**DCI: Engineering Design**

**MS.ETS1.A: Defining and Delimiting Engineering Problems**
The more precisely a design task’s criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that is likely to limit possible solutions. (MS-ETS1-1)

**DCI: Engineering Design**

**MS.ETS1.B: Developing Possible Solutions**
A solution needs to be tested, and then modified on the basis of the test results in order to improve it. (MS-ETS1-4)

**DCI: Engineering Design**

**MS.ETS1.B: Developing Possible Solutions**
There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (MS-ETS1-2), (MS-ETS1-3)

**DCI: Engineering Design**

**MS.ETS1.B: Developing Possible Solutions**
Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. (MS-ETS1-3)

**DCI: Engineering Design**

**MS.ETS1.C: Optimizing the Design Solution**
Models of all kinds are important for testing solutions. (MS-ETS1-4)

**DCI: Engineering Design**

**MS.ETS1.C: Optimizing the Design Solution**
Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process that is, some of the characteristics may be incorporated into the new design. (MS-ETS1-3)

**Science and Engineering Practices**

**Asking Questions and Defining Problems**
Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions. (MS-ETS1-1)

**Science and Engineering Practices**

**Developing and Using Models**
Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs. (MS-ETS1-4)

**Science and Engineering Practices**

**Engaging in Argument from Evidence**
Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s). Evaluate competing design solutions based on jointly developed and agreed-upon design criteria. (MS-ETS1-2)
Analyzing and Interpreting Data

Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.

Analyze and interpret data to determine similarities and differences in findings. (MS-ETS1-3)