Field Experience Planning Document

Please use this document to plan the field experience you will implement with high school students.

1) Draw a storyboard for the mini project.
2) Include a timeline, major activities, and important milestones in the mini-project.

<table>
<thead>
<tr>
<th>Lesson/Inquiry/Investigation ideas (include sub-question/problem, if applicable)</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Monday</th>
<th>Tuesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>- pick groups</td>
<td>Benchmark Lesson “Increasing Area”</td>
<td>Field trip schedule, checkpoints, data collection.</td>
<td>Summarize data as a group, find new dimensions and necessary alterations, write proposal paper, draw blueprint, and make short PowerPoint for presentations</td>
<td>Group presentation s to the class</td>
<td></td>
</tr>
<tr>
<td>- Show anchor video</td>
<td>- Introduce the driving question</td>
<td>- Make a Know/Need to Know list Choose animal</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of student learning—artifacts/assessments (Include reflection &amp; presentation rubrics)</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Monday</th>
<th>Tuesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement Know/Need to Know chart</td>
<td>Word problem in class and homework problems</td>
<td>Have necessary data collected, and sketch of exhibit.</td>
<td>Writing the proposal paper and finish blue print of new exhibit.</td>
<td>Presentation rubric and artifacts</td>
<td></td>
</tr>
</tbody>
</table>
### Resources needed

<table>
<thead>
<tr>
<th></th>
<th>Large Poster Paper, Markers, entry document, smart board, computer</th>
<th>All hand-outs for benchmark lesson. Packet of field trip information</th>
<th>Data collecting resources (measuring tape, pencil, paper, etc...)</th>
<th>Poster board, computer, markers/map pencils</th>
<th>Rubrics</th>
</tr>
</thead>
</table>

### Project Planning Form

**Product: ___ Analysis Essay & Blueprint_____

1. Analyze the tasks necessary to produce a high quality product.
2. What are the skills students will need to have to complete the tasks you have designed for them successfully?
3. How and when will they learn the necessary knowledge and skills?

<table>
<thead>
<tr>
<th>Knowledge and Skills Needed</th>
<th>Already have learned</th>
<th>Taught before the project</th>
<th>Taught during the project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Measurement</td>
<td>X</td>
<td></td>
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<tr>
<td>2. Volume</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Area (irregular shapes)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Surface Area</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>5. Perimeter</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>6. Analysis Paper</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>7. Basics about Texas’ wildlife enclosure standards</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>8. How to alter area of a given polygon by a certain percentage</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Driving question/problem**
Your group has been hired by the Texas State Government to make sure that the animal exhibits at the Fort Worth Zoo pass the standards set forth in the Texas Administration Code (TAC), Title 13. Also, the zoo wants to add 3 animals to each exhibit and has asked your group to calculate the dimensions for the expanded exhibits, so that they will continue to pass the TAC standards.

**Product(s) for the project**
New Exhibit Proposal Paper and Blueprint of the exhibit with appropriate dimensions.

**STANDARDS (content and process)**
Listed on pages 5, 6, and 7.

**Objectives (SWBAT)**
- SWBAT find the area and perimeter of a given region.
- SWBAT construct a net and find its surface area.
- SWBAT calculate the volume of an object.
- SWBAT increase/decrease a given area and/or volume by a certain percentage
- SWBAT display the change of area/volume using models or nets.
- SWBAT collect accurate data at the Fort Worth Zoo to successfully complete the project
- SWBAT express their findings via research paper.
- SWBAT present their findings in a professional manner.

**How will you get to know your students and foster a sense of community?**
Observe them and see how they interact with one another.
Spend time with them during the field trip creating relationships.

**What student needs will you address?**
Their Need to Knows

**How will you prepare your students for the field experience?**
Talk to them about it on Friday before we go to the zoo. We will provide them with a schedule breakdown of the day. We will give them a packet of information including what data to collect, how to collect it, and how to represent the data in their paper. We will also handout a piece of paper covering clothing, behavior, what to bring/not bring, and consequences of not following behavior guidelines.
EDSE 4500 Project Based Instruction Preliminary Field Trip  
Spring 2011

**DRIVING QUESTION**

Your group has been hired by the Texas State Government to make sure that the animal exhibits at the Fort Worth Zoo pass the standards set forth in the Texas Administration Code (TAC), Title 13. Also, the zoo wants to add 3 animals to each exhibit and has asked your group for the new dimensions for the exhibits so that they will continue to pass the TAC standards.

**END PRODUCT**

Analysis paper to Texas State Government with your findings, Blueprint of the new exhibit with appropriate dimensions.

TEK Standards:

§111.34. Geometry (One Credit).

(a) Basic understanding

(2) Geometric thinking and spatial reasoning. Spatial reasoning plays a critical role in geometry; geometric figures provide powerful ways to represent mathematical situations and to express generalizations about space and spatial relationships. Students use geometric thinking to understand mathematical concepts and the relationships among them.

(4) The relationship between geometry, other mathematics, and other disciplines. Geometry can be used to model and represent many mathematical and real-world situations. Students perceive the connection between geometry and the real and mathematical worlds and use geometric ideas, relationships, and properties to solve problems.

(5) Tools for geometric thinking. Techniques for working with spatial figures and their properties are essential in understanding underlying relationships. Students use a variety of representations (concrete, pictorial, numerical, symbolic, graphical, and verbal), tools, and technology (including, but not limited to, calculators with graphing capabilities, data collection devices, and computers) to solve meaningful problems by representing and transforming figures and analyzing relationships.

(b) Knowledge and Skills

(6) Dimensionality and the geometry of location. The student analyzes the relationship between three-dimensional geometric figures and related two-dimensional representations and uses these representations to solve problems. The student is expected to:

(B) Use nets to represent and construct three-dimensional geometric figures; and
(C) Use orthographic and isometric views of three-dimensional geometric figures to represent and construct three-dimensional geometric figures and solve problems.

(8) Congruence and the geometry of size. The student uses tools to determine measurements of geometric figures and extends measurement concepts to find perimeter, area, and volume in problem situations. The student is expected to:

(A) Find areas of regular polygons, circles, and composite figures;

(D) Find surface areas and volumes of prisms, pyramids, spheres, cones, cylinders, and composites of these figures in problem situations;

(F) Use conversions between measurement systems to solve problems in real-world situations.

(11) Similarity and the geometry of shape. The student applies the concepts of similarity to justify properties of figures and solve problems. The student is expected to:

(B) Use ratios to solve problems involving similar figures;

(D) Describe the effect on perimeter, area, and volume when one or more dimensions of a figure are changed and apply this idea in solving problems.

TEKS –Physics

(1) Scientific processes. The student conducts investigations, for at least 40% of instructional time, using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:

(A) Demonstrate safe practices during laboratory and field investigations

(2) Scientific processes. The student uses a systematic approach to answer scientific laboratory and field investigative questions. The student is expected to:

(H) Make measurements with accuracy and precision and record data using scientific notation and International System (SI) units;

(I) identify and quantify causes and effects of uncertainties in measured data;

(K) communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports;
CCR Standards:

III. Geometric Reasoning

C. Connections between geometry and other mathematical content strands

1. Make connections between geometry and algebra.

3. Make connections between geometry and measurement.

IV. Measurement Reasoning

A. Measurement involving physical and natural attributes
   1. Select or use the appropriate type of unit for the attribute being measured.

B. Systems of measurement
   1. Convert from one measurement system to another.
   2. Convert within a single measurement system.

C. Measurement involving geometry and algebra
   1. Find the perimeter and area of two-dimensional figures.

VIII. Problem Solving and Reasoning

A. Mathematical problem solving
   1. Analyze given information.
   2. Formulate a plan or strategy.
   3. Determine a solution.
   4. Justify the solution.
   5. Evaluate the problem-solving process.

B. Logical reasoning
   1. Develop and evaluate convincing arguments.
   2. Use various types of reasoning.

C. Real world problem solving
   1. Formulate a solution to a real world situation based on the solution to a mathematical problem.
Your group has been hired by the Texas State Government to make sure that the animal exhibits at the Fort Worth Zoo pass the standards set forth in the Texas Administration Code (TAC), Title 13. Also, the zoo wants to add 3 animals to each exhibit and has asked your group to calculate the dimensions for the expanded exhibits, so that they will continue to pass the TAC standards.