

Earth's Systems

LUNAR LEARNING & EARTHLY ROCKS

Total Unit Running Time: 35-45* minutes



FIELD TRIP: **Wildcat Den State Park**

Running Time: 4:53

NGSS: HS-ESS2-5

From inside of a large gorge, meet up with VVR Host, Steve Grubbs to learn about frost wedging and water erosion. From various vantages around this state park, students will learn and witness how the hydrologic and rock cycles interact to alter Earth's surfaces. For more information and facts about Wildcat Den State Park, visit <https://visitmuscatine.com/258/Wildcat-Den-State-Park>



INTERACTIVE EXPERIENCE: **Trickybeard's Challenge**

Running Time: Self-paced*

Deep in Trickybeard's fiery lair, treasure chests are arranged in a circular pattern and are color-coded. Each hue signifies a different element within the unit (e.g., field trip, teacher demo, etc.). Students will match the chests that identify a common relationship between the contents of the respective darker and lighter chests. A color legend is provided to keep students on track.



STORY 1: **Earth's Interior & Thermal Convection**

Running Time: 7:08

NGSS: HS-ESS2-3

Topics Covered

- Layers of Earth & their characteristics
- Causes of core heat
- Plate tectonics demonstrated

Assessment Answer Key & Critical Thinking Skills

1. C (BT2—comprehension)
2. A (BT4—analysis)
3. B (BT1—knowledge)
4. B (BT6—evaluation)
5. D (BT2—comprehension)



STORY 2: **Water & Rocks: Opposites Attract**

Running Time: 7:10

NGSS: HS-ESS2-5

Topics Covered

- H₂O's impact on Earth & surface processes
- Concepts of mass wasting, breccia, and pahoehoe

Assessment Answer Key & Critical Thinking Skills

1. C (BT3—application)
2. D (BT4—analysis)
3. D (BT1—knowledge)
4. B (BT4—analysis)
5. D (BT2—comprehension)



TEACHER DEMO: **Sustainable Forests With Wendy**

Running Time: 9:31

NGSS: HS-ESS2-6

Vocabulary: climax community, carbon fixation, primary productivity

Topics Covered

- Importance of carbon recycling
- Sustainable forestry

Assessment Answer Key & Critical Thinking Skills

1. B (BT2—comprehension)
2. B (BT1—knowledge)
3. C (BT4—analysis)
4. A (BT4—analysis)
5. D (BT5—synthesis)

RELATED STEM CAREERS: Logger, Environmental Engineer, Land Manager

Science Standards:

NGSS: HS-ESS2-3, HS-ESS2-5, HS-ESS2-6; **TEKS:** 112.34(c.12.E), 112.34(c.12.F), 112.35(c.10.A), 112.36(c.2.F), 112.36(c.2.G), 112.36(c.2.I), 112.36(c.9.A), 112.36(c.9.B), 112.36(c.9.C), 112.36(c.10.A), 112.36(c.10.B), 112.36(c.10.C), 112.36(c.10.D), 112.36(c.11.A), 112.37(c.3.E), 112.37(c.4.C), 112.37(c.4.D), 112.37(c.5.A), 112.37(c.5.C), 112.37(c.5.E), 112.37(c.5.F), 112.37(c.8.C), 112.37(c.9.E), 112.37(c.9.F); **CPALMS:** SC.912.E.6.1, SC.912.E.6.2, SC.912.E.6.3, SC.912.E.6.4, SC.912.E.7.1, SC.912.E.7.3, SC.912.L.17.10, SC.912.L.17.11, SC.912.L.17.12, SC.912.L.17.17, SC.912.L.17.20, SC.912.L.17.4, SC.912.N.1.6, SC.912.N.3.1, SC.912.N.3.5, SC.912.N.4.1, SC.912.N.4.2, SC.912.P.10.4, SC.912.P.10.20, SC.912.P.10.21,