New York State P-12 Science Learning Standards

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MS. Forces and Interactions

Students who demonstrate understanding can:

MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two m4 0 0 6 (v) 3 Tc 0.017 Tw (o

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MS. Energy

Students who demonstrate understanding can:

MS-PS3-1. 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. [Clarification Statement: Emphasis is on descriptive relationships between kinetic energy and mass separately from kinetic energy and speed. Examples could include riding a bicycle at different speeds, rolling different sizes of rocks downhill, and getting hit by a wiffle ball versus a tennis ball.] [Assessment Boundary: Assessment could include both qualitative and quantitative evaluations of kinetic energy.]

MS-PS3-2. 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. [Clarification Statement: Emphasis is on relative amounts of potential energy, not on calculations of potential energy. Examples of objects within systems interacting at varying distances could include: the Earth and either a roller coaster cart at varying positions on a hill or objects at varying heights on shelves, changing the direction/orientation of a magnet, and a balloon with static elec6 0 Td 9oul0.31 00.7(.1(n0 Tc 0 T6(a)]TJ -0.004 Tc)-7.3(i)-3.2(t)-1.6(h)-1.7( )0.7(sTc 0.013 T(o)1.5(

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MS. Waves and Electromagnetic Radiation

MS-PS4-1. Develop a model and use mathematical representations to describe waves that includes frequency, wavelength, and how the amplitude wavew11 ET 8.96 5

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MS. Interdependent Relationships in Ecosystems

Students who demonstrate understanding can:

MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms in a variety of ecosystems.

[Clarification Statement: Emphasis is on predicting patterns of interactions such as

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Connections to other DCIs in this grade-band: **MS.LS1.A** (MS-LS3-1); **MS.LS2.A** (MS-LS1-4),(MS-LS1-5); **MS.LS4.A** (MS-LS3-1)
Articulation to DCIs across grade-bands: **3.LS1.B** (MS-LS1-4),(MS-LS1-5); **3.LS3.A** (MS-LS1-5),(MS-LS3-1),(MS-LS3-2); **3.LS3.B** (MS-LS3-1),(MS-LS3-2); **HS.LS1.A** (MS-LS3-1); **HS.LS1.B** (MS-LS3-1),(MS-LS3-2); **HS.LS2.A** (MS-LS1-4),(MS-LS1-5); **HS.LS2.D** (MS-LS1-4); **HS.LS3.A** (MS-LS3-1),(MS-LS3-2); **HS.LS3.B** (MS-LS3-1),(MS-LS3-2),(MS-LS4-5); **HS.LS4.C** (MS-LS4-5)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

6-8.RST.1 Cite specific textual evidence to support analysis of science and

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MS. Space Systems

Students who demonstrate understanding can:

MS-ESS1-1. 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. [Clarification Statement: Examples of models could include physical, graphical, or conceptual models.]

MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. [Clarification Statement: Emphasis for the model im nuo9(,)2c 0 Tw 15.187 .10 ( )Tj 0.005 Tc -2.002 Tw 4.845 Td [(g)-6.7(r8.3(ra)27(vs)094(h)5(n

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MS. Human Impacts

Students who demonstrate understanding can:

MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. [Clarification Statement: Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards could include those resulting from interior processes (such as earthquakes and volcanic eruptions) and surface processes (such as mass wasting and tsunamis), or from severe weather events (such as blizzards, hurricanes, tornadoes, floods, and droughts -9.2(a)-14.3((179 0 Td.9.8(n)9.8(lTc 0 T231 0 TdTc 0 6.8(0 Td 74[0

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ESS1-4S(q)9-17.7(S2)]TJ 0 Tc 05 0 Td [(j -0.021 Tc 0.021 Tw 0.345 0 Td [(2)-9.5(),-28.4((M)-8.7(S)]TJ 0 Tc 0 Tw 2.879 0 Td (-)Tj -0.023 Tc 0.023 T

Mathematics –

MP.2	Reason abstractly and quantitatively. (MS-ESS3-2)
NY-6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (MS-ESS3-3),(MS-ESS3-4)
NY-7.RP.2	Recognize and represent proportional relationships between quantities. (MS-PS4-1)
NY-6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem. Understand that a variable can represent and unknown number, or, depending on the purpose at hand, any number in a specified set. (MS-ESS1-4),(MS-ESS2-2),(MS-ESS2-3)
NY-7.EE.4	Use variables to represent qu2e.6(a)9.8(n)8.3(d)20.5( )0.6(w)2.7(ri)6.9(t)25.6(e)-6.5( )17.9(e)-6.5(x)-3(p)20.25.6(e)-6.7(n)25(e)-6.7(n)552 0 Td2r(d)-6.7(741 0

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