



Black Rock Retreat

OUTDOOR EDUCATION

Curriculum Matrix for Outdoor Education 2017

In order to serve students more effectively we have introduced one new class and are highlighting ten more classes this year. They will be offered along with the classes found in our curriculum matrix.

- **Laser Tag - New** - Have an absolute blast but with a purpose. Laser tag at Black Rock Retreat is not only a fun activity but a new way to learn how to work as a team. This activity is also full of Biblical insights your students are not likely to forget.
- **Invertebrate Dissection** - Get fingertip deep in the incredible workings of an earthworm and grasshopper.
- **Archery** - This class is an integration of Biblical truth, safety, science and coordination. Plus, it's a lot of fun!
- **Creek Studies** - Immerse your students in the fun of real life exploring. In this class your students will actually get wet learning about water and the living things that call it home.
- **Wilderness Survival** - In this sampler course of outdoor survival skills, students will learn the basics of wilderness survival including shelter building, fire building and cooking.
- **Consumers**- Every one eats! Discover how energy flows from the sun to your burger on the grill. This hands on class will have your students dissecting an owl pellet and discovering what is part of the everyday diet of a night hunter.
- **Ecology** - Students will recognize the delicate balance in God's creation by learning about ecosystems, symbiosis between organisms, and the different roles organisms have in God's creation.
- **Geo-cache Black Rock** - GPS technology can be found everywhere including here at Black Rock. Learn how this navigation system works and use them to find treasures around camp.
- **Group Teambuilding**- Does your class work as a team? Do you see leadership potential in some of your students but lack the setting to really bring it out. This course will help your students realize just what they can accomplish when they truly function as the body of Christ.
- **Astronomy**- Map out the solar system and travel from the sun all the way to Neptune with your feet firmly planted on the third planet from the sun. Discover the other things you might encounter during your trip and far beyond the reach of our suns gravity.
- **Animals and their Habitats**- Students will get up close and personal with a few of the animals in our nature center (and hopefully some outside as well). They will learn how we care for these creatures but more importantly how they and their habitats are designed with incredible care.

Entire Catalog

Life Science – Flora

- **Plant Basics: Vegetation Investigation**
- **Edible Plants: Living on the Wild Side**
- **Tree Identification: What's in a Name?**
- **Winter Tree Identification**
- **Wildflower Identification**

Life Science – Fauna

- **Animals and their Habitats: Asking the Animals**
- **Insects: Investigating Insects**
- **Consumers: Checking Out Consumers**
- **Frog Dissection**
- **Invertebrate Dissection**
- **Tracking**
- **Winter Coats**

Earth Science

- **Astronomy: Considering the Heavens**
- **Fossils and the Flood**
- **Rocks & Minerals**
- **Soil Investigation – Beneath your Feet**
- **Weather**

Ecology

- **Ecology: Exploring Creation Connections**
- **Forest Ecology**
- **Watersheds**

Other Subject Areas

- **Flight**
- **Creek Studies: Wading into Water**
- **Advanced Creek Study**

Living History

- **The Life of the Amish**

Outdoor Living Skills

- **Archery**
- **Canoeing Basics**
- **Bird Watching**
- **Orienteering: Finding the Way**
- **Geo Cache Black Rock**
- **Survival Basics**
- **Advanced Survival**
 - **Fire**
 - **Cooking**

Teambuilding

- **Group Teambuilding**
- **Laser Tag**
- **Low Ropes Course**
- **High Ropes Course**
- **Solo**

Life Science – Flora

Plant Basics: Vegetation Investigation

Objective: To help students better understand the function of various plant parts by studying the seeds, tree cookies, leaves, and trunk/stem structure. Activities include: examining and identifying means of survival for plants; building a tree through acting out the roles of the various parts; and a hike to look at plants and how they survive. Students will come away with a greater understanding of God's amazing design of His creation. Older students will also look at transpiration and the transfer of energy.

Edible Plants: Living on the Wild Side

Objective: For students to discover how the Lord provides for the needs of His children through His creation and most importantly, through His Son. Students will learn to identify edible and medicinal plants common to a northern forest and what precautions are necessary when looking for edible plants. Activities include an identification hike and sampling of edible plants.

Tree Identification: What's in a Name?

Objective: Students will learn the importance of a classification system and will learn how to classify/identify trees using a dichotomous key. Activities include practice of basic

classification and a nature hike where students will use a key and identify trees based upon their leaves.

Winter Tree Identification

Objective: Students will learn some survival techniques that plants use in the winter as well as properties of snow and how it is helpful to the plants. Activities will include tree identification and snow experiments.

*Available December – mid-March

Wildflower Identification

Objective: As students learn to use a dichotomous key to identify spring wildflowers, they will also learn to identify and explain the functions of various plant parts. A study of pollination—how it happens and its importance for the flower’s survival – is also included. Students will discover a few uses of spring wildflowers, whether edible or medicinal in quality. Activities include a game, wildflower identification hike, and exploring the usefulness of wildflowers.

*Available April – June.

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Life Science – Fauna

Animals and their Habitats: Asking the Animals

Objective: Students will understand how God has designed each creature to live in its specific habitat. Students will also study animal habitats and learn how to find signs of animal habitat and activity. Activities include an observation hike and a hands-on study of some of the animals in BRR’s Nature Center.

*Recommended for 4th-6th grade.

Insects: Investigating Insects

Objective: Students will learn the basics of what defines an insect and how their bodies function. They will also investigate why insects are important in God’s creation – what their niche is. Activities include insect collection and identification (catch & release).

*Recommended for 4th-6th grade levels

Consumers: Checking Out Consumers

Objective: Students will learn to identify the various roles of organisms within a food chain or web, with a focus on the consumers. Animal behavior will also be discussed. The emphasis will be on animals and will explore some of their behaviors as students learn who eats whom. We will study food chains and webs as well as what makes animals alike

and different. Activities will include games, owl pellet dissection, and a look at the animals in our Nature Center.

Frog Dissection

Objective: Students will discover the anatomy and basic body systems of a frog. This class will include dissection of a real preserved frog specimen for your students (partnered in groups of two) to share. Our staff will walk them through the dissection covering nervous, digestive, excretory, and respiratory and circulatory systems.

Invertebrate Dissection

Objective: Students will discover the anatomy and basic body systems of a two invertebrates. This class will include dissection of a real preserved earthworm and grasshopper for your students (partnered in groups of two) to share. Our staff will walk them through the dissection covering nervous, digestive, excretory, and respiratory and circulatory systems.

Tracking

Objective: Students will discover the amazing world God has created and learn how to observe and track wildlife. They will learn what kind of evidence to look for that reveals signs of wildlife presence. The life and habits of animals will be discussed and studied. Activities will include games, tracking using various senses, and an investigative hike.

Winter Coats

Objective: Students will discover the different ways that animals survive the winter and will understand how life in a pond continues through the winter. They will learn about the different environmental conditions in the winter months and what animals do to adapt. Activities will include looking for evidences of different animals, studying our pond, tracking, as well as several educational games.

*Available December – mid-March

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Earth Science

Astronomy: Considering the Heavens

Objective: Students will learn to identify several common constellations and how to use a star chart. They will discover the difference between the many celestial objects and terms. Finally they will stand in awe of God’s provision for us as they learn just how perfectly planned our galaxy is. Activities include solar system role playing, distance hikes, construction of star charts (one for each student), and weather permitting an evening of stargazing using Black Rock’s observatory.

Fossils and the Flood

Objective: Students will learn how fossils tell us about the past and give evidence of the Great Flood. They will investigate the types of fossils and how they were formed, and learn how fossils point to a Creator. Activities will include: a fossil “dig” and assembling a fossil model.

Rocks & Minerals

Objective: Students will learn to differentiate between rocks and minerals and will learn basic field identification techniques for minerals. They will learn about the three types of rock found on earth and how they are formed, noting the differences between them. Activities include identification of sample specimens through various tests and a fun game which takes students through the rock cycle.

Soil Investigation – Beneath your Feet

Objective: Students will learn to identify the different types of soil, soil layers, and understand its importance to all of life. They will be able to explain the causes and effects of erosion and how to better prevent erosion in their community. Activities include a percolation test, soil tests, and erosion experiments.

Weather

Objective: Students will learn how to identify basic cloud types, and use the basic aspects of wind, temperature, barometric pressure, relative humidity and clouds to predict weather. Students will also learn how nature can help us predict what kind of weather lies ahead. Activities include finding wind speed and direction, investigating different microclimates, and an experiment to find dew point and relative humidity.

*Recommended for 6th grade or higher.

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Ecology

Ecology: Exploring Creation Connections

Objective: For students to recognize the delicate balance in God's creation. Discussion will focus on cycles within an ecosystem, specific types of symbiosis between organisms, the different roles organisms have in God's creation including the living and non-living parts, and our role as care takers. This class includes many activities to reinforce basic ecological concepts.

Forest Ecology

Objective: For students to identify the different types of forests, the layers of a forest, the stages of succession, and the common trees around Black Rock. Activities include a quadrant study and a hike observing various layers within the forest and different stages of the forest areas.

Watersheds

Objective: Students will learn what a watershed is and how human actions affect water quality, as well as other ways the watershed relates to us. We will be looking specifically at the Chesapeake Bay watershed and discussing how activities at Black Rock Retreat affect the quality of the bay.

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Other Subject Areas

Flight

From the Genesis 1 to the Wright Brothers and beyond creation has been soaring through the air. Discover how flight works and how we see those same principles all over creation.

Objective: Students will discover the basics of flight from seeds falling to rockets soaring. During this class we will be discussing the general concepts of flight that apply to birds, seed dispersal, flying mammals, and all kinds of manmade aircraft. Students will explore controlling flight with modeling their own aircraft.

Creek Studies: Wading into Water

Objective: Students will discuss the steps involved in the hydrologic cycle, the unique qualities of water, and the many purposes of this amazing substance. They will learn how to conduct a biotic study to determine water quality. Activities include an exploration of the Octoraro Creek to learn how to determine the cleanliness of the water based on the organisms that live there.

Advanced Creek Study

Objective: Students will learn how to conduct a biotic study (as in "Wading Into Water") and also an abiotic study on the Octoraro Creek. They will test several factors including pH, nitrates, and dissolved oxygen levels. Using both biotic and abiotic results, students will determine the water quality of the stream.

*Recommended for 7th grade or above

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Living History

The Life of the Amish

Objective: Students will learn a brief history of the Amish beliefs, lifestyle and culture. Students will learn what a typical day is like for a child their age. Students will have a great time experiencing some of this unique culture by eating some Amish style food and try on some Amish style clothing.

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Outdoor Living Skills

Archery

Objective: Students will be introduced to archery as a sport and science while understanding the Biblical principles of speaking truth, and understanding the spiritual and earthly consequences of our actions.

Canoeing Basics

Objective: Students will learn the basics of canoeing, including common strokes, steering, and canoe safety. We will travel off-site to a local reservoir to practice our canoeing skills and study an aspect of God's Creation. The canoeing course takes up two class periods and is coupled with the following subject area:

Bird Watching: Many waterfowl call the lake habitat their home, and other avian species use the surrounding woods and marshes. From our canoes, we will look for different bird species, including geese, mergansers, herons, and maybe even a bald eagle!

*This course is reserved for students in **6th grade or above** and a maximum group size of 28 participants. Please contact the Outdoor Education Director to check on class availability.

Orienteering: Finding the Way

Objective: For students to learn how to read a topographical map, the parts of a compass, and how to use a compass. Activities include making orienteering shapes and "finding the way" on our orienteering course in the forest.

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Geo Cache Black Rock

Objective: GPS technology can be found everywhere: in personal vehicles, scientific research, aircraft, surveying, the trucking industry...and the list goes on! But do your students really understand how it works? Students will relate position on the earth's surface using latitude, longitude, and altitude. They will also look at the technology involved in GPS and explain how triangulation is used to find location. Activities include navigating around BRR to find hidden geo-cache locations.

Survival Basics: (formerly *Getting Back to Basics*)

Objective: In this sampler course of outdoor survival skills, students will learn the basics of wilderness survival. They will learn how to pick out an appropriate shelter location and construct a shelter using two tarps and ropes. They will learn to setup a cooking area by laying out a teepee, log cabin, and A-shaped fire using tinder, kindling, and coal producers. And finally, they will have a chance to cook and eat the some tasty bannock.

Advanced Survival

Objective: An in-depth view of wilderness survival provides students an opportunity to learn and master essential survival skills. Choosing from one of three concentrations, students will learn comprehensive skills in one of the following areas:

-Fire: Students will learn about the science of fire and practice several techniques on building an efficient fire. Students will also enjoy a tasty campfire snack.

-Cooking: Students will learn how to prepare food in the wilderness, using either a traditional campfire or a cooking stove. They will then get to enjoy their culinary creation.

*When selecting this class, please specify which concentration you would like (i.e. "Advanced Survival: Fire") on the class preference sheet. This class may be selected three different times, once for each concentration.

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Teambuilding & Ropes Course

Group Teambuilding

Objective: For students to learn and to experience what teamwork is and how to better work together with their peers. This class presents various challenges and problems to the group which they must work through. Trust, communication, caring, and commitment are other character traits that are discussed. This class is a part of the 8th grade adventure program but can also be taken by any grade level that wants to focus on teambuilding. Each activity is followed up by a debrief discussion reflecting on what happened and how the activity can be related to life.

Laser Tag

Objective: Use this 21st century technology as a teambuilding tool. Team will have to work together to achieve the goals of the game and have a blast doing it! Games will be played in the woods or on our custom outdoor course and can be moved inside in the case of inclement weather. This activity is also full of Biblical insight that your students will not soon forget.

Low Ropes Course

Objective: For students to participate in a series of group and physical challenges that require a combination of teamwork skills and commitment. The ropes course experience is designed to increase confidence and self-esteem; increase mutual support and foster respect for differences within a group as well as challenge students in their faith. Debriefing is an important part of the low ropes course, helping students to process the experience and apply what they are learning to their lives.

High Ropes Course

Objective: Containing a Zipline, Giant Swing, and other elements that will take students 25-40ft in the air as they gain self-confidence and awareness. All high ropes activities are led by trained staff who will encourage each student to set and strive for their individual goals. Zipline, Giant Swing and Rock Climbing are also available as individual classes.

Solo

Objective: Following a day and a half of participation on the challenge ropes course, students are spread out in the woods (weather permitting) and given about an hour of solo time. Though one of the most challenging parts of the program for the youth of today who always have distractions and activity nearby, it is a valuable time for each student to stop and “Be still” before the Lord. The time is designed for them to reflect upon their experience over the past few days, read from God’s Word, and spend time in prayer before Him. Each student has a journal with questions to help spur their reflection.

*This class is reserved for 8th grade and above who have participated in at least 2 other classes from this section.

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