

5/26/2009

## Field Investigation Planning Process

\*Teachers need help/guidance from *NatureMapping* mentor

*This is the beginning of explaining the process needed to take students out into the field to conduct an inventory of an area plus specific scientific questions identified in the very first step...Project Design.*

*Two field trips are planned with the 7<sup>th</sup> and 8<sup>th</sup> graders in Waterville for school year 2007-2008. Four trips will be planned to visit during all 4 seasons in 2008-2009.*

1. \*Complete the project design matrix
2. Plan out the school year in terms of field trips
3. Gather equipment needed for the project (e.g., binoculars, clipboards, whistles, etc.)
4. Explain to the students what they are going to do over the year and the expected goal
5. Design, with the students, student code of conduct and outcomes if not followed
6. Get permission slips from parents
7. Give students their own journals and pencils. They will use them to record instructions, their own notes, and experiences.
8. Use *NatureMapping* Activity #7 to teach students how to pace and read simple mapping instructions
9. Use *NatureMapping* Activity #8 – Part II to teach students how to estimate distances
10. Teach students how to express locations to other students using the clock; for example 1 o'clock – many students don't know how to read clocks because of the digital clocks.
11. Explain the potential hazards students should be aware of (e.g., barbed wire, slippery rocks, etc.)
12. Develop a way to alert students and bring them back to base camp. One way is to use a whistle:
  - a. 1 whistle – stop, don't move, and look around for something interesting
  - b. 2 whistles – partner up and come back to camp
  - c. 3 whistles – come to me now, I need help...only in case of an emergency.
13. \*Visit the area where the field investigation will take place. Figure out the best entry and walking routes, identify hazards, identify a place to call "base camp", take pictures of the area, and estimate walking time in and out of area.
14. If the area is very rocky or near cliffs, ask if any of the students are afraid of heights. If so, make sure a chaperone stays with the students during the field trip and gives them tips to reduce fears.
  - a. Stoop down a bit, walk gently and slowly, watch where you are placing your feet, look to upper side of the hill
15. \*Find topographic maps and aerials for the area. If possible put everything into a Powerpoint presentation and review with students.
16. Find out if the area is privately or publicly owned. If private, get permission.

**First field trip – Exploration and general coordination\*:**

1. Make sure students have submitted all forms needed
2. Students should be dressed appropriately or they don't go
3. Students divide into 2-person teams
4. Divide the class into groups of teams
5. Bring a watch – every team leader needs one
6. Either in the classroom or on the bus each student will draw the bottom of their teammate's shoe pattern on one side of their blank sheets of paper on a clipboard.
7. Explain that if they got separated in the field, the shoe pattern is what they would need to track the person to find them. Also, sometimes shoes mimic animal tracks.
8. Send each group to different areas in the field
9. Each team will split off to their own "sit spots".
10. Team members will stay within visual distance of each other, but at least 10 meters apart. (a test for their pacing capabilities)
11. Students will stay at the same sit spot for 20 minutes without talking. If they are talking, they are too close to each other.
12. Students will use the other side of their blank paper and draw what they see across the landscape. Do not give other specific directions; give the students the freedom to draw what they want to draw.
13. Call the students in with your whistle
14. Ask students to estimate the distance from base camp to an object and discuss how they made their decision. Give them the answer this time, but on the next trip, test them on their ability to estimate distance.
15. Give students 10-20 minutes to "free roam" with each one bringing back 1 type of plant, pine cone, piece of bark, etc. If they find "cool" items such as skulls, etc. bring them back to class. If they find garbage they want to haul out, wait until the next visit and bring bags to make it easier to remove trash.
16. Students hand in their papers, making sure their names are written on the sheets.

**First field trip follow-up**

1. Review what worked and didn't work with regards to student behavior, organization, time spent, etc.
2. \*Look at the student drawings to see what students "saw" and which ones were into details versus landscape generalities
3. Show the shoe drawings in class to see if the students who drew them remembered
4. Discuss honoring the land they visited by leaving it the same as they found it or making it better through trash pickup or planned restoration. This point should be made if students are breaking branches, throwing rocks, etc.
5. Tell the students they will need their journals next time for their sit spots. The purpose of the journal is to record notes while they are there so when they leave, they can refer back to the journal to remember what something looked like, or the description of an area, etc. It is their journal that they can use for a long time.
6. \*Show students the Powerpoint with the maps and pictures where they were. See if the students can find certain locations on the map by asking

- a. Where did they start or where did the bus park?
  - b. Where was base camp?
  - c. Where are the streams on the map? or what do the brown (elevation) lines mean? (basic map reading skills)
  - d. Where were the pictures taken?
7. Explain the different responsibilities that will be created for the rest of the field trips. Ask students to write, in complete sentences, what team they would like to be on and why. Also ask them to write what they would like to get out of this project.
- a. Responsibilities can be broken out into:
    - 7<sup>th</sup> grade: Pathfinders – setting up transects - 2009  
Water – water quality data - 2009  
Photomonitoring – setting up and collecting photographs, measuring plant sizes, etc.
    - 8<sup>th</sup> grade: Trackers – finding animal signs  
Explorers – GPS units, record data for the trackers  
Home Base – photographers, data collection specialists, label specimens, track where everyone is, in charge of all equipment  
Plant Team – collect plant specimens
8. \*Offer extra help to students who have a special interest. For example, wanting to learn more about mosses and plants, or bones.

### **Second Field Trip Preparation**

1. \*Students will learn outdoor skills:
  - a. “Fox walk” – how to walk without making any noise
  - b. “Owl eyes” – how to use peripheral vision
2. All students must be proficient with these skills:
  - a. Estimate distances
  - b. Pacing
  - c. Map reading
  - d. Compass usage
  - e. GPS
  - f. Reading a tape measure, especially if it has regular and metric sides
  - g. Using calipers to measure scat and tracks
  - h. How to use a camera – framing the picture
  - i. Understanding slope and aspect
  - j. How to complete data collection forms
  - k. Estimating tree height, calculating size of a bush (e.g., drip line)
  - l. Field guides
3. Learn specific duties of the:
  - a. Photomonitoring (7<sup>th</sup> grade)
    - i. Get GPS locations
    - ii. Take a “first” picture and select the plants that students will find and measure from that picture.

- iii. Make a map for each student with trees to be measured marked and laminate
- iv. Make a job description for students and laminate
  1. Photographer
  2. Slope/soil measurer
  3. Tree team
  4. Trackers (see 8<sup>th</sup> grade description)
- v. Provide the tools in one large baggie or backpack
- vi. Create a time schedule for ride in bus, walk to site, work in site, walk back to bus and ride back to school.
- vii. Practice individual jobs on school grounds until students can finish within the allotted time in the field
- viii. Give students their baggies/backpacks in the bus and are responsible for them during the field trip
- ix. Assign specific trees to be measured to student teams. Each team will be assigned tree numbers to match the trees on the map.
- x. Measure tree size within the photo site
- xi. Develop plant list within the photo site
  1. Label each plant specimen (site1\_041108\_1, site1\_041108\_2)
  2. Write the habitat code on the label (e.g., 902, 530, etc.)
  3. Press the plant in the field to preserve it for use in the classroom
- xii. Mark the site for consistent photography across 4 seasons
- xiii. Set up a folder on the server to hold pictures and label pictures and notes in a consistent fashion (e.g., site1\_041108.jpg, site1\_041108\_data.xls)
- b. Trackers (8<sup>th</sup> grade)
  - i. List possible species in the area and compare to predicted lists
  - ii. Make soot trays that need to be set out the night before (teacher or teacher with team of students after school).
  - iii. Take track measurements, step and stride
  - iv. Draw tracks and scat in journal
  - v. Take pictures of tracks/scat
  - vi. Try to explain the behavior of the animal making the tracks
- c. Explorers (8<sup>th</sup> grade)
  - i. Find the best path for the team to walk and use GPS unit to mark the path
  - ii. Report sightings on NatureTracker
- d. Photographers/Recorders (8<sup>th</sup> grade)
  - i. Gather data from the teams and develop map
  - ii. Take photographs in general and interesting signs/land marks to link to GPS points (must write down waypoint number and picture number to remember which point matches the picture)
  - iii. Record backup sighting data on paper (clipboards)

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## **Second field trip**

- 1.

## **Second field trip follow-up**

1. Review what worked and didn't work with regards to student behavior, organization, time spent, etc.
2. Look at data on maps/aerials\*
3. Identify "holes" where we need to complete data collection
4. Look and identify bones and scat that were brought back (i.e., porcupine scat looks like jelly beans...ask what is the difference between deer and porcupine.)
5. Discuss wildlife that was observed and habitat usage
6. Discuss different habitats and come to a consensus of what the habitats are
7. Discuss importance of their data for *NatureMapping* and their community
8. Review missing information on data collection forms.

## **Preparation for third field trip:**

1. Learn how to setup and use a GPS
2. Practice NatureTracker around the school
3. Identify the bones and scat that were collected in the prior field trips
4. Discuss soot trays and how to make them
5. Review what will be different/same for 3<sup>rd</sup> field trip
6. Complete data collection forms – report wildlife around their homes
7. Use Terrain Navigator in class to find their lat/longs

## **Third field trip**

1. Students partner up and just as they begin their walk to Base Camp, they will perform "Using your senses" with one student leading the other blindfolded by the arm without talking half-way to Base Camp, then switch
  - a. Team leaders will carry backpack with gear:
  - b. NatureTracker unit for each team
  - c. GPS unit for each team of 2
  - d. Data collection forms and clipboards
  - e. Water and snacks
  - f. First aid kit
  - g. Field guides
  - h. Tracker tools:
    - i. Calipers
    - ii. Journals
2. Walk to Team 2 stream area – set up "Base Camp"
3. Divide into 3 teams
4. Find soot trays using GPS coordinates
5. Search the area in teams