



Satellites, Weather and Climate
Lesson plan summary: Mapping Skills
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Grade Level: 6-8

Curriculum Target Benchmarks: CCSS.ELA-Literacy.RH.6-8.1, CCSS.ELA-Literacy.RH.6-8.7, H&SS7-8:7, H&SS7-8:11, H&SS7-8:13

Subject keywords: Mapping

INTRODUCTION:

This lesson is designed as a final activity in a unit teaching basic map skills and analysis, along with application of basic concepts central to a Middle School Geography course. It asks students to apply their understandings of geography concepts, map reading skills, and technology and writing skills in a “wrap-up” that literally brings many of these skills and concepts “home” to students. Using both graphic and written primary and secondary sources, they study a local highway, state or interstate road that connects their town (or in the case of a regional facility, their school) with other towns. In addition students apply and practice basic Common Core higher-level thinking skill standards from ELA and Social Studies. This unit and its steps can be easily modified for students with special learning needs, or for those in lower elementary grades or in high school. While the focus of this project is geography and history, it can easily be targeted instead to environmental changes and connections in local areas, climate and agricultural history and trends and in units describing “Sense of Place” in English and language arts courses.

RELEVANT STANDARDS:

Any one or more of these standards can be the focus of a formative or summative assessment, depending on teacher preference around course goals.

CCSS.ELA-Literacy.RH.6-8.1

Cite specific textual evidence to support analysis of primary and secondary sources

CCSS.ELA-Literacy.RH.6-8.7

Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Vermont H&SS7-8:7

Students communicate their findings by developing and giving oral, written, or visual presentations for various audiences.

Vermont H&SS7-8:11

Students interpret geography and solve geographic problems by identifying characteristics of states, countries, and continents using resources such as landmarks, models, maps, photographs, atlases, internet, video, reference materials, GIS and mental mapping.

Students interpret geography and solve geographic problems, using appropriate geographic resources to answer geographic questions and to analyze patterns of spatial variation.

Analyzing how technological and environmental changes impact settlement patterns over time

H&SS7-8:13

Students analyze how and why cultures continue and change over time by analyzing how location and spatial patterns influence the spread of cultural (and environmental) traits

ENDURING UNDERSTANDINGS:

1. In a global sense, all places and peoples are physically and culturally connected to other places and peoples in the world, both today, and in the past.
2. Changes in one location or culture have effects on other locations and/or cultures
3. Human spatial patterns may result from both human and physical actions. These results can be intended or unintended, on purpose or accidentally, and these patterns change over time.

ESSENTIAL QUESTIONS:

1. How is my geographic location connected to others in the world?
2. How is my culture similar to and different from those of other places?
3. How do societies develop and change over time?
4. How are primary sources different from secondary sources?

LEARNING OBJECTIVES:

1. By the end of this activity, students will know that places and their features and cultures constantly are subject to changing conditions, and that individual places are connected to other places.
2. By the end of this activity, students will be able to identify the major physical features of a place and give examples of how these features impact and are impacted by human settlement and activities.
3. By the end of this activity students will be able to identify basic map elements, and use directions and keys to infer basic information about the geographic features and human activities represented.
4. By the end of this unit students can read and understand visual and statistical information given in print and online information given in print and online resources. (Common Core standard).
5. By the end of this unit, students will be able to differentiate between the forms and use of primary and secondary sources as evidence for current or historical events. (Common Core standard).

MATERIALS NEEDED:

Primary Resources: Maps (Town, County, State and US), satellite photos, Google Earth, map quest, historic or contemporary photographs and descriptions of the road. Town archives are very useful as are state photography collections, such as the Vermont Landscape Change website.

Secondary Resources: Local history books, informal town land descriptions, photographs and accounts of the local area or road (paper or online). Newspaper stories, tour guidebooks, Chamber of Commerce information, state or private travel websites, etc

Project Media and Formats: Computer presentation formats such as Google Earth, Prezi, Powerpoint, Google Presentation, Glogster, digital recordings and videos Paper presentations format materials for self-created books or reports, posters, scrapbooks, photograph gallery materials, scrapbook materials etc, as determined by teacher and student based on standards assessed, skill levels and personal preference.

LESSON FORMAT:

Start-Up/Motivator:

Using paper or computer map of their local area around their home or school, students should work together or separately to apply basic TODAL's analysis elements, identifying the Title, Orientation, Date, Author, Legend, and possibly, scale of the map. (TODALs lesson should have been taught and practiced in earlier classes and lessons.) Together as a class, teacher should review higher-level concepts such as population, population distribution, birds-eye-view and movement, using Google Earth visuals of location. Finally students should create a map symbol for their home or school and place it on the map.

Mini-lesson:

a. Students locate a close state or interstate road near their homes or school, then list several other towns connected to their locality along the length of the road, in and out of their state. The last towns (and states) at either end of the road should be included, with their cardinal and/or intermediate directions from their home or school. On their map students should use a heavy colored line to trace the length of the road. As a class discussion, students brainstorm ways the road will connect their town to others, (ideas exploring transportation, job commutes, shopping, relationships to other places will probably come up.). Discuss how students might explain the road to others outside the area and what formats might be most useful in communicating the information.

b. Teacher explains project, perhaps using a simple computer presentation that follows the guidelines determined by the teacher. I use a road near my home in a five slide Powerpoint using photos, maps and pictures, and Google Earth visuals, along with simple descriptive captions. Students will create a presentation based on historic and contemporary facts and visuals they gather and determine about the characteristics and impact of the road, and then present it to the class. In the event that multiple students are studying the same road, they can either work together on the project, or individually study different parts, or directions of the road. Teacher review different resources students can use for the project, and other requirements as determined by standards, goals and objectives chosen. It can take the form of a computer presentation, Prezi, mock Facebook page, Glogster poster, video or other tech format, or on paper as a scrapbook, travel map brochure or some other visual format.

Along with the project directions, guidelines and exemplars students will be given the list of essential questions listed above. As part of the project requirements, each student is responsible for answering each one and providing full and complete evidence and examples for their conclusions.

Independent/ Small Group Work: Students work independently to document the characteristics of the road, and to find examples of how it connects "their" place to other places. They will work by hand or online to find, analyze, create or map what they need for their presentation or scrapbook. Some ideas for the presentation are:

- create a paper or online map centered on the road or in Google Earth
- document a fantasy road trip, using photos, drawings or videos, highlighting important stops
- write a "Time Travel diary" based on current and/or historic accounts describing the road
- include a poem, story or tour itinerary of the road
- describe an important historic event that happened along the road
- present findings (facts, comparisons of towns along the road, past and future uses etc) using graphic organizers such as charts, Venn Diagrams, timelines, webs etc)
- use student photography or other formats to document changes over time along the road

When documenting past and present material, students should practice determining which resources are primary sources and which are secondary. Great discussions about biases in information and resources can come out of the analysis of resources such as maps, photos and newspaper accounts about their localities that can lead to other discussions about the economics, environmental challenges and politics of their local area.

Wrap-Up/ Closure: Presentations can be made individually or in a group format such as a gallery. , with students who are studying one road presenting together. As they present that teacher can assess their work and presentation using a rubric based on class standards as determined by the teacher.

To Adapt and Modify Instruction: This project can be modified in multiple ways. It can definitely be shortened and/or chunked into different discrete parts. Student choice can be used to differentiate activities on the basis of student ability and/or interest. Many of the concepts and skills need to be “front loaded”, if the time period for project research, creation and presentation is shorter. However, this project’s steps could also be used to teach skills and concepts along the way, with the project presentation at the end of a much lengthier unit. It would also be possible to just study one road for the unit, with each student completing different parts along the way.

ASSESSMENTS (FORMATIVE AND SUMMATIVE):

Formative progress is assessed as the student’s work, with frequent check-ins to determine understanding (both whole class and individual student). The project is the focus of the summative.

LESSON REFLECTION:

The biggest challenge is meeting the needs of students from different towns, or a large geographical sending area. In addition, because this unit covers so many different kinds of content and skills, it is important to make sure that each student’s needs are met, and that each of them work to the best of their abilities and understandings. It is also important to have the appropriate amount of time to spend on each aspect of the unit, and to have access to, and understanding of as many different kinds of resources as possible. Students can construct a really high quality of understanding of geographic concepts with this unit, but they need to have the space, time and resources to do it successfully.

RESOURCES/BIBLIOGRAPHY:

It all depends on the place you are studying. This idea was based on a lesson from National Geographic related to studying local geography, sense of place activities and standard “Neighborhood Detecting” types of activities for teaching history, environment and geography. School and town libraries often have archives, collections, files and connections to local historians who can really help provide information and directions for exploration. State historical archives, photos and officials are also really helpful.

From my exposure to SWAC, I am using Google Earth (of course), as well as UVM’s Landscape Change website. This unit started originally as a product in a technology class offered by my local district called “Modern Classroom”. Teachers can access the Technology Integrationist in their own district for help with programs, software, internet resources and Tech tools that might be helpful as well.



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