



Student Worksheet: Calculating Areas

Introduction

In this lesson, you practice calculating areas of different geometric figures within the context of a problem-based learning scenario. You will use these skills in the M.A.R.S. mission to make important decisions concerning the location of the base.

Materials

- Calculating Areas worksheet
- Pencil
- Calculator (optional)

Formulas

- Area of a rectangle - $A = B \times H$
B=base
H = height
- Area of a triangle - $A = \frac{B \times H}{2}$
- Area of a circle - $A = \pi \times r^2$
- Area of a quadrilateral - $A = \frac{B \times (H1 + H2)}{2}$

$\pi = \pi = 3.14$

Radius (r)—a line extending from the center of a circle or sphere to the circumference (outside boundary)

Procedure

1. Review the formulas for the areas of different geometric figures.
2. Read the problem activity which follows and complete the chart.

Problem

You and your school nature club are trying to raise money for a club field trip to the Amazon rain forest. You have agreed to landscape the school grounds and plant flower bulbs to bloom in the spring.

The school board wants the bulbs planted in a very specific way so the new bulbs blend in with the existing landscaping.

They want the largest area planted with tulips, the next largest area with daffodils, the third largest area with crocuses, and the three smallest areas are to be planted with wildflower bulbs.

There are six areas to be planted, but you and your club have a problem! All of the areas are of different sizes and shapes! You will need to calculate the areas before you plant the bulbs so you plant the correct type of bulb in the correct area!

You measure each area to be planted and draw the follow diagrams:

circle #1	rectangle	triangle #1	quadrilateral	circle #2	triangle #2
r = 3.5 meters	B = 5 meters H = 3 meters	B = 6 meters H = 2 meters	B = 2 meters H1 = 2 meters H2 = 3 meters	r = 5 meters	B = 4 meters H = 6 meters

Directions:

1. Calculate the area of each shape to be landscaped. Use the space below the table to show your work.
2. Complete the following table listing the area and the type of flower bulb you will plant in each location. Work carefully! Your club will not get paid if you are wrong!

Location	Area (m2)	Type of Flower Bulb Planted
Circle #1		
Circle #2		
Rectangle		
Triangle #1		
Triangle #2		
Quadrilateral		