

Jessica Logar

Project-Based Unit

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Part I: Designing a Standards-Based Project

1. On what topic or unit of study will your project focus?

The groups of 3-4 students will decide on a vacation destination to a National Park. They are to select five parks from a list of 10-12 choices, based on the cost of air, car, and train travel, size of the park (area), and height of the mountains there. They will use the internet to obtain their information/research of your parks. Then, they are to represent the data in tables and graphs. Based on the data, the groups will select a Park Vacation and present their conclusion to the class.

2. Describe how this project will address standards in various curriculum areas:

Language Arts – The final presentation and all written information must use correct grammar, punctuation, and capitalization.

Science

Social Studies – geography (US National Parks)

Math – The following 8th grade CSO's will be incorporated:

MA.8.1.3 – computations containing integers and percents.

MA.8.2.10 – data analysis with the use of graphs, tables, drawings, and models

MA8.4.1 – calculating the area of a piece of land

Technology – Students must use computers for research and final presentation (Power Point).

Other

Communication – class presentation to conclude the investigations.

3. List two or three learning goals for this project:

Through the communication, representation, reasoning and proof, problem solving, and making connection within and beyond the field of mathematics, students will (1) collect, organize, and analyze data; (2) compare the result of the investigations through graphs, drawings, and tables; (3) communicate their conclusions in a class presentation.

4. How will you involve students in the planning process for this project?

- Create a rubric as a class (what should be considered in the grading process throughout the project)
- Allow the choice of 5 US National Parks

5. After the project is selected, describe strategies you will use to help students develop **essential questions** to be answered during their participation in this project. (You can refer to <http://www.tnellen.com/alt/essential.html> to help you craft your essential questions.)

Through Group Discussion and Cooperative and Active Learning the students will answer/discuss the following:

1. Choose five National Parks based on the cost of air, car, and train travel, size of the park, and height of the mountains.
2. Which National Park will you spend your vacation? Present your conclusions, with the data to support, to the class.
3. How will your time be spent while you are on vacation? (circle graph)
4. What would be the best way to display your data? (bar graphs, tables, models)

6. Describe the learning activities students will be engaged in during this project:

Teacher-Led

- Presentation of the project
- Rubric development

Individual Tasks

- National Park Research

Team Investigations

- National Park Research
- Cost of airfare, gas, train from your town to each of the 5 National Parks (display data in graph)
- Unit rate of cost per mile (display data in graph)
- Height of tallest mountain at each of the 5 parks (display data in graph)
- Area of each of the 5 chosen National Parks (display data in graph)

Community Connections

- Research/travel brochures from the National Parks
- Gas prices from community stores

7. What strategies will you use to help students plan their final products to present their findings and demonstrate their learning?

The students will mainly use three types of strategies: Group Discussion, Cooperative Learning, and Active Learning through use of technology integration.

8. List the required materials and resources (other than technology).

- Rubric on paper (one per student)
- Pencil
- Paper
- Requested brochures/guides from National Parks
- Books/Magazines on National Parks

Part II: The Role of Technology

1. What technology tools and resources will be used in the project?

- Mobile lab computers/printers
- Power Point (for presentation)
- Intelliboard
- LCD Projector
- Scanner
- Digital camera
- calculators

2. How will technology tools will be used in this learning unit and how will this use help meet the learning goals?

- Research from the computers (Internet)
- Calculations with the use of the calculators
- Final presentation will require Power Point through the use of a computer and LCD projector. Possible uses to aide in final presentation: Intelliboard, scanner, digital camera, and scanner

Part III: Assessment

1. Describe the expected final project product students will prepare and your assessment strategies.

The students must prepare a Power Point presentation which should include the following:

- Pictures and data comparisons pertaining to area, tallest mountain, cost for travel, and cost per mile for each of the chosen 5 parks in constructed tables and graphs.
- Top National Park conclusion with data to support why that park was the chosen out of the 5 for their vacation.
- A circle graph is to be constructed on how the time is being spent for the 7 days of vacation for their chosen park. (must have percentages)

2. What interim or formative assessment strategies will you use during the course of the project?

- Oral assessment - Daily "bell ringers" on data analysis from tables and graphs, area, converting units of measurement (feet, acres, yds) and percentages
- Informal assessment – daily participation in groups
- Formal assessment (quiz) – questions regarding data analysis of different tables and graphs
- Formal assessment (quiz) – creation of a table and graph when given the data
- Formal assessment (quiz) – estimation of the area of land(map) in the form of a parallelogram, rhombus, and trapezoid on a given grid
- Formal assessment (quiz) – conversion of units of measurement (ft, yard, m, acres) when comparing pieces of land

3. How will students received feedback about their performance?

- Teacher comments on paper with student's grades
- Teacher – student conference (this will be done one-on-one while working in small groups)

Part IV: Timeline

Draft a timeline of the learning experiences for this project.

Week (Days) 1- 3 Learning Activities – Research on National Parks Standards – Social Studies Assessment – participation/rubric

Days: 4- 8

Learning Activities – Data Collection and Analysis and choosing 5 National Parks

Standards – MA.8.2.10

Assessment – rubric and quiz

Day 9

Learning Activities – computing and comparing area and tallest mountain of the 5 National Parks

Standards – MA.8.4.1

Assessment – rubric and quiz

Days 10 – 12

Learning Activities – computing total cost of travel and cost per mile Standards – MA.8.1.3 Assessment – Quiz and rubric Days 13 – 15 Learning Activities – construction of the graphs to display the data comparing the 5 parks regarding: area, tallest mountain, total cost of trip, and cost per mile Standards – MA. 8.2.9 and MA.8.2.10

Days 16 – 17

Learning Activities – constructing a circle graph to display the time spent (7 days) doing particular activities including traveling time at the desired National Park

Standards – MA.8.2.10

Assessment – rubric and quiz Days 18 – 20 Learning Activities – Creating Power Point

Standards – MA.8.5.3 Assessment – rubric/check list Days 21- 22 Learning Activities – Group Power Point Presentations Standards – Technology, English/RLA, Math, Social Studies Assessment - rubric

Part V: Sample Project Planning Table for Students

1. Draft an explanation for students for using the Planning Table below and completing their project:

Tasks	Assigned to:	Description	Resources	Timeline
Research	Group	Choose 5 National Parks	computer	3 days
Data Collection	Group	Collect data on those 5 parks : area, tallest mountain, total cost, cost per mile	computer	9 days
Construct Graphs (Bar, Line)	Group	Construct graphs to display and compare the data on area, tallest mountain, total cost and cost per mile	Computer calculators	3 days
Construct Circle Graph	Group	Construct a circle graph to show the time % being spent over the 7 days at your chosen park vacation	Computer	2 days
Create Power Point	Group	Create a Power Point and display the following: (1) graphs comparing the 5 parks on area, tallest mountain, total cost, and cost per mile (2) chosen park to go on vacation with pictures and data to support (3) circle graph displaying % of time spent on certain activities for 7 days (4) any other data or pictures you feel is necessary	Computer scanner camera	3 days
Present Info.	Group	Present your power point to the class and be prepared for questions	Computer LCD Projector Intelliboard	1 day