



Environmental Literacy Unit Plan

Grade 1: Earth and Natural Science

Title: *Patterns and Growth*

Authors: **Vanessa Ford**, Maury; **Emmett Burt**, Tubman

NGSS Unit Plan

Title of Unit	Patterns and Growth	Grade Level	1
Curricular Themes	<i>Life Science</i> <i>Earth and Space Science</i>	Time Frame	3 Parts 21 Lessons
Essential Question(s) to be Addressed	<p>How do natural patterns affect living things?</p> <p>How do plants and animals change over the course of their lives?</p>		

Unit Overview

Performance expectations in this unit help students understand how plants and animals meet their needs so they can survive and grow and parents and their children are similar and different. Additionally, students will understand how objects in the sky move.

This unit should take approximately

Description of the 5E

Community connection/sustainability initiative

Background Information and Context

NGSS Performance Expectations: Students who demonstrate understanding can:

- **1-ESS1-1.** Use observations of the sun, moon, and star to describe patterns that can be predicted.
- **1-ESS1-2.** Make observations at different times of year to relate the amount of daylight to the time of year.
- **1-LS3-1.** Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
- **1-LS1-2.** Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.
- **1-LS1-1.** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs*
- **K-2 ETS1-1.** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Applicable Common Core Standards (CCSS ELA and CCSS Math)

ELA/Literacy

- **W.1.7.** Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-ESS1-1, 1-ESS1-2) (1-LS1-1, 1-LS3-1)



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- **W.1.8.** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-ESS1-1, 1-ESS1-2) (1-LS3-1)
- **RI.1.1.** Ask and answer questions about key details in a text. (1-LS1-2, 1-LS3-1)
- **RI.1.10.** With prompting and support, read informational texts appropriately complex for grade 1. (1-LS1-2)
- **RI.1.2.** Identify the main topic and retell key details of a text. (1-LS1-2)

Mathematics

- **1.MD.C.4.** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1-ESS1-2)
- **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, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (1-ESS1-2)
- **MP.2.** Reason abstractly and quantitatively. (1-ESS1-2) (1-LS3-1)
- **MP.4.** Model with mathematics. (1-ESS1-2)
- **MP.5.** Use appropriate tools strategically. (1-ESS1-2) (1-LS3-1)
- **1.MD.A.1.** Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-LS3-1)
- **1.NBT.B.3.** Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. (1-LS1-2)
- **1.NBT.C.4.** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. (1-LS1-2)
- **1.NBT.C.5.** Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)
- **1.NBT.C.6.** Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (1-LS1-2)

Prior Understandings

Prior to this unit, student should be able to:

- Use observations to describe patterns.
- Understand basic needs of plants and animals for survival.
- Basic plant/animal lifecycles (not including metamorphosis).



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Students may not yet know:

- What plants and animals need to survive as it relates to *
- Reasons behind why sunlight is different at different points in the day
- Make connection between patterns (as studied in math class for example) and patterns that exist in the natural world. This may have to be explicitly noted.

Community Connections: Sustainability Initiatives

- Field experience at the U.S. Botanic Gardens including partnership with their education department.
- Field experience at the National Zoo to compare younger and older animals.
- Field Experience at National Air and Space Museum including planetarium and/or observatory to support observations of natural patterns.
- Astrobiologist classroom visit?

Disciplinary Core Ideas: (Students will know...)

- **ESS1.A. The Universe and Its Stars.** Patterns of the motion of the sun, moon and stars in the sky can be observed, described, and predicted.
- **ESS1.B. Earth and the Solar System.** Seasonal patterns of sunrise and sunset can be observed, described, and predicted
- **LS1.A. Structure and Function.** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find and take in food, water and air. Plants also have different parts (roots, stems, leaves flowers, fruits) that help them survive.
- **LS1.B. Growth and Development of Organisms.** Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help offspring survive.
- **LS1.D. Information Processing.** Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
- **LS3.A. Inheritance of Traits.** Young animals are very much, but not exactly like their parents. Plants also are very much but not exactly like their parents.
- **LS3.B. Variation of Traits.** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.



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Science and Engineering Practices: (Students will...)

Planning and Carrying Out Observations

- Students will make observations (firsthand or from media) to collect data that can be used to make comparisons.
- Use materials to design a device that solves a specific problem or a solution to a specific problem.

Obtaining, Evaluating, and Communicating Information

- Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world.

Analyzing and Interpreting Data

- Students will share observations and analyzing data they collected and recorded.
- Students will use observations to describe patterns in the natural world in order to answer scientific questions.

Connections to Nature of Science

- Scientists look for patterns and order when making observations about the world.

Constructing Explanations and Designing Solutions

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
- Use materials to design a device that solves a specific problem or a solution to a specific problem.

Scientific Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world.



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Crosscutting Concepts: (Students will connect...)

Patterns:

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2, 1-LS3-1)

Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (1.LS1-1)

Influence of Science, Engineering, and Technology on Society and the Natural World

- Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes natural events happen today as they happened in the past.
- Many events are repeated.

Performance Task

Performance Task Description

Students will compile observations and data collected in journals throughout the year and will work in teams to create a “What to Expect” welcome video or play for a botanical garden or zoo. Each group will pick one plant or animal to showcase and include information about its survival behaviors, external features, characteristics of young and adult versions. The video/play will also include information showing knowledge about the patterns of the movement of sun and moon or of the seasons.

While this is written with specific reference to the National Zoo or the U.S. Botanic Garden, this could be applied to any other field trip, or to a fictional place.

G-R-A-S-P

Goal	Students will work in teams and use observations and data collected throughout the year to create a “What to Expect” welcome video for visitors to a botanical garden or zoo specific to a single plant or animal.
Role	Students are “hired” to create a welcome video or play for a local destination (the National Zoo or the U.S. Botanic Gardens). They are asked to observe an animal or plant of choice in order to provide zoo or botanical garden



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	visitors with more information about what to expect on their visit. A letter will be used to invite students to this task.
Audience	National Zoo or U.S. Botanic Gardens visitors.
Situation	Visitors to the National Zoo or the U.S. Botanical Gardens are complaining that they are missing out on seeing some of their favorite plants and animals, or are seeing them in a different form (for example, they wanted to see baby animals and there were only grown animals, or they wanted to see the Cocoa fruit and there were only flowers) . Given that these are specific interests that are dependent on growth/seasons, students are asked to provide more information about what to expect during different times of day or year so visitors can plan.
Product/ Performance	Product is the “What to expect during your visit to the _____” video or play. Final products can be in video or play form.
Other Evidence	<p>Below are the evidence statements to guide students and teacher in completion of the performance task.</p> <p>DCI Evidence Statements: <i>Video or play includes:</i></p> <ul style="list-style-type: none"> • Information about the position of the sun or moon appropriate to the time of day noted (i.e., if it is night, the moon is present, if observations happen all day and show animal/plant at different times of day, the sun is in different parts of the sky). • The time of year and discusses the amount of daylight in some way related to the visit (i.e., we could be out from early morning because it was light out... or we could be out later in the evening because it was still light out). • Student drawn diagrams that show at least 3 external features of the chosen plant/animal that it needs for survival. • Reference to at least one behavior that helps it survive (flowers open for sun, animal may hibernate). • A diagram or verbal information comparing the young plant or animal to the adult parent. • Information about the plant or animal that discusses what may be seen in different seasons. <p>CCC Evidence Statements: <i>Video or play includes:</i></p> <ul style="list-style-type: none"> • Information on how the sun or moon moves in a predictable pattern across the sky during a full day or night. • Information and/or diagram to show during video/play of young plant or



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animal showing life cycle pattern (e.g., small to large).

Practice Evidence Statements:

Students will:

- Apply knowledge gained through their year-long data collection and observations to this video.
- Use their data about sun movement and relative time of day in their presentation (i.e., if it is winter, the booklet would recommend not coming after 5pm as it would be darker).

Learning Plan/Instructional Sequence

UNIT OVERVIEW:

This unit has performance expectations that build throughout the entire school year. The pacing is suggested as a way to ensure authentic student observations of phenomena over time.

This unit is divided into three parts based on the need to observe and collect data over a longer period of time. The units are roughly aligned so that students can gain authentic understanding of the concepts through firsthand observation that follows seasonal patterns (in the sky and living things). Part One focuses mostly to engage students and explore through data collection. Part Two continues with this collection but allows students to go through a cycle of exploration and explaining the concepts with field trips and experiences. In addition, students will begin using media and text during this unit. Finally in Part Three, students will use data collected and observed throughout the year to make connections and elaborate on their understanding. While evaluations are ongoing throughout the year, a final, summative evaluation can occur following Unit 3 as a way to synthesize the year of learning.

Scientific Practices and Common Core Connections are denoted only by their headings, below. Refer to the initial page of the document for explanation of what this looks like at the first grade level.

FALL	PART ONE : Patterns and Cycles in the Sky and Life			
Lesson Title	5 E Stage	DCI	Scientific Practices	Common Core Connections
1. Unit Intro Lesson	Engage	<p>ESS1.1 Patterns of the motion of the sun, moon and stars in the sky can be observed, described, and predicted.</p> <p>ESS1.2 Make observations at different times of year to relate the amount of daylight to the</p>	<p>Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer</p>	<p>W.1.7</p> <p>W.1.8</p>



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		time of year.	scientific questions.	
2. Patterns in the Sky and Living Things	Engage	<p>ESS1.a: Patterns of the motion of the sun, moon and stars in the sky can be observed, described, and predicted.</p> <p>ESS1.B: Seasonal patterns of a sunrise and sunset can be observed, described, and predicted.</p> <p>LS3.B Variation of Traits: Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.</p>	<p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems: Science Assumes natural events happen today as they happened in the past.</p> <p>Many events are repeated.</p>	<p>W.1.7 W.1.8 MP.4 MP.5</p>
3-5. Explore Patterns in the Sky and Living Things (Data collection of ESS1-1 and ESS1-2 will continue throughout the year)	Explore	<p>ESS1.a: Patterns of the motion of the sun, moon and stars in the sky can be observed, described, and predicted.</p> <p>ESS1.B: Seasonal patterns of a sunrise and sunset can be observed, described, and predicted.</p> <p>LS3.B Variation of Traits: Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.</p>	<p>Analyzing and Interpreting Data</p> <p>Scientific Knowledge is Based on Empirical Evidence: Scientists look for patterns and order when making observations about the world.</p>	

PART TWO: Exploring and Explaining Our Natural World				
Lesson Title	5 E Stage	PE/DCI	Scientific Practices	Common Core Connections
6.	Explore	1-LS1-2: Read texts and use media to determine patterns in behavior of parents and	Obtaining, Evaluating and Communicating	RI.1.1 RI.1.2 RI.1.10



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		<p>offspring that help offspring survive.</p> <p>LS1.B Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring survive.</p>	<p>Information: Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world.</p> <p>Scientific Knowledge is Based on Empirical Evidence</p>	
7.	Explore	<p>LS1.A All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.</p>	<p>Obtaining, Evaluating and Communicating Information</p>	
8.	Explain	<p>LS1.B Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring survive.</p> <p>LS1.B All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers,</p>		



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		fruits) that help them survive and grow.		
9. Elaborate to connect plant structure and function to human made design.	Elaborate	1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow and meet their needs.*	Influence of Engineering, Technology and Science on Society and the Natural World: Every human-made product is designed by applying some knowledge of the natural worlds and is built by using natural materials.	
PART 3.	CONNECTING OUR NATURAL WORLD AND LIVING WORLDS			
10-15	Elaborate	1-ESS1-1 1-ESS1-2 1-LS1-1 1-LS1-1 1-LS3-1	Patterns Structure and Function Scientific Knowledge Assumes an Order and Consistency in Natural Systems	
16-18	Evaluate	Performance Task		

INSTRUCTIONAL SEQUENCE DESCRIPTION BY PART/NARRATIVE

Overview of Part 1: Fall

*Note: This unit is divided into three parts. In Part 1, students will begin a practice of data collection and observation that will continue throughout the other two parts. This unit should be started in the fall and will consist of a number of activities where students will observe the sky at day and night and record their observations. The purpose of this unit is to set a plan for observation and data collecting that will ground student knowledge for exploring these concepts further in Part Two and Part Three. Part One may be the shortest of the three parts but is critical to making connections about patterns. Lesson activities during this portion of study could include:

- A sun journal noting where the sun is at various times of day.
- A moon journal noting where the moon is at various times of night.



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- Nature walks around school property to determine where data collection places will be.
- Creating of a data collection plan for sun, moon and star patterns.

In this unit, teachers will determine appropriate data collection places, construct a model sun and moon journal for students, direct student attention to making scientific observations (rather than inferences).

In this unit, students will note where the sun and moon is at various times of day and night in their journals, participate in a nature walk and collect data for sun, moon, and star patterns. (also plants and animals?)

Overview of Part 2: Winter-Early Spring

This part of the unit will focus on exploring and explaining the natural world. Students will delve more deeply into the ways plants and animal are like their parents, behaviors and external features that support survival. Students will continue collecting data about patterns in the sky and use text and media to further explore and explain this phenomenon as well as begin to relate it to their learning about plants and animals. During this portion of the unit, classes are encouraged to go on field trips that support the content. Visits to and with experts at The National Zoo, The Aquatic Resource Center, The Anacostia Watershed Society and Living Classrooms are all options that will support exploring and explaining the performance expectations in this unit. Specific lesson activities in this unit could include:

- Going on a scavenger hunt around the neighborhood looking for specific examples of plants that looks like, but are not exactly like others.
- Using a time lapse camera in an outside garden to show movement of shadows and sun throughout the day and/or movement of plants throughout the day
- Using a time lapse camera near a class pet to show how its behaviors change throughout the day
- Completing shadow drawings at different times of day
- Using age appropriate text and media specific to the content.
- Bringing in a biologist or environmental engineer who works with the content.
- Complete research on specific animals or plants (in groups and with guidance)

In this unit teachers will...

In this unit parents will....

Overview of Part 3: Early Spring- June

This unit will be where students elaborate on their learning, making clear connections between the natural world and the living world. They will conclude their data collection about patterns in the sky and they will use this data, along with the content learned in Part Two. Students will apply this knowledge in an engineering design project (K-2ETS1-1) and will be evaluated on their learning through the year on the performance task. Each of these will take a series of lessons to complete. More detailed information below.

In this unit teacher will...

In this unit students will...



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Specific Guidance around Engineering Design project

The Engineering Design standard **K-2ETS1-1** (*Ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool*) allows students to apply information gathered through Part I and Part 2 of this unit to problems they observe over time. For example, students may notice that a part of the garden doesn't get sun because of the placement of the building. They could work to design a solution to this problem. If students were interested in the way a baby's cry ensures its mother pays attention, they could create a tool that helps a parent hear the child from a longer distance. (This also has connection to 1st grade NGSS Performance Expectations 1-PS4-1, 1-PS4-4).

Specific guidance around Performance Task, including Universal Access and Rubric

Example of a student explanation of the performance task:

Students can be introduced to this performance task in a variety of ways. The teacher could have another adult create a video asking students to complete the task, could use a letter (see below) or explain expectations based solely on the rubric.

Sample Letter

Dear Zoologists/Biologists/Students,

Visitors to the National Zoo/U.S. Botanic Gardens have been asking for more information on what to expect when they visit our locations. They have been noting that sometimes when they come to see animals or plants, they are disappointed. For example, one recent complaint was that a family brought their children to see the fruit that produced cocoa beans but that only the flowers on the tree were visible!

You know from your visit to the Botanic Gardens why this is! It would have been helpful if that family could have seen what you already know, that the flowers are visible for a portion of the year and then, over the rest of the year, they grow fruit. They could have visited at another time of year. Another complaint coming from the zoo was that a family wanted to see a heron hunt for its food but all it did was stand still the whole time! As you know from your trip on the Anacostia River, and from reading "Henry the Impatient Heron" standing still is one behavior herons use to catch their prey. It would have been very helpful for us to have a booklet to hand that family so they could come at a different time of day or stop back later to see a different action.

We are asking that you, and your team of biologists, to create welcome videos to our site sharing your knowledge of seasons, patterns of the sun and moon, young and adult plants and animals that will help our visitors know what to expect! Information about the video is attached and we look forward to your submission.

Sincerely,
Environmental Expert Who Needs
Help



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RUBRIC OPTION ONE: HOLISTIC RUBRIC

	1	2	3	4
Information about position of the sun, moon, stars and/or seasons	Group video//play doesn't include any information about the movement patterns of the sun/moon or seasonal information	Group video//play includes less than two references to movement patterns of the sun/moon or seasonal information	Group video//play includes at least two references to movement patterns of the sun/moon or seasonal information	Group video//play includes more than two references to movement patterns of the sun/moon or seasonal information
Plant or Animal External Features	Group video/play notes doesn't include features that the plant or animal has for survival	Group video/play has one or two external features that the plant or animal has for survival	Group video/play notes at least 3 external features that the plant or animal has for survival	Group video/play notes more than 3 external features that the plant or animal has for survival
Behaviors	Plant or animal does not show a survival behavior	Group video/play notes at one behavior that the plant or animal exhibits for survival	Group video/play notes at least two behaviors that the plant or animal exhibits for survival	Group video/play notes more than one behavior that the plant or animal exhibits for survival and connects this to patterns of the sun, moon or seasons
Young vs. Grown/Adult	Group video/play does not include a behavior the plant or animal exhibits for survival	Group video/play notes one behavior that the plant or animal exhibits for survival	Group video/play notes at least two behaviors that the plant or animal exhibits for survival	Group video/play notes more than two behaviors that the plant or animal exhibits for survival
Collaboration	One or two of the members of the group lead and complete the project.	Most members of the group participate in a portion of the project (diagram,	All members of the group participate in a portion of the project (All members of the group participate in a portion of the project (diagram,



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		speaking, writing script, videoing, acting etc...)	diagram, speaking, writing script, videoing, acting etc...)	speaking, writing script, videoing, acting etc...) Students resolve any conflict, share ideas and listen actively independent of teacher intervention.
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RUBRIC OPTION 2: CHECKLIST (based on evidence statements)

Each group will create a video or play ensuring that the following components are included:

- _____ Information about the position of the sun or moon appropriate to the time of day noted, i.e., if it is night, the moon is present; if observations happen all day and show animal/plant at different times of day, the sun is in different parts of the sky.
- _____ The time of year and discussion of the amount of daylight in some way related to the visit, i.e., we could be out from early morning because it was light out; or we could be out later in the evening because it was still light out.
- _____ Student-drawn diagrams that show at least 3 external features of the chosen plant/animal that it needs for survival.
- _____ Reference to at least one behavior that helps it survive (flowers open for sun, animal may hibernate).
- _____ A diagram or verbal information comparing the young plant or animal to the adult parent.
- _____ Information about the plant or animal that discusses what may be seen in different seasons.
- _____ Information on how the sun or moon moves in a predictable pattern across the sky during a full day or night.
- _____ Information and/or diagram to show during video/play of young plant or animal showing life cycle pattern (small to large, etc.).
- _____ Apply knowledge gained through their year-long data collection and observations to this video.
- _____ Use their data about sun movement and relative time of day in their presentation (i.e.,: if it is winter, the booklet would recommend not coming after 5pm as it would be darker, etc.).
- _____ Students in each group collaborate, solve problems and participate together.



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Universal Access

Supporting English Language Learners

<p><u>Reading , Writing, or Speaking Activity</u> <i>(listed in Learning and Instructional Sequence)</i></p>	<p><u>Supports for Emerging learners?</u></p>	<p><u>Supports for Expanding learners?</u></p>	<p><u>Supports for Bridging learners?</u></p>
<p>LISTENING</p>	<ul style="list-style-type: none"> Classify pictures of young animals Match pictures of young animals with pictures of grown animals Sequence pictures of sun in the sky over the course of a day <p>Directions should be given orally</p>	<ul style="list-style-type: none"> Compare/contrast animals or plants according to their physical attributes based on the teacher verbal direction Locate patterns of the sun movement or plant/animal structures and behaviors based on teacher oral direction. <p>Directions should be given orally with text supports</p>	<p>Directions should be given orally and in text form</p>
<p>SPEAKING (current information here is what students should be able to do. This still needs to translate into supports!)</p>	<ul style="list-style-type: none"> Express feeling Retell simple stories from pictures Sort and explain groups of objects Make predictions Distinguish features of content-based phenomena 	<ul style="list-style-type: none"> Ask questions for social and academic purposes Participate in class discussions on familiar social and academic topics Retell stories with detail Sequence stories with transitions 	<ul style="list-style-type: none"> Use academic vocabulary in class discussions Express and support ideas with examples Give oral presentations on content-based topics approaching grade level Initiate conversation with peers and teachers
<p>WRITING</p>			



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Supporting Struggling Learners

<u>Activity</u>	<u>Supports for Students who need <i>Minor Support</i></u>	<u>Supports for Students who Need <i>Intensive Support</i></u>
Performance Task	<ul style="list-style-type: none"> • Script outline for play/video provided • Pictures of plant or animal to use a reference for diagrams 	<ul style="list-style-type: none"> • Sample detailed script provided or play/video for students to fill out only “fill in the blank” spaces for students to put information about animal or plant • Diagram model provided or picture of the actual plant and animal chosen with support labeling

Supporting Advanced Learners

<u>Activity</u>	<u>Extensions for Advanced Students</u>
Performance Task	<ul style="list-style-type: none"> • Create a written brochure to accompany the video/play. • Write a letter to the education lead at the location of choice explaining why their video would be helpful. • Research more information about the plant or animal of choice and include this information as an addition to the video.

Connecting to the Core: NGSS Aligned Performance Task

Each of these connections should be completed during the year throughout each of the portions of the unit as support for the final Performance Task. In the Performance Task, students will be applying their knowledge and can use any prior research, data, observation journals etc.

(THIS NEEDS TO BE BUILT OUT FURTHER)



Environmental Literacy Unit Plan

Grade 1: Earth and Natural Science

Title: *Patterns and Growth*

Authors: **Vanessa Ford**, Maury; **Emmett Burt**, Tubman

ELA Connections (*Reading, Writing or Speaking Activity*) listed in *Learning and Instructional Sequence*

- **RI.1.1 and RI.1.10.** Students will read books about animals and plants. Students will listen to read aloud about animal and plants how they start from baby to adult. Students will watch videos on animals' survival. Students will go outside and identify sun and moon and how they rotate to produce day and night and relate it to a pattern.
- **W.1.7.** Students will write a short poem or story about animals and plants. Students will write a 4 sentence sequence of life cycle of plants and animals.
- **W.1.8.** Students will share writings orally and discuss similarities and differences. Students will discuss different things animals need to survive. Students will then tell how this is related to a pattern.

Math Connections (*Listed in Learning and Instructional Sequence*)

- **1MD.A.1** Students will list and draw objects in order by lengths. They will compare the lengths and see if any pattern exists.
- **1NBT.B.3** Students will compare two digit numbers based on meanings of the tens and one digit. Student will see that this is a pattern.
- Students will add within 100 including adding a two digit and one digit number.

Material Description	Cost/Fee Description	Recommended Source
construction paper, scissors, crayons, pencils	\$0	school
journals	\$0	school
Pictures of animals and/or plants for student reference	\$0	Google search, from text books or from literature from partnerships



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Resource Description	Cost/ Fee Description	Recommended Citation, Contact or Link
Anacostia Watershed Society	Generally grant-funded partnership with class visits and aligned field trips	Ariel Trahan atrahan@aws.org www.anacostiaws.org
DDOE Aquatic Resources Education Center	Free museum and aquarium with environmental literacy aligned hands-on activities	http://ddoe.dc.gov/arec includes contact
Moon, Sun video	\$10- 15.00 or free if school has access to Internet	MOON http://www.morehead.unc.edu/Shows/EMS/seasons.htm http://spaceplace.nasa.gov/seasons/en/ http://www.sumanasinc.com/webcontent/animations/content/moonphase.html https://www.youtube.com/watch?v=i235Y2HRksA https://www.youtube.com/watch?v=0vXWXqGmPCK https://www.youtube.com/watch?v=FhokvJZFURg https://www.youtube.com/watch?v=79M2ISVZiY4 (For the Teacher) http://astro.unl.edu/naap/lps/animations/lps.swf SUN https://www.youtube.com/watch?v=t-kzDR93bqw http://esminfo.prenhall.com/science/geoanimations/animations/01_EarthSun_E2.html
plant videos	Internet access	Internet, school Germinating seeds https://www.youtube.com/watch?v=pB4ASdELBbQ https://www.youtube.com/watch?v=DzxM4E51_sc Plants grow towards the light https://www.youtube.com/watch?v=G2RuVxdr0mA https://www.youtube.com/watch?v=ZK4LjURtaDw https://www.youtube.com/watch?v=tLYOBi5gaVs https://www.youtube.com/watch?v=zctM_TWg5Ik NOVA https://www.youtube.com/watch?v=ILmM1N754vU

FIELD EXPERIENCES INFORMATION

LOCATION	ACCESSIBILITY	COST	CHAPERONES
US Botanic Garden	Bus, Metro, Charter	Free	1 adult/ 7 students
National Arboretum	Charter Bus	Free	1 adult/ 7 students
Rocklands Farm, MD	Charter Bus	\$400	1 adult/ 7 students