

ENVIRONMENTAL LITERACY INFUSION IN SCIENCE & SOCIAL STUDIES CURRICULA

Standard 2: Interactions of Earth’s Systems

The student will analyze and apply the properties of systems thinking and modeling to the study of Earth’s systems.

A. EARTH SYSTEMS				
Indicator 1. Analyze and explain the interactions of earth’s systems.				
PK-2	3-5	6-8	9-12	Supporting Curriculum
<ul style="list-style-type: none"> Use examples of observations from places around the school and neighborhood to describe ways Earth materials can change. SCI 2(2)A1d 	<ul style="list-style-type: none"> Cite and describe the processes that cause rapid or slow changes in Earth’s surface. SCI 2(5)A2 Describe ways that the following processes contribute to changes always occurring to the Earth’s surface. <ul style="list-style-type: none"> Weathering Erosion Deposition SCI 2(5)A3c 	<ul style="list-style-type: none"> Cite evidence to demonstrate and explain that physical weathering and chemical weathering cause changes to Earth materials. SCI 2(6)A2 Cite evidence to explain the relationship between the hydrosphere and atmosphere. SCI 2(8)E1 	Describe how the transfer of energy and matter affect Earth’s systems. SCI 2.3.1 <ul style="list-style-type: none"> Explain how global conditions are affected when natural and human induced change alter the transfer of energy and matter. SCI 2.3.2 	English Language Arts RI(K-2)1, 2, 3,7 W(K-2)2,3 RI(3-5)1, 2, 3,7 W(3-5)2,3,8,9 RI(6-8)1, 2,7,8,9 WHST(6-8) 2,3,8,9 RI(9-10)1, 2, 7,8,9 WHST(9-10) 2,3,8,9 WHST(11-12) 2,3,8,9
B. SYSTEMS THINKING				
Indicator 1. Analyze, explain and apply the properties of systems thinking to earth systems interactions.				
PK-2	3-5	6-8	9-12	Supporting Curriculum
<ul style="list-style-type: none"> Practice identifying the parts of things and how one part connects to and affects another. SCI 1(PK-2)D1 Provide evidence from investigations to identify processes that can be used to change physical properties of materials. SCI 4(2)D 	<ul style="list-style-type: none"> Cite and describe the processes that cause rapid or slow changes in Earth’s surface. SCI 2(5)A2 	<ul style="list-style-type: none"> Cite evidence to demonstrate and explain that physical weathering and chemical weathering cause changes to Earth materials. SCI 4(8)B1 	<ul style="list-style-type: none"> The student will explain how the transfer of energy drives the rock cycle. SCI 2.4.2 	English Language Arts RI(K-2)1, 2, 3,7 W(K-2)2,3 RI(3-5)1, 2, 3,7 W(3-5)2,3,8,9 RI(6-8)1, 2,7,8,9 WHST(6-8) 2,3,8,9 RI(9-10)1, 2, 7,8,9 WHST(9-10) 2,3,8,9 WHST(11-12) 2,3,8,9

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Indicator 2. Use models and computer simulations to extend his/her understanding of scientific concepts.				
PK-2	3-5	6-8	9-12	Supporting Curriculum
<ul style="list-style-type: none"> Examine a variety of physical models and describe what they teach about the real things they are meant to resemble. SCI 1(PK-2)D3 	<ul style="list-style-type: none"> Examine and modify models and discuss their limitations. SCI 1(3-5)D3 	<ul style="list-style-type: none"> Analyze the value and the limitations of different types of models in explaining real things and processes. SCI 1(6-8)D3 	<ul style="list-style-type: none"> The student will use models and computer simulations to extend his/her understanding of scientific concepts. SCI 1.4.8 	<p>English Language Arts RST(6-8)1,3 RST(9-10)1,3 RST(11-12)1,3</p> <p>Mathematics SMP 1-8 PK-2G PK-2MD 3-5G 3-5MD 6-8G 6-8SP 8F A-SSE A-APR A-CED A-REI F-IF F-BF F-LE F-TF G-MG S-ID S-IC</p>

Science: PK-8: 6(5)B2a-c = Standard,(Grade),Topic, Indicator, Objectives
CLG: 1.1.1 = Goal, Expectation, Indicator
Math: SMP3 = Standards for Mathematical Practice, Standard
3.NBT = Grade, Content Domain, Standard
CTE: GTT(3.1)2-3 = Course Lesson Concepts

Social Studies: 1(PK-2)A1a,b = Standard, (Grade), Topic, Indicator, Objectives
Health: 3(5)D1a-c = Standard, (Grade), Topic, Indicator ,Objectives
English Language Arts: W.1.8 = Strand. Grade. Standard
Fine Arts: PK-8: Standard, (Grade), Indicator, Objectives
HS: Subject, Outcome, Expectation, Indicator

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KEYS

English Language Arts

RST: Reading, Science & Technical Subjects

W: Writing

WHST: Writing in History, Science, & Technical Subjects

CTE

GTT: Gateway To Technology, the middle school program

POE: Principles of Engineering, a foundation course in the high school engineering program

CEA: Civil Engineering and Architecture, a specialty course in the high school engineering program

MI: Medical Interventions, the third course in the biomedical sciences program

BI: Biomedical Innovation, the fourth and capstone course in the biomedical sciences program

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Mathematics

Standards for Mathematical Practices

- 1: Make sense of problems and persevere in solving them.
- 2: Reason abstractly and quantitatively.
- 3: Construct viable arguments and critique the reasoning of others.
- 4: Model with mathematics.
- 5: Use appropriate tools strategically.
- 6: Attend to precision.
- 7: Look for and make use of structure.
- 8: Look for and express regularity in repeated reasoning.

Content Standards

- OA: Operations and Algebraic Thinking (K-5)
- NBT: Number and Operations in Base Ten (PK-5)
- MD: Measurement and Data (PK-5)
- G: Geometry (PK-8)
- CC: Counting and Cardinality (PK-K)
- NF: Number and Operations-Fractions (3-5)
- RP: Ratio and Proportional Relationships (6-7)
- NS: The Number System (6-8)
- EE: Expressions and Equations (6-8)
- SP: Statistics and Probability (6-8)
- F: Functions (8)

High School

- N-RN: The Real Number System
- N-Q: Quantities
- N-CN: The Complex Number System
- N-VM: Vector and Matrix Quantities
- A-SSE: Seeing Structure in Expressions
- A-APR: Arithmetic with Polynomials and Rational Expressions
- A-CED: Creating Equations
- A-REI: Reasoning with Equations and Inequalities
- F-IF: Interpreting Functions
- F-BF: Building Functions
- F-LE: Linear, Quadratic and Exponential Models
- F-TF: Trigonometric Functions
- G-MG: Modeling with Geometry
- S-ID: Interpreting Categorical and Quantitative Data
- S-IC: Making Inferences and Justifying Conclusions

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