The Bio/Diversity Project

Lesson Title: **Specific Pollinators- Butterflies and Moths**

Teacher: *Ms. Gricelda Meraz*

Grade Level: *6th*

Time: *30 minutes +10 minute introduction*

*Adapted from:* [*https://www.fs.fed.us/wildflowers/pollinators/Monarch\_Butterfly/documents/royal\_mail/Daughters\_of\_the\_Sun.pdf*](https://www.fs.fed.us/wildflowers/pollinators/Monarch_Butterfly/documents/royal_mail/Daughters_of_the_Sun.pdf)

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| **AZ State Science Standard:** | *6.L2U1.13:*   * *Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.* |
| **Learning Objective:** | In student friendly language, write your objective. Your objective is likely to target just one or two aspects of the Science Standard, as mastery of a Standard usually takes multiple lessons. A Science Standard should be broken down into smaller, more manageable objectives per lesson.  For example:   * *Students will describe the role of butterflies in pre-Hispanic Indigenous myths and rituals.* * *Students will compare and contrast the structural features of moths and butterflies.* |
| **Language Objective:** (Optional) | N/A |
| **Scientist of the Week:** | * Professor Goggy Davidowitz * Studied Ecological and Evolutionary Physiology of Insects * Wanted to study how organisms adjust to growth and fitness in both short-term and long-term variation in environments * Got his Ph.D in Ecology and Evolutionary Biology in U of A. |
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| **Vocabulary** | | | **Materials** | | |
| Provide a bulleted, alphabetized list of words that students will hear, speak, write, and/or read about in the lesson. Please do not list more than 4-5 words. These words must be integral to developing content understanding. You may copy and paste these directly from the Scope and Sequence Guide document.   * Migration- Many mammals, birds, fishes, insects, and other animals move from one place to another at certain times of the year. This movement is called migration * Nocturnal- active at night * Diurnal- active during the day * Antennae- paired feelers connected to the front segments of insects | | | Provide a bulleted and hyperlinked list of relevant materials for the lesson.   * [*Butterflies and Moths Lesson*](https://biodiversityproject.arizona.edu/sites/default/files/Butterflies%20and%20Moths%20Lesson%20Plan%204.pptx) * [*Mariposas y Polillas*](https://biodiversityproject.arizona.edu/sites/default/files/Mariposas%20y%20Polillas.pptx) | | |
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| **Seasonality:** (If more specificity is required, please note date/time range under the season)  Highlight which season(s) your lesson would be most suited to. When working with the natural world, it is important to keep this in mind for your planning! Some activities are possible for a brief window of time while others may be appropriate during any time of year. | | | | | |
| *Monsoons*  July-Sept. | *Autumn*  Oct.-Nov. | *Winter*  Dec.- Feb. | | *Spring*  Mar.-Apr. | *Dry Summer*  May-June |
| **Guiding Questions:**  Write down bulleted, guiding questions that you will ask students in order to promote a deeper understanding of the subject matter. These are questions you will ask students to open the conversation on this topic. You may copy and paste these directly from the Scope and Sequence Guide document.  For example:   * *What is the significance of butterflies as mythical or ritual symbols in pre-Hispanic Indigenous cultures?* * *What are the key structural features that distinguish butterflies from moths, and how does this affect their method of pollination?* | | | | | |

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| **5E Steps** | **Teacher Strategies** | **Student Behavior** |
| **Engagement/Introductory Activity:**  This is what you will do to get the students engaged in and excited about the topic of the lesson! It should also provide an opportunity for you to get an idea of what they do (and do not) already know, and the assumptions that they have going into the lesson. | Ask the students how many species of butterflies there are in the world   * Using this intro activity to introduce butterflies and moths to the students   Slides: [*Butterflies and Moths Lesson*](https://docs.google.com/presentation/d/16NqsTluGR2UqkSeV-Pc67FneIDogysitMw7YVzrNWos/edit?usp=sharing)  [*Mariposas y Polillas*](https://docs.google.com/presentation/d/1iD2APcRPuFkebLe_JAQheogI7uiScVjUV3zOBGdsDCs/edit?usp=sharing) | Students will answer the Intern’s questions and use voice or raise of hand to say their answers.  After that, the students will be told to pay attention and participate in the slides. |
| **Exploratory Activity:**  Provide step-by-step instructions on what the teacher and students will do in this activity to gain new skills and/or knowledge. Attach worksheets, PowerPoints, video links, or other material used to this section. | Show them different species of moths and butterflies in the Sonoran Desert   * By adding slides of different species   Talk about the various adaptations and uses for their specific adaptations.  Google slides: [*Butterflies and Moths Lesson*](https://biodiversityproject.arizona.edu/sites/default/files/Butterflies%20and%20Moths%20Lesson%20Plan%204.pptx)  [*Mariposas y Polillas*](https://biodiversityproject.arizona.edu/sites/default/files/Mariposas%20y%20Polillas.pptx) | They will understand and comprehend the individual adaptations that are mentioned.   * They can ask questions if needed and also discuss the adaptations of the moths and butterflies. |
| **Explain:**  What questions or prompts will you use to get students to explain their observations or to explain what the outcomes of the activity that they participated in were? This should provide an opportunity for students to communicate their new understandings, as well as to articulate what they still do not understand. | Interns will present two questions for the students to think over and answer.  Questions:   * How do moths pollinate flowers? * How do butterflies pollinate flowers? | Students will think about these questions and draw a butterfly and a moth in order to describe the differences between the two. |
| **Extension Activity/Questions:**  This section provides an opportunity for students to connect the knowledge that they have gained to other contexts – can they take what they learned and logically expand upon it, or apply it to alternate situations? Provide one or two additional ideas for activities that students can use to expand upon the new knowledge that they have gained. | Interns will ask students if they know any myths or legends about butterflies or moths. If students do, interns will ask students to share if they choose to. If students don’t, interns will share some legends about butterflies such as that butterflies represent the souls of dead loved ones visiting family members.  Interns will also discuss the use of butterfly symbols during Dia de los muertos.  Interns will read a short Puebloan myth about butterflies. | Students will get three minutes to think and share.  Students will then listen to a myth about butterflies that the interns will read.  Students will share what they observed in the story. |
| **Evaluation Activity:**  How will you evaluate whether or not the students have achieved the learning objective(s) of the lesson? | As a final activity, interns will ask the students to match butterflies and moths to different characteristics mentioned previously. A matching game will be made in Nearpod. | Students will match correct cultural and structural characteristics to moths and butterflies. |