Estimation Challenge   **Teacher Information**

During this lesson students will:
- Estimate length to the nearest centimeter/inch.
- Accurately measure the length of the sides of each shape to the nearest centimeter/inch.
- Determine the perimeter of each planting bed.

Directions:

1 - Provide students with copies of the lesson worksheet, calculators, and measuring tapes.
NOTE: There are two versions of the student worksheet: metric and English system.

2 - Instruct students to measure the length of each part of their body to the <u>nearest centimeter or inch</u>. They need to record this information on the worksheet.

3 – Have students use their measurements and a calculator to answer the questions for part 1.

4 – Allow time for students to use what they learned in Part 1 to estimate the perimeter of each planting bed.

5 – After you have approved their estimates, allow time for students to use the measuring tapes to measure the sides of each planting bed and record this information on the worksheet.   When students have all the measurements, they need to use the calculator to determine the perimeter in centimeters/meters or inches/yards.

6 – Discuss the student's estimations and have them compare those to the actual measurements.

7 – Allow time for students to complete Part 3 (optional) on the back of the worksheet. For this section, they will need to find one item (plant, rock, etc.) and find its length, width, or height. After writing it on the worksheet, they should ask three classmates to estimate the measurement to see who can come closest to the actual measurement.

*For more information about the Interactive Math Garden and additional lessons,
go to http://sciencespot.net/Pages/mathgarden.html.*

Estimation Challenge
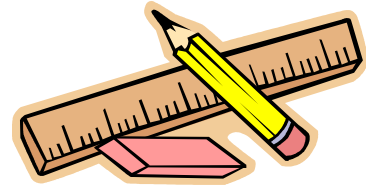
Name _____

Part 1: How long is a meter?
Use a meterstick to measure the length of each part of your body to the <u>nearest centimeter</u>.

Width of Hand (Open) = _____ cm

Arm Length = _____ cm

Shoe Length = _____ cm

Stride (Normal Step) Length = _____ cm

How many "open hands" would it take for you to make a meter? _____

How many "shoes" would it take for you to make a meter? _____

How many "strides" (or steps) would it take to make a meter? _____

Part 2: Take a guess!
Find each location and estimate the perimeter for each planting area to the nearest centimeter.   Use what you learned in Part 1 to help you!

Rectangle = _____ cm   *Hexagon = _____ cm*   *Pentagon = _____ cm*

Part 3: Measure it!
Use a meterstick or measuring tape to measure the sides of each of the planting beds as well as the entire garden to the <u>nearest centimeter</u>. Record your data in the chart.

Planting Bed	*Length of Sides* *(in centimeters)*	*Perimeter* *(in centimeters)*	*Perimeter* *(in meters)*
Rectangle	_____ + _____ + _____ + _____		
Pentagon	_____ + _____ + _____ + _____ + _____		
Hexagon	_____ + _____ + _____ + _____ + _____ + _____		

How close were you to the actual perimeters for each location?

Part 3: Your Turn

Use a meterstick to measure the length, width, or height of one item in the garden.
Write down the measurement to the <u>nearest centimeter</u>. Challenge three of your
classmates to estimate the length, width, or height to see how well they can do!
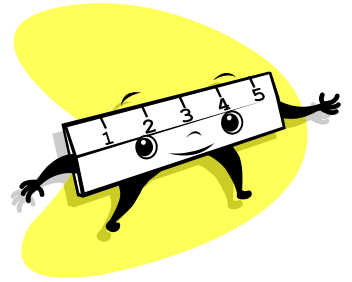
Item: _____

Measurement: _____

Guesses

Name _____ Estimate: _____

Name _____ Estimate: _____

Name _____ Estimate: _____

Who did the best at estimating the measurement of your item? _____

Estimation Challenge
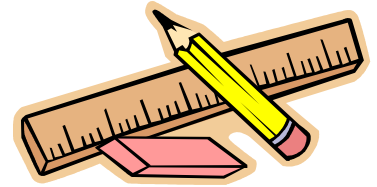
Name _____

Part 1: How long is a meter?
Use a meterstick to measure the length of each part of your body to the <u>nearest inch</u>.

Width of Hand (Open) = _____ *in*

Arm Length = _____ *in*

Shoe Length = _____ *in*

Stride (Normal Step) Length = _____ *in*

How many "open hands" would it take for you to make a yard? _____

How many "shoes" would it take for you to make a yard? _____

How many "strides" (or steps) would it take to make a yard? _____

Part 2: Take a guess!
Find each location and estimate the perimeter for each planting area to the nearest yard.   Use what you learned in Part 1 to help you!

Rectangle = _____ *yds*   *Hexagon =* _____ *yds*   *Pentagon =* _____ *yds*
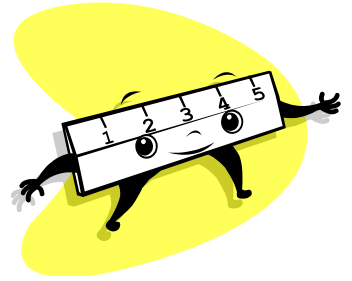
Part 3: Measure it!
Use a meterstick or measuring tape to measure the sides of each of the planting beds as well as the entire garden to the <u>nearest centimeter</u>. Record your data in the chart.

Planting Bed	*Length of Sides (in inches)*	*Actual Perimeter (in inches)*	*Actual Perimeter (in yards)*
Rectangle	_____ + _____ + _____ + _____		
Pentagon	_____ + _____ + _____ + _____ + _____		
Hexagon	_____ + _____ + _____ + _____ + _____ + _____		

How close were you to the actual perimeters for each location?

Part 3: Your Turn

Use a meterstick to measure the length, width, or height of one item in the garden. Write down the measurement to the <u>nearest inch</u>. Challenge three of your classmates to estimate the length, width, or height to see how well they can do!

Item: _____

Measurement: _____

Guesses

Name _____ Estimate: _____

Name _____ Estimate: _____

Name _____ Estimate: _____

Who did the best at estimating the measurement of your item? _____