Finding the Low Hanging Fruit

(How to identify areas or activities that are ripe for "engineerizing" within your curriculum)

What follows is a set of recommended considerations for finding the areas within your existing curriculum (labs, projects, activities) are ripe to be transformed to incorporate engineering principles.

Get ready to do this process by understanding the WHY of engineering and being familiar with the central tenets of engineering education and the engineering design process.

List every interactive activity (lesson, lab, or project) you do, or are interested in doing. (one activity per row)	For each activity, **rate** (on a scale of 1-5) how well it currently accomplishes these objectives: 1. Provides opportunities to gather multiple types of real data. 2. Has multiple, valid, possible outcomes 3. Meaningfully incorporates content standards	For each activity that rates at least a 3 in all parts of the last column, **answer** these questions. If you can't figure out how to answer one of the questions, this might mean that the activity isn't very ripe. Skip ahead to the next activity. 1. What meaningful product(s) could be produced? 2. What iterative design process might be necessary to create the product? What variables can be optimized? Can the data collected around these variables inform the design decisions? 3. What are the constraints (things the product has to do or can't do) and criteria (variables that can be optimized) associated with the product? 4. What additional content standards could be addressed through the Engineering Design Process (see the NGSS Science and Engineering Practices)?
Example 1: *Windmill project*	__5___Gather Data __3__Multiple outcomes __4__Standards	1. Functional windmill prototype, engineering report to client/stakeholders 2. Collect data around blade angle, shape, surface area, number. Iteratively optimize these variables. 3. Constraints: cost. Criteria: lifting force 4. NGSS Science and Engineering Practice standards: strong: 3,4,6,7,8 weak: 1,2,5
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