Lab Framework

Text: CORD
Unit number and title: Unit 7 – Working with Shapes in Two Dimensions:
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Lab Title

Calculate Perimeter and Area of a Basketball Court 1 & 2

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
  Students are able to measure the basketball court and determine the following:
  Perimeter and Area of a Basketball court
- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)
  Student can use a measuring tape to measure a length
  Student can take measurements and record the measurements
  Student can apply conversion skills to relevant story problems
  Student can add, subtract, and multiply units of measurement
- **Vocabulary**
  Area; Perimeter; Dimensions; Length; Measure; Height; Width;
- **Materials List**
  Measuring Tape
  Scientific Calculator
  Paper
  Pencil or pen
- **State Standards addressed**
- Math:
  - 1.1.4 - Apply understanding of direct and inverse proportions to solve problems.
  - 1.2 - Understand and apply concepts and procedures from measurements.
  - 2.2.2 - Apply strategies to construct solutions.
  - 3.3.2 - Analyze thinking and mathematical ideas using models, known facts, patterns, relationships, counter examples, or proportional reasoning.
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- Reading:
  - 1.2.2 - Apply strategies to comprehend words and ideas.
  - 2.1.4 - Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: use prior knowledge.
  - 2.1.5 - Apply comprehension-monitoring strategies for informational and technical materials, complex narratives, and expositions; synthesize ideas form selections to make predictions and inferences.
  - 2.3.4 - Synthesize information from a variety of sources.
- **Leadership Skills**
  Student can lead a group to collect and record data

Student will make an individual presentation to the class

- **SCAN Skills/Workplace Skills**
  Basic Skills: C
  Writing: A
  Mathematics: A; C
  Thinking Skills: Creative Thinking; Problem Solving
  Seeing Things in the Mind's Eye: A; B
  Reasoning: A; B; C
  Personal Qualities:
  Responsibility: B
  Self-Management: A; C
- **Set-up information**
  Prior to class put on the teacher's desk the following materials:
  Tape Measures
  Paper
  Rulers
- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required)**
  Divide class into work groups.
  Members of group determine: who will read the tape measure; who will hold the end of the tape; who will record the measurements
  Time required: 5 minutes
- **Teacher Assessment of student learning** (scoring guide, rubric)
  Scoring Guide with scoring rubric
- **Summary of learning** (to be finished after student completes lab)
  -discuss real world application of learning from lab
  -opportunity for students to share/present learning
  How skill helps in determining size of area for building or storage.
  Discuss ways that skill could help student select areas for farm animals
  Discuss ways to present data to an audience
- **Optional activities**
  Measure a filing cabinet and determine its area
  Measure a desk and determine its area
- **Career Applications**
  Construction
  Engineering

LAB TITLE:

Calculate Perimeter and Area of the Basketball Court 1 & 2

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  You are going to measure the basketball court #1 and #2 to determine the perimeter and area of the basketball court. Location of #1-Outside, Location of #2-Gym

- **Grouping instructions and roles**
  The class will be divided into groups of 3 students by the teacher.
  Each group will have the following roles:
  Holder of end of tape
  Reader of measurement
  Recorder of measurements

- **Procedures** – steps to follow/instructions
  1. Collect a tape measure from teacher
  2. Measure the perimeter- Perimeter=2L+2W
  3. Measure the area- Area= Length x Width
  4. Record the measurement

- **Outcome instructions**
  After the measurements have been recorded, the group gets together to calculate the area of the basketball court.

- **Assessment instructions** (peer-teacher)
  Assess correctness of measurements
  Assess proper calculation of area of the basketball court.

Lab Data Collection

Student: _____ **Date:** _____

Unit: _____

Lab Title:

Calculate Perimeter and Area of the Basketball Court 1 & 2

Criteria: Write the problem/objective in statement form using complete sentences.

Data Collection: Record the collected/given data

Length of court #1: _____

Width #1: _____

Length of court #2: _____

Width#2: _____

Calculations: Complete the given calculations to solve for an answer(s)
Formula for: Perimeter=2L+2W Area=Length x Width

Perimeter of basketball court #1:_____

Perimeter of basketball court #2:_____

Area of basketball court #1: _____

Area of basketball court #2: _____

Summary Statement: What did you discover?

Other Assessment(s) How did things go? What would you change? What did you like best?

Grading Rubric for Lab

Topic: BC #1	**Points Possible**	**Points Earned**
Measuring of Length	5	
Measuring of Width	5	
Calculation of Area	10	
Calculation of Perimeter	10	
Team Work	15	

Total_____

Topic: BC #2	**Points Possible**	**Points Earned**
Measuring of Length	5	
Measuring of Width	5	
Calculation of Area	10	
Calculation of Perimeter	10	
Team Work	15	

Total_____

Points Earned BC #1:_____

Points Earned BC #2:_____

Total Points for both #1 and #2:_____