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| **Lesson Title :** Lesson 2: Biome Research | **Unit #:**1 | **Lesson #:**2 | **Activity #:**3 |
| **Activity Title:** Activity 3: Biome Booklet |

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| **Estimated Lesson Duration:** | 3, 90 minute class blocks |
| **Estimated Activity Duration:** | 3, 90 minute class blocks |

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| **Setting:** | Classroom or place where you can have laptops for research |

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| **Activity Objectives:** Students will create biome books to properly research each biome. SWBAT distinguish the differences between each biome by defining and discussing the following items within each biome.* Temperature range with graph for high and low temperatures
* Precipitation range
* Type of precipitation
* Where this biome is located in the world
* Length of growing season
* Type of plants and animals found in this biome
* Adaptations plants and animals have in this biome
* Sample food web that includes 3 plants and 5 food chains with color key to identify trophic levels
* 3 interesting facts
* Colored map of the world with a key of where specific biomes are found
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**Activity Guiding Questions:** What are the differences in the biomes which make up the world we live?

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| **NGSS Practices of Science and Engineering / Crosscutting Concepts** |

| **Practices of Science and Engineers (Check all that apply)**  | **Crosscutting Concepts (Check all that apply)** |
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| [ ]  Asking questions (for science) and defining problems (for engineering) | [ ] Patterns |
| [ ]  Developing and using models | [ ]  Cause and effect |
| [ ]  Planning and carrying out investigations | [ ]  Scale, proportion, and quantity |
| [x]  Analyzing and interpreting data | [ ]  Systems and system models |
| [ ]  Using mathematics and computational thinking | [x]  Energy and matter: Flows, cycles, and conservation.  |
| [ ]  Constructing explanations (for science) and designing solutions (for engineering) | [x]  Structure and function.  |
| [ ]  Engaging in argument from evidence | [x]  Stability and change.  |
| [x]  Obtaining, evaluating, and communicating information  |  |

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| **Unit Academic Standards (Ohio State Revised Science Education Standards and/or NGSS Content, Common Core etc.):** -BIO.912.7b- Match two organisms in the same classification-BIO.912.7c-Sort plants and animals according to their classification-BIO.912.8a- Describe how plant/animal population changes in relation to the availability of certain resources-BIO.912.8b- Identify how a population would change in relation to predator/prey relationships-BIO.912.8c-Match a plant/animal to a resource it uses from its environment  |

**Cognitive Demands (Ohio State Revised Science Education Standards)**

| **Expectations for Learning Cognitive Demands (Check all that apply)**  |
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| [ ]  Designing Technological/Engineering Solutions Using Science concepts **(T)** |
| [x]  Demonstrating Science Knowledge **(D)** |
| [x]  Interpreting and Communicating Science Concepts **(C)** |
| [x]  Recalling Accurate Science **(R)** |

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| **Materials**: See attachments:1. The Map of the World
2. Biome Book Checklist
3. Biome Book Guidelines
4. Biome Book Checklist
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| **Teacher Advance Preparation:** Teachers will need to have paper and colored pencils for their students to use, as well as reserve some sort of laptop cart or place where students can do the research. |

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| **Activity Procedures:** 1. Students are given the handout and the teacher goes over how to set up the booklet (see attachment).
2. Students are able to work on the research to find out all of the requirements for the booklet.
3. Teachers will need 1 piece of colored paper and 6 pieces of white paper per student.
4. Teachers will need the “checklist for biome book” half sheet handout (1 per student). \*see attachment.
5. Teachers will need to make copies of the “map of the world” handout (1 per student). \*see attachment.
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**Formative Assessments:** Biome Booklet. I will be checking their understanding with the rubric and a checklist which are attached.

**Summative Assessments:** These are optional; there may be summative assessments at the end of a set of Activities or only at the end of the entire Unit.

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| **Differentiation:** For my lower level students would have them work in groups or have them only look up 3 biomes for their booklets. |

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| **Reflection:** This activity allows students to create their own knowledge by giving them the freedom to work on laptops and to research various items on their own. My students really like making a book where they can go home and show off their work. Also, this activity allows students to get through a lot of research in a timely fashion. |