

## **Binocular Birding**

**Objective:** Students will understand how binocular vision works, practice using binoculars, and learn about the local environment on a nature walk.

*Please note: 1st-3rd grade classes will use children's binoculars with a lower magnification. Students in grades 4+ will use adult binoculars.*

### **Pre-trip Videos:**

- [All About Birds of Prey \(1:57\)](#)
- [Binocular Use for Kids](#)

### **Pre-trip Articles:**

- [NewsELA - Watching Migrating Predators Like a Hawk](#)
- [NewsELA - Human Field of Vision](#)
- [NewsELA - Predator and Prey Eyes](#)

### **Vocabulary:**

- Binocular
- Monocular
- Predator
- Prey
- Carnivore
- Herbivore
- Raptor

### **1st Grade NGSS Correlations:**

- LS1.A: Structure and Function - All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. (1-LS1-1)
- LS1.B: Growth and Development of Organisms - Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)
- LS1.D: Information Processing - Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)
- ETS1.A: Defining and Delimiting Engineering Problems: Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)

### **2nd Grade NGSS Correlations:**

- LS4.D: Biodiversity and Humans - There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

- ESS1.C: The History of Planet Earth - Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1)
- ESS2.C: The Roles of Water in Earth's Surface Processes - Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)

### **3rd Grade NGSS Correlations:**

- LS2.C: Ecosystem Dynamics, Functioning, and Resilience - When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (3-LS4-4)
- LS4.C: Adaptation - For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
- LS4.D: Biodiversity and Humans - Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

### **4th Grade NGSS Correlations:**

- LS1.A: Structure and Function - Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)
- LS1.D: Information Processing - Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)
- PS4.B: Electromagnetic Radiation - An object can be seen when light reflected from its surface enters the eyes. (4-PS4-2)

### **5th Grade NGSS Correlations:**

- LS2.A: Interdependent Relationships in Ecosystems - The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. (5-LS2-1)
- ESS3.C: Human Impacts on Earth Systems - Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)