West Virginia Science

Grade 7

Adopted 2022

Physical Science DOMAIN

Energy

5. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. S.7.5
6. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. S.7.6
7. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. S.7.7
8. Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. S.7.8
9. 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. S.7.9

Forces and Interactions

10. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. S.7.10
11. Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. S.7.11
12. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. S.7.12
13. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. S.7.13
14. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. S.7.14

Life Science DOMAIN

Structure, Function, and Information Processing

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. S.7.1

   Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. S.7.2

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3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells with emphasis on the circulatory, excretory, digestive, respiratory, muscular, and nervous systems. S.7.3
4. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. S.7.4

Earth and Space Science DOMAIN

Earth's Systems

15. Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. S.7.15
16. Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. S.7.16
17. Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. S.7.17

History of Earth

18. Construct a scientific explanation based on evidence from rock strata for how the geologic timescale is used to organize Earth's 4.6-billion-year-old history. S.7.18
19. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. S.7.19
20. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. S.7.20

Human Impacts

21. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. S.7.21

Engineering, Technology, and Applications of Science DOMAIN

Engineering Design

22. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, considering limitations to solutions including scientific principles and potential relevant possible impacts on people and the environment. EDS.7.22
23. Analyze data from tests to determine which characteristics of design can be combined into a new solution to better meet the criteria for success. EDS.7.23