Theme A

World at Your Fingertips: Cartographic Skills

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SUMMARY

Adaptable Levels
Grades 6 - adult

Related Themes

Values
Aesthetics, confidence

Skills
Observing, coordination, creativity, learning

Integration
Math, social studies, art

PURPOSE

To create a sense of "location" and "place" within each student by teaching them the skills necessary to draw their own maps.

THEME STATEMENT

People, Places & Environment (PPE): Humans create spatial views and geographic perspectives of the world to make informed and critical decisions about relationships.

SUGGESTED TIME

Open (contingent upon skills of students).

KEY VOCABULARY & CONCEPTS

- grid = series of lines which intersect one another at right angles; the entire concept of latitude and longitude is based upon a "global grid"
- latitude = lines or circles drawn on a map or globe which are designed to measure distance from 0° to 90° north and south of the ***equator***; key concepts include:
  - all lines of latitude are known as ***parallels***
  - parallel lines are lines which remain equidistant apart from one another at all times, never intersecting
  - the distance between each line of latitude averages about 69 miles but in reality varies from 68.7 miles at the equator to 69.4 miles at the poles due to the oblateness (flattening) of the Earth at the poles
  - the equator has no directional designation; it is simply 0° latitude
  - the poles have no longitudinal designation because all meridians intersect there
- longitude = lines or semi-circles drawn on a map or globe which are designed to measure distance from 0° to 180° east and west of the ***prime meridian***; key concepts include:
  - all lines of longitude are known as ***meridians***
  - all meridians intersect at the poles
  - the distance between each line of longitude at the equator is 69.17 miles
  - the prime meridian and 180° longitude have no longitudinal designation
  - the prime meridian is 0° longitude
- legend = (also known as the "key"); lines, circles, dots, colors, or symbols drawn on a map or globe which interpret the meaning of the map
- compass rose = a pictorial representation of direction found on a map or globe

MATERIALS NEEDED

- rulers with metric scale
- two sharpened pencils per student
- colored pencils
- regular white paper (8.5" x 11")
- atlas or textbook

INITIATION (Inquiry, Preview, Involvement)

1. Have each student measure the dimensions of the white sheet of paper using the metric scale. The paper should measure approximately 28cm by 21.6cm.

2. Have students study the parallels and meridians on the map selected for reproduction. (NOTE: This could be a map of any country or region.)

3. Have the students count the number of spaces between each ***meridian*** and divide the ***width*** of your paper by that number. For instance, if you counted four spaces along with three meridians, divide 21.6 by four. Your answer to the nearest tenth will be 5.4cm. Draw each meridian 5.4cm apart.

4. Have students count the number of spaces between each ***parallel*** and divide the ***length*** of your paper by that number, using the same method as in Step 3 above. For instance, if you counted five spaces along with four parallels, divide 28cm by 5. Your answer to the nearest tenth will be 5.6cm. Draw each parallel 5.6cm apart.

DEVELOPMENT (Instruction, Data Collection, Organization)

5. Using the metric scale on their rulers, have each student mark off the appropriate measurements on their blank papers. Encourage students to draw lines very neatly. The end result will be a grid system of parallels and meridians intersecting one another at right angles.

6. Have students number each parallel and meridian with the corresponding degrees which are represented on the map of the region/country you have selected.

7. Tell students to choose a designated "square" on their maps and to locate those same coordinates on their grid.

8. Sketch lightly the political outline of the map on the grid as depicted. Tell students to be sure to judge distance and spatial location as close as possible.

9. Once they have finished the first "square," have each student proceed to an adjoining "square," repeating Steps 7 and 8 until a completed outline of the map has been drawn.

10. After you have checked (to your satisfaction) the outline made by each of the students, have each one darken the outline of their map.

11. With a clean sheet of paper for final copy, students should now trace the map using a ruler for the parallels and meridians, taking great care not to make any mistakes. (NOTE: Do not allow the parallels and meridians to cross through the outline of the country/region.)

12. Have students neatly number the lines of latitude and longitude. Once completed, students should put the finishing touches on the map: legend, compass rose, etc.

EXTENSION/ENRICHMENT (Idea Articulation, Ownership, Experimentation)

Encourage students to do further research on a particular aspect of their maps (*e.g*, specific location, certain topographic features). The selection of this feature should be determined by student interest and developed into an essay to accompany their maps.

ASSESSMENT OF ACHIEVEMENT

- Visually compare the student map with the "text"/original copy. How does it compare?
- Use a rubric with a detailed checklist to determine what should be included on each map.