Outdoor Education Curriculum Summary

It is the goal of Alliance Redwoods to provide students with a positive and interdisciplinary educational experience through interactions with each other and the outside world. Below is a summary of the different courses we offer. Following this summary are the appropriate standards for each course.

Course Description

Arrival and Departure Activities
These classes are designed for either the Arrival Day or Departure Day. The length of time allotted for each class is dependent upon the time the school arrives at either Alliance Redwoods or the field trip location.

Armstrong Woods
Description: Located 10 miles from Alliance Redwoods, Armstrong Woods has become a popular site for people to walk among some of the tallest and oldest redwoods in this part of California. The students will explore the ecosystem of this old growth redwood grove and learn various aspects of redwood ecology, the difference between Armstrong Woods and Alliance Redwoods, and visit Col. Armstrong and Parson Jones, the two oldest and tallest trees in Armstrong Woods.

Objective: The students will explore the natural redwood grove at Armstrong Woods.
The students will explore and discuss basic redwood ecology.
The students will explore differences between Armstrong Woods and Alliance Redwoods.

Goat Rock
Description: Near the mouth of the Russian River, Goat Rock is one of the most popular beaches in Sonoma County. For this field trip, students will have an opportunity to explore the beach in search of different birds (Pelicans, Sand Pipers, Gulls, etc.) and marine mammals (Seals, Sea Lions, etc.) while learning about beach formation, tides, and the relationship between the Russian River and Pacific Ocean.

Objective: The students will explore the beach for marine animals.
The students will explore the beach for other signs of life and interesting objects.
The students will make scientific observations of the creatures and objects they discover.

Salmon Creek
Description: Salmon Creek is a large sandy beach that provides students with an opportunity to have fun playing games on the beach while learning about beach formation, tides, and the relationship between freshwater and saltwater.

Objective: The students will actively explore the mid-tidal zone.
The students will actively participate in a discussion activity about tides.
The students will build a town/castle in the sand exploring the erosive qualities of water.

Tide pooling
Description: Tide pooling is the act of exploring rocky pools that are exposed only during low tide. During this field trip, the students will be led to a popular tide pooling location where they will search the rocky habitat for crabs, jellies, sea stars, sea anemones, and other signs of life.

Objective: The students will explore the unique tidal ecosystem.
The students will actively participate in a discussion activity about tides.
The students will identify the creatures they discover living in the tide pools.

Stewardship Rotations
Description: Stewardship is the concept of responsible planning and management of resources in a way that is sustainable for future generations. In this class, students will learn about environmental stewardship and simple ways they can care for and protect the world around them (i.e. “The Three R’s”: Reduce, Reuse, Recycle).

Objective: The students will identify basic principles of environmental stewardship through fun and interactive games.
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Regular Rotations
*Description:* Regular Rotations is a collection of fun and interactive games facilitated by our Naturalists allowing the students to play and use up energy.

*Objective:* On arrival days the students will exhaust their pent up energy from the bus ride to camp and engage in fun games while bonding with their fellow classmates. On departure days the students will use up their energy before the bus ride home and have one last hurrah with their fellow classmates.

Day Classes
*These classes last 2.5 hours and occur throughout the Alliance Redwoods campus, rain or shine.*

Forest Ecology
*Description:* The redwood ecosystem contains an extensive and complex assortment of plants and animals. In this class students will have an opportunity to learn how to identify and recognize the different plants found at Alliance Redwoods and how ecological processes shape the forest.

*Objectives:* The students will explore the redwood ecosystem through activities and lessons. The students will note the characteristics of and identify plants in a redwood forest. The students will participate in discussions about the unique attributes of redwood trees.

Healthy Forest
*Description:* A healthy forest is defined by its adaptability, diversity, and resources. In this class, the students will learn about the factors that set the redwood forest apart from these and the elements that allow us to judge the overall health of the forest. Students will also spend time exploring and observing plants in the forest and practice the scientific act of nature journaling.

*Objectives:* The students will explore and find examples of each stage of the tree lifecycle. The students will discuss the meaning of diversity in a forest and apply discussion to our forest. The students will discuss and experience through activities how forests change over time. The students will define what resources must be present to sustain a healthy forest.

Animal Ecosystems
*Description:* Animals play a crucial role in the flow of energy and nutrients within their ecosystem. Through activities and discussion, students will learn how energy from the sun enters an ecosystem and is transferred from producers to consumers and decomposers.

*Objectives:* The students will participate in discussions about the different animals in the forest. The students will explore producer-consumer-decomposer relationships through games and conversations. The students will participate in a discussion/activity about photosynthesis. The students will explore Alliance Redwoods as a habitat and make observations about what they find.

Herpetology
*Description:* Herpetology is the study of reptiles and amphibians. The students will learn about the different characteristics and adaptations that help these animals survive in the wild. Students will be given an opportunity to see and hold live animals in a fun and engaging environment.

*Objectives:* The students will discuss the characteristics and adaptations of reptiles and amphibians. The students will compare different species of reptiles and amphibians to each other. The students will explore the unique habitat of the reptiles and amphibians in our ecosystem.

Pond and Stream
*Description:* In this class students will explore two distinct eco systems: the pond and the stream. We will spend time exploring both habitats and collecting organisms. As a group we will also explore the different ways that water moves throughout nature.

*Objectives:* The students will collect and identify aquatic organisms. The students will identify and define the various habitats at the pond and the stream. The students will discuss the various ways water moves through nature.
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Geology and Stream

*Description:* Geology and Stream is an earth science class with two key subject areas. First, the students will explore the stream and practice the testing and recording parts of the scientific method on rocks found in our stream. Second, the students will discuss and interact with watershed concepts discussing how water and sediment and rock interact. Students will also build their own watershed model.

*Objectives:* The students will discuss and investigate the rocks in our watershed.
The students will discuss what a watershed is and participate in hands-on activities about them.
The students will explain ways water shapes the landscape and affects the rock cycle.

Initiatives

*Description:* Initiatives is a class that seeks to develop teamwork through various challenges presented to the group by the facilitator. The group must use problem-solving skills to complete each challenge while learning to think outside the box, communicate, and trust one another.

*Objectives:* The students will describe what skills are needed for teamwork and living in a community.
The students will analyze through activities and discussion how cooperation, observation, communication, etc. will assist in real life situations.
The students will investigate how to make decisions as a collective group and aspects of good leadership.
The students will work collaboratively towards a common goal.

Challenge Courses

The various Challenge Courses (see underlined) at camp encourage team building, personal growth and an amazing bonding opportunity for students all while having fun. There are several styles of Challenge Courses available, it is recommended to choose a variety of activities rather than many of one type.

**Rock Climbing Elements:** Climbing Wall or Climbing Tower either structure challenges students to make a personal goal and to strive to attain it. (30-45ft)

**Climbing Elements:** Vertical Playpen or Y-axis are both climbing elements with varying obstacles. They encourage students to set and strive towards a goal and are both a great opportunity for team work while climbing. (35ft)

**Leaping Elements:** The North Pole and South Pole are identical elements that involve climbing a telephone pole, standing on the top and leaping off in an attempt to hit a buoy ball. There are varying levels of challenge which allow students to set their own goals. (25ft)

**Zip Lines:** We have three zip lines to choose from, the Flying Squirrel, Gecko Glider or Redwood Express. Each offers a 200-300 ft long zip lining experience that challenges the students to overcome their fears and support their classmates.

**Giant Swings:** We have three giant swings—the Rope Rocket, Sky Swing or Piñata enable students to work through their fear while encouraging their classmates. (50ft)

Night Activities

**Night Hike:** *(Guaranteed)* The main objective of this class is to explore the forest at night. Students will learn about their five senses through activities, games, and storytelling.

**Campfire:** *(Guaranteed)* This fun activity typically brings the week to a close with singing and skits performed by cabin groups. Students will perform their skits for your school and Naturalists will act as MC’s.

**Habitat Clue:** *(Additional)* Expect a twist on the traditional game of Clue for this activity. Students participate in a detective game to determine the predator, prey, and habitat. Student creativity, cabin team building and quick thinking are elements of this activity.

**Adaptation Transformation:** *(Additional)* The purpose of this activity is to teach the kids to think of adaptations in terms of their function and to strengthen cabin relationships, encourage creativity, and teamwork.

**Orienteering:** *(Additional)* To teach students how to identify parts of a compass, use a compass to find north, south, east and west and use the compass to navigate an orienteering course.
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California Standards

Arrival and Departure Activities

Listed below are the standards we strive to address with our hands-on and active curriculum in an effort to assist our Teachers before and after their visit to Alliance Redwoods.

Armstrong Woods

Structure and Properties of Matter
- Grade 5-PS1-3. Make observations and measurements to identify materials based on their properties.

Matter and Energy in Organisms and Ecosystems
- Grade 5-LS1-1. Support and argument that plants get the materials they need for growth chiefly from air and water.

Earth’s Systems
- Grade 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

Growth, Development, and Reproduction of Organisms
- Middle School-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

Goat Rock

Earth’s Systems
- Grade 5–ESS3–1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- Middle School-ESS2-4. Develop a model to describe the cycling of water diverse systems driven by energy from the sun and force of gravity

Interdependent Relationships in Ecosystems
- Middle School-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Salmon Creek

Earth’s Systems
- Grade 5–ESS3–1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- Middle School-ESS2-4. Develop a model to describe the cycling of water diverse systems driven by energy from the sun and force of gravity.

Interdependent Relationships in Ecosystems
- Middle School-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Writing Standards K-5
- Grade 5-W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Tidepooling

Interdependent Relationships in Ecosystems
- Middle School-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Earth’s Systems
- Grade 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.
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- Middle School-ESS2-4. Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.

Stewardship Rotations

Matter and Energy in Organisms and Ecosystems
- LS2.A. Interdependent relationships and ecosystems.

Natural Selection and Adaptations
- LS 4.D. Biodiversity and humans.

Earth’s Systems
- Grade 5–ESS3–1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Human Impacts
- Middle School-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- Middle School-ESS3-4. Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth system.

Day Classes

Forest Ecology

Matter and Energy in Organisms and Ecosystems
- Middle School-LS2-3. Develop a model to describe the cycling of matter and full of energy among living in nonliving parts of the ecosystem. Scientific knowledge assumes an order and consistency in natural systems. Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation.

Interdependent Relationships in Ecosystems
- Middle School-LS2-2. Construct an exploration that predicts patterns of interactions among organisms across multiple ecosystems.

Earth’s Systems
- Grade 5-ESS3.C. Human impacts on Earth systems.

Healthy Forest

Structure and Properties of Matter
- Grade 5-PS1-3. Make observations and measurements to identify materials based on their properties.

Structure, Function, and Information Processing
- Grade 5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

Earth’s Systems
- Grade 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

Human Impacts
- Middle School -ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- Middle School-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems.

Matter and Energy in Organisms and Ecosystems
- Middle School-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling matter and flow of energy into and out of organisms.
- Middle School-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Growth, Development, and Reproduction of Organisms
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- Middle School-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and **specialized plant structure** affect the probability of successful reproduction of animals and **plants** respectively.
- Middle School-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

**Animal Ecosystems**

*Matter and Energy in Organisms and Ecosystems*
- Grade 5–PS3–1. Use models to **describe that energy and animals food** (use for body repair, growth, motion, and to maintain body warmth) **was once energy from the sun**.
- Grade 5–LS2–1. Develop a model to **describe the movement of matter among plants, animals, decomposers, and the environment**.
- Middle School-LS1-6. Construct a scientific explanation based on **evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms**.
- Middle School-LS2-1. Analyze and interpret data to provide evidence for the **effects of resource availability in organisms and populations of organisms in an ecosystem**.
- MS-LS2-3. Developed a model to describe the **cycling of matter and flow of energy** among living in nonliving parts of an ecosystem.

**Chemical Reactions**
- Middle School–PS1–5. Develop and use a model to describe how the **total number of atoms** does not change in a chemical reaction and thus mass is conserved.

**Herpetology**

*Matter and Energy in Organisms and Ecosystems*
- Middle School-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem

**Natural Selection and Adaptations**
- Middle School-LS4-4: Construct an explanation based on evidence that describes how genetic variations of traits in population increase some individual’s probability of surviving and reproducing in a specific environment.

**Pond and Stream**

*Structure and Properties of Matter*
- Grade 5-PS1-1. Develop a model to describe that matter is made of particles two small to be seen.

*Earth’s Systems*
- Grade 5–ESS2–2. Describe and graph the amounts of percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on earth.
- Middle School-ESS2-4. Develop a model to describe the cycling of water through Earth system driven by energy from the sun and the force of gravity.

*Interdependent Relationships in Ecosystems*
- Middle School-LS2-2. Construct an exploration that predicts patterns of interactions among organisms across multiple ecosystems.

*Matter and Energy in Organisms and Ecosystems*
- Middle School-LS2-1. Analyze and interpret data to provide evidence for the **effects of resource availability in organisms and populations of organisms in an ecosystem**.
- Middle School-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

**Writing Standards K**
- Grade 5-W.5.7. Conduct short research projects that use several sources to build knowledge
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through investigation of different aspects of a topic.

Mathematics
- Grade 5-MP.2. Reason abstractly and quantitatively.

Geology and Stream

Structures and Properties of Matter
- Grade 5-PS1-3. Make observations and measurements to identify materials based on their properties.

Earth’s Systems
- Grade 5–ESS3–1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- Middle School-ESS2-1. Develop a model to describe the cycling of Earth materials and the flow of energy that derives this process.

Interdependent Relationships in Ecosystems
- Middle School-LS2-2. Construct an exploration that predicts patterns of interactions among organisms across multiple ecosystems.
- Middle School-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

Writing Standards K-5
- Grade 5-W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Mathematics
- Grade 5-MP.2. Reason abstractly and quantitatively.

Initiatives

Speaking and Listening Standards
- Grade 4-SL-4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Grade 5-SL-4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Grade 6-SL-1. Engage effectively in a range of collaborative discussions with diverse partners on grade 6 topics, texts, and issues, building on others; ideas and expressing their own clearly.
- Grade 6-SL-4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details and nonverbal elements to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

Adaptation Transformation:

Growth, Development, and Reproduction of Organisms
- Middle School-LS1-4. Use argument based on empirical and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structure affect the probability of successful reproduction of animals and plants respectively.
- Middle School-LS1-5. Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

Natural Selection and Adaptations
- Middle School-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals’ probability of surviving and reproducing in a specific environment.

Interdependent Relationships in Ecosystems
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- Middle School-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Night Hike:
*Structure, Function, and Information Processing*
- Middle School-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- Middle School-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Orienteering:
*Reading Standards for Literacy in Science and Technical Subjects*
- Middle School-RST-3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
*Structure, Function, and Information Processing*
- Middle School-LS1-8. Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Campfire
*Speaking and Listening Standards*
- Grade 4-SL-4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Grade 5-SL-4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Grade 6-SL-4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details and nonverbal elements to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

Habitat Clue:
*Interdependent Relationships in Ecosystems*
- Middle School-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

Other Standards
*The Common Core and Next Generation Standards listed here are those that are, or can be, covered in many of our classes.*
*Speaking and Listening Standards*
- Grade 4-SL-4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Grade 5-SL-4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
- Grade 6-SL-1. Engage effectively in a range of collaborative discussions with diverse partners on grade 6 topics, texts, and issues, building on others; ideas and expressing their own clearly.
- Grade 6-SL-4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details and nonverbal elements to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

*Earth’s Systems*
- Grade 5–ESS3–1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Revised 1/15/2013
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Writing Standards K-5
- Grade 5-W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finish work, and provide a list of sources.