## KG-8th NGSS Science and Engineering Practices

- ❑ Practice 1: I can ask questions and define problems.
- ❑ Practice 2: I can develop and use models.
- ❑ Practice 3: I can plan and carry out investigations.
- ❑ Practice 4: I can plan, analyze and interpret data.
- ❑ Practice 5: I can use mathematics and computational thinking.
- ❑ Practice 6: I can construct explanations and design solutions.
- ❑ Practice 7: I can engage in argument from evidence.
- ❑ Practice 8: I can obtain, evaluate and communicate information.

## KN-2nd I Can Crosscutting Concepts

- ❑ I can observe patterns in the world and use them to prompt questions or describe natural occurrences.
- ❑ I can recognize events have causes that are simple or complex.
- ❑ I can make predictions and conduct simple tests to understand events.
- ❑ I can demonstrate relative scales allow objects and events to be compared and described [e.g. bigger-smaller; hotter-colder; faster-slower]
- ❑ I can describe objects and organisms in terms of their parts.
- ❑ I can observe systems have parts that work together.
- ❑ I can understand that objects may break into smaller pieces, be put together into larger pieces or change shape.
- ❑ I can recognize that the shape of natural or human-designed objects is related to their function(s).
- ❑ I can understand and explain that some things stay the same while other things change. Change can be rapid or slow.

## KN-2nd I Can Engineering Design

- ❑ I Can Define: Ask questions, make observations, and gather information to define a problem that can be solved through engineering.
- ❑ I Can Develop Solutions: Use sketches, drawings, or models to develop possible solutions.
- ❑ I Can Optimize the Design: Gather and analyze data from tests, compare outcomes and engineering solutions.

## 3rd-5th I Can Crosscutting Concepts

- ❏ I can use similarities and differences in patterns to sort, classify and analyze natural occurrences and human-designed objects.
- ❏ I can identify cause and effect relationships and use to test and explain change.
- ❏ I can observe natural objects and occurrences exist from the very small to the immensely large or from short to long time period.
- ❏ I can describe a system in terms of its parts and their interactions.
- ❏ I can observe and explain that energy can be transferred in many ways and between objects. Matter cannot be destroyed; it flows and cycles.
- ❏ I can make observations and show different materials have different structures.
- ❏ I can investigate and demonstrate that some systems appear stable, but over long periods of time will eventually change.

## 3rd-5th I Can Engineering Design

- ❏ I Can Define: Define a design problem that includes criteria for success and constraints.
- ❏ I Can Develop Solutions: Research, generate and compare multiple possible solutions to design problems.
- ❏ I Can Optimize the Design: Test and improve solutions to design problems using the results of simple tests, including failure points

## 6th-8th I Can Crosscutting Concepts

- ❏ I can observe patterns on graphs, charts and images which provide information about natural and human-designed systems.
- ❏ I can make observations and explain how natural phenomena may have more than one cause.
- ❏ I can understand and demonstrate how models at various scales allow one to study natural phenomena that would otherwise be too small or too large.
- ❏ I can explain how models can be used to understand systems and interactions. I understand models are limited as they only represent certain aspects.
- ❏ I can investigate and illustrate how matter is conserved (not destroyed) in physical and chemical processes. Energy may take different forms (electric, thermal, motion).
- ❏ I can explain complex natural and designed structures can be visualized, modeled and used to determine how they function
- ❏ I can investigate and demonstrate that small changes in one part of a system may cause large changes in another part. Sudden events or gradual changes over time can disturb stability.

## 6th-8th I Can Engineering Design

- ❏ I Can Define: Attend to precision of criteria and constraints and considerations likely to limit possible solutions.
- ❏ I Can Develop Solutions: Combine parts of different solutions to create new solutions.
- ❏ I Can Optimize the Design: Use systematic processes to iteratively test and refine a solution.