

A TEACHER'S GUIDE TO OUR ENVIRONMENTAL CURRICULUM

US Educational Standards Alignment

Teachers can use this document as a quick reference to understand how each lesson connects to key US educational standards—such as Common Core, state math standards, and national arts standards. By reviewing the listed objectives and aligned benchmarks for every lesson, educators can easily and confidently integrate these lessons into their existing curriculum.

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Educational Standards Alignment

Lesson 1: What Animals Live in the Rainforest?

Main lesson

Educational standards alignment:

- NGSS K-LS1-1: Use observations to describe patterns of what plants and animals need to survive.
- Common Core ELA-LITERACY.RI.K.1: With prompting and support, ask and answer questions about key details in a text.

Math tie-in (Common Core Math Standards)

Counting animal legs

- CCSS.MATH.CONTENT.K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.
- CCSS.MATH.CONTENT.K.CC.B.5: Count to answer “how many?” questions about objects arranged in a line, array, or circle, or scattered configuration.
- CCSS.MATH.CONTENT.1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing (applies if students compare animals’ legs).

Art tie-in (National Core Arts Standards)

Coloring rainforest animals

- NCAS: VA:Cr1.1.Ka: Engage in exploration and imaginative play with materials.
- NCAS: VA:Cr2.1.1a: Explore uses of materials and tools to create works of art or design.
- NCAS: VA:Re7.2.Ka: Describe what an image represents (students can talk about the animals they color).

Educational Standards Alignment

Lesson 2: Fruits from the Rainforest

Main lesson

Educational standards alignment:

- NGSS K-ESS3-1: Use a model to represent the relationship between the needs of different plants or animals and the places they live.
- Common Core ELA-LITERACY.SL.K.2: Confirm understanding of a text read aloud by asking and answering questions.

Math tie-in (Common Core Math Standards)

Sorting/classifying fruits; simple matching activities

- CCSS.MATH.CONTENT.K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
- CCSS.MATH.CONTENT.1.MD.A.1: Order three objects by length; compare lengths indirectly by using a third object (applies to comparing fruit sizes).

Art tie-in (National Core Arts Standards)

Fruit printmaking with bananas and oranges

- NCAS: VA:Cr2.1.Ka: Through experimentation, build skills in various media and approaches to artmaking.
- NCAS: VA:Cr2.2.1a: Demonstrate safe and proper procedures for using materials, tools, and equipment while making art.

Educational Standards Alignment

Lesson 3: People of the Rainforest

Main lesson

Educational standards alignment:

- NGSS K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment.
- C3 Framework: D2.Civ.2.K-2: Explain how people can work together to make decisions.

Math tie-in (Common Core Math Standards)

Rainforest resources game (simplified addition/subtraction)

- CCSS.MATH.CONTENT.1.OA.A.1: Use addition and subtraction within 20 in word problems.
- CCSS.MATH.CONTENT.2.OA.A.1: Use addition and subtraction within 100 to solve one- and two-step word problems.

Art tie-in (National Core Arts Standards)

My home in the rainforest (drawing activity)

- VA:Cr1.2.K-2a: Use observation and imagination to tell a story through art.
- VA:Re7.2.2a: Compare images representing the same subject.

Educational Standards Alignment

Lesson 1: The Layers of the Rainforest

Main lesson

Educational standards alignment:

- NGSS 3-LS4-3: Construct an argument with evidence that in a particular habitat, some organisms can survive well, some survive less well, and some cannot survive at all.
- Common Core ELA-LITERACY.RI.3.3: Describe the relationship between a series of concepts

Math tie-in (Common Core Math Standards)

Bar chart of animals per layer; bonus fraction/ratio questions

- CCSS.MATH.CONTENT.3.MD.B.3: Draw scaled picture graphs and bar graphs; solve one- and two-step “how many more/less” problems.
- CCSS.MATH.CONTENT.4.NF.B.3: Understand fractions as sums of unit fractions (used in bonus questions).
- CCSS.MATH.CONTENT.5.NF.A.2: Solve word problems involving addition/subtraction of fractions with unlike denominators.

Art tie-in (National Core Arts Standards)

Lift-the-flap rainforest poster (construction paper, collage)

- VA:Cr2.1.3a: Create personally satisfying artwork using a variety of media and approaches.
- VA:Cr2.3.5a: Identify, describe, and visually document places and/or objects of personal significance.

Educational Standards Alignment

Lesson 2: Farming in Harmony with Nature

Main lesson

Educational standards alignment:

- NGSS 5-ESS3-1: Obtain and combine information about ways communities protect Earth's resources.
- C3 Framework D2.Geo.8.3-5: Explain how human settlements and activities are influenced by the environment.

Math tie-in (Common Core Math Standards)

Planting calendar using sun cycles; pictographs of rainfall

- CCSS.MATH.CONTENT.3.MD.B.3: Represent data using scaled bar/picture graphs.
- CCSS.MATH.CONTENT.4.MD.B.4: Make line plots to display data sets with fractions; solve problems involving addition/subtraction of fractions using data.
- CCSS.MATH.CONTENT.5.MD.B.2: Make line plots with fractional data; interpret and solve fraction problems.

Art tie-in (National Core Arts Standards)

Rainforest-friendly product label design

- VA:Cr1.1.4a: Brainstorm multiple approaches to a creative art or design problem.
- VA:Cr2.1.5a: Experiment and develop skills in multiple art-making techniques through practice.

Educational Standards Alignment

Lesson 3: How Can We Protest the Rainforest?

Main lesson

Educational standards alignment:

- NGSS 3-ESS3-1: Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.
- Common Core ELA-LITERACY.W.4.1: Write opinion pieces supporting a point of view with reasons and information.

Math tie-in (Common Core Math Standards)

Classroom paper audit → calculate # trees used/year

- CCSS.MATH.CONTENT.3.OA.A.3: Use multiplication/division within 100 to solve word problems in equal groups.
- CCSS.MATH.CONTENT.4.OA.A.2: Multiply/divide to solve word problems involving multiplicative comparison.
- CCSS.MATH.CONTENT.5.NBT.B.7: Perform operations with decimals to hundredths (useful for “trees per student” calculations).

Art tie-in (National Core Arts Standards)

“Rainforest Protector” badge and pledge

- VA:Cr1.2.3a: Apply knowledge of available resources, tools, and technologies to investigate personal ideas.
- VA:Cr2.3.4a: Document, describe, and represent regional environments and personal experiences in art.

Educational Standards Alignment

Lesson 1: Endangered Rainforest Animals

Main lesson

Educational standards alignment:

- NGSS MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
- C3 Framework D2.Geo.5.6-8: Analyze the combinations of human and physical forces that shape ecosystems.

Math tie-in (Common Core Math Standards)

Line graph of population decline for a species over time

- CCSS.MATH.CONTENT.6.SP.B.4: Display numerical data in plots on a number line, including histograms and box plots.
- CCSS.MATH.CONTENT.7.RP.A.2: Recognize and represent proportional relationships between quantities (use in population trends).
- CCSS.MATH.CONTENT.8.F.B.4: Construct a function to model linear relationships (optional extension for population decline).

Art tie-in (National Core Arts Standards)

“Wanted” poster for an endangered species

- VA:Cr2.1.6a: Demonstrate openness in trying new ideas, materials, and methods.
- VA:Cr2.3.7a: Apply visual organization strategies to solve design challenges.
- VA:Re7.1.8a: Explain how works of art reflect and impact social and cultural values.

Educational Standards Alignment

Lesson 2: Traditional vs. Modern Farming

Main lesson

Educational standards alignment:

- NGSS MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- C3 Framework D2.Geo.4.6–8: Explain how cultural and environmental characteristics affect the distribution of people, goods, and ideas.

Math tie-in (Common Core Math Standards)

Bar graph comparing biodiversity in agroforestry vs. monoculture

- CCSS.MATH.CONTENT.6.SP.B.5: Summarize numerical data sets in relation to their context.
- CCSS.MATH.CONTENT.7.EE.B.3: Solve real-life multistep problems using rational numbers.
- CCSS.MATH.CONTENT.8.SP.A.1: Construct and interpret scatter plots to investigate associations.

Art tie-in (National Core Arts Standards)

Comic strip: farmer shifting from clear-cutting to agroforestry

- VA:Cr1.2.6a: Formulate an artistic investigation of personally relevant content.
- VA:Cr2.1.7a: Demonstrate persistence in developing skills with materials and methods.
- VA:Cn10.1.8a: Create art that reflects changing environments or societal values.

Educational Standards Alignment

Lesson 3: Rainforests and Climate Stability

Main lesson

Educational standards alignment:

- NGSS MS-ESS2-6: Develop and use a model to describe how unequal heating and rotation of Earth cause patterns of atmospheric and oceanic circulation.
- NGSS MS-ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures.

Math tie-in (Common Core Math Standards)

Graph carbon stored by different tree species; water cycle data activity

- CCSS.MATH.CONTENT.6.RP.A.3: Use ratio and rate reasoning to solve problems.
- CCSS.MATH.CONTENT.7.SP.C.7: Develop probability models and use them to find probabilities of events.
- CCSS.MATH.CONTENT.8.EE.B.5: Graph proportional relationships, interpreting unit rate as slope (applies to CO₂ stored vs. tree species).

Art tie-in (National Core Arts Standards)

Climate poster: Rainforests as “earth’s air conditioner”

- VA:Cr1.1.6a: Combine concepts collaboratively to generate innovative ideas.
- VA:Cr2.3.8a: Select, organize, and design images/text to clearly communicate a message.
- VA:Re8.1.7a: Interpret art to identify how it conveys meaning about global issues.

Educational Standards Alignment

Lesson 1: Understanding Rainforest Ecosystems

Main lesson

Educational standards alignment:

- NGSS HS-LS2-6: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms.
- Common Core Literacy in Science: RST.9-10.2: Determine the central ideas or conclusions of a text.

Math tie-in (Common Core Math Standards)

Graphing food web connections and trophic levels

- CCSS.MATH.CONTENT.HSF.IF.C.7: Graph functions expressed symbolically and show key features of the graph.
- CCSS.MATH.CONTENT.HSS.ID.A.1: Represent data with plots on the real number line (dot plots, histograms, box plots).
- CCSS.MATH.CONTENT.HSS.ID.B.6: Represent data on two quantitative variables; describe relationships.

Art tie-in (National Core Arts Standards)

Camouflage art challenge—create rainforest scene with hidden animals

- VA:Cr1.1.1a: Use multiple approaches to begin creative endeavors.
- VA:Cr2.1.11a: Through experimentation, practice, and persistence, demonstrate acquisition of skills and knowledge in art-making.
- VA:Re7.2.1a: Analyze how one's understanding of the world is affected by experiencing visual imagery.

Educational Standards Alignment

Lesson 2: Tropical Food from Farm to Shop

Main lesson

Educational standards alignment:

- NGSS HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
- C3 Framework D2.Eco.1.9-12: Analyze how incentives influence choices of individuals, governments, and businesses.

Math tie-in (Common Core Math Standards)

Compare soil carbon/yields in industrial vs. regenerative farms

- CCSS.MATH.CONTENT.HSS.ID.C.7: Interpret the slope and intercept of a linear model in the context of data.
- CCSS.MATH.CONTENT.HSS.IC.B.6: Evaluate reports based on data.
- CCSS.MATH.CONTENT.HSF.LE.A.1: Distinguish between linear, exponential, and other models.

Art tie-in (National Core Arts Standards)

Farms of the future storyboard

- VA:Cr1.2.1a: Shape an artistic investigation of an aspect of present-day life using multiple perspectives.
- VA:Cr3.1.1a: Engage in constructive critique with peers to refine artwork.
- VA:Cn10.1.1a: Document the process of developing ideas from early stages to final design.

Educational Standards Alignment

Lesson 3: Indigenous Peoples and the Rainforest

Main lesson

Educational standards alignment:

- NGSS HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, human populations, and natural hazards have influenced human activity.
- C3 Framework D2.Civ.14.9-12: Analyze historical, contemporary, and emerging means of changing societies, and promoting the common good.

Math tie-in (Common Core Math Standards)

Charting threats against land defenders over the past decade

- CCSS.MATH.CONTENT.HSS.ID.B.6: Represent data on two quantitative variables; describe associations.
- CCSS.MATH.CONTENT.HSS.ID.C.9: Distinguish between correlation and causation.
- CCSS.MATH.CONTENT.HSS.IC.A.1: Understand statistics as a process for making inferences.

Art tie-in (National Core Arts Standards)

Student murals/posters advocating for land rights, equity, and cultural heritage

- VA:Cr1.1.IIIa: Visualize and hypothesize to generate plans for creating art/design that communicates complex meaning.
- VA:Cr2.1.IIIa: Experiment, plan, and make multiple works of art that explore a theme.
- VA:Re9.1.IIIa: Determine the relevance of criteria used by others to evaluate a work of art.

Educational Standards Alignment

Lesson 1: Why Tropical Rainforests Are Important

Main lesson

Educational Standards Alignment:

- NGSS HS-ESS2-6: Develop a quantitative model to describe cycling of carbon among Earth's systems.
- AP Environmental Science Topic 1.4: Ecosystem Services

Math tie-in (Common Core Math Standards)

Graph tree loss over time across continents (satellite data)

- CCSS.MATH.CONTENT.HSS.ID.C.7: Interpret slope and intercept of linear models.
- CCSS.MATH.CONTENT.HSS.IC.B.6: Evaluate reports based on data.
- CCSS.MATH.CONTENT.HSF.LE.A.1: Model relationships with linear, exponential, or other functions.

Art tie-in (National Core Arts Standards)

Infographics showing “invisible services” (oxygen, rainfall, biodiversity)

- VA:Cr2.1.IIIa: Experiment with materials, tools, and technologies to make works of art.
- VA:Cr2.3.IIIa: Demonstrate awareness of ethical implications of making and distributing creative work.
- VA:Cn11.1.IIIa: Analyze and create art that addresses global issues.

Educational Standards Alignment

Lesson 2: The History of Farming and its Future

Main lesson

Educational Standards Alignment:

- NGSS HS-ESS3-3: Create a computational simulation to illustrate relationships among management of natural resources, biodiversity, and sustainability.
- C3 Framework D2.His.16.9–12: Integrate evidence from multiple relevant historical sources and interpretations.

Math tie-in (Common Core Math Standards)

Compare soil carbon/yields in industrial vs. regenerative farms

- CCSS.MATH.CONTENT.HSS.ID.B.6: Represent data on two quantitative variables and describe associations.
- CCSS.MATH.CONTENT.HSS.ID.C.9: Distinguish between correlation and causation.
- CCSS.MATH.CONTENT.HSF.IF.C.7: Graph functions and show key features.

Art tie-in (National Core Arts Standards)

“Farms of the Future” storyboard or creative concept design

- VA:Cr1.2.IIIa: Choose from a range of materials and methods of traditional and contemporary practices.
- VA:Cr3.1.IIIa: Reflect on and evaluate the effectiveness of one’s own work and others’ work.
- VA:Cn10.1.IIIa: Synthesize knowledge of social, cultural, and historical context to inspire art-making.

Educational Standards Alignment

Lesson 3: International Environmental Policy

Main lesson

Educational Standards Alignment:

- NGSS HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
- C3 Framework D4.7.9-12: Assess options for individual and collective action to address global problems.

Math tie-in (Common Core Math Standards)

Allocate \$10 million to different policies; compare impacts

- CCSS.MATH.CONTENT.HSA.CED.A.3: Represent constraints by equations or inequalities, and interpret solutions.
- CCSS.MATH.CONTENT.HSM.CT.A.1: Interpret expressions for functions in terms of the situation.
- CCSS.MATH.CONTENT.HSS.MD.A.1: Define a random variable for a quantity of interest and graph probability distributions.

Art tie-in (National Core Arts Standards)

Visual campaign poster for community-based rainforest restoration

- VA:Cr1.1.IIIa: Visualize and generate plans for art that communicates complex meaning.
- VA:Cr2.1.IIIa: Experiment, plan, and make multiple works of art exploring a theme.
- VA:Re9.1.IIIa: Apply criteria to evaluate artwork with respect to global impact.