*First Green is an innovative environmental and STEM education outreach program using golf courses as environmental **learning labs**.*

Maths

on the golf course #1

Golf Fairway (Square meterage)

Superintendents use math on the golf course in many ways and area measurements are the most important. A golf course superintendent should be able to accurately calculate the size of an area. Once the size is calculated and an application rate is chosen, the total amount of seed, fertiliser, or topdressing sand to be used can be determined.

Student Learning Objectives

1. What is a square meter?
2. What is a rectangle and how do you calculate the area of a rectangle?
3. What is a Hectare and how many square metres are in a hectare?
4. A rugby field is a rectangle. A full size rugby field is [110 metres long, and 68 metres wide] How many thousand square metres are in a professional rugby field?

Note: The teacher may want to have additional material covered. Take time to talk with the teacher in advance of the excursion.

Excursion Requirements

- 30 m measuring tape
- Calculator
- Clipboards and pencils
- Irrigation flags or spray paint to determine the corners of the area being measured

Excursion Activity Outline

Take the students out to an area on the golf course to calculate the size of an area. Start out with a smaller rectangle -- about 6 X 10 metres and have the students measure that area. Mark the corners with irrigation flags or spray paint so the students can see the total area being measured. Provide a location with several teeing areas or rectangles marked out.

Ask the Students

- How do you determine the area of a rectangle?
- What is a square meter and how big is it?
- How many square metres are in the sample area?

Steps

1. Ask students to pair up.
2. Give each pair of students a worksheet, and a pencil. These calculations can easily be done without a calculator.
3. Instruct the students to fill in the numbers on the worksheet.
4. Have the students ask any questions they may have completing the worksheet.
5. Go over their results and compare to the worksheet answers.
6. End with a discussion of what they learned and why it is important to be able calculate area measurements.

Additional Recommended Reference

Christians, Nick, and Michael L. Agnew. *The Mathematics of Turfgrass Maintenance*. 3rd ed. N.p.: Wiley, 2000. Print.

Worksheet #1 for Math on the Golf Course

Date_____ **Golf Course** _____

Student Name _____

Calculating Area Measurements

1. The area of a rectangle is determined by length (l) X width (w).
   One square meter is 100 cm by 100 cm or 1m x 1m. How many square centimetres are in one square meter?

2. Golf tees are generally rectangular and can be made up of several smaller sections.
   What are the dimensions of each tee surface within the sample area in metres?
   a. length_____ width_____

   b. length_____ width_____

   c. How many square metres in tee a? _____

   d. How many square metres in tee b? _____

   e. What is the total area in square metres of all tees?

   _____

f. The golf course fairway above is 50 m wide by 220 m long
   How many square metres is fairway? _____

g. How many hectares? _____

Extra Credit/Extension

One hectare is 10,000 square metres. An average golf course has 25 hectares of playing surface. How many square metres in 25 hectares?

If a golf course is 60 hectares in size, how many rugby fields would fit on the golf course?