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| https://s-media-cache-ak0.pinimg.com/originals/28/8d/b2/288db2a5f908b5df70d8350de3d1d84b.jpg  The Jaguar Field Guide  Field guides, nature journals, and citizen science | Mr. Haigler  TCEC Biology |

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# Overview:

Students will study the ecosystem surrounding TCEC’s campus to create a field guide, nature journal, and contribute to a national citizen science initiative. In the process, students will get to create a website or app, collect ecological data, teach about their topic, and bind their own nature journal to demonstrate their learning. The field guides they create will be used and enhanced by future students.

# Learning Goals:

### Guiding Questions:

* What plants, animals, microorganisms, and fungi inhabit the TCEC campus and how are they affected by human activities?
* What is citizen science and why / how do we do it?
* How are field guides and dichotomous keys made and what information should they contain?

### Curriculum

* Bio 2.1: Analyze the interdependence of living organisms within their environments.
* Bio 2.2: Understand the impact of human activities on the environment (one generation affects the next).
* Bio 3.5: Analyze how classification systems are developed based upon speciation.

### 21st Century Skills

* **Critical Thinking**: Come up with sensible solutions to how you will present your field guide. Ask interesting questions during nature journaling exercises.
* **Communication**: Communicate daily on teams to solve problems, then design & present interesting research.
* **Collaboration**: Work effectively with a group to brainstorm, plan, and implement a design and solution.
* **Create**: Make a useful field guide for future TCEC biology students and make a visually attractive nature journal.

# Benchmarks & Due Dates

|  |  |  |
| --- | --- | --- |
| **Benchmark** | **Due Date** | **Explanation** |
| 3 Entries in Nature Journal | 9/2/15 | A nature journal is a tool that we will use to make high quality observations of our campus’ or your home’s ecosystem. Students can choose journaling activities from the *Nature Journal Buffet* found in the “Useful Resources” document in Google Classroom. Include **at least one drawing** per entry. |
| Field Guide Outline | 9/9/15 | A Field Guide is a compilation of information about organisms that others use to identify and learn more about plants, animals, and fungi in their area. Your group will create a virtual field guide for TCEC’s campus (website or app) that will be used by future biology students. The outline should break down the plan (pages, links, and layout) of the website or app and outline the overall vision for the project. |
| Field Guide Rough Draft | 9/23/15 | The Rough Draft should be a fully developed version of your outline. It should look pretty close to the final product. *At a minimum*, it should meet the following criteria:   * At least 20 species you’ve identified at TCEC * A Dichotomous Key for your organisms * Species descriptions should include:   + Picture (High quality photo or drawing)   + Common & Scientific Name   + Common adult size   + Range map   + Habitat (nests, homes, location within an ecosystem)   + Predators, prey, parasitic, and/or mutualistic relationships   + Limiting factors for population growth in this ecosystem   + Reproductive habits (age of sexual maturity, frequency & number of offspring, behaviors, etc.)   + How human activities impact this species   + Interesting adaptations that make this species uniquely suited to this ecosystem |
| 6 Entries in Nature Journal | 9/23/15 | Do 3 new exercises from the *Nature Journal Buffet*. |
| Final Field Guide | 9/30/15 | Should be fully functional and ready for my review. See Rubric for my grading criteria. |
| 10 Entries in Nature Journal (Final Due Date) | 10/7/15 | This will be my **final review** of your nature journal for this project. See Rubric for my grading criteria. You may repeat up to 3 activities from the Nature Journal Buffet on different dates. |
| Nature Walk Presentations | 10/7-10/15 | The Nature Walks are a chance for your group to highlight interesting information that you learned about our surrounding ecosystem in this project. They should meet the following criteria:   * Outdoors * 15-20 minutes in length * Every group member participates equally * At least 4 different species are covered * Engaging, clear, and scientifically accurate teaching approaches |
| Data from Citizen Science | 10/15/15 | Directions for each citizen science project will be posted on Google Classroom. Data should include a weekly entry that is thorough and accurate. |
| Citizen Science Presentation | April 2016 | The highest performing students for the Citizen Science portion of the project will have the privilege of presenting their findings at a conference at the NC Arboretum next Spring. |

# Timeline

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| August | | | | |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| 17 | 18  Introduction to Project | 19 | 20 | 21 |
| 24  Introduction to Methods | 25 | 26 | 27 | 28 |
| September | | | | |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| 31 | 1 | 2: Three Entries In Nature Journal  Field Guide Planning; Nature Journaling Begins; Citizen Science Begins | 3 | 4 |
| 7: Labor Day | 8 | 9: Field Guide Outline  Field Guide Outline; Nature Journaling & Citizen Science Continues | 10 | 11 |
| 14 | 15  Drafting Field Guide; Nature Journaling & Citizen Science Continues | 16 | 17 | 18 |
| 21 | 22 | 23: Field Guide Rough Draft; 6 Entries in Nature Journal | 24 | 25  Drafting Field Guide; Nature Journaling & Citizen Science Continues |
| 28 | 29 | 30: Field Guides Due | October 1 | 2  Finishing Field Guide; Nature Journaling & Citizen Science Continues |
| October | | | | |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| 5 | 6  Nature Walks; Nature Journals Due & Citizen Science Continues | 7: Nature Journals Due; Nature Walks Begin | 8 | 9 |
| 12: Nature Walks  Nature Walks; Finishing Up Everything | 13 | 14: Citizen Science Data Due; Nature Walks | 15 | 16 |

# Groups

First Block:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
| Emily | December | Ana | Natasha | Joseph |
| Nolan | Savannah | Chayden | Nicholas | Allie |
| Randy | Philip | Nina | Ethan | Mabel |
| Rob | Brailey | Erin | Kameron | Alicia |
|  | Keaton | Payton |  |  |

Second Block:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 |
| Sandra | John | Taylor | Juliet | Rosa |
| Megan | Angel | Ashley B. | Julia | Ashley K. |
| Cecilia | Morgan | Aryzona | Andrea | Sadie |
| Kaitlan | CeCe | Colton | Sierra | Nate |
|  | Ryvers | Cade |  |  |