

# NGSS Performance Expectation Analysis Placemat: High School



<u>Grade Level</u>	<u>DCI</u>	<u>Title of Standard</u>
HS	ESS1	Earth's Place in the Universe

P.E.: HS-ESS1-6

Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.

CS/AB

**Clarification Statement:** Emphasis is on using available evidence within the solar system to reconstruct the early history of Earth, which formed along with the rest of the solar system 4.6 billion years ago. Examples of evidence include the absolute ages of ancient materials (obtained by radiometric dating of meteorites, moon rocks, and Earth's oldest minerals), the sizes and compositions of solar system objects, and the impact cratering record of planetary surfaces.

**Connections to other DCIs at prior grade levels**

- MS.PS2.B (NGSS p.55)
- MS.ESS1.B (NGSS p.67)
- MS.ESS1.C (NGSS p.67)
- MS.ESS2.A (NGSS p.69)
- MS.ESS2.B (NGSS p.69)

SEP

**Constructing Explanations and Designing Solutions (FWp.67-71)**

Apply scientific reasoning to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.

DCI

**ESS1.C: The History of Planet Earth (FWp.177-179)**

Although active geologic processes, such as plate tectonics and erosion, have destroyed or altered most of the very early rock record on Earth, other objects in the solar system, such as lunar rocks, asteroids, and meteorites, have changed little over billions of years. Studying these objects can provide information about Earth's formation and early history.

CC

**Stability and Change (FWp.98-101)**

Much of science deals with constructing explanations of how things change and how they remain stable.

**Connections to other DCIs at later grade levels**

Connections to other DCIs across grade level : HS.PS2.A (NGSS p.83); HS.PS2.B (NGSS p.83)

**Reading CCSS**

**RST.11-12.1** Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

**RST.11-12.8** Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

**Writing CCSS**

**WHST.9-12.1** Write arguments focused on discipline-specific content.

**Speak/Listen CCSS**

**Mathematics CCSS**

**MP.2** Reason abstractly and quantitatively.

**HSN-Q.A.1** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

**HSN-Q.A.2** Define appropriate quantities for the purpose of descriptive modeling.

**HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

**HSF.IF.B.5** Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.

**HSS-ID.B.6** Represent data on two quantitative variables on a scatter plot, and describe how those variables are related.

Caption: