



MAPPING NATIVE SPECIES AND INVASIVES

Year Round Grades 4-6

Description:

Students will research and find native and invasive shrub species for the Vital Signs Maine project page. Vital Signs Maine is a citizens Science environmental monitoring website that provides researchers with data they need about different environments and the things happening within them. All of the science that your students do through vital signs will be used as meaningful resources by real scientists and researchers.

Duration & Type of Program:

Multiple visits and explorations of outdoor area, each about 30 minutes. Ideally these sites would be compared 2-3 times a month, but using the site at least 3 times in the year creates lasting comparisons.

Materials

- Clipboards for student use
- Pencils

PRE-LESSON

- a) Class needs to be set up and entered on Vital Signs website. Take some time to explore website and play with different options so that you are more comfortable facilitating learning experiences through the site. Data recording sheets need to be printed.*
- b) Choose a field site. Break each trip up into a different area of the school property. Assign groups of 2 or 3 students. These can be the same groups and area used for the mapping activities.*
- c) This lesson would work best if used at the same sites the mapping lessons was done, after the plants have been mapped already. So if you on Monday you mapped sector A5, then Friday or the following Monday would be a great time to do the Vital Signs investigation. If you haven't mapped an area yet, do not your investigation in that area yet.*

PROCEDURE

First Visit Outside:

- 1. Bring students out to their field site to gather existing knowledge that will support their understanding of*

- Vital Signs Maine accounts (kids may need parent or teacher email account)
<http://vitalsignsme.org/>
- Vital Signs plant ID cards
<http://vitalsignsme.org/species-identification-resources>
 - Hand lenses
- Technology with iNaturalist for help identifying shrubs
 - Vital signs maine data recording sheets
- <http://vitalsignsme.org/mission-native-vs-invasive-shrub-phenology>

Goals:

- Students will be able to observe change in a species over time in order to develop understanding of the environment's effect on the life cycles of plants.
- Students will be able to compare and contrast the livelihood of different types of shrubs in order to analyze the relationship between invasive and native species.

Standards:

- 5.ESS3.1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- 3.5.ETS1.2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

phenology and other types of ecosystem changes. Allow students 10 to 15 minutes to make observations of the current conditions at the site and then predict future changes that might occur. Students should be recording these observations on the Vital Signs Lesson 1 activity sheet while they are outside.

Second Visit:

2. Using the technology with iNaturalist and the native species ID keys attached, allow students to explore and search for plants they have been assigned to identify.
3. Show students the activity titled Vital Signs Lesson 2 and allow them to use the activity sheet as guiding questions while they investigate outside.
4. Complete activity sheet indoors.

Third and subsequent visits:

5. Students will revisit the assigned area and fill out the vital signs observation sheets. After each visit to the outdoors, evidence should be compiled as a class for submitting through the Vital Signs online portal.
6. Individually, students should complete the lesson three worksheet.

POST-LESSON/ CONCLUSION

- Use the Vital Signs website to explore data that other classrooms and sites have uploaded.
- As you spend more time outside conducting investigations, look at how your data has changed over time.
- Explore the Vital Signs website for other investigations that interest you and your class.
- Explore Vital Signs for other classroom activities and resources that you can use to further extend outdoor learning opportunities.

*Practice 3: Planning and Carrying
Out Investigations*

Sources:

- <http://vitalsignsme.org/mission-native-vs-invasive-shrub-phenology>
 - <http://vitalsignsme.org/species-identification-resources>
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