New York Science

MS. History of Earth

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A Performance Expectations MS.ESS1.HE

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
2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying temporal and spatial scales MS.ESS2.2
3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. MS.ESS2.3

B Science and Engineering Practices MS.HE.SEP

1. Analyzing and Interpreting Data MS.HE.SEP.1
   a. Analyze and interpret data to provide evidence for phenomena. (MS-ESS2-3) MS.HE.SEP.1A
2. Constructing Explanations and Designing Solutions MS.HE.SEP.2
   a. Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (MS-ESS1-4),(MS-ESS2-2) MS.HE.SEP.2A
3. Engaging in Argument from Evidence MS.HE.SEP.3
   a. Science findings are frequently revised and/or reinterpreted based on new evidence. (MS-ESS2-3) MS.HE.SEP.3A

C Disciplinary Core Ideas MS.HE.DCI

1. ESS1.C: The History of Planet Earth MS.HE.DCI.ESS1.C
   a. The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale. (MS-ESS1-4) MS.HE.DCI.ESS1.C.1
   b. Tectonic processes continually generate new ocean sea floor at ridges and destroy old sea floor at trenches. (HS.ESS1.C GBE) (secondary to MS-ESS2-3) MS.HE.DCI.ESS1.C.2
2. ESS2.A: Earth's Materials and Systems MS.HE.DCI.ESS2.A
   a. The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS-ESS2-2) MS.HE.DCI.ESS2.A.1
3. ESS2.B: Plate Tectonics and Large-Scale System Interactions MS.HE.DCI.ESS2.B
   a. Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart. (MS-ESS2-3) MS.HE.DCI.ESS2.B.1
4. ESS2.C: The Roles of Water in Earth's Surface Processes MS.HE.DCI.ESS2.C
   a. Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations. (MS-ESS2-2) MS.HE.DCI.ESS2.C.1

D Crosscutting Concepts MS.HE.CC

1. Patterns MS.HE.CC.1
   a. Patterns in rates of change and other numerical relationships can provide information about natural systems. (MS-ESS2-3) MS.HE.CC.1A
2. Scale Proportion and Quantity MS.HE.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. (MSESS1-4),(MS-ESS2-2) MS.HE.CC.2A