Comparative Analysis of Engineering Design Models

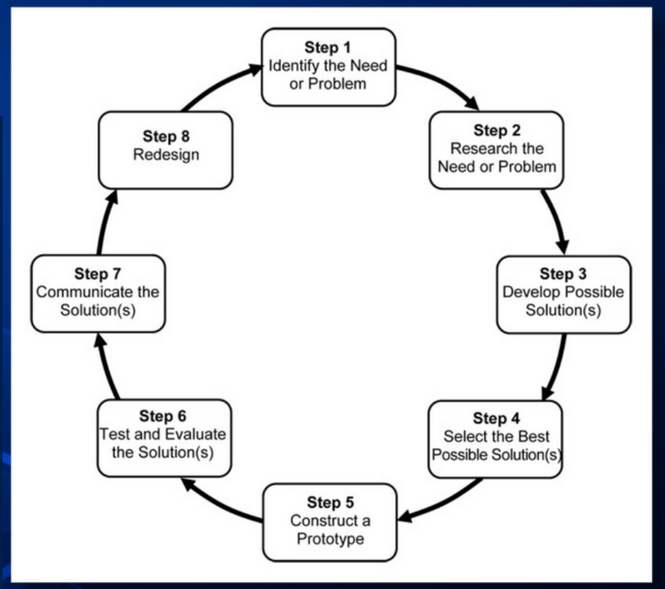
Differences:

The NGSS Engineering Process is more of a guideline on assessment, as they are"evidence statements" instead of a step-by-step process. I use the ones listed to the right in my classroom, but would definitely benefit from using NASAs model (or others like it) to aid students in the process to enhance their skills. While the NGSS Model does follow a "Define, Develop, Optimize" model, the standards for engineering don't convey the same process by themselves without the visual representation.

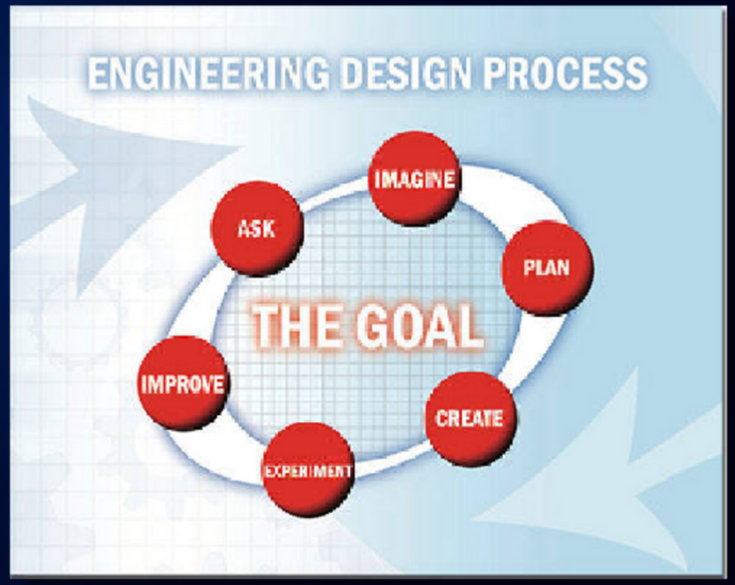
Similarities:

When looking at the Link Engineering & NASA models, I immediately notice the cyclic pattern where the first step is always to ask a question or identify a problem, then moves onto planning possible solutions, then to creating/constructing a prototype/solution, then testing & evaluating, onto communicating the results, and then finally redesigning the model to test again.

LINK ENGINEERING



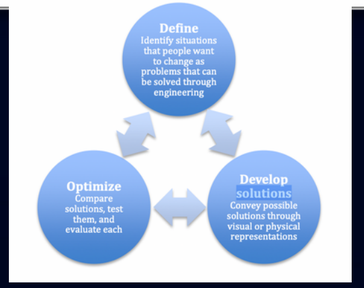
NASA



NGSS

Students who demonstrate understanding can:

MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-ETS1-3.	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.



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