

**SIXTH GRADE  
Science  
PRIORITY STANDARDS**

**Grade 6-8 Engineering, Technology, and the Application of Science**

**MS.ETS1 Engineering Design**

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.**

**Earth & Space Science**

**6.ESS2 Earth's Systems**

6.ESS2.4 **Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.**  
 [Clarification Statement: Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle. Examples of models can be conceptual or physical.]  
 [Assessment Boundary: A quantitative understanding of the latent heats of vaporization and fusion is not assessed.]

**6.ESS3 Earth and Human Activity**

6.ESS3.3 **Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.\*\***  
 [Clarification Statement: Examples of the design process include examining human environmental impacts, assessing the kinds of solutions that are feasible, and designing and evaluating solutions that could reduce that impact. Examples of human impacts can include water usage (such as the withdrawal of water from streams and aquifers or the construction of dams and levees), land usage (such as urban development, agriculture, or the removal of wetlands), and pollution (such as of the air, water, or land).]

6.ESS3.5 **Ask clarifying questions based on evidence about the factors that have caused climate change over the past century.**  
 [Clarification Statement: Examples of factors include human activities (such as fossil fuel combustion, cement production, and agricultural activity) and natural processes (such as changes in incoming solar radiation or volcanic activity). Examples of evidence can include tables, graphs, and maps of global and regional temperatures, atmospheric levels of gases such as carbon dioxide and methane, and the rates of human activities. Emphasis is on the major role that human activities play in causing the rise in global temperatures.]

**Life Science**

**6.LS1 From Molecules to Organisms: Structures and Processes**

6.LS1.1 **Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.**  
 [Clarification Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.]

6.LS1.3 **Construct an explanation supported by evidence for how the body is composed of interacting systems consisting of cells, tissues, and organs working together to maintain homeostasis.**  
 [Clarification Statement: Emphasis should be on the function and interactions of the major body systems (e.g. circulatory, respiratory, nervous, musculoskeletal).]  
 [Assessment Boundary: Assessment is focused on the interactions between systems not on the functions of individual systems.]

**6.LS3 Heredity: Inheritance and Variation of Traits**

6.LS3.2 **Develop and use models to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.**  
 Clarification Statement: Emphasis is on using models such as Punnett squares, diagrams, and simulations to describe the cause and effect relationship of gene transmission from parent(s) to offspring and resulting genetic variation.]

**Physical Science**

**6.PS3 Energy**

6.PS3.3 **Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.\***  
 [Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.]  
 [Assessment Boundary: Assessment does not include calculating the total amount of thermal energy transferred.]

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6.PS3.5

**Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.**

[Clarification Statement: Examples of empirical evidence used in arguments could include an inventory or other representation of the energy before and after the transfer in the form of temperature changes or motion of object.]

[Assessment Boundary: Assessment does not include calculations of energy.]