inspection of their structure (4/A/1 and 4/A/2). Use feathers collected during the summer moult.</p> <p>With younger children, look at feather colours. Using a feather atlas (4/A/3), older children can identify which birds they come from.</p> <p>Use this short video to think about the function of feathers https://www.youtube.com/watch?v=Y2yeNoDCcBg. Let the children match feathers to their respective locations on a model of the bird's body.</p> <p>Check whether feathers can protect (4/A/4) a bird from winter cold.</p> <p>Bird feathers are perfectly adapted to their functions. They are light-weighted, facilitate flight and dry fast. However, they might lose their properties in a polluted environment. Have a look at features of bird feathers together with children (4/A/5).</p>
<p>Art and graphomotor tasks</p>	<p>The children can make drawings using feathers as brushes. Use a colour ink or poster paint, diluted to the density of cream.</p> <p>You can use feathers to create fairy birds. Use a paper model of the bird's body or make it out of plasticine. Legs can be formed using bent paper clips.</p> <p>If you want to look at the structure and types of feathers more thoroughly, make a bird's model.</p>



School Work Sheets

DETAILED PROBLEMS	HOW ARE BIRD FEATHERS BUILT AND WHAT ARE THEIR TYPES? WHAT IS THE IMPACT OF ENVIRONMENTAL POLLUTION ON BIRDS?
Language and writing tasks	Bird feathers (from geese) used to be writing tools. Try to write with feathers. Use natural feathers and feathers with sharpened ends. Prepare an exhibition Feathers not only for flying, showing results of the classroom observations and experiments. Let children talk about their observations.
Maths tasks	Use feathers to count their types: how many flight, contour and down feathers there are? Which are more numerous? How much? Using a tape, measure the length of feathers of various bird species. Depending on the age of the children, sort them shortest to longest or classify them according to their length in centimetres. Use the lightness of feathers in weighing games (4/A/6).
Games and competitions	Use the time of winter games in open air to play the Bird's quiz - a revision of bird names. Take a ball or a sack with pea with you. Participants stand in a circle and throw the ball to one another. The child that catches the ball says a name of a bird. 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 an „a” in their name, etc.
Additional information for teachers	For pupils interested in natural sciences, you can elaborate the topic by comparison of feathers with other epidermal growths (such as claws, scales, hair or beak).



WHAT KIND OF FEATHERS DO BIRDS HAVE?

What we will need:

- Different feathers, at least several for each child
- a magnifying glass
- a feather atlas

Tasks and questions:

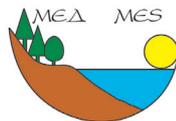
- Watch the different feathers carefully.
- Look at their colour and structure.
- Order them according to your own ideas.
- What different kinds of feathers can you distinguish?

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- Draw some examples of the feathers.

Think of the following aspects:

Do all feathers have the same structure?
What could be the reason for this?





WHY DO BIRDS HAVE FEATHERS?

Your presumptions:

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What you will need:

- flight or tail feathers
- a magnifying glass (optional)

Tasks and questions:

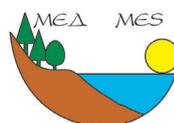
- Look at the feathers carefully.
- Weigh them in your hand.
- Toss them and observe how they fall down.
- Wave the feather. What do you feel?
- What will happen if you pull the vane of the feather? Can you fix it again?

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Think of the following aspects:

- Where are primaries and flight feathers located? What are they for?
- Check your presumptions and watch the movie
- <https://www.youtube.com/watch?v=Y2yeNoDCcBg>
- Why do birds have feathers? Which of your presumptions were right?





ATLAS OF THE EASIEST TO DISTINGUISH BIRD FEATHERS

BIRD FEATHERS CAN BE FOUND THROUGHOUT THE YEAR. SOME OF THEM ARE EASY TO RECOGNIZE DUE TO THEIR COLOR AND PATTERN.



(mk)

THIS FEATHER WAS LOST BY THE JAY.



(mk)

THIS FEATHER WAS LOST BY THE GREAT SPOTTED WOODPECKER.



(mk)

THIS FEATHER WAS LOST BY THE SPARROWHAWK.



(jv)



(jv)



(jv)



(mk)

THIS FEATHER WAS LOST BY THE WOODPIGEON



(mk)

THIS FEATHER WAS LOST BY THE BLACKBIRD



(mk)

THIS FEATHER WAS LOST BY THE MUTE SWAN



(jv)



(jv)



(jv)



ATLAS OF THE EASIEST TO DISTINGUISH BIRD FEATHERS

 <p>(mk)</p>	 <p>(mk)</p>	
THIS FEATHER WAS LOST BY THE SPARROWHAWK.	THIS FEATHER WAS LOST BY THE MALLARD.	
 <p>(jv)</p>	 <p>(jv)</p>	





DO BIRDS FEEL THE COLD?

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

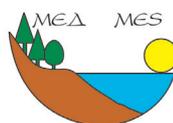
Tasks and questions:

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

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Think about the following aspects:

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





ARE FEATHERS RESISTANT?

I. CAN THE FEATHERS GET WET?

What we will need:

- a tray
- water
- feathers (remiges, coverts)
- a small piece of textile
- a paper towel

Tasks and questions:

- Put on a tray the feathers and the piece of textile.
- Pour water over it. What will happen? Will the feathers and the textile absorb the water?

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- Will the feather and the textile dry up if you rub it with the towel?
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Think the following aspects over:

- Do you have any idea what happened? What could be the significance for birds out of it?
- Can birds fly during rain? Why?
- Can feathers get damaged?

What we will need:

- a tray, 3 cups filled with water, 2 feathers, a pipette, oil, protective gloves, dishwashing liquid

Tasks and questions:

- Fill a cup with water. Immerse in it two feathers. Take them out and look at them carefully.
- Put on the protective gloves. Add to the water a couple of oil drops. Immerse the feathers in the liquid. How does the oil look on the surface of the feathers?

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- Try to remove the oil from the feather using carefully the paper towel. Have you managed to clean the feather?
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- Prepare two cups, one with hot and the other one with cold water.
 - Wash the first feather in cold water, the other one in hot water. Check if the feathers got clean?
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- Will you manage to remove the oil from the feather if you will add some dishwashing liquid to the water?
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Think the following aspects over:

- What do you think what happened? What is the significance out of it for birds?
- What happens when ducks swim on contaminated water?
- How can we prevent such situations? Why is it so important to care about the environment?



ARE FEATHERS RESISTANT?

II. CAN FEATHERS GET DAMAGED?

What you need?

- Tray
- 3 cups with water
- 2 feathers
- Dropper
- Oil
- Protective gloves
- Dish soap

Tasks and questions:

1. Pour water into the cup. Immerse 2 feathers in it. Pull out and watch carefully.
2. Put on protective gloves. Add a few drops of oil to the cup with water. Dip the feathers in it. What does oil do on the surface of the feather?
3. Will it be possible to clean the feather by gently pulling it through a towel
4. Prepare 2 cups with water (hot and cold).
5. Rinse the first feather well in cold water and the other one in warm water.
Check if I have cleaned the oil?
6. Will it be possible to remove the oil if you add a few drops of liquid to the water

Consider:

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





LET'S PLAY A GAME: WEIGHTING

What we will need:

- a coat hanger
- some stringed bags
- 1 plastic cup for drinks 0,25 ml
- chicken feathers
- oat flakes
- any other products
- clothes pegs

Tasks and questions:

1. Put into the stringed bag one cup of bird feathers. Close the bag.
 - Put into the second bag one cup of oat flakes. Close the bag precisely.
 - What will happen if you attach the two bags on opposite sides of the coat hanger with spines? How can you explain this?
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- Repeat the weighting with other products. Observe and draw conclusions.
 - How would you order the products in respect of their weight?

LIGHTEST

HEAVIEST

Consider:

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





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This material has been prepared as part of the project „We live in harmony with nature. 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, he was involved in the Spanish Ornithological Society (SEO), the Slovak Ornithological Society (SOS), the Macedonian Ecological Society (MES), the Czech Ornithological Society (CSO) and the BirdWatch association from Ireland (BWI). The University of Gdańsk became the substantive partner of the project responsible for creating materials for teachers.

BirdWatch Ireland is a non-governmental organization with a public benefit status, dealing with the protection of wild birds and the places where they live. The aim of the organisation is to preserve the natural heritage for the benefit of present and future generations. BWI is the Irish partner of the global federation of bird protection societies - BirdLife International.