

San Marcos Explorers Lesson Plan

September 2023

DATE: September 2023

LOCATION: Crockett Elementary School (Makerspace room) – 1300 Girard St, San Marcos, TX 78666

TIME: 7:55 am – 8:50 am

PARTNERSHIPS *(if any)*: Rachel Miller, Crockett Elementary School Librarian

PROMOTION PLAN: outreach to 5th grade teachers by Ms. Miller

TOPIC: Field Guide Workshop
GENERAL DESCRIPTION OF WORKSHOP & GOALS: Teach importance of native plant and animal species while teaching how to identify them using a field guide

MATERIALS & COSTS:

<ul style="list-style-type: none"> ● 4 field guides: Birds, mammals, wildflowers, trees ● 4 posters/large sticky pages ● markers ● pencils ● crayons/colored pencils ● erasers ● 4 photos of the native species ● 4 physical specimens of species if possible (seed pods, pressed leaves/flowers, feather, etc) ● Envelopes 	<ul style="list-style-type: none"> ● free, either bring from home or from library ● free, provided by elementary ● free, provided by elementary ● free, provided by elementary ● free, provided by elementary ● free, provided by elementary ● print at Alkek ● foraged/borrowed from Wildlife Society ● large manila envelopes
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LESSON PLAN ELEMENT CHECKLIST:

<u>Element</u>	<u>Application</u>
<p>Discussion: meeting students where they are. Formulate questions that will get them to talk about what they already know about the topic, or what they currently associate it with. Ex: Where have you seen _____? Who has heard of _____?</p>	<p>Introductory animal identification, challenging students to identify basic animals and asking how confident they are in doing so out in the field.</p>
<p>Background: Lay the foundational knowledge that is essential for students to know to understand the topic at hand. Ex: explaining basics of the water cycle</p>	<p>After challenging students to identify species that look very similar to each other, explain the basic elements of a field guide and where it begins being helpful.</p>
<p>Local Context: Bring the broader topic close to home by teaching about how it relates to their region/community. Ex: explaining what the Edwards Aquifer is</p>	<p>Reference the roles of various San Marcos wildlife in the ecosystem, from filtration to pollination.</p>

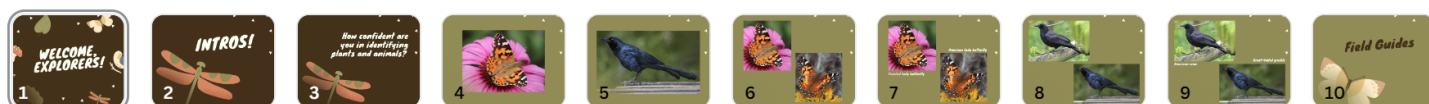
<p>Food for Thought: Have another short discussion about how the students' new knowledge compares to what they knew before, or previously thought. Ex: How do you feel about ____ now that you know how it works? What are you going to do differently now?</p>	<p>Invite students to think about how identifying a species by name increases the importance of it in the minds of the public. Why does knowing the name of something make it more special?</p>
<p>Call to Action: A challenge or tangible action that students can do to apply their new knowledge. Ex: visit a museum, pick up litter, talk to their family, etc</p>	<p>Challenge students to take their skills to the outdoors and question the names of different plants and animals they once overlooked. Tell them about libraries they can check field guides out from..</p>
<p>Activity: A hands-on or out-of-seat activity that helps students apply their new knowledge or engage with the material. Ex: Craft, competition/quiz, presentation, dance, science experiment/lab, etc.</p>	<p>Poster and presentation.</p>

LESSON PLAN:

PREP (Before Lesson): Print photo(s) of each of 4 species in color and large enough for students to see details. Gather examples of each species if possible. For the purposes of the four chosen native species in this lesson plan, this will be pressed leaves, seeds/pods/cones, pressed or fresh flowers, shells, or more. Check out 4 field guides from library and mark appropriate pages in them to give a starting point for students to refer to.

7:20-7:55 PREP (at Crockett): Arrange tables and chairs to accommodate seating four groups of five students (max) each. At each group place a box of markers/colored pencils, 4-5 pencils, 4-5 black markers, one field guide, one posterboard, and the associated photos of each native species. Ensure presentation is projected on board and visible to all seats.

7:55-8:00 INTRO/DISCUSSION: Ask how good students would say they are at identifying plants and animals. Quiz them on basic organisms: butterfly, bird,. Then ask them a harder question- what is the difference between this butterfly and this butterfly- this black bird and this black bird? Segue into need for something called a field guide.



8:00-8:02 WHAT ARE FIELD GUIDES?: Explain that field guides are used by backyard naturalists like themselves to identify plants, animals, tracks, weather, stars, and other things out in nature. They are designed to be small and easy to read when you are outside. Show slide images of field guide examples, hold up one in person.



8:02-8:06 WHY ARE THEY IMPORTANT?: Explain that field guides help people of all backgrounds understand the world around us. When we know the names of animals, plants, rocks, and more, we learn to respect them more. Compare it to before vs. after knowing the name of a person and how it might make you see them different. Especially because field guides can help you identify native species, which are important to ecosystems for the following reasons:

- **They pollinate plants:** using bumble bee as an example on slide, say a sentence or two about how bees are responsible for pollinating lots of flowers and helping them grow.
- **They keep other species in check:** using example of mosquitoes and dragonflies, explain how many species are responsible for keeping the populations of others from getting out of control. [“Imagine a world where there is nothing to eat mosquitoes?”]
- **They keep the environment clean:** some species have the job of keeping the environment clean, whether it’s by eating dead things and stopping the spread of diseases (like black vultures), or by acting like filters making sure water and ground is clean and not full of toxins (like wetland grasses and other plants).
- **They provide food and shelter:** some species provide key sources of food and shelter for both humans and other animals. Pecan trees have existed in Texas before even people were here, and have been a source of food for various animals and people.



8:06-8:50 ACTIVITY INSTRUCTIONS: Introduce the challenge at hand: using the field guides at each table, students will have to work in groups to identify the mystery species whose photos/remnants are on the table. After they have identified the organism, their task is to create a poster with information from the field guide which includes the following information:

- Name of the organism
- Range/where it is found
- Drawing of the organism
- 3 notable features that will help other naturalists identify it in the wild (color, size, body parts, shape, etc).

If there is enough time, have students give a small presentation about their organism, asking them to explain how they came to the conclusion of what species it was and what facts they learned about it. Collect the posters when completed, perhaps hang them on a wall to display students’ hard work.



GROUP 1: Bald Cypress

Materials for identification- stick with leaves, cone, picture of tree next to river

GROUP 2: Spotted gar

Materials for identification- picture of fish, picture of lake, picture of skull

GROUP 3: Superb Dog Day Cicada

Materials for identification- cicada molt, cicada, in jar, picture of emerging

GROUP 4: Ringtail

Materials for identification- picture of tail, picture of face, picture of tracks