

Dear Hirundo Adventurers,

You have chosen to be a part of something that we hope will find great success here at Central High School. We know that our students value the outdoors in Maine, and so we are offering this opportunity for students to earn lost credits through our unique program. Attached to this letter you will find:

- A schedule of events with dates and times
- A syllabus for the program which outlines the criteria for earning credits
- A description of proper clothing (you cannot participate otherwise)
- A list of conditions to be adhered to by all participants who wish to stay in the program
- Brief bios of your teachers
- Work and tasks to completed **before** you show up for the program

This program will last 12 days (3/week over 4 weeks) from approximately 8:30-12:30. You will come to school on the bus, or be brought to school by 8:00 am each day, then we will go together to Hirundo on a bus. That bus will bring you home or to a location near your home where parents will be able to pick you up. You will be provided breakfast and lunch unless you tell us you do not want either.

If you or your parents have questions beyond what is addressed here, please let me know via email. I am looking forward to this great adventure!

Dr. Mayfield

# Policies and Procedures

Hirundo Summer Adventure Credit Recovery 2023  
Central High School @ [Hirundo Wildlife Refuge](#)

## Location:

[Map to Hirundo](#) (Gate 1) on Route 43 out of Hudson going toward Old Town  
Dates: July 11-13, 18-20, 25-27, and Aug 1-3

## General Expectations

### Attendance:

Attendance is mandatory. More than one absence will result in no credit being awarded. That absence should be pre-approved and any absences for unapproved reasons will cancel work completed entirely.

### Substance Use:

Use of or possession of alcohol, tobacco or nicotine products in any form, illegal drugs, or any illicit substance will result in immediate expulsion from the program - there is no suspension or detention for this program! All medications that are prescribed must be taken at home before arrival, or after returning home. The only exception will be emergency medications such as epi pens for allergic reactions and insulin for diabetes

### Daily Schedule:

- 8:30-9:00 - Safety and Expectations/Objectives
- 9:00-10:00 - First Activity
- 10:00-10:15 - Snack break
- 10:15-11:15 - Second Activity
- 11:15-11:45 - Lunch (provided)
- 11:45-12:30 - Share out and Wrap-up
- 12:45 - Back to school

### Credit Potential:

- Students will be able to earn one (1) academic credit which may be split across two subject areas or be entirely in a single subject.
- Credit earned will be subject to evaluation by a teacher in the subject area of concern.
- All credit earned will be entered as a pass or fail for the course. No number grades will be assigned.

Apps you will need to add to your phones ***prior to the program*** if possible

- Available from Play Store or Apple Store:
  - [Merlin](#)
  - [iNaturalist or PlantNet](#)
  - Vernier Graphical Analysis
- Feel free to add other interesting apps that you think might be useful while we are out there.

## Assessment of Work

- All students will do the same work regardless of the area of concentration
- Students will keep a journal and notes each day that may include:
  - Data gathered
  - Drawings of observations
  - Reflections on events or situations
  - Compositions of original works like poetry or songs
  - Answers to specific prompts that draw from the activities undertaken
- Journals should also reflect growth in understanding about the connections between the various themes and activities undertaken
- Journals will be collected on Thursdays and redistributed on Tuesday morning
- You will be required to complete a summative presentation which may be individual or a group effort based on your goals for the program - a video, slide presentation, a skit, etc. Your summative work will help you prepare for the final summative work and so if you keep up, your final work will be mostly a matter of organization and decisions about how you will present your learning.

## Dress:

The dress code for school is in place. Clothing should be modest (i.e. we don't want to see things we should not see!) for all participants, as well as comfortable, and suitable for the outdoors. T-shirts should have sleeves (no muscle shirts or spaghetti strap tops, etc.). It is recommended that you wear long pants due to biting insects and poison ivy, etc., but shorts are acceptable. You should wear a hat with a brim to protect you from the sun. Your shoes should have some tread on them rather than being flat bottomed (like trail running shoes or lightweight boots). On water activity days, you should wear clothing that you do not mind getting wet and you should bring a change of clothes. We will have some waders or you may just choose to wear water shoes. All shoes should cover your toes - i.e. no open sandals in the front - and Crocs (or similar rubber/plastic shoes) are not acceptable footwear as we will be walking in areas where you could have something poke through. Wear something with a durable sole.

## Items to bring:

All participants should bring a snack and **one** reusable water bottle (please do not bring plastic throw away or recyclable water bottles). On rainy days, bring a raincoat, as we will likely carry on with all activities, rain or shine! You might also want to bring a towel to dry off with on water or rainy days. Bring bug spray (we will have some) and sunscreen as well.

## Behavior expectations:

Have fun and focus on learning. Students and staff are expected to treat each other with respect and to use appropriate language. Casual use of profanity will be considered a violation of this rule. There will be **no** tolerance of disrespect or rudeness from anyone in this program. Safety is also a major concern. Unsafe behavior (we will go over what that means each week based on the activities) will result in expulsion for the remainder of the program and a loss of credit earning opportunity. If you have an issue with another person in our group, it is expected that you work this out openly and politely and have another person involved in that effort. We have a short time together and we want that time to be productive, safe and fun.

## Cell Phones:

You may bring cell phones but you must not use them without asking permission **FIRST!** We are allowing them because some of the equipment we will use depends on them for collection of data. Phone calls and texts or use of social media of any kind will not be tolerated. Also, no pictures or videos of our work or each other may be taken or posted - NO EXCEPTIONS! You must ask permission before taking pictures or video and before posting anything about the program.

# Syllabus and Planned Events

Please note that this is our first time out and that we will adjust this as needed to make for a successful adventure. It is likely we have too much planned, but better that than too little!

## Week 1 Theme: Water

- Goals for the week:
  - Develop an understanding of how humans have impacted the environment at Hirundo
  - Knowledge of the water cycle
  - Knowledge of the factors that can determine water quality
  - The role macroinvertebrates play in analyzing water quality
- Pre-work: Find a diagram of the water cycle and come prepared to discuss these things:
  - the various components of the water cycle
  - ways we use water
  - ways we alter water cycles
  - ways we abuse water
- Day 1: Safety and Expectations followed by:
  - Water Cycle/Parts of a Stream/Sediment and Deposition
  - Human alteration of stream flow
  - Paddling exploration of the refuge
  - Day 1 Summative Work/Questions:
    - Describe four pieces of the evidence you saw of the water cycle in action. Your descriptions should be at least four complete sentences for each piece of evidence and should paint a mental picture of the place for anyone who would read your work..
    - For the four pieces of evidence you described, how might those impact the lives of plants, animals or other living things on the refuge?
    - Because this is a refuge, much of the area is protected from development and human impact. For each piece of evidence you described, think of a place that is similar, but has had human alteration or influence and describe how humans have altered those places. In particular, focus on sedimentation (deposition of soils) and alteration of stream flow.

- Day 2: Macroinvertebrates as a measure of water quality
  - This day will be a wet one so bring clothes to change into after
  - Dip nets
  - Seine nets
  - Ice cube trays for sorting
  - Cameras on phones
  - Water testing equipment
  - Invertebrate identification guides
    - [Maine Stream Explorers](#) (Maine Audubon)
    - [Making the Most of Macros](#) (Ohio River)
    - Green Mountain Conservation
  - Day 2 Summative: Collect data from tests of organisms present in the water and fill out the worksheet to determine water quality.
- Day 3: Share Out and Exploration
  - Paddle to Pushaw Dam and back or up Dead Stream or both
  - Weather Patterns and impacts on stream - Searching for evidence
  - Seasonal changes in streamflow
  - Riparian birds and mammals
  - Botany
- Follow-up Capstone Work: Create an expression of the things you have learned about water this week. This might come in the form of a paper, a poem, a piece of artwork, or other media. Below are some guiding questions that will help you as you create your work.
  - How have humans impacted the water quality at Hirundo?
  - How does water move into/out of Hirundo?
  - How are the water quality indicators of temperature and dissolved oxygen related?
  - Describe how macroinvertebrates can be used as indicators of water quality?

## Week 2 Theme - Earth

- Goals for the week:
  - An understanding of how the evolutionary process of the Earth's changing surface
  - Knowledge of how humans have impacted the soil quality at Hirundo
  - Identification of some natural processes that have impacted the soil quality at Hirundo
  - An understanding of the connections between the water cycle and soil quality
  - Knowledge of the different types of rocks at Hirundo, and how they arrived
- Pre-work: Watch [TED talk "How Soil Unites Us"](#) and come prepared to discuss the importance of soils in your life.
- Day 1: Safety, Expectations, Equipment
  - Soils
    - Horizons
    - Composition
    - Variation in different environments
  - Day 1 Summative: Collect data from soil tests and organize into graphs/tables. Then, write a short summary or conclusion describing what your data shows.
- Day 2: Geology
  - Rocks and Minerals
    - Constructive vs Destructive Features
    - Topography
  - Day 2 Summative: Write a skit that describes the rock cycle and different forces that impact geological features.
- Day 3: Share Out and Exploration
  - Group Analysis of soils
  - Hike
    - Explore in groups different trails and habitats, noting geological features that help to delineate the various habitats in your journals.

Follow-up Capstone Work: Create an expression of the things you have learned about soils and geology this week. This might come in the form of a paper, a poem, a piece of artwork, or other media. Below are some guiding questions that will help you as you create your work.

- How has Earth's surface changed over time and what forces have caused these changes?
  - What connections can be made to geological history/timeline locally?
- How have humans impacted the soil quality at Hirundo?
- What are some natural processes that impact soil quality at Hirundo?
- How can the water cycle be connected further to the land features at Hirundo?
- What caused different types of rocks to be present in a localized area?

## Week 3 Theme - Air and Sky

- Goals for the week:
  - Develop an understanding of factors that impact climate changes and weather patterns
  - Understand the impact that clouds have on the water cycle
  - Be able to identify types of clouds and the processes through which they form
  - Identify how changes in climate and weather are impacted by disasters (natural or man made)
- Pre-work:
- Day 1: Atmospheric Conditions
  - Gather leaf litter from various locations and place in the funnels in the sun (hopefully)
  - Humidity and the impacts of solar radiation on different environments
  - Cloud Formations drawing
  - Air pressure and Wind
  - Day 1 Summative: Weather is defined as the conditions occurring in the atmosphere at a given point in time. Describe the weather that we experienced this day, noting the cloud types, temperature, rainfall amounts, etc, that defined today's weather. Look up the weather forecast for tomorrow and predict the types of clouds that might be present tomorrow. As we walked about at the refuge, did you notice changes in temperature, moisture, wind, or other weather conditions? What factors might have made the weather feel differently in one place than in another?
- Day 2: Climate change impacts
  - Natural Process vs Human Impact
  - As we explore today, take notes about changes you perceive in climate. There are climatic influences that influence the formation of microclimates (can you surmise what that means?). Remembering that climate is mostly about two factors, temperature and moisture/precipitation, think about how human influences (like the creation of a field in the middle of a forested area) can impact microclimates and make notes about your perceptions about this.
  - Day 2 Summative: After reading the article at the link below, choose one of the stories about air quality/climate change to analyze?
    - [Summative Activity](#)
- Day 3: Share Out and Exploration
  - Examine the leaf litter organisms you collected
    - Make drawings of the organisms you found in your leaf litter and compare the quantitative results from various habitats.
  - Time remaining: Kite design and engineering



Follow-up Capstone Work: Create an expression of the things you have learned about the atmosphere this week. This might come in the form of a paper, a poem, a piece of artwork, or other media. Below are some guiding questions that will help you as you create your work. We will share out your creations when we come back together.

- How do atmospheric factors affect the amount of incoming solar radiation?
- Describe some things that influence cloud formation and shape.
- How does cloud cover affect temperature?
- What role do clouds play in distributing water in the water cycle?
- How might changes in weather due to climate shifts impact the living things at Hirundo?
  - Use your results from the leaf litter activity to help guide your response

## Week 4 Theme - Life

Goals for the week:

- Develop an understanding of how the environmental factors we have looked at over the previous three weeks affect the living organisms at Hirundo.

Pre-work:

Choose one plant, one animal and one “other” organism and describe how you believe they impact or are impacted by the things we have studied here at Hirundo.

- Day 1: Safety and Expectations
  - Nature hike, identifying and photographing various plant, tree and fungi species.
  - Day 1 Summative: You will be provided with a selection of poems based on nature. You will need to identify one poem and illustrate it with the photos you have taken from the forestry identification.
- Day 2: Wildlife
  - Using a plot to identify various types of plant life.
  - Day 2 Summative: Create a synopsis for a movie that will be set in Hirundo. You may make it realistic or imaginative, focusing on humans or giving human properties to the elements of nature and wildlife we have examined. Explain why Hirundo would be an ideal setting for your movie.
- Day 3: Wildlife
  - Sun prints:
    - Using the sun paper we have provided, make an artistic creation from some of the living things you have seen. Do not kill anything. If you need to have a bug or other animal that will not hold still enough for this, then make a drawing, cut it out and use it to create the image.
  - Day 3 Summative: Write your own poem using the sunprint you made as inspiration.
  - Share Out and Exploration - Read your poems and share about your sunprints and how they represent your learning here over the last 4 weeks.

### Capstone Work:

Create an expression of the things you have learned about life this week. We would like you to design a poster to promote the imaginary movie you have created. Your poster must connect to one of the guiding questions from each of the four weeks (Water, Earth, Air and Sky, and Life). When you present your poster, you will explain the connection. You will be provided with the supplies (Poster Paper, Colored Pencils, and markers) to complete this assignment. As an alternative to a physical poster, you may use your computer to generate an electronic poster. Present and explain your poster and movie idea to the group.