

KEEPING BIRDS SAFE INQUIRY - GRADE 1

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Teacher and students will participate in an inquiry designed to consider how reflective surfaces of windows might pose as a potential danger for birds. Students will have the opportunity to make observations through field work (community walks), as well as conduct research to learn about birds, their habitat, basic needs and develop a solution and prototype to help protect birds from harm using the Design Thinking approach.

Grade Level: Grade 1

Strand(s) and Unit(s): Understanding Life Systems: Needs and Characteristics of Living Things

Overview: Teachers and students will conduct a detailed inquiry on the potential hazards birds encounter in a shared human/animal environment. Through this inquiry students will develop an understanding of natural habitats, basic needs, and physical characteristics of birds. The design thinking model will be used to help students understand and define the problem, as well as determine a possible solution and identify a personal action that they themselves can take to help maintain a healthy environment and minimize harmful risks to birds. Research will be conducted outside and in the classroom, in order to test out student theories and develop prototypes.

Inquiry Focus:

What can we do to keep birds and animals safe in habitats that are shared between humans and animals? (i.e. Take on a personal action to help maintain a healthy environment to show care and respect for all living things)

What do birds need in order to survive in their natural habitat (i.e. What do birds need to meet their basic needs)?

What can we do to promote healthy habitats for birds and animals (i.e. Why is it important for all living things to have a healthy environment)?

Timeline: 3 - 4 weeks. This inquiry is intended to provide students with enough time to explore the topic in depth over the course of several weeks through a variety of both outdoor and indoor investigations. Students do not require extensive background knowledge on the topic. Each lesson/activity has been developed to scaffold student understanding. Although prior background knowledge is not required prior to implementation of this inquiry, please note that time required to complete the inquiry will be dependant on students' background knowledge, skills set, level of interest and any additional time required for completion of student work.

Big Ideas:

Birds are living things

Birds have basic needs (air, water, food, and shelter) that are met from the environment.

All living things are important and should be treated with care and respect.

Overall Expectations:

1. assess the role of humans in maintaining a healthy environment;
2. investigate needs and characteristics of plants and animals, including humans;

3. demonstrate an understanding of the basic needs and characteristics of plants and animals, including humans

Specific Expectations:

1.1 identify personal action that they themselves can take to help maintain a healthy environment for living things, including humans

1.2 describe changes or problems that could result from the loss of some kinds of living things that are part of everyday life

2.2 investigate and compare the basic needs of humans and other living things, including the need for air, water, food, warmth, and space, using a variety of methods and resources

2.3 investigate and compare the physical characteristics of a variety of plants and animals, including humans

2.7 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes

3.2 identify the physical characteristics (e.g., size, shape, colour, common parts) of a variety of plants and animals

3.4 describe the characteristics of a healthy environment, including clean air and water and nutritious food, and explain why it is important for all living things to have a healthy environment

3.5 describe how showing care and respect for all living things helps to maintain a healthy environment

Key Concepts:

- maintaining safe and healthy environments for all living things
- understanding the basic needs of living things
- awareness of the physical characteristics of birds
- awareness of the characteristics of healthy environments
- sharing and co-existing with living things in a shared habitat

Prior Skill Sets: No prior skill set is required. Each activity can be differentiated to meet students where they are at in their skill and development.

Prior Knowledge: No prior knowledge is necessary. All activities are designed to scaffold student learning as they move through this inquiry. When starting the inquiry, students will have the opportunity to share what they know about birds and windows during the large group/small group discussion. Their ideas will be recorded on chart paper. Students will record what they now know about birds and window by writing, drawing or through an oral presentation. The teacher will use this information as an assessment to determine where individual students are in their understanding of birds and/or the physical characteristics of windows.

Safety:

Walking excursions: When talking students on a community walk, please adhere to your district's guidelines (i.e. walking excursion forms are signed by parent and are taken with you on your walk). It is also important to review and model the following pedestrian safety tips with students:

- Students should be paired with a partner. Students requiring further support, should be paired with an adult.
- Cross streets at a corner and obey traffic signals. Encourage students to look left and right before crossing a street and continue to look as they cross.
- Walk on a sidewalk. If there is no sidewalk, walk on the left side of the street, facing oncoming traffic. Ideally, teachers should plan routes that minimize dangers for students.

Tools and Materials: Teachers should refer to the [STAO Safety Mindedness Teacher Training Resource](https://stao.ca/safetymindedness/elem2/story_html5.html) (https://stao.ca/safetymindedness/elem2/story_html5.html), prior to the construction of prototype phase to ensure that students are using low and high tech tools safely. It is important that teachers have classroom management structures in place, they identify any potential hazards with materials and/or tools that will be used, and assess the risks involved.

Teachers will discuss safety rules for each tool and model safe use of tools with students. To develop students' understanding of safety rules, co-construct safety posters with visuals. Always include a note about what to do in case of an accident! Send home a copy of the safety rules and poster for parents view and sign prior to using any tools in the classroom.

*Teachers should have a deep understanding of student skill set and should provide tools and materials that can be used easily by students based on their skill set.

Instructional Planning and Delivery:

Students are involved with the inquiry process through open-ended investigations into a problem affecting the bird population, requiring them to engage in evidence-based reasoning and problem-solving. Educators throughout the inquiry are encouraged to be responsive to the students' learning needs by assessing students' prior knowledge to determine when and how to introduce students to ideas that will move them forward in their inquiry. Accommodations should be provided for students who might require additional supports in order to achieve the learning goals. Together, both educators and students co-author the learning experience accepting mutual responsibility for planning, assessment for learning and the advancement of individual as well as class-wide understanding of personally meaningful content and ideas (Fielding, 2012).^[1]

Initial Engagement:

During the initial engagement, educators often use a text, a shared experience or materials to spark student interest and curiosity. Throughout the initial engagement educators observe and listen to students to understand the students' current thinking in relation to the overall and specific expectations and to ask further open-ended questions to extend student thinking. During this stage, students may connect to previous knowledge and/or experiences about birds and/or injuries. They may indicate where they have seen birds, or recall an experience where they, a family member or a friend has injured themselves..

For this initial engagement, the educators will read the text, "How to Heal a Broken Wing" by Bob Graham to pique student curiosity about the potential hazards windows on buildings might pose to birds at home, at school or in their own community. During a whole group class discussion, have students consider where the story is taking place. Is it a real place or a fictional place? Have students make connections to their current community. How is it the same? How is it different? Does it remind them of a city or place they know? Ask students further open-ended questions to develop empathy:

- What happened to the bird? How do you know?
- Why do you think no one saw the bird fall?
- Why do you think the people were stepping over the bird?

Ask students how the boy (Will) felt when he saw the injured bird. Using chart paper or IWB, record student thinking to brainstorm possible feelings the boy could have had. Ask open-ended questions to help students make personal connections (i.e. How would they feel if they found an injured animal?).

At this point, educators gather current student thinking and learning and determine what connections have been made to the overall/specific expectations. (i.e Do the students understand what happened to the bird? Can they describe feelings the character in the story might have after discovering the bird?)

Activity 1 - [Building Empathy](https://docs.google.com/document/d/1oJpS7R2Zztp_Kf25qt1aQU_tt5lboMhtlFsEsBEayZA/view) (https://docs.google.com/document/d/1oJpS7R2Zztp_Kf25qt1aQU_tt5lboMhtlFsEsBEayZA/view).

Activity 2a - [Understanding the Problem \(Field Work\)](https://docs.google.com/document/d/1r-StBjEHS4DOSze5KZXP8ms-rO_M0T9CMceqE1Pfrjo/view) (https://docs.google.com/document/d/1r-StBjEHS4DOSze5KZXP8ms-rO_M0T9CMceqE1Pfrjo/view).

Activity 2b - [Understanding the Problem \(Research\)](https://docs.google.com/document/d/1Qda9d920ddLGD2uqcp9QSNQumxyA5MgOWUiaWFESYI/view) (<https://docs.google.com/document/d/1Qda9d920ddLGD2uqcp9QSNQumxyA5MgOWUiaWFESYI/view>).

Activity 3 - Ideate (<https://docs.google.com/document/d/1njuLSQacmlg9fyeyoGKYCeDWC7jo7ld5aB99xQYnUAus/view>).

Activity 4 - Prototype (Test & Redesign).

(https://docs.google.com/document/d/16TH4P_4ZgHKHux8uUJREjct0NVXcZr49MIk1LpYzZCQ/view).

Activity 5 - Sharing & Consolidation

(<https://docs.google.com/document/d/1D7gtgR7aDmxyd3CeBL5CpPyzlbaX5jPb6tNWNULb5gk/view>).

Student Support Resources:

How to Heal a Broken Wing: <https://www.amazon.ca/How-Heal-Broken-Wing-Graham/dp/0763639036>

(<https://www.amazon.ca/How-Heal-Broken-Wing-Graham/dp/0763639036>).

YouTube Version: <https://www.youtube.com/watch?v=-9iPyfVmpzM> (<https://www.youtube.com/watch?v=-9iPyfVmpzM>).

Please note that information in the following might be too complex for students. Please read over materials and modify wording and/or points in student friendly language:

Bird Friendly CN Tower: <https://www.cntower.ca/en-ca/about-us/commitments/bird-friendly.html> (<https://www.cntower.ca/en-ca/about-us/commitments/bird-friendly.html>).

Bird Friendly Glass Best Practices (City of Toronto): <https://www.toronto.ca/wp-content/uploads/2017/08/8d1c-Bird-Friendly-Best-Practices-Glass.pdf> (<https://www.toronto.ca/wp-content/uploads/2017/08/8d1c-Bird-Friendly-Best-Practices-Glass.pdf>).

Bird Safe: <https://birdsafe.ca/> (<https://birdsafe.ca/>).

American Bird Conservancy: <https://abcbirds.org/get-involved/bird-smart-glass/> (<https://abcbirds.org/get-involved/bird-smart-glass/>).

Birds found in Toronto (winter): <https://www.toronto.com/community-story/5229723-7-birds-you-will-see-in-toronto-over-the-winter/> (<https://www.toronto.com/community-story/5229723-7-birds-you-will-see-in-toronto-over-the-winter/>).

Birds of Toronto: http://torontobirdweek.ca/wp-content/uploads/2018/01/Biodiversity_Birds_of_TO_dec9.pdf (http://torontobirdweek.ca/wp-content/uploads/2018/01/Biodiversity_Birds_of_TO_dec9.pdf).

Student Worksheets:

Worksheet 1: <https://docs.google.com/document/d/17sPPT42rE2ta6bvbgdSFc9udDE9ZH5fYK20eB8XEgGA/view> (<https://docs.google.com/document/d/17sPPT42rE2ta6bvbgdSFc9udDE9ZH5fYK20eB8XEgGA/view>).

Worksheet 2: <https://docs.google.com/document/d/1xh0uFAEIUBuc65UfIjURImd86IYcin6EsLk4KhQjxho/view> (<https://docs.google.com/document/d/1xh0uFAEIUBuc65UfIjURImd86IYcin6EsLk4KhQjxho/view>).

Worksheet 3: <https://docs.google.com/document/d/1ewHt5kviYipvB-3eOvMWRR55XYNBmeJXcTptRU2P0Po/view> (<https://docs.google.com/document/d/1ewHt5kviYipvB-3eOvMWRR55XYNBmeJXcTptRU2P0Po/view>).

Worksheet 4: https://docs.google.com/document/d/1PbccEwO_xzarwGUpv3VFxT2OKbZdTr726SSdNxl8vQ/view (https://docs.google.com/document/d/1PbccEwO_xzarwGUpv3VFxT2OKbZdTr726SSdNxl8vQ/view).

Worksheet 5: <https://docs.google.com/document/d/1N9Ae2uZ8mgxeGufFCsTsZ7vnV1MfQWYZgjNtb7YDaLg/view> (<https://docs.google.com/document/d/1N9Ae2uZ8mgxeGufFCsTsZ7vnV1MfQWYZgjNtb7YDaLg/view>).

Worksheet 6: <https://docs.google.com/document/d/1N9Ae2uZ8mgxeGufFCsTsZ7vnV1MfQWYZgjNtb7YDaLg/edit> (<https://docs.google.com/document/d/1N9Ae2uZ8mgxeGufFCsTsZ7vnV1MfQWYZgjNtb7YDaLg/edit>).

All worksheets in google slide:

https://docs.google.com/presentation/d/1IA1NOMGOnIE3oR8VLbN4OpXP6800TX_D_DoZ0K8DPaE/edit#slide=id.p (https://docs.google.com/presentation/d/1IA1NOMGOnIE3oR8VLbN4OpXP6800TX_D_DoZ0K8DPaE/edit#slide=id.p).

Sample Art/Green Screen Extension:

Sample 1: <https://drive.google.com/file/d/1A4T8vqrzO-XfEfZu76Fl6d8xfp1oUAvO/view?usp=sharing>
(<https://drive.google.com/file/d/1A4T8vqrzO-XfEfZu76Fl6d8xfp1oUAvO/view?usp=sharing>).

Sample 2: <https://drive.google.com/file/d/1A4T8vqrzO-XfEfZu76Fl6d8xfp1oUAvO/view?usp=sharing>
(<https://drive.google.com/file/d/1A4T8vqrzO-XfEfZu76Fl6d8xfp1oUAvO/view?usp=sharing>).

Doink app: <https://itunes.apple.com/ca/app/green-screen-by-do-ink/id730091131?mt=8>
(<https://itunes.apple.com/ca/app/green-screen-by-do-ink/id730091131?mt=8>).

How to use Doink Tutorial: <https://docs.google.com/presentation/d/1Cqm-EMw2bB-3qpjCdG4FD8xEcy5EpYRbcym0jfHuC8Q/view>
(<https://docs.google.com/presentation/d/1Cqm-EMw2bB-3qpjCdG4FD8xEcy5EpYRbcym0jfHuC8Q/view>).

Sample Prototypes:

<https://drive.google.com/drive/folders/1vdZQaZ6D2s3sjHHIBocaV2NgXR8mHxEr?usp=sharing>
(<https://drive.google.com/drive/folders/1vdZQaZ6D2s3sjHHIBocaV2NgXR8mHxEr?usp=sharing>).

Related Background Resources and/or Links:

Introduction to Tools in the Classroom: https://docs.google.com/presentation/d/1MPOjdRx8M8T2B_xoIK3NtYQXPX1-KCi2-3SyUUPPPJ4/preview?slide=id.g35f391192_00
(https://docs.google.com/presentation/d/1MPOjdRx8M8T2B_xoIK3NtYQXPX1-KCi2-3SyUUPPPJ4/preview?slide=id.g35f391192_00).

STAO Safety Mindedness Teacher Training Resource: https://stao.ca/safetymindedness/elem2/story_html5.html
(https://stao.ca/safetymindedness/elem2/story_html5.html).

Pedagogical Documentation Using G Suite (Google Keep):

https://docs.google.com/presentation/d/1TO1TMHRWT2Pxs6PeQehLobbBY2o3uFurHWJsaan5fok/present?slide=id.g35f391192_00
(https://docs.google.com/presentation/d/1TO1TMHRWT2Pxs6PeQehLobbBY2o3uFurHWJsaan5fok/present?slide=id.g35f391192_00).

Assessment Opportunities: Throughout this inquiry, there are multiple opportunities for teachers to assess learning. Each individual activity provides teachers with assessment suggestions and opportunities. Teachers should consistently use discussions, questions, answers, teacher-student conferences, feedback and anecdotal notes to assess **for** learning as student engage in the inquiry.

Teachers should observe, listen and engage in discussions with students to assist in the assessment **as** learning. It is suggested the teachers observe students and take notes of student actions and thinking, take notes of their own thinking (as an educator), take photos and/or videos, make connections to overall expectations and ensure that adequate time is provided to engage students in the inquiry. This information should be used to plan next steps to support students' learning. Teachers should consider what interests might be emerging, what misconceptions do students have, what prior knowledge do the students have and what are some possible next steps for students, as well as provide varied and differentiated modes to demonstrate understanding (i.e. visual art, drama, technology, etc.).

Each activity provides a culminating task that can be used by teachers to assist in the assessment **of** learning. Students are given a variety of means to use the knowledge that they have gained throughout the inquiry process.

For each activity it is also suggested that teacher co-construct the learning goal and success criteria for the task with the students.

Future Opportunities / Extensions:

- Developing a better understanding of the anatomy of birds through x-ray investigations. See example: <https://drive.google.com/file/d/1U7cw2goVL9cNfNrVj9mGjM-WhPib5fgU/view?usp=sharing>
(<https://drive.google.com/file/d/1U7cw2goVL9cNfNrVj9mGjM-WhPib5fgU/view?usp=sharing>).

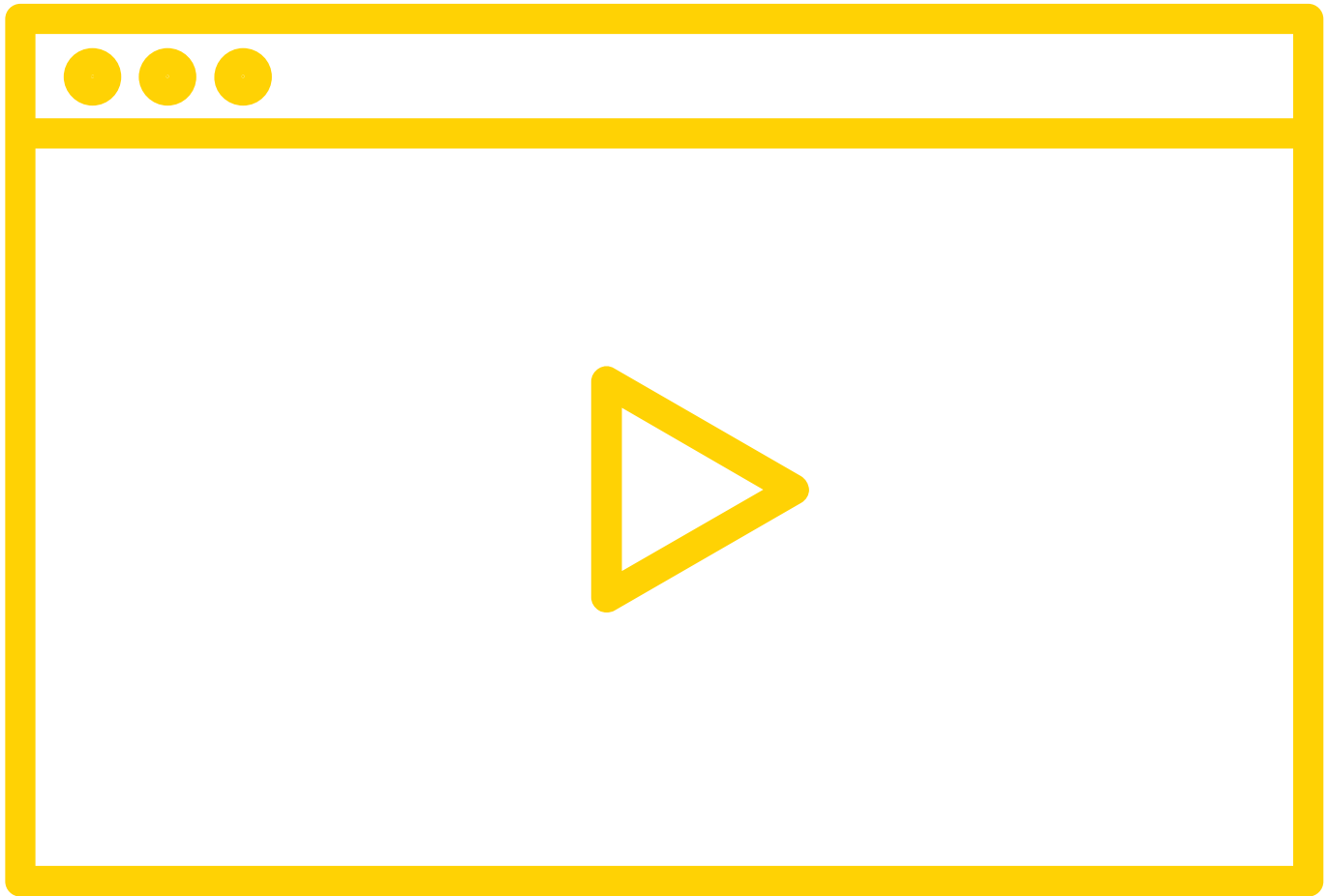
- Creating Bird wings (Math - Measurement); comparing human arms and bird wing spans. See example: <https://drive.google.com/file/d/1oyqFLYcz7mqH3g1To-Syahlvw4zRS2Ud/view?usp=sharing> (<https://drive.google.com/file/d/1oyqFLYcz7mqH3g1To-Syahlvw4zRS2Ud/view?usp=sharing>).
- Creating Sound Pictures (paint a favourite species of bird, a natural habitat it can be found in and use the Makey Makey to make the painting reproduce the calls the bird makes, as well as other features of the habitat, such as water, wind in the trees, etc.). See example: https://drive.google.com/file/d/17ppUJV1_NKDR33w34MQ5xLVgKDpnEFSM/view?usp=sharing (https://drive.google.com/file/d/17ppUJV1_NKDR33w34MQ5xLVgKDpnEFSM/view?usp=sharing).

^[1] Capacity Building Series - [Inquiry Based Learning](http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_InquiryBased.pdf)
 (http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_InquiryBased.pdf).



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WATCH THE VIDEO

13:35 min

([//www.youtube.com/embed/hCFXx-g691k?width=800&height=450&iframe=true](https://www.youtube.com/embed/hCFXx-g691k?width=800&height=450&iframe=true))

RESOURCES

-  Keeping Birds Safe Sample Inquiry (FDK example) ([//www.youtube.com/embed/hCFXx-g691k?width=800&height=450&iframe=true](https://www.youtube.com/embed/hCFXx-g691k?width=800&height=450&iframe=true))
-  Google Drive File Resources (mslauracollins.ca) (<https://sites.google.com/tdsb.on.ca/lauracollins/stao-writing-projects/stao-grade-1-bird-inquiry-2018>)
-  Resource Lessons (<https://connex.stao.ca/>)

ELEMENT

-  Inquiry (</expert-elements/inquiry>)

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