



7<sup>th</sup>-12<sup>th</sup>  
School Programs

Designated as a Ramsar Wetland of International Importance, Cheyenne Bottoms provides an excellent opportunity to introduce more Place Based Education into your classrooms. The Kansas Wetlands Education Center is proud to provide high quality environmental education opportunities to students within a 75 mile radius of KWEC. And it's FREE! An educator can visit your classroom or you can bring students to the center on a field trip, still FREE! All of our programs are designed to help your students meet the Next Generation Science Standards, all while getting students engaged in hands-on cross-curricular activities based on the natural wonders of our wetlands. Don't see what you need listed? We can work together to create something that meets your curriculum.

We can also assist with the development of a WILD club, assist teams for environmental themed contests like ECO meet and the envirothon or consult on creating outdoor spaces, like a pollinator garden or composters.

**Special programs centered on World Shorebird Day (Sept. 6), World Wetlands Day (Feb. 2), and World Migratory Bird Day (May 9) are also offered each year.**

### Classroom Programs

**Virtual – Wetland Metaphors** – This is a great program to schedule before a field trip! Students will define a wetland, watch portions of our “Great Oasis” video about Cheyenne Bottoms, and through a series of metaphors, discover the benefits of wetlands and learn how this is an important resting spot for migrating birds along the Central Flyway. Interactive with polls, jamboard, and chats if each student is on their own device. A virtual tour of Cheyenne Bottoms including drone footage, 360° videos, games, and interviews is also available on our website. MS-LS2-4,5, HS-LS2-1,2, HS-ESS3-3,4

**Wetland Wonders** – Two main features make wetlands different from other bodies of water: plants and soil. Students will rotate through four stations delving into what makes wetlands unique. Students will test the pH of water samples, evaluate wetland soil colors, explore wetland plants under microscopes, and ID a variety of live aquatic invertebrates. MS-LS1-4, MS-LS2-3,4,5, MS-ESS2-2, HS-LS2-1,2

**Power of Wind** – Students will study alternative types of sustainable energy, specifically looking at wind as a source. Students will use the engineering design process to create and test their own turbine blade to try to register as much voltage output as possible. MS-ESS3-5, MS-PS3, MS-ESS-2, MS-ETS1, HS-PS3-3, MS-ETS1, HS-ETS1

**Wetlands STEAM** – How do Science, Technology, Engineering, Art, and Math play a role in a wetland ecosystem? This works really well for multiple, once-a-month visits to tackle each area! Combining several programs into a continued unit, students will: (S) Wetland Wonders, (T) iNaturalist, (E) Power of Wind, (A) Season dependent nature art activities, (M) Graphing Pollutants MS-LS1-4,6, MS-LS2, MS-ESS3, MS-ETS1-1, MS-ETS1-1

**Motus Wildlife Tracking System** – this international collaborative research network uses coordinated automated radio telemetry to facilitate research and education on the ecology and conservation of migratory animals. Cheyenne Bottoms has two towers tracking tagged birds and animals. Students will learn about the research happening at our wetland and some of the species targeted by our tracking system. MS-LS2-2,4, HS-LS2-2

**Anatomy of Flight** – Comparative anatomy provides some of the coolest, “Aha!” moments in science. Students will compare the bones and musculature of human, bird, and bat forelimbs. This program includes a hands-on look at bird and bat wings and a dissection of a chicken wing. HS-LS4-1

**BFFs Forever** – What happens to a species that goes through a genetic bottleneck? How does a species survive nature's variations? Students will learn about the Black-footed Ferret's place on the Kansas prairies while trying to keep a BFF population alive through a series of environmental challenges. A keystone species, the prairie dog will be discussed, and when possible, an animal that depends on prairie dogs, like a snake, salamander, or turtle can be included in the visit. MS-LS3-1,2, MS-LS4-4,6, HS-LS4-3,4,5,6

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**Green Schools Investigations** – From waste reduction to looking at the energy and water usage data in your building, all schools can make small changes that add up to big savings for conservation and efficiency. Let KWEC help guide students into investigating ways their schools can become greener and earn state and national recognition by applying for a Kansas Green Schools status. HS-EST1, HS-PS3

**History of Cheyenne Bottoms** – So much history has happened at the marsh, from Indian battles, to greyhound racing and use as a military bombing range. Students will learn more about this natural area that was designated as a Ramsar Wetlands of International Importance in 1988 and is featured as one of the 8 Wonders of Kansas through actively solving clues to open a breakout box. Social Studies 3-1,3, 4-1,2, 5-3,4

**Jr Duck Stamp Program** – Great for an art course! Create a unique entry for the Kansas Junior Duck Stamp Art Contest. Work with the KWEC educator to explore aquatic habitats, provide detailed mounts, pictures or videos of the waterfowl and provide an education experience that will engage and inspire youth to spark an interest in habitat conservation. Artwork is due March 15 each year. MS-LS2, HS-LS2, HS-LS4, HS-ESS3-3, Art Standards (drawing, illustration)

**A Sand County Almanac** – Published in 1949, the beautifully written essays of Aldo Leopold spearheaded a conservation movement. This program will be a mix of literature and outdoor activities geared toward the month taking place (so this could easily be repeated throughout the year to include more essays). Reading 9-12 1-2,3,4; 2-1; 3-1,3-9; 4-1, HS-LS2, HS-EE2-1-3; 4-2

### **Field Trip Programs**

**Cheyenne Bottoms Tour** – A must for any group visiting our area! Depending on group size, a KWEC educator can hop on your school transportation and give a guided tour of this wetland of international importance, or groups smaller than 11 are welcome to ride in the KWEC van. Binoculars to be shared are provided. Students will stop at several locations and do activities including bird watching and ID, an invertebrate match, and a water usage leadership activity. MS-LS2-1,2,4,5, MS-ESS2-2, HS-LS2, HS-ESS3-4

**Water Canaries** – One of the most interesting ways scientists assess water quality is with benthic macroinvertebrates. Students will get into the water in waders to collect inverts, and analyze their findings. Be prepared to get wet and muddy! High school classes can perform additional water sampling tests; analyzing dissolved oxygen, nutrients, temperature, and turbidity. MS-LS2-1,2,5, ESS3-3, HS-LS1, HS-LS2

**Small Mammal Trapping** – Students will make a hypothesis as to which habitat around the center will yield a variety of small mammal species. Using Sherman traps set in wetland, grassland, and woodland areas, students will ID mammals that are live captured by using field guides, a dichotomous key, and data collection methods such as weights and measurements. Mammals are released after study. This program is dependent on overnight temperatures. MS-LS2-1,2, HS-LS1, HS-LS4

**Merlin** – 375 of the 450 bird species found in Kansas have been documented at Cheyenne Bottoms. Merlin is a great citizen science tool used to identify and document birds. Tablets will be provided for student use. Students will ID birds using mounts, photos that can be set up along a nature hike, any live birds witnessed on our hike, and using bird song calls. Bird watching techniques and bird adaptations will also be explored. MS-LS2-1,2, HS-LS1, HS-LS4

**Geotrooping** – Using GPS technology, students will decipher clues and participate in a treasure hunt. Students will use a field guide to help identify plants or animals on the nature trail. Students will also practice navigating with a compass. MS-EST1, MS-ESS1-1, MS-LS2-2

**Wetland Forensics** – Become a Crime Scene Investigator and use clues to solve a wetlands mystery. Clues may include the perpetrator's habits, diet, tracks and more. Delve deeper to look at how scientists can use DNA and 3D printing to aid in problem solving. MS-LS2-2, HS-ETS1, HS-LS-1, HS-LS3-1,2

**iNaturalist** – Use apps to identify plants and animals along our nature trail and marsh and then learn to make your own nature app. Participants will spend a mix of time in the classroom and outside exploring. Tablets are provided for student use. MS-LS2-1,2, HS-ETS1, HS-LS1