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|  **EED 480 PBL with 5E Framework TEMPLATE FOR OUTLINE** *Submit Items I-IX ONLY for OutlineTaylor Carlson 4/15/20*  |
|      | 1. Rainforest Survival, Grade 3
2. *BIG IDEAWhere is the rainforest and why is it called the rainforest?*

*Let's investigate the different weather conditions in the rainforest. Why is shelter important?**Let's be engineers and scientists to create a shelter that we could use to stay alive in the rainforest.*1. JUSTIFICATION This lesson series . . . (STEAM and Social Studies Integration) TASKS: Brief description: A. We will investigate the weather patterns that are in the rainforest and how this affects the living creatures.B. We will determine what we would need to build a livable shelter that could keep us safe from these weather conditionsC. Finally, we will engineer a small prototype of our shelter and test if it can survive the rain in the rainforest (spray bottle)
2. STANDARDS: Grade Level and Subject Area: Kindergarten to 5th   Science, Social Studies, Language Arts, Mathematics and the Arts Standards

**NGSS (Next Generation Science Standards)** * 3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.
* 3–5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3–5-ETS1-1)

**Disciplinary Core Ideas*** Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)
* Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3–5-ETS1-1)

**Science and Engineering Practices*** Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3–5-ETS1-1)

**Crosscutting Concepts*** Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3–5-ETS-2)

**Social Studies*** Continuity and Change 3.1 Students describe the physical and human geography and use maps, tables, graphs, photographs, and charts to organize information about people, places, and environments in a spatial context. 1. Identify geographical features in their local region (e.g., deserts, mountains, valleys, hills, coastal areas, oceans, lakes).

**ELA/Literacy*** 3.SL. Comprehension and Collaboration 1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

**CCSS Mathematics*** 3.MD. Represent and Interpret Date 3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two step “how many more” and “how many less” problems using information presented in scaled bar graphs

 **V.** MEASURABLE OBJECTIVES 1. I will be able to recognize the weather patterns present in the rainforest
2. I will be able to identify the importance of shelter
3. I will be able to design a shelter that could possibly keep me safe in the rainforest
4. I will engineer a prototype of my shelter and test whether it can withstand the rainforest conditions (spray bottle)
5. I will reflect on the design and determine how I could make it better/stronger

**VI** TOTAL TIME: * Opening introduction to the importance of shelter and this may vary on location (10 minutes)
* Direct instruction on the weather in the rainforest and how shelter will look different there to withstand the weather conditions (10 minutes)
* Planning Process where students collaborate in their group and design a possible shelter (15 minutes)
* Engineering Process where students create their prototype of their shelter (20 minutes)
* Testing time where one student from each group can test whether or not their group survived in the rainforest (10 minutes)
* Reflection Process where students determine how they could make their shelter better/stronger (5 minutes)

**VII**.   Social [Skills](http://www.csun.edu/~sb4310/PBL%20Handouts%20and%20Assessments_files/Social%20Skills%20and%20or%20Habits%20of%20Mind%20to%20Engage.docx) and or Habits of Mind to Engage/Assess to Promote Student Motivation and Success (Indicate which of SELs from the Placemat are relevant to your lesson)* Persisting
* Managing Impulsivity
* Strive for Accuracy

**VIII**. Level of Voice Appropriate for Each Day/Period of the PBL  ([Download chart](https://images.search.yahoo.com/search/images;_ylt=Awr9IkzYco9epq4AHhNXNyoA;_ylu=X3oDMTE0MjJtcjZyBGNvbG8DZ3ExBHBvcwMxBHZ0aWQDQjI5NDRfMQRzZWMDcGl2cw--?p=voice+level+chart&fr2=piv-web&fr=mcafee) appropriate for you grade level) **IX.** Materials List* Visual Aids of the different types of shelters in different parts of the world
* Visual aids of the rainforest and weather conditions
* Article on what the rainforest is like and what type of shelter is needed to survive there
* Designing our shelter worksheet plan
* Materials to engineer shelter (toothpicks, popsicle sticks, paper towel, tissue, newspaper, rubber bands, cotton balls, etc.)
* Reflection writing

***AFTER INSTRUCTOR RESPONDS TO OUTLINE CONTINUE TO DEVELOP THE PBL USING THE FOLLOWING PLAN:***   NASA/BSCS 5-e FRAMEWORK**X**.        ENGAGING CONTEXT: Hook- Launch activityEXPLORE Building Knowledge“We will use our inquiry skills of predicting (hypothesis testing) comparing and analyzing to: \_\_\_\_\_\_\_\_\_\_\_\_This PBL will be led over  Two- ? \_\_\_\_ Class Periods/Weeks or ; ?\_ minutes each EXPLAIN Students have the following opportunities to Showing and Sharing Knowledge from Group Work or Individual Work. Here is where NGSS Claims and Evidence is activated and measured. As students complete the launch, inquiry, culminating activity they share their prior knowledge, observations and questions about . . .. EXTEND/ELABORATE Students follow-up on their learning outcomes and are given opportunities to further develop and revise products and/or performances (Here is where you will align summative assessments of the PBL). In small groups and in the final performance students have opportunities to extend their knowledge and to elaborate on their ideas. The teacher provides mini-lessons as needed to scaffold student thinking and understanding. There are several formative and summative ways to assess learning in this engaged learning PBL.  The first is in the individual \_\_\_\_\_ that show students’ original predictions and/or questions they have . . . The students may also keep a journal or daily logs that are assessed using a rubric and/or checklist. (Posters and visual presentations where students use art to draw a visual that helps them to describe the results also serves can be assessed or self-assessed with a checklist or rubric. Content Summative Assessment: Individual information detailing student learning takeaways from the Launch activityFormative Assessment of Non-Cognitive Factors: Self-Assessment Using the Habits of Mind Check Sheet and Write-up Form (Course Docs).**XI.** Children's Literature that Supports the PBL:**XII**. Criteria to Assess the Value of Your PBL:1. Does it include a driving question in any of the identified disciplines?2. Does it include at new STEAM vocabulary words?3. Does it propose the development of a project--students/unit plan?4. Does it assure that students show evidence that all team members were involved? 5. Have you inserted a comment when submitting that shows evidence that you reviewed Koch chapters to assist in the NGSS aspects of the PBL?

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