

Engineering – NGSS

- A. I can define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution.
- B. I can take into account scientific principles and possible impacts on people and the nature environment that may limit possible solutions.
- C. I can evaluate competing design solutions to determine how well they meet the criteria and constraints of the problem.
- D. I can analyze data from tests identify the best characteristics that can be combined into a new solution to better meet the criteria for success.
- E. I can develop a model to generate data for repetitive testing and modification of a technology such that an optimal design can be achieved.

Nature of Science:

- A. I can describe a system in terms of its subsystems and parts as well as it's inputs, process, and outputs. 6.1.3.1.1
- B. I can describe how science and engineering influence and are influenced by local tradition 5.1.3.2.1
- C. I can use logical reasoning and imagination to develop descriptions, explanations and predictions on models based on evidence. 8.1.1.2.1
- D. I can use safe procedures, tools, measurements, graphs, and mathematical analyses to describe and investigate natural and designed systems. 6.1.3.4.1
- E. I can describe examples of important contributions to the advancement of science made by individuals representing different groups and cultures at different times in history. 8.1.3.3.1
- F. I can provide examples of how advances in technology have impacted how people live, work and interact. 8.1.3.3.3
- G. I can estimate the magnitude of common objects and quantities using the SI or metric system and show conversions. 6.1.3.4.2
- H. I can generate and refine a variety of scientific questions and match them with appropriate methods of investigation such as field studies, controlled experiments, review of existing work, and development of models. 7.1.1.2.1

I. I can plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. 7.1.1.2.2

J. I can generate a scientific conclusion from an investigation, distinguishing between results/evidence and conclusions/explanation. 7.1.1.2.3

Water and the Atmosphere

Fresh Water 8.3.2.3.1 8.3.2.3.2 5.4.2.1.1 5.4.2.1.2

- A. I can explain that all living things need water.
- B. I can explain that most of earth's surface water is salt water.
- C. I can explain the water cycle.
- D. I can explain what a river system is.
- E. I can explain how ponds and lakes form.
- F. I can explain how lakes can disappear.
- G. I can describe how water gets underground.
- H. I can explain how people can obtain ground water.
- I. I can name and describe the three types of wetlands.
- J. I can describe how wetlands are habitats for living things.
- K. I can explain how wetlands are natural water filters.

The Oceans 8.3.2.3.1 8.3.2.3.2 8.3.2.1.2

- A. I can explain the characteristics of ocean water
- B. I can explain how temperature changes in the ocean.
- C. I can explain how pressure changes in the ocean.
- D. I can explain the characteristics of the ocean floor.
- E. I can explain how waves form.
- F. I can explain what happens to waves near the shore.
- G. I can explain how waves form a beach.
- H. I can explain what a surface current is.
- I. I can explain what a deep current is.
- J. I can describe the different ocean zones.
- K. I can describe how different marine organisms are classified.

The Atmosphere 8.3.2.2.2 8.3.2.2.1

- A. I can explain what makes up the Earth's atmosphere.
- B. I can explain that events in one part of the atmosphere affect other parts of the atmosphere.

- C. I can explain the properties of air
- D. I can describe the two types of barometers
- E. I can describe the relationship between air pressure, altitude, and density.
- F. I can identify the 4 layers of the atmosphere.
- G. I can describe what happens in the troposphere and stratosphere.
- H. I can describe what happens in the mesosphere and thermosphere.
- I. I can describe how the sun's energy travels to earth.
- J. I can describe what happens to sunlight when it reaches earth.
- K. I can describe how air temperature is measured.
- L. I can describe the three types of heat transfer.
- M. I can explain how convection happens in the atmosphere.
- N. I can explain what causes wind
- O. I can explain what a local wind is.
- P. I can explain what a global wind is.

Weather 8.3.2.2.3

- A. I can explain how water enters and leaves the water cycle.
- B. I can explain what a psychrometer does.
- C. I can explain how clouds form.
- D. I can describe the different types of clouds.
- E. I can describe the different types of precipitation.
- F. I can explain what causes floods.
- G. I can explain what causes droughts.
- H. I can describe the 4 different types of air masses.
- I. I can describe the 4 different types of fronts.
- J. I can explain the difference between a cyclone and anticyclone.
- K. I can explain how precipitation begins.
- L. I can explain how thunderstorms form
- M. I can explain how a hurricane forms.
- N. I can explain what to do in a storm to stay safe.
- O. I can explain what a meteorologist does.
- P. I can read standard symbols on a weather map.

Climate and Climate Change 8.3.2.1.3 5.4.4.1.1 8.3.2.1.1

- A. I can explain what affects temperature.
- B. I can explain what affects precipitation.
- C. I can explain how scientists classify climates
- D. I can describe the six climate regions.
- E. I can explain how scientists study ancient climates
- F. I can explain what natural factors can cause climate changes
- G. I can explain how human activities are increasing levels of greenhouse gases.

- H. I can explain the effects of global warming.
- I. I can describe solutions for limiting global warming.

Forces and Energy

Motion 6.2.2.2.4 6.2.2.1.2 6.2.2.1.1

- A. I can explain when an object is in motion.
- B. I can calculate the speed of an object.
- C. I can calculate the velocity of an object
- D. I can plot distance vs. time on a graph.
- E. I can describe acceleration.
- F. I can analyze the motion of an object.

Forces 6.2.2.2.1 6.2.2.2.2 6.2.2.2.3 5.2.2.1.2 5.2.2.1.3 8.3.3.1.2 8.3.3.1.3

- A. I can describe force.
- B. I can explain what causes a change in an object's motion.
- C. I can explain what friction is.
- D. I can explain gravitational attraction.
- E. I can explain Newton's first law.
- F. I can explain Newton's second law.
- G. I can explain Newton's third law.
- H. I can describe momentum.
- I. I can explain the law of conservation of momentum.
- J. I can explain what free fall is.
- K. I can explain how satellites work.

Work and Machines 5.2.2.1.1

- A. I can explain what work is.
- B. I can calculate the amount of work done on an object.
- C. I can explain what power is.
- D. I can describe what a machine is.
- E. I can explain what a mechanical advantage is.
- F. I can calculate the efficiency of a machine.
- G. I can describe simple machines in the inclined plane family.
- H. I can classify levers.
- I. I can describe simple machines that use turning.
- J. I can explain what a compound machine is.

Energy 6.2.3.2.2

- A. I can explain how energy, work, and power are related.
- B. I can explain the two types of energy.
- C. I can find an objects mechanical energy.
- D. I can explain what other forms of energy are.
- E. I can explain how different forms of energy are related.
- F. I can explain the law of conservation of energy.

Thermal Energy and Heat 6.2.3.2.3

- A. I can explain what determines the temperature of an object.
- B. I can explain what thermal energy is.
- C. I can explain the three types of heat transfer.
- D. I can explain how different materials respond to heat.

Cells and Heredity

Introduction to Cells 7.4.1.1.1

- A. I can explain what cells are.
- B. I can explain cell theory.
- C. I can show how microscopes work.
- D. I can explain how parts of the cell work.
- E. I can explain the difference between compounds and elements.
- F. I can explain what compounds cells need.
- G. I can explain how materials move in and out of cells.

Cell Processes and Energy 7.4.1.2.3

- A. I can explain how living things get energy from the sun.
- B. I can explain what happens during photosynthesis.
- C. I can explain what happens during cellular respiration.
- D. I can explain what happens during fermentation.
- E. I can show how a cell divides.
- F. I can explain the parts of the cell cycle.

Genetics: The Science of Heredity 7.4.1.2.2

- A. I can explain what Mendel observed when studying pea plants.
- B. I can explain how alleles affect inheritance.
- C. I can show how probability is related to inheritance.
- D. I can explain the difference between phenotype and genotype.

- E. I can explain how most traits are inherited.
- F. I can explain how genes and the environment interact.

DNA: The Code of Life 7.4.3.1.1 7.4.3.1.2

- A. I can explain what forms a genetic code.
- B. I can explain how DNA copies itself.
- C. I can explain how cells make proteins.
- D. I can explain how mutations affect organisms.
- E. I can explain how cancer is related to the cell cycle.

Human Genetics and Genetic Technology

(Change over time)