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Note: Example of GIS topo map has been included in this file.

Lesson: Interpreting Topographic Maps using GIS

This lesson is created as an Earth Science laboratory. It will take about 1 – 2 class periods.

Intro:

Topographic maps provide detailed information about the land which can be used for many purposes including hydrographic studies, man's impact on the environment, historical vs current land data, and examination of striking landform features. Extremely accurate topographic maps have been made of every part of New York State and the United States. With access to GIS computer system students and teachers can create and access topographic maps and use these as a model for many earth science concepts.

Scientific Concept:

- Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
- Students will use GIS computer system to collect and display data.

Objectives: Students will use topographic map to gather and analyze data.

Procedure:

Depending on the resources available and how well students know the GIS computer system, teachers and/or students would create or access topographic maps of West Ithaca, NY, Brandon, VT, and Bray, CA using GIS computer system. Students would use these maps within the GIS computer system to answer laboratory questions.

Part A: Ithaca West, New York

1. What is the contour interval of this map?
2. In what part of the map is the gradient the steepest? How can you tell?
3. In which direction is Williams Brook flowing? How can you tell?
4. What feature is found directly south of Ithaca Municipal Airport?
5. What does this tell you about the gradient of the area just south of the airport?
6. In what direction is the Delaware Lackawanna Railroad from the city of Ithaca?
7. What is the distance in kilometers along Coyglen road?
8. Using evidence from the map explain why Ithaca is built where it is.

Part B: Brandon, VT

9. What is the contour interval of this map?
10. Which side of Hawk Hill is the steepest?
11. Calculate the gradient between points A and B. (Show formula and all work)

Part C: Bray, CA

12. What is the contour interval of this map?
13. Determine the straight line distance between the BM (benchmark) on the tops of Orr Mountain and Cedar Mountain.
14. Describe the land just to the northwest of Orr Mountain.
15. What could have formed the two mountain peaks shown in this topographic map?
16. From the map suggest two occupations that might be found in this area. Support your answer.