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The Care of School Resource Kits

Each School Resource Kit is comprised of authentic artifacts and modern reproductions.

Handling these particular objects is encouraged. Touching the objects and passing them around is allowed, but please remember that some items are delicate and should be treated with care.

Objects in plastic should remain in plastic though they may still be passed around for closer inspection.

Why do we ask you not to touch certain objects? The oils, dirt and moisture from your fingertips can stain textiles and etch metals, permanently changing them. One touch may not seem like much, but hundreds of touches in a year can wear a hole in a cotton dress or a notch in a wooden axe handle.

There are some items in certain kits that may be considered weapons in your school; be aware of your school’s policy regarding weapons and take appropriate action (i.e. inform the principal).

These items have been specially chosen for “hands on” learning and educational programs. In any museum, items on display and in the collection should never be touched unless a museum staff member has invited you to do so.

If an item is damaged, please gather all the pieces into a plastic bag and return it with the kit. When you return the kit, please let a staff member know that there is a damaged object.

If you find an item is missing or already damaged, please inform the museum’s student staff when you return the kit.

Please fill out the evaluation form and return with the kit. Thank you.
Michigan Grade Level Content Expectations

This School Resource Kit may be used to aide in teaching the state of Michigan Grade Level Content Expectations which fall under the following heading:

Kindergarten

S.IP.00.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.00.12 Generate questions based on observations.
S.IP.00.14 Manipulate simple tools (for example: hand lens, pencils, balances, non-standard objects for measurement) that aid observation and data collection.
S.IA.00.12 Share ideas about science through purposeful conversation.
S.IA.00.13 Communicate and present findings of observations.
S.IA.00.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).
S.RS.00.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
L.OL.00.11 Identify that living things have basic needs.
L.OL.00.12 Identify and compare living and nonliving things.

1st Grade

S.IP.00.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.00.12 Generate questions based on observations.
S.IP.01.13 Plan and conduct simple investigations.
S.IP.01.14 Manipulate simple tools (for example: hand lens, pencils, rulers, thermometers, rain gauges, balances, non-standard objects for measurement) that aid observation and data collection.
S.IA.01.12 Share ideas about science through purposeful conversation.
S.IA.01.14 Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).
S.RS.01.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
L.OL.01.13 Identify the needs of animals.
L.OL.01.21 Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.
L.HE.01.11- Identify characteristics such as body coverings, beak shape, number of legs, and body parts that are passed on from parents to young.
L.HE. 01.12- Recognize the differences between an adult and a young animal.
L.OL.E.4- Organisms can be classified on the basis of observable characteristics.

2nd Grade

S.IP.02.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.02.12 Generate questions based on observations.
S.IP.02.13 Plan and conduct simple investigations.
S.IA.02.12 Share ideas about science through purposeful conversation.
S.IA.02.13 Communicate and present findings of observations.
S.IA.02.14 Develop strategies and skills for information gathering and problem solving (books, internet, ask an expert, observation, investigation, technology tools).
S.RS.02.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
S.RS.02.15 Use evidence when communicating scientific ideas.
P.PM.02.12 Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating).

3rd Grade

S.IP.03.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.03.12 Generate questions based on observations.
S.IP.03.13 Plan and conduct simple and fair investigations.
S.IA.03.11 Summarize information from charts and graphs to answer scientific questions.
S.IA.03.12 Share ideas about science through purposeful conversation in collaborative groups.
S.IA.03.13 Communicate and present findings of observations and investigations.
S.IA.03.14 Develop research strategies and skills for information gathering and problem solving.
S.RS.03.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
S.RS.03.18 Describe the effect humans and other organisms have on the balance of the natural world.
L.OL.03.32 Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).
L.OL.03.42 Classify animals on the basis of observable physical characteristics (backbone, body coverings, limbs).
L.EV.03.12 Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).
4th Grade

S.IP.04.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.04.12 Generate questions based on observations.
S.IP.04.13 Plan and conduct simple and fair investigations.
S.IA.04.12 Share ideas about science through purposeful conversation in collaborative groups.
S.IA.04.13 Communicate and present findings of observations and investigations.
S.IA.04.14 Develop research strategies and skills for information gathering and problem solving.
S.RS.04.18 Describe the effect humans and other organisms have on the balance of the natural world.
L.OL.04.16 Determine that animals require air, water, and a source of energy and building material for growth and repair.
L.EV.04.21 Identify individual differences (color, leg length, size, wing size, leaf shape) in organisms of the same kind.
L.EV.04.22 Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.
L.EC.04.11 Identify organisms as part of a food chain or food web.

5th Grade

S.IP.05.11 Generate scientific questions based on observations, investigations, and research.
S.IP.05.12 Design and conduct scientific investigations.
S.IP.05.16 Identify patterns in data.
S.IA.05.13 Communicate and defend findings of observations and investigations using evidence.
S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.
L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).
L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.
L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.
L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.
L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.
L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.
6th Grade

S.IP.06.11 Generate scientific questions based on observations, investigations, and research.
S.IP.06.12 Design and conduct scientific investigations.
S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.
L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.
L.EC.06.21 Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).
L.EC.06.22 Explain how two populations of organisms can be mutually beneficial and how that can lead to interdependency.
L.EC.06.23 Predict how changes in one population might affect other populations based upon their relationships in the food web.
L.EC.06.32 Identify the factors in an ecosystem that influence changes in population size.
L.EC.06.41 Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.
L.EC.06.42 Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).
Bird Background Information

Birds of Michigan

Bird watching is the largest spectator sport in the United States. Bird watching, or “birding,” is especially popular in Michigan. This is likely due to the abundance of wildlife our state has to offer. Michigan is the 11th largest state, but only holds 97 people per square mile. The open space in Michigan holds a large variety of types of ecosystems, which allows the diverse wildlife to thrive. The state holds hundreds of miles of lakes, streams, rivers, forests, and sand dunes, and each of these ecosystems contains their own variety of plants and animals that set up habitats for a variety of different types of birds. (Tekiela, 1999)

Definitions

1. **Adaptations** – Physical or behavioral change that helps an animal to survive in its environment.
2. **Anisodactyl** – toe arrangement with three toes pointed forward and one toe pointed backwards (Projectbeak.org, 2014).
3. **Brood** – The number of offspring produced or hatched at one time; a family of offspring or young.
4. **Ecosystem** – a biological community of interacting organisms and their physical environment.
5. **Fledging** – the time period between hatching and first flight in birds. (Tekiela, 1999)
   - **Fledgling** – bird during the fledging period
6. **Generalists** – birds that can adapt to a variety of environments and make use of different resources.
7. **Habitat** – the natural home or environment of an animal, plant, or other organism. It gives the bird what it needs to live (food, water, cover, and space).
   - **Cover** – refers to shelter and can include nesting areas, places to sleep or rest, and places to hide or escape.
   - **Space** – the amount and kind of area needed to hunt, feed, and live as well as migration routes for some species.
8. **Hallux** – the fourth toe that points backwards.
9. **Migration** – a bird’s seasonal movement between breeding and wintering grounds
   - **Breeding** – Production of offspring or young.
   - **Wintering grounds** – A separate climate where a bird travels to survive the winter.
10. **Molting** – the process where a bird sheds old feathers to grow new ones. At the end of winter (spring molt), birds molt to grow brighter colors so that they will be more attractive during breeding season. At the end of the summer (summer molt), birds molt to add additional feathers for winter and are more drab in color. (Tekiela, 1999)

11. **Nests** – a structure or place made or chosen by a bird for laying eggs and sheltering its young. There are many types of nests, including ground nests, platform nests, cup nests, pendulous nests, and cavity nests. (Tekiela, 1999)

12. **Palmate** – webbing between three of four toes, shaped like an open hand or palm. (Projectbeak.org, 2014)

13. **Raptorial** – feet with three talons pointing forward and one claw pointing backward. The toes tend to be long and heavily muscled.

14. **Specialists** – birds that have specific adaptations that help them survive in one type of environment.

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**Parts of a Bird**

Photo Credit: JoJan
Bird Beaks and Feet

Swimming
Swimming/Walking
Walking
Perching
Seizing Prey
Climbing
Filtering
Probing
Catching Insects
Cracking Seeds
Tearing Meat
Drilling Holes
Egg Markings

(From left to right): scrawled (Bronze-winged Jacana), wreathed (Sharp-shinned Hawk), dotted (American Coot), capped (Eurasian Golden-Plover), streaked (Great Crested Flycatcher), overlaid (American Woodcock), and splashed (Royal Tern). Photo credit: Carrol L. Henderson; University of Texas Press

Bird Egg Shapes
American Robin (Turdus migratorius)

Photo Credit: Alan Vernon (Flickr: American Robin)

**Predators:** Owls, hawks, raccoons will eat adult or young Robins; snakes, chipmunks, squirrels, crows, Blue Jays, and Common Grackles will eat the eggs and fledglings.

**Diet:** American Robins purposely search for a varied diet. This diet include earthworms, insects, snails and fruit -- chokecherries, hawthorn, dogwood, sumac, juniper berries. (The Cornell Lab of Ornithology, 2011)

**Habitat:** American Robins can be found all across North America in populated areas such as parks, lawns, and fields, as well as more secluded forests and woodlands. In winter, robins can be found near areas with berry producing trees and shrubs. (The Cornell Lab of Ornithology, 2011)

**Nests:** American Robins will build their nest in shrubs, tree forks, or almost any substantial ledge, rarely on the ground. They will build a deep cup nest, molded by the shape of the female’s body, made of grasses, strips of cloth, or string worked into a soft mud and then lined with fine grasses. (Eastern Birds’ Nests 1975)

**Eggs:** American Robins lay four eggs at a time. Their eggs can be oval, long-oval, or short-oval. They are unmarked and "Robin's-egg blue" in color. American Robins can lay three broods in one year. (Eastern Birds’ Nests 1975)

**Adaptations:** Males attract females by singing, shaking their wings, spreading their tails, and inflating their throats. American Robins are very patient, and stare at the ground for long periods of time waiting for earthworms and insects. American Robins have a generalist beak that they use to eat a variety of foods. Their feet are specifically for perching, typically small with no feathers. The have an anisodactyl toe arrangement. American Robins’ feet have very little feeling because they have so few nerves allowing them to land on cold perches (Projectbeak.org, 2014).
Great Horned Owl *(Bubo virginianus)*

**Predators:** Great Horned Owls have very few natural predators. Occasionally, they are killed by a member of their own species or similar predatory bird when battling for a nest site. Unattended eggs may be eaten by foxes, coyotes, raccoons, lynx, raptors, crows, and ravens (The Cornell Lab of Ornithology, 2011). They like other birds of prey are often killed by cars. More often than not they die of age, illness, or starvation.

**Diet:** Great Horned Owls eat an extremely diverse selection of mammals, birds, and occasionally rodents.

**Habitat:** Great Horned Owls can be found across the continent of North America, most commonly in secondary-growth woodlands, swamps, orchards, and farmlands. Their range usually includes both open areas and forests. (The Cornell Lab of Ornithology, 2011)

**Nests:** Great Horned Owls will typically take over old nests of larger birds. Very little new material is added to these nests except the female's down feathers. (Eastern Birds' Nests 1975)

**Eggs:** Great Horned Owls will lay 1-3 eggs. The eggs are elliptical or nearly spherical shaped, unmarked and dull white in color. Incubation is done mostly by the female lasting between 28-35 days, beginning when the first egg is laid. Great Horned Owls will lay only one brood a year. (Eastern Birds' Nests 1975)

**Adaptations:** Great Horned Owls are nocturnal and hunt at night. Mated pairs defend their territories together and threaten intruders with loud noises, including screams, hisses, and bill-clapping. A Great Horned Owl has sharp powerful raptorial claws called talons. Their talons require a force of 28 pounds or 300-500 psi (pounds per square inch) to open when they are clenched, which allows them to crack the spine of large prey. Unlike other raptorial birds the Great Horned Owl can rotate one of their forward pointing toe to the back. This helps hold on to prey that might be struggling to get away (Projectbeak.org, 2014).
**Mallard** (*Anas platyrhynchos*)

**Predators:** Young mallards are eaten by “foxes, raccoons, snapping turtles, and large fish”. Eggs are eaten by crows and snakes. (Fairfax County Public Schools, 2014)

**Diet:** Mallards dabble, or tip forward into the water, to search for food such as seeds and aquatic vegetation. During breeding season, they are more likely to eat small aquatic animals and insects. (The Cornell Lab of Ornithology, 2011)

**Habitat:** Mallards can be found in wetland habitats, such as lakes or ponds, across North America. (The Cornell Lab of Ornithology, 2011)

**Nest:** Mallards build their nests concealed in tall thick grass or reeds, typically on dry ground. The nest is a depression in the ground made from nearby materials and lined with down feathers from the female. (Eastern Birds’ Nests 1975)

**Eggs:** The Mallard will lay 8-12 eggs at a time. The eggs are long-oval shaped, and unmarked greyish, or nearly white in color. The female alone will incubate the eggs for 23 to 29 days, starting from the time the last egg is laid. Mallards will lay only one brood a year. (Eastern Birds’ Nests 1975)

**Adaptations:** Mallards frequent populate parks to accept food handouts from humans, and are very approachable in these settings. In unsafe areas, such as hunting grounds, Mallards are far more timid and wary of approaching humans. Mallards defend their territories in pairs using ritual displays. Males and females also use displays to attract one another (The Cornell Lab of Ornithology, 2011). Mallards have palmate webbed feet. Their feet are located at the rear of their bodies which helps to propel them through the water, but they are not very advantageous for walking on land. The Mallard has a filtering beak. It has tiny comb-like structures around its edge called lamellae. The duck dips its head into the water and fills up its bill. The lamellae filter out of the mud and water leaving plants and small animals to eat. (Projectbeak.org, 2014)
Red-tailed Hawk (*Buteo jamaicensis*)

**Predators:** There are no natural predators of the adult Red-tailed Hawk, but larger birds occasionally prey on their young (The Cornell Lab of Ornithology, 2011). They can also die by collisions with car or building structures and they are still shot on occasion by farmers and sport shooters, despite being illegal.

**Diet:** Small mammals, birds. (The Cornell Lab of Ornithology, 2011)

**Habitat:** Red-tailed Hawks generally use central and upper Michigan as summer breeding grounds. They can adapt to almost any habitat in North America. (The Cornell Lab of Ornithology, 2011)

**Nests:** Red-tailed Hawks make their nests 35-90 feet above ground in a tree allowing them to survey wide areas. The nest is flat and shallow, growing thicker as it is added to over the years. The nest is made of sticks and twigs, lined with inner bark of grapevine or cedar, moss and evergreen sprigs. Both sexes build the nest. (Eastern Birds’ Nests 1975)

**Eggs:** Red-tailed Hawks in the eastern southern range will lay two eggs; in the central and western range they will lay three eggs. Their eggs are oval or long-oval shaped, and dirty white or bluish white in color with varying arrangements of spots or blotches in brown shades. The incubation period is 28-32 days. Red-tailed Hawks will lay one brood a year. (Eastern Birds’ Nests 1975)

**Adaptations:** Red-tailed Hawks have sharp powerful raptorial claws called talons that help them to catch prey. The hallux is longer than the other three claws and is used to kill prey and give the bird a better grip. Red-tailed Hawks has a sharp hooked beak that is used to pierce its prey and tear it into bite sized pieces (Projectbeak.org, 2014).
Ruby-throated Hummingbird (*Archilochus colubris*)

**Predators:** Baby birds or eggs may be eaten by crows, squirrels, jays or hawks. Adults may be eaten by cats or hawks. (The Cornell Lab of Ornithology, 2011)

**Diet:** Flower nectar, small insects and spiders. Also feed on tree sap from woodpecker drilling. (The Cornell Lab of Ornithology, 2011)

**Habitat:** Ruby-throated hummingbird lives in deciduous forests, orchards, and backyards. In the winter it migrates south to tropical forests and citrus groves. (The Cornell Lab of Ornithology, 2011)

**Nests:** Ruby-throated Hummingbirds build their nests in a variety of trees 10-20 feet above ground. They attach them to twigs or small branches that are slanting down from the tree using spider silk. The outside of the nest is covered with greenish-grey colored lichens to camouflage and protect the nest. The nest, built entirely by the female, takes five days to build. (Eastern Birds’ Nests 1975)

**Eggs:** The Hummingbird lays two eggs. They are elliptical shaped, unmarked and pure white in color. The incubation period is between 14-16 days. The Ruby-throated Hummingbird will lay two broods in a year. (Eastern Birds’ Nests 1975)

**Adaptations:** The Ruby-throated Hummingbird has a large brain and an incredible memory. The memory and large brain make it easier to adapt its behavior to unfamiliar territories and situations faced while migrating and they have incredible memories. The hummingbird’s eyes are very large, outweighing its brain. They have more rods and cones to detect colors human eyes cannot see, which help determine which flowers to pollinate. The bird’s bill is long and thin allowing it to probe into flowers for food. Its tongue is forked, and they lap up nectar by curling the edges of their tongue around it like a pouch. The bill’s purpose is to protect the tongue (Projectbeak.org, 2014). The hummingbird’s ears are extremely sensitive and can hear pitches that humans cannot, and they communicate through simple vocalizations and body language. The bird’s wings are narrow and allow a hummingbird to migrate over 600 miles without stopping. A hummingbird has fewer feathers on its tail than most birds, making it lighter and allowing it to save energy while flying. Its heart compared to its body is the largest of any animal and gives a constant large supply of oxygen and nutrients into its body (Journey North, 1997). The Ruby-throated Hummingbird’s feet are not for walking, they will spend most of their lives perched. They have anisodactyl feet. (Projectbeak.org, 2014)
Artifact Information

Binoculars

Ten pairs of children's binoculars are available for use. Turn the center knob to bring birds into focus. Lenses are adjustable to fit the eyes by pulling them to the right or left.

Bird Feeder

This bird feeder will attach to the window to allow for easy viewing of birds.

*Birds of Michigan Field Guide*

This field guide marks the five birds (Ruby-throated Hummingbird, Red-tailed hawk, American Robin, Great Horned Owl, and Domestic Duck) that are highlighted in the kit. The guide is great for beginners since birds are organized by color.

Eggs

The bird egg replicas are the color and weight of the real eggs, but thankfully do not break easily. The kit contains eggs for the Ruby-throated Hummingbird, Red-tailed hawk, American Robin, Great Horned Owl, and Domestic Duck.

Identiflyer™ Lyric

This device will play bird songs using the five interchangeable two-sided cards. The birds are arranged according to habitat. Simply push the button nearest the bird you want to hear. Please note that the sound represented on the card is not the only sound that each bird may make.

The Identiflyer™ comes with two modes: songs and lyrics. When you slide the key to the songs slot it will play the song that the bird makes. When you slide the key to the lyrics slot you will hear a phrase that will help you to remember the bird sound by and then plays the bird sound. For example, the Identiflyer™ will say, “The killdeer makes a repetitive, ‘killdeer. Killdeer’” and then play the bird sound.
Laminated Identification Sheets

The kit includes five laminated sheets of bird egg markings and bird egg shapes and five laminated sheets of bird beaks and feet. These can be used with loaned bird mounts that go with the skulls.

Owl Pellets

Most birds cannot chew their food and owls are no exception. Owls usually swallow their prey whole. However, owls differ from other species of birds because they do not have a crop, the baglike organ used to store food after it has been swallowed so that it can be digested later. In owls, food passes directly from the mouth to the gizzard. The gizzard is an organ that uses digestive fluids and bits of sand and gravel to grind and dissolve all of the usable tissue from the prey.

The types of tissue that can be dissolved by an owl’s digestive system include muscle, fat, skin, and internal organs. These tissues are broken down into a variety of nutritional substances by the owl’s gizzard and intestines. Some of these tissues (e.g., fur and bones) cannot be digested.

Indigestible material left in the gizzard such as teeth, skulls, claws, and feathers are too dangerous to pass through the rest of the owl’s digestive tract. To safely excrete this material, the owl’s gizzard compacts it into a tight pellet that the owl regurgitates. The regurgitated pellets are known as owl pellets.

Owl pellets are useful to researchers because they can find out quite a bit about an owl’s lifestyle through careful examination of the pellet’s contents. Since most of the prey’s bones are not actually broken during the attack and the subsequent digestion process, they can be readily identified in the pellet. Most pellets include a skull or skulls, which makes identification of the prey relatively simple. If multiple prey are consumed in a short period of time, then only one large pellet is formed from their remains.

Large owls are obviously capable of making large pellets. However, since large owls do not always eat large prey, one cannot always determine the size of the owl that left a given pellet solely based on the size of the pellet. In addition, a startled owl may eject a pellet that is not fully compacted, thereby giving the pellet a larger appearance than normal. Other species of birds such as hawks and eagles produce pellets, but they are smaller and contain fewer animal parts than those produced by owls.
An owl pellet generally reaches its final form a few hours after the owl has eaten. However, the pellet is not usually ejected immediately after it is formed. Owls can store a pellet in a structure known as the proventriculus for as long as 20 hours before disgorging it. Since the stored pellet partially blocks the entrance to the digestive system, it must be ejected before the owl can eat again. Young owls do not produce pellets until they have begun to eat their prey whole.

The actual process of regurgitating a pellet lasts from a few seconds to several minutes. The pellet is forced out by spasms of the owl’s esophagus. These spasms make the owl look like it is coughing painfully. However, it is not hurt by the process because the pellet remains soft and moist until it leaves the owl’s body. (http://www.carolina.com/teacher-resources/Interactive/basic-information-on-owl-pellets/tr11103.tr)

**Skulls**

All of the skulls in this kit are manufactured reproductions (replicas), not made of natural bone material. They are fragile, so please handle with care. The kit contains skulls for the Ruby-throated Hummingbird, Red-tailed hawk, American Robin, Great Horned Owl, and Domestic Duck.

**BEAKS** Birds’ beaks evolved into highly specialized tools for catching and handling food, preening and building nests.

**EYE SOCKETS** Each skull has large holes for the eyes to fit in. If human eyes were proportionately the same size as birds’ eyes to their skulls, human eyes would be the size of tennis balls.

Oversized owl skulls house very large ear openings and eyes, frontally-placed for binocular vision which helps them to see long distances. The hawk is another bird of prey whose eyes are set to face forward. Notice the ring around the eyes that provides structure to the bird’s tube-shaped eyes. The hawk also has a brow bone for skin extensions that act as a sun visor.

Birds that are themselves prey tend to have eyes on the sides of their heads which provides vision in two different directions. If a bird with eyes on each side has its beak facing you, it does not see you, but is looking on each side of it.
Talons

The kit contains talons for the Red-tailed hawk, and Great Horned Owl.

A talon is the sharp, hooked claw at the end of a bird’s toe. Talons are most prominent on carnivorous birds that need to catch and dismember prey, such as hawks, eagles and owls, but all bird species have talons. In addition to catching prey, talons are necessary for gripping a surface while perched, climbing trees (as in woodpeckers, nuthatches and similar species), preening, digging a burrow or scrape for a nest and foraging through leaf litter. For aggressive or territorial species, talons may also be necessary for defense. Talons are made of keratin and continue growing throughout a bird’s life as they are continually worn down through use. The length, thickness and curvature of talons varies for each bird species and what the talons are used for, with the longest and most prominent talons found in birds of prey. (information from birding.about.com)

Sometimes talons are called claws. This is a more generalized term is defined as “a curved pointed horny nail on each digit of the foot in birds, lizards, and some mammals.” (google.com) Talons are more specific to birds.

Tracks

There are several kinds of bird tracks, ranging in a wide variety of shapes and sizes. Some bird tracks have webbing, and some don’t. Some have long toes and some have shorter toes. Though it is often very hard to tell what bird left a track, you can usually make a good guess! Some birds are more obvious than others.

How can you tell what kind of bird made a track? One way to tell what kind of bird might be responsible for a track is walking pattern.

Birds that spend most of their time on the ground walk and run, so their footprints alternate one after the other a lot like the way human tracks look. The Canadian goose, owl, pheasant, crow and wood duck are birds with tracks like this.

Perching birds spend most of their time in the trees. Small perching birds have very tiny feet. They have three toes facing forward, like the bigger birds, but their feet are much smaller altogether.
Many perching birds hop when they are on the ground. So, you will find their prints in pairs if you follow their trail. Blue jays and woodpeckers are perching birds, and have this kind of track.
Suggested Activities

Footprints

Read the “Tracks” section on page 18 to provide background information.

Press bird footprints into clay, playdough or wet sand.

- Make observations about them.
- Hypothesize how the feet are used.
- Compare them to the feet chart to decide what kind of feet they are.

Borrow mounts of the birds from the museum and compare the footprints to the birds: blue jay, Canadian goose, crow, wood duck, owl, woodpecker, and pheasant. Complete and fax the form in this manual to 989-774-2612.

Bird Hunt

Borrow mounts of the birds from the museum: American Robin, Great Horned Owl, Red-tailed Hawk, Mallard, Ruby-throated Hummingbird. Complete and fax the form in this manual to 989-774-2612.

Students can use the Bird Observation Booklet in this manual to record their observations of the birds.

- Make a 2-sided copy of the Bird Observation Booklet for each student. (Last two pages of this manual).
- Set up birds around the room along with their description cards, eggs, skulls, and talons when applicable, bird egg shape chart and bird beaks and feet chart.
- Instruct students to make their best hypothesis as to what kind of feet and beak each bird has by comparing the bird mount feet with the charts. In the “Notes” section of the booklet students could record information about the eggs, or find information about the birds in the Birds of Michigan field guide.
## LOAN REQUEST

Name: ____________________________  Contact Number: ____________________________

Organization: ____________________________  Phone Number: ____________________________

Address: __________________________________________

Age or Grade: ____________________________  Is this a CMU related usage?  ☐ Yes  ☐ No

Number of Students: ________________  Student teacher / CMU class: __________

☐ Zoology  ☐ History  ☐ Geology  ☐ Archaeology  ☐ Anthropology

PICK UP DATE: ____________  Purpose/Usage of Loan: ____________________________

RETURN DATE: ____________

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<th>SPECIMEN</th>
<th>MUSEUM OFFICE USE ONLY</th>
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1. _______  _______  American Robin
2. _______  _______  Great Horned Owl
3. _______  _______  Mallard
4. _______  _______  Red-tailed Hawk
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I hereby accept responsibility for the care and safe return of the above-listed collection.

________________________________________  DATE: ____________

Signature

Curator Approval:  ☐ Yes  ☐ No
# LOAN REQUEST

Name: ___________________________ Contact Number: ___________________________
Organization: ____________________ Phone Number: ___________________________
Address: _________________________________________________________________
Age or Grade: ____________________ Is this a CMU related usage? □ Yes □ No
Number of Students: _______________ Student teacher / CMU class: _______________
 □ Zoology □ History □ Geology □ Archaeology □ Anthropology
PICK UP DATE: ________________ Purpose/Usage of Loan: ________________
RETURN DATE: __________________________

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I hereby accept responsibility for the care and safe return of the above-listed collection.

_________________________________________ DATE: ________________
Signature
Credits

Created by: Kelly Sczomak, Sheree Hall
Edited by: Kaitlyn Schroeder, Kara Hodges

We acknowledge the use of materials from the following sources:


Every effort has been made to find and credit the sources of information used in this publication. If a source has been inadvertently omitted or corrections need to be made, please contact the Museum of Cultural and Natural History. Any oversights will be remedied.

Museum of Cultural and Natural History
103 Rowe Hall
Bellows Street at East Campus Drive
Central Michigan University
Mount Pleasant, MI 48859

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School Resource Kit Evaluation Form: Backyard Birding

Kit Use:  ___ Mid Tier Lesson
          ___ Student Teaching
          ___ College Classroom Presentation (Class Number ________)
          ___ Elementary Classroom (Grade Level ________)
          ___ High School Classroom (Subject Area ________)
          ___ Other (______________________________)

1. Did the kit meet your needs? Yes _____ No _____

2. Was the kit easy to use and understand? Yes _____ No _____

3. Is there anything not included in this kit that would be useful? Yes _____ No _____
   If yes, please include your suggestions: ________________________________

4. Was the printed guide easy to use and understand? Yes _____ No _____

5. Was the kit in good condition? Yes _____ No _____

6. Would you use this kit again? Yes _____ No _____

7. Would you recommend this kit to a colleague? Yes _____ No _____

8. Is there a topic that you would suggest we develop a loan kit for?
   If yes, please include your suggestions: ________________________________

Additional Comments:
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

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