



Mapping the Refuge

Names _____

Latitude: _____

Longitude: _____

Date: _____

Season: _____

Air Temperature: _____

Wind Direction: _____

Water Temperature (if needed): _____

Estimated Wind Speed: _____

Other Data: _____

Description of Observation Spot: _____

What do you see at this location? _____

Do you see any animals or evidence of animals at this location? Explain. _____

Use the back of this page to include other observations you feel are important.

Materials Needed:

GPS Receivers

Nature area for observation points

Thermometers

Anemometer (or wind speed chart provided on the next page)

Other weather equipment for measuring air pressure and humidity (optional)

Digital Cameras (optional)

Copies of the student worksheet

Pens or pencils

Overview:

During this activity, students will use GPS data to mark an observation spot and record their observations at different times of the year. My students did this activity during a fall field trip to a local wildlife refuge and will revisit their observation spots during the winter and spring field trips. The students will record their observations to document the seasonal changes that take place with respect to plants, trees, and wildlife.

Directions:

1. Instruct the students to pick out an observation spot.
2. Have the students use the receivers to determine the latitude and longitude for their spot and record it on the worksheet.
3. Have the students record their observations of the area and note anything they feel is important. If you have digital cameras available, have each group take two to four pictures of the area.
4. When you return to the classroom, print out the pictures for each group and file them in a binder along with the student worksheets.
5. Visit the observation spots at least two more times during different seasons and have students use their latitude and longitude data to find their observation spots. Have students add their observations to the worksheet and take more pictures for the binder.
6. After the final field trip, have students share their observations and photos with other groups. Create a class report that summarizes their observations of the seasonal changes.

Extension Activities:

- If you are in an area that allows collection, students can gather seeds and leaves from trees or other plants during the fall field trip to preserve for their binders. During the spring field trip, groups can compare the preserved specimens with those collected.
- Allow time for students to compare the seasonal changes in their area to those in other latitudes (within the United States or other countries.)
- If you are able to do this project in future years, assign each observation spot to a new group and allow them to compare their observations to those made in previous years. You might also consider adding a “tree adoption” to the project and have groups keep track of data for a specific tree in their area. A student worksheet for the tree adoption activity is available at <http://sciencespot.net/Pages/nclessons.html#Anchor-44867>.

Provide a copy of the scale for each group to help them estimate the wind speed.

Beaufort Scale for Wind Speed Observations

Force	Description	Wind speed	Typical effect overland
0	Calm	Less than 1	Smoke rises vertically
1-3	Light	1-12	Smoke drifts or leaves rustle
4	Moderate	13-18	Small branches move
5	Fresh	19-24	Small trees in leaf begin to sway
6-7	Strong	25-38	Large branches or whole trees in motion
8	Gale	39-46	Twigs break off trees
9	Severe gale	47-54	Chimney pots and tiles removed
10-11	Storm	55-72	Trees uprooted, widespread damage
12	Hurricane	More than 73	Devastation

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