New York Science

MS. Space Systems

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A Performance Expectations MS.ESS1.SS

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
2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. MS.ESS1.2
3. Analyze and interpret data to determine scale properties of objects in the solar system. MS.ESS1.3

B Science and Engineering Practices MS.SS.SEP

1. Developing and Using Models MS.SS.SEP.1
   a. Develop and use a model to describe phenomena. (MS-ESS1- 1),(MS-ESS1-2) MS.SS.SEP.1A
2. Analyzing and Interpreting Data MS.SS.SEP.2
   a. Analyze and interpret data to determine similarities and differences in findings. (MS-ESS1-3) MS.SS.SEP.2A

C Disciplinary Core Ideas MS.SS.DCI

1. ESS1.A: The Universe and Its Stars MS.SS.DCI.ESS1.A
   - a. Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models. (MS-ESS1-1) MS.SS.DCI.ESS1.A.1
   - b. Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe. (MS-ESS1-2) MS.SS.DCI.ESS1.A.2
2. ESS1.B: Earth and the Solar System MS.SS.DCI.ESS1.B
   - a. (NYSED) The solar system consists of the Sun and a collection of objects, including planets, their moons, comets, and asteroids that are held in orbit around the Sun by its gravitational pull on them. (MS-ESS1-2),(MS-ESS1-3) MS.SS.DCI.ESS1.B.1
   - b. This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short- term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year. (MS-ESS1-1) MS.SS.DCI.ESS1.B.2
   - c. The solar system appears to have formed from a disk of dust and gas, drawn together by gravity. (MS-ESS1-2) MS.SS.DCI.ESS1.B.3

D Crosscutting Concepts MS.SS.CC

1. Patterns MS.SS.CC.1
   - a. Patterns can be used to identify cause and effect relationships. (MS-ESS1-1) MS.SS.CC.1A
2. Scale, Proportion, and Quantity MS.SS.CC.2
   - a. Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-ESS1-3) MS.SS.CC.2A
3. Systems and System Models MS.SS.CC.3
   - a. Models can be used to represent systems and their interactions. (MS-ESS1-2) MS.SS.CC.3A
4. Interdependence of Science, Engineering, and Technology MS.SS.CC.4
   - a. Engineering advances have led to important discoveries in virtually every field of science and scientific discoveries have led to the development of entire industries and engineered systems. (MS- ESS1-3) MS.SS.CC.4A
5. Scientific Knowledge Assumes an Order and Consistency in Natural Systems MS.SS.CC.5
   - a. Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-ESS1-1),(MS-ESS1-2) MS.SS.CC.5A