**Assignment Planning Guide**

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| **Steps** | **Your Assignment** | |
| **1** | **Identify Content, Focus Standards, and skills.**  ***Curriculum***  ***Grade Level, Topic*** | **Content: Wind turbines**  **Focus Standards:**  PACC1.2 – Informational Text, PACC1.4 – Writing to Inform, 3.4.5.C.2,Describe how design, as a dynamic process of steps, can be performed in different sequences and repeated.  **Skills:** design evaluate, and explain  Other Skills: drawing/building a model  ***Fifth Grade, Wind*** |
| **2.** | **Determine a product.** | **Lab Report and Model (picture or scale)** |
| **3.** | **Identify demands and qualities** | **Demands:**   * Scientific Notebook with notes, labeled drawings, reflective/analytical entries * Laboratory report containing an introduction, prediction(s), experimental design ideas, data collected and conclusions drawn * Your final design must also be photographed or sketched accurately in detail**.**   **Qualities**   * Explain scientific information in a variety of formats (visual, text, graph, etc,) * Apply accurate scientific knowledge to solve the design problem of the blade * Analyze how certain variables can cause measureable change * Create a working model of a wind turbine that can lift a load |
| **4.** | **Write a prompt** | You are a quality control engineer working for a company that designs wind turbines. Your company must constantly evaluate and re-evaluate the designs they produce for efficiency and work load capacity.  It is your job to design the most efficient wind turbine among all of the designs in your company (class), using only the materials you have been supplied. Your turbine must not only spin well but lift the heaviest load. The heavier the load, the more electricity your turbine can produce. |
| **5.** | **Write a Rubric** | Achieving expectations – After a minimum of three detailed (notes, drawing, reflective/analytical entries) documented attempts in the student’s science notebook, the student has created a blade design and justified his/her choice using accurate scientific reasoning.  Approaching expectations - After a minimum of two detailed documented attempts in the student’s science notebook, the student has created a blade design and justified his/her choices using accurate scientific reasoning.  Attempting expectations - After one detailed documented attempt in the student’s science notebook, the student has created a blade design and justified his/her choice using accurate scientific reasoning. |
| **6.** | **Do your Assignment** |  |
| **7.** | **Make an Instructional Plan** | |  |  | | --- | --- | | **Instruction** | **Formative Assessment** | | **Review Prompt and Rubric**  ***Foreshadowing***  ***20 minutes*** | **Activity: Emerson’s Misquote, “ Build a better mousetrap, and the world will beat a path to your door. “ Look at Controversial Patents.** | | **Teach skill of writing notes, drawing pictures, and reflective/analytical entries into a** [**scientific notebook**](http://www.sciencenotebooks.org/student_work/search.php)  **“Lecture”**  ***One class period*** | **Show Models of three types, practice with a shared experience, review student submissions** | | **Read for information, “Blade Design Report”**  **“Seminar”**  ***Twenty Minutes*** | **Using a graphic organizer, students will identify and discuss the four variables identified in the text (size, shape, number, and material as well as the optimal design in each variable.** | | **Test design (hypothesis) and record details**  ***Mini Seminar after first design***  ***Three Class periods*** | **Peer Review student notebooks after first attempt – refer to class notes and models for keeping a scientific notebook** | | **Additional resources: learn.kidwind.org/learn**  **“Technology”** | **Access to computers during the design process** | | **Lab Report (skill already taught)**  ***Two class periods*** | **Complete rough draft of Lab report, round robin review (student feedback), revise** | | **Submit Lab report and Best Model** | **Gallery Walk to review student submissions** | |