

The National Map Corps Web-Based Volunteer Activity Lesson Plan

Lesson Plan Title: Mapping Significant Manmade Structures

Concept / Topic: Develop spatial skills and learn to identify familiar man-made structures on aerial photographs

Web Site: <http://ims.er.usgs.gov/vfs/faces/index.jspx>

National Geography Standards Addressed (www.ncge.org/publications/tutorial/standards/):

The World in Spatial Terms

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.

Standard 3: How to analyze the spatial organization of people, places, and environments on Earth's surface.

Places and Regions:

Standard 4: The physical and human characteristics of places.

Human Systems:

Standard 9: The characteristics, distribution, and migration of human populations on Earth's surface.

Standard 10: The characteristics, distributions, and complexity of Earth's cultural mosaics.

Standard 11: The patterns and networks of economic interdependence on Earth's surface.

Standard 12: The process, patterns, and functions of human settlement.

The Use of Geography:

Standard 17: How to apply geography to interpret the past.

Standard 18: To apply geography to interpret the present and plan for the future.

General Goal: Introduce students to the concept of viewing and interpreting aerial images.

Specific Objectives: Identify significant manmade features on an aerial image and assign each feature its proper name.

Required Materials: Access to Internet and knowledge of local area are all that is required.

Lists of some features may be obtained from a telephone book, chamber of commerce, or other industry rosters.

Structure Types

This is the list of features that appears on the web site. The focus of the list is significant man-made structures. The “Other” category is for man-made structures that may arise, but are not on the feature list. The “Other” category is not used as a free-form category and should not include locations such as homes, favorite restaurants, or other commercial establishments.

When selecting a feature, the point used to identify the feature should be placed in the center of the feature - not on the sidewalk, street, or at the entrance to a feature.

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| <ul style="list-style-type: none"> • Acute / Primary Care Hospital • Airport / Airfield • Airport Terminal • Auditorium / Concert Hall / Theater / Opera House • Bus Station / Dispatch Facility • City/Town Hall • College / University • Convention Center • Court House • Day Care Facility • DoD / Military (includes Academies and Reserves) • Electric Facility | <ul style="list-style-type: none"> • Emergency Response or Law Enforcement Facility • Fair / Exhibition / Rodeo Grounds • Fire Station / EMS Station • Government or Military Facility • Homeless Shelter • House of Worship • Hydroelectric Facility • Local Government Facility - Other • Nuclear Facility • Post Office • Prisons / Correctional Facilities | <ul style="list-style-type: none"> • Public Attraction or Landmark Building • Railroad Station • School • Sports Arena / Stadium • State Capitol / Grounds • State Office Building • State Supreme Court / District Court • Tribal Government Building • U.S. Government Facility - Other • Water Tank • Water Tower • Water Treatment Plant • Other |
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Anticipatory Set:

What types of man-made structures are present in your community? How many fire stations, churches, and schools can be identified?

Teaching: Input

If possible the teacher should show the students some examples of a both aerial images and terrestrial images of a few familiar objects such as the school, an airport, or a familiar municipal building such as city hall, the county courthouse, or state capitol.

Teaching: Modeling

After an on-line example is shown, the students should start identifying items individually or in small teams. To avoid redundancy, it may be necessary to divide the project by assigning different geographical areas or groups of attributes to different students or teams. This should prevent the same feature being identified and selected by numerous students.

Teaching: Checking for Understanding

Before allowing the students to begin, the teacher should do some examples for the class to observe. If possible, the features discussed in the “Input” section would make excellent examples.

Step-By-Step Procedures:

- Visit the USGS National Map Corps web-based collection site:
<http://ims.er.usgs.gov/vfs/faces/index.jspx>
- Register as a user of the site: user name, password, first and last names, and an e-mail address is all that is required.
- Using the navigation options available on the web site, locate a community that the student is familiar with, zooming initially with “Topographic Map” option and then, for local detail, use the “Image” option.
- Find features that are in the feature list, and select them with the pointer. Then identify the feature by its proper name and select a feature type.
- If a particular feature is not on the image because it is newer than the image, other information such as other map viewers or street patterns may be used to place a point representing the selected feature.

Plan for Independent Practice: This activity is easily performed on an individual basis in the classroom, library, and home.

Closure:

The teacher may lead a discussion focusing on the types of features that were found, their geographic distribution, and age of features (older features are usually found near the city center). Ask the students where new features may be needed in the future: is a new fire station needed in an area of significant growth, new schools and churches? Where will they be located?

Adaptations (For Students with Learning Disabilities): Students with disabilities will need no more accommodation than they would ordinarily have to work on a personal computer.

Extensions (For Gifted Students): Gifted students may be challenged to make an exhaustive list of a particular type of feature. For example, all of the churches in an area, all of the schools, or all of the stadiums and sports arenas. Lists of these features may be created by referring to a telephone book or a chamber of commerce.

A gifted student may also be encouraged to review existing elements to verify their name, location, and classification.

If you have any questions or comments regarding this lesson plan or if you would like a copy of it in Word format, please contact me:

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