Science 8/8D Grade Science Pacing Guide

Click **HERE** for access to the LPS version of teacher facing OpenSciEd resources (viewable by only LPS staff or by request).

Quarter	Unit Number	OpenSciEd Curriculum Topic
1	8.1	Contact Forces
2	8.2	Sound
3	8.3	Forces at a Distance
3	8.4	Earth in Space
4	8.5	Genetics
4	8.6	Natural Selection and Common Ancestry

Forces and Motion

1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. (MS-PS2-1/SC.8.1.1.A)
2. 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. (MS-PS2-2/SC.8.1.1.C)
3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. (MS-PS2-3/SC.8.1.1.D)
4. 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.(MS-PS3-1/SC.8.4.3.A)
5. 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. (MS-PS3-2/SC.8.4.3.B)

Sound and Light

1. Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. (MS-PS4-1/SC.8.2.2.A)
2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. (MS-PS4-2/SC.8.2.2.B)
3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. (MS-PS4-3/SC.8.2.2.C)

Solar System

1. Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. (MS-ESS1-1/SC.8.11.6.A)
2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. (MS-ESS1-2/SC.8.11.6.B)
3. Analyze and interpret data to determine scale properties of objects in the solar system. (MS-ESS1-3/SC.8.11.6.C)
4. Construct and present arguments using evidence to support the claim that gravitational interactions are attractive

and depend on the masses of interacting objects. (MS-PS2-4/SC.8.1.1.E)

5. 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. (MS-PS2-5/SC.8.1.1.F)

Genetics and Natural Selection

1. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. (MS-ESS1-4/SC.8.14.7.A)
2. Develop and use a model to describe why structural changes to genes (mutations) may result in harmful, beneficial, or neutral effects to the structure and function of the organism. (MS-LS3-1.m/SC.8.9.4.A)
3. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. (MS-LS4-1/SC.8.10.5.B)
4. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. (MS-LS4-2/SC.8.10.5.B)
5. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. (MS-LS4-4/SC.8.10.5.C)
6. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. (MS-LS4-5/SC.8.9.4.B)
7. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. (MS-LS4-6/SC.8.10.5.D)

Student Resources

Click HERE to link to the Grade 8 digital textbook - student resources.

The student text for Grade 8 has been created within CK-12, which is an Openly Licensed Educational Resource to match LPS science objectives.

The Openly Licensed Educational Resources from CK-12 are fully digital and interactive. They are housed on the CK-12 Platform and can be shared with students through Google Classroom. Each teacher will receive a print copy of the resource in addition to having it digitally - and students will access this book through their Chromebooks via Google Classroom.

There is an offline reader that can be downloaded to access the book without Internet.