The Importance of Cartographers in the Civil War

Overview:

In this lesson, students will analyze, interpret, discuss, and gather information from the maps of Civil War cartographer Jed Hotchkiss, focusing on how necessary the maps were to generals who did not know the land and its topography, and how the maps could be used to decide troop movements. Students will then become cartographers, just like Jed Hotchkiss, by creating an aerial map of the topography of an area in their town, without the use of modern technology, and then explaining how their map would be used to decide troop movements that best utilized the topography of the land.

National Geography Standards:

#1 - How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

#15 - How physical systems affect human systems

#17 - How to apply geography to interpret the past

#18 - How to apply geography to interpret the present and plan for the future

Oregon Geography Standards:

5.7. Identify, locate, and describe places and regions in the United States

5.8. Use various types of maps to describe and explain the United States.

5.10. Describe how physical and political features influence events, movements, and adaptation to the environment.

Connections to Common Core (5th grade CCSS are listed for ELA standards, however 4th grade CCSS are the same in these ELA areas. CCSS Math standards are split by grade level):

CCSS.ELA-LITERACY.W.5.1
Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

CCSS.ELA-LITERACY.W.5.3
Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. [if writing extension is used]

CCSS.ELA-LITERACY.W.5.4
Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. [if writing extension is used]

Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. [if math extension is used]

Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. [if math extension is used]

Objectives:
In completing this exercise, students should be able to:

- Explain in writing the importance of mapmakers like Jed Hotchkiss, and the importance of the maps that were created for the generals.

- Analyze the topography of Jed Hotchkiss’s Civil War maps, and explain/justify where troop movement should take place if they were the general using the map.

- Participate in class/group discussion, and then explain in writing, how cartographers were able to create maps of areas.

- Look at the landscape and topography around them and depict it on an aerial map, and explain in writing the techniques they used, and what challenges they faced.

- Analyze the topography of their aerial map, and explain/justify where troop movement should take place if they were the general using the map.

Grade Levels:

5th Grade (can also work for 4th grade, though no Oregon Geographic Content Standard is addressed)
Time:

This lesson will take approximately 5-6 days, depending on the length of class periods and the desired amount of time for students to work on the project.

Materials:

- “Into the Darkness” passage
- Library of Congress - Jed Hotchkiss website (http://www.loc.gov/item/2005625258/) - click on sketchbook photo to access sketchbook, and maps to be used
- Either a clipboard and paper for students to use while exploring the area to be mapped, or a spiral notebook
- Toolkit for mapmaking for each student – pencil, colored pencils, & pencil sharpener
- Writing Journals
- Grid paper for maps [if math extension is used]

Background:

Prior to this lesson, the students will be engaged in a Civil War unit. This lesson should be taught midway through the unit, after they have learned about the beginnings and causes of the war. They should also have an understanding of who was involved in the war, where they were fighting, and how the battles were fought (i.e. the type of rifles and their capabilities, artillery, etc.). It is also expected that the students have a basic understanding of how to read maps, including a scale and key/legend. Finally, it is important that the students have an understanding of what all encompasses topography (i.e. mountains and hills, bodies of water, open fields, forests, man-made structures, etc.).

Vocabulary:

Cartographer * Topography * aerial map

Procedures:

Day 1

- Begin the lesson by asking: “When the generals of the Civil War marched their armies into new lands, how did they know where to go? Would it be important for them to know where the high ground was? Or where the nearest road, river, or railroad tracks were? Would they know where the best stop would be to set up their cannons?” Discuss.

- After students have gotten around to the idea of a mapmaker, introduce the vocabulary words cartographer and topography and discuss their meanings. Record the definitions in a place students will see it as the lesson continues. Use the vocabulary words often.
  - Optional: Vocabulary activity to enhance learning of new vocabulary.
• Read the passage “Into the Darkness” – pass out copies to students; students can read it or follow along as the teacher reads aloud.

• Have students highlight details that they find important as the passage is read.

• Share in partners, or small groups, the information they found was important.

• Share, as time allows, as a whole class.

• Discuss the importance of Civil War cartographers to the generals.

• Give extra attention to Jed Hotchkiss, small biography was in “Into the Darkness.” Extra information can be found at websites like: http://www.civilwar.org/education/history/biographies/jedediah-hotchkiss.html or other sources. Suggested: bring information up on projector for all students to see (if available).

• Have students answer the following questions (formative assessment):
  1. Why were cartographers, like Jed Hotchkiss, important in the Civil War?
  2. Explain the importance of the maps that cartographers created for the generals in the Civil War?

Day 2

• Begin today’s lesson with a quick review of yesterday. Discuss answers to yesterday’s questions.

• Using projector, or individual computers for each students (in the room or in a computer lab), introduce students to the maps of Jed Hotchkiss at Library of Congress - Jed Hotchkiss website (http://www.loc.gov/item/2005625258/) - click on sketchbook photo to access sketchbook, and maps to be used.

• After students have seen their first map, introduce the vocabulary word aerial map and discuss the meaning. Record the definition in a place students will see it as the lesson continues. Use the vocabulary word often.
  o Optional: Vocabulary activity to enhance learning of new vocabulary.

• Analyze the topography of Jed Hotchkiss’s Civil War maps. Discuss what the students see. Keep conversation focused on the topography.

• In partners, or small groups, explain/justify where troop movement should take place if they were the general using the map.

• Repeat map analyzing and discussion about topography and troop movement.

• After several maps have been analyzed and discussed, as many as time allows, pick a map for all students to use. On their own, have students analyze the topography and then complete the following task (formative assessment):
  1. Explain/justify where troop movement should take place if you were the general using the map.

• Have a group discussion on how cartographers were able to create maps of areas, without the modern tools we have today.
• Have students answer the following question (formative assessment):
  1. How did cartographers, like Jed Hotchkiss, create maps of areas during the Civil War?

**Day 3**

• Begin today’s lesson with a quick review of yesterday. Discuss answers to yesterday’s questions.

• Explain that students are going to become cartographers today. Their task is to walk a preset distance [suggested distance: 2 to 3 block radius. However, adjust accordingly based on your town size and/or class behavior] as a class. Along the way they will be sketching the topography of the area. Their sketch will then be turned into a final draft aerial map of the area.

• Review what types of things would be included in a topographical aerial map. Reference a Jed Hotchkiss map if needed.

• Students will be limited to using similar techniques available to a Civil War cartographer, like Jed Hotchkiss. They are not allowed to use modern methods of cartography [i.e. internet, pre-existing maps, etc.]

• Even though they are not using modern methods of cartography, their map should be of what currently exists – including all buildings, landmarks, etc.

• This project will be their summative assessment for this lesson; therefore, it should be completed on their own.

• Distribute either a clipboard and paper for students to use while exploring the area to be mapped, or a spiral notebook.

• Distribute toolkit for mapmaking for each student – pencil, colored pencils, & pencil sharpener

• Remind students of appropriate behavior/safety rules for leaving the school building.

• Take class on walking tour of area to be mapped. Make appropriate stops to allow for sketching.
  
  o This walking tour/sketching of the topography can be split between 2 days if necessary.

• Back in class: have students explain in writing the techniques they used, and what challenges they faced while being a cartographer.

**Day 4**

• Allow time in class for students to take their sketch and create a final draft.

• Be sure they include a Key (or Legend) for any symbols they use on their map.
Day 5

- Students are to analyze the topography of their aerial map, and explain and/or show where troop movement should take place if they were the general using the map.
  - Teacher should indicate whether they would prefer students to draw the troop movements on their map, or even on a photocopy of their map, or if they would prefer students to write the movements on a separate sheet of paper.
  - Teacher will give students a fictional situation.
  - Either:
    - The student’s army has entered the area that has been mapped first, and has the choice of choosing the optimal defensive placement. Troop movement should indicate where the student will place their army, cannons, camp, etc.
    - The teacher will choose an area of the map that the enemy army has already taken control of, and the student must show troop movement indicating the attack to take control of the area, as well as where they will place their cannons, camp, etc.
  - Things to keep in mind:
    - Buildings and/or trees to use for cover?
    - Do they need to dig earthworks?
    - Open space for cavalry?
    - Access to supply lines via waterways, roads, and/or railroad lines?

- Students will then explain/justify in writing the decisions they made – explicitly referring to the topography of the map they created.

- If time allows, either today or on another day, have students share their maps.

Assessments:

Formative:

- DAY 1:
  Have students answer the following questions:
  1. Why were cartographers, like Jed Hotchkiss, important in the Civil War?
  2. Explain the importance of the maps that cartographers created for the generals in the Civil War?

- DAY 2:
  Have students analyze the topography [of a Jed Hotchkiss map] and then complete the following task:
  1. Explain/justify where troop movement should take place if you were the general using the map.

  Have students answer the following question:
  1. How did cartographers, like Jed Hotchkiss, create maps of areas during the Civil War?

Summative:

- DAY 3 - 5
  The aerial map the students create, with explanations/justifications of troop movement, etc. Explanation of the techniques they used, and what challenges they faced being a cartographer.
Extensions:

WRITING EXTENSION:

1. Have students write a narrative story that takes place on the map that was created. Students will include description of the topography of the area and how it influenced the decisions of the general. Students will include the troop movements, cannon and camp placement, etc. in the narrative of the story.
2. Have students write a narrative story that takes place on one of Jed Hotchkiss’s maps. Students will include descriptions of the topography of the land.

MATH EXTENSION:

1. Have students take measurements while they are out mapping the area.
   * This could be done either using measuring tools (i.e. ruler, measuring tape, string with feet marks on it, etc.) or pacing distances.
2. Have students use grid paper to draw their map and create a scale for their map (i.e. 1 grid square equals 1 meter.).
3. For 4th grade: Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit (i.e. meters and centimeters or feet and yards). Record measurement equivalents in a two-column table.
4. For 5th grade: Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems about their map.

Adaptations:

• If needed, students may need partners to complete tasks.

• High-risk behavior students may need an alternative task to leaving the school campus to complete the aerial map. They could be given a premade map created by the teacher, or use a Jed Hotchkiss map.

• Additional time may need to be given for individual students, or an entire class.

• Lesson should be modified accordingly to the needs of individual students.

• If it is not possible for a class to leave campus, a class may complete the lesson by mapping the school grounds.