Interpreting Florida Water Use

Grade Level: 6-9

Time: 90 to 180 minutes

Generalization: Interpreting charts and graphs to gain an understanding of Florida's utilization of water.

Objectives: Students will:
1) collect, interpret, and analyze data from a graphic source to solve problems in the real world.
2) compare and contrast two sets of data and draw a conclusion.

Materials:
- Water Poster
- Calculators
- Paper and pencil,
- Worksheet
- Overhead projector

Procedures:
Initiating Activity:
1. Review and discuss the graphs from the poster pointing out the meaning of the percents.
2. Pass out the worksheet.
3. Discuss in small table groups how to complete Exercise 1.
4. Brainstorm ideas and mutually decide how to proceed.
5. Review and discuss the graphs from the poster pointing out the meaning of the percents.

Strategies:
1. Review worksheet with class.
2. Show water use pie charts and bar charts transparency.
3. Ask students to rank the districts from highest to least use of water for Public Supply in 1995. Does anything change in the 2020 projection?
4. Hand out worksheets.
5. Discuss procedures for solving the problems on the worksheet.

Culminating activity:
Work as table groups to complete the task. Use calculators where appropriate.

Evaluation:
Worksheet

National Geography Standards:
Standard 16: Students know and understand the changes that occur in the meaning, use distribution, and importance of resources.
Standard 18: Students know and understand how to apply geography to interpret the present and plan for the future.
Sunshine State Standards:

MA.A.1.3.1: The students associate verbal names, written word names and standard numerals with integers, fractions, decimals, numbers expressed as percents, numbers with exponents; numbers in scientific notation, radicals, absolute value; and ratios.

MA.A.1.3.2: The student understands the relative size of integers, fractions, and decimals; numbers expressed as percents, numbers with exponents numbers in scientific notation; radicals; absolute value; and ratios.

MA.A.3.3.2: The student selects the appropriate operation to solve problems involving addition, subtraction, multiplication, and division of rational numbers, ratios, proportions, and percents, including the approximate application of the algebraic order of operation.

MA.A.3.3.3: The student adds, subtracts, multiplies, and divides whole numbers, decimals, and fractions, including mixed numbers, to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator.

MA.A.4.3.1: The student uses estimation strategies to predict results, and to check the reasonableness of results.

MA.D.1.3.2: The student creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships.

MA.E.1.3.1: The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations.

SS.B.1.3.5: The student knows ways in which the spatial organization of a society changes over time.

SS.B.1.4.1.b: The student develops maps, tables, graphs, charts, to depict the geographic implications of current world events.

SS.B.2.3.8: The students knows world patterns of resource distribution and utilization.
**WATER USE IN FLORIDA**

Directions: Change the percentages in the Pie Chart into decimals to discover the number of gallons we use in a day.

<table>
<thead>
<tr>
<th>WATER USE CATEGORIES PER DAY</th>
<th>1995</th>
<th>2020</th>
<th>INCREASE IN GALLONS PER DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermoelectric Power</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic and other small public supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Irrigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational Irrigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial, Industrial or Institutional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. In the State of Florida, what industry uses the greatest amount of water? ________________
2. Which industry uses the least amount of water? ________________
3. According to the 2020 projections, how many more gallons of water will be used for Public Supply than in 1995? ____________________________
4. How much more water was used in Public Supply than on Commercial/Institutional for 1995? _________________________________________________________________________
5. What is the combined amount of water use for Domestic and other Small Public Supply and Recreational Irrigation for 1995? _________________________________________________________________________
6. Does this number increase or decrease for the 2020 projection? _________________________________________________________________________
7. How many more gallons of water a day will we use if the 2020 projection is correct? _________________________________________________________________________
8. What do you think the demand for water will continue to increase? _________________________________________________________________________
WATER USE IN FLORIDA

Directions: Change the percentages in the Pie Chart into decimals to discover the number of gallons we use in a day.

<table>
<thead>
<tr>
<th>WATER USE CATEGORIES PER DAY</th>
<th>1995</th>
<th>2020</th>
<th>INCREASE IN GALLONS PER DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermoelectric Power</td>
<td>42.70</td>
<td>99.35</td>
<td>56.65</td>
</tr>
<tr>
<td>Public Supply</td>
<td>1992.76</td>
<td>3034.75</td>
<td>1041.99</td>
</tr>
<tr>
<td>Domestic and other small public supply</td>
<td>306.03</td>
<td>397.40</td>
<td>91.37</td>
</tr>
<tr>
<td>Agricultural Irrigation</td>
<td>3672.37</td>
<td>4109.56</td>
<td>437.19</td>
</tr>
<tr>
<td>Recreational Irrigation</td>
<td>448.37</td>
<td>7135.2</td>
<td>265.15</td>
</tr>
<tr>
<td>Commercial, Industrial or Institutional</td>
<td>654.76</td>
<td>677.40</td>
<td>22.64</td>
</tr>
<tr>
<td>TOTALS</td>
<td>7117</td>
<td>9032</td>
<td>1915</td>
</tr>
</tbody>
</table>

1. In the State of Florida, what industry uses the greatest amount of water? **Agriculture**
2. Which industry uses the least amount of water? **Thermoelectric Power**
3. According to the 2020 projections, how many more gallons of water will be used for Public Supply than in 1995? **1,041.99 million gallons**.
4. How much more water was used in Public Supply than on Commercial/Institutional for 1995? **1,338 million gallons**.
5. What is the combined amount of water use for Domestic and other Small Public Supply and Recreational Irrigation for 1995? **3,978.4 million gallons**.
6. Does this number increase or decrease for the 2020 projection? **The number increases**.
7. How many more gallons of water a day will we use if the 2020 projection is correct? **1,915 million gallons more a day**.
8. Why do you think the demand for water will continue to increase? **The population of Florida will more than likely increase**.