South Carolina Academic/Career Development Integration Activity (DRAFT)

Title **Under Construction (HM-5)**
Subject **Measurement** **Grade Level(s) 9-12**

SC Content Standard Measurement - Standard II. Apply appropriate techniques, tools, and formulas to determine measurements.

Expectation B. Understand the use of formulas for the area, surface area, and volume of geometric figures, including cones, spheres, and cylinders.

II.B.1. Use formulas for surface area and volume of three-dimensional objects to solve practical problems.

National Career Development Guidelines Goal/Indicator
Career Management GOAL CM3. Use accurate, current, and unbiased career information during career planning and management.

Indicator CM3.K5 Identify occupations that you might consider without regard to your gender, race, culture, or ability.

Career Development Objectives Career Development Objectives
1. The student will use formulas to determine surface area and volume to solve a real world problem.
2. The student will expand awareness of the wide variety of occupations in the Architecture and Construction career cluster.
3. The student will recognize that problem solving is an employability skill.

Assessment
1. The student will solve a real world problem by correctly using formulas for surface area and volume.
2. The student will list at least 20 occupations in the Architecture and Construction career cluster.
3. The student will recognize that problem solving is an employability skill that can be used in many occupations. (Class discussion, Teacher observation.)

Preparation

• Prior Learning—Instruction in solving problems related to area and volume, familiarity accessing websites on the Internet
• Handouts/Worksheets—*Under Construction* worksheet
• Resources/Materials—writing materials, access to the Internet, Optional: O*Net (http://online.onetcenter.org), or SC Careers system, or other career information system
• Time Required—90 minutes

Procedures

Part One (60 minutes)

• In this activity, students will practice solving problems dealing with area and volume. They will see how the thought processes and skills they use in solving math problems are employability skills they can use in almost any job. They will become aware of the many occupations in the Architecture and Construction career cluster.
• Review with students the formulas for finding area and volume.
• Give students a copy of the *Under Construction* worksheet. Review the directions with them.
• Give students time to complete the assignment in Part 1 of the worksheet.
• Have students complete Part 2 of the assignment (occupation collage or chart) as homework. Introduce students to the websites listed under *Resources* and answer any questions they might have.

Part Two — Career Development Connections (30 minutes)

• Begin by having students share their collages or charts by listing some of the occupations they discovered. Are any of these occupations of interest to the students? What skills do workers in these occupations have to have? What education/training do they need?
• Remind students that they used an important employability skill, problem solving, in completing the assignment.
• What other employability skills helped them to complete the assignment? (For example: knowledge of math, reasoning, creative thinking, and decision-making.)
• Optional: Have students use the O*Net, SC Careers system, or other career information system to research an occupation of interest and see what employability skills are key.
• Optional: Use the collage or chart as an artifact in the student's career portfolio.

Crosswalks

SC Career Guidance Standard/Competency

Learning to Work Standard 3. Students will explore careers and the connection of school to work.

Competency 3.7. Become aware of different occupations and nontraditional roles.

Key Employability Skills

Thinking Skills—Problem-solving, decision-making, critical thinking, reasoning
Basic Academics—Arithmetic/Mathematics

Under Construction

Name _____ Date _____

Part 1 The Parking Lot Problem

Directions: Imagine you are working for a company that is building a new parking lot at the local high school. You are the construction project supervisor and have to plan the work. Answer the questions below about the parking lot.

1. Parking Lot Dimensions: 165 feet x 200feet

What is the area of the parking lot in square feet? Show your work below.

Area in square feet_____

2. In order to prepare the parking lot for paving, a base of gravel must be laid. The existing ground cover must be removed to a depth of 2 feet. How many cubic feet of dirt that must be removed? Show your work below.

3. The dirt must be hauled away. The dump trucks your company uses can hold 20 cubic yards of dirt. How many truckloads will be required to remove all of the dirt? Show your work below.

Part 2 Who Does the Work?

Directions: There are many occupations in the Architecture and Construction Career Cluster. Create a collage or construct a chart that shows at least 20 occupations. Remember this career cluster includes: designing, managing, building, and maintaining the built environment.

Internet Resources:

www.careerclusters.org
www.glencoe.com/sec/careers/clusters
www.emints.org.ethemes/resources
www.bls.gov/k12/science
www.bls.gov/oco
http://online.onetcenter.org

Check with your school counselor or at the media center for other resources.