

d. Locate this display case at the Colonial Garden.

(i) Using a measuring tape, measure the length and breadth of the rectangular structure $ABCD$. Hence, calculate its area.



Blank area for student response.

(ii) Using a measuring tape, measure the dimensions of the 2 glass panels E and F and calculate its total area.

Blank area for student response.

(iii) Calculate the percentage of the rectangular structure that is covered by glass.

Blank area for student response.

REFLECTION

Explain briefly, the difficulties encountered when attempting this Mathematics trail.

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State briefly what you have learnt from this Mathematics trail.

Blank area for student response.

This activity sheet was developed in collaboration with Temasek Secondary School.

Name: _____

Mathematics at the Gardens! 2



Lower Secondary School Programme

INSTRUCTIONS

Participants are to bring along a pen, calculator, a string of about 2 metres in length, ruler and measuring tape for this trail.

AT THE SUN PAVILION

1. Acknowledgement Sign

Locate the sign as shown in the photo here.



a. With the help of a measuring tape, measure and record the length of a and b .

$a =$ _____ cm

$b =$ _____ cm

b. By using 1 cm to represent an actual length of 10 cm, draw an accurate scale diagram of the actual sign.

Blank area for drawing a scale diagram of the sign.

- c. Based on your observation, is the given figure a square? Explain your answer.

2. Lamp Post

Locate any of the lamp posts at the Sun Pavilion. Observe the lamp post and identify the portions labelled x and y , as seen in the photo here.



- a(i) Using a measuring tape, measure and record the circumference of the thinner portion of the lamp post.

$x =$ _____ cm

- a(ii) Hence, calculate the diameter of the thinner portion of the lamp post. (Take $\pi = \frac{22}{7}$)

- b(i) Using a measuring tape, measure and record the circumference of the thicker portion of the lamp post.

$y =$ _____ cm

- b(ii) Hence, calculate the diameter of the thicker portion of the lamp post. (Take $\pi = \frac{22}{7}$)

7. Colonial Garden

Locate the map of the Colonial Garden.

- a. Using a measuring tape or ruler, measure and record the values of a , b and h .

- b. Hence, calculate the area of the given figure. Show all your workings clearly.



- c. Locate the following display at the Colonial Garden.

- (i) Using a measuring tape, measure the various dimensions of the picture frame. Hence, calculate the area of the white border surrounding the picture.



- (ii) By looking at the picture closely, state the year written on the collectible trade card. Calculate the number of years that have passed since the year recorded on the card.

- a. Using the measurements obtained, calculate the perimeter of the given figure.

Blank area for answer to question a.

- b. Using the measurements obtained, calculate the area of the given figure.

Blank area for answer to question b.

- c. Locate any of the sheltered circular seating areas at the Malay Garden.



- (i) Measure the diameter of the circular seat. Hence, calculate the area of the circular seat. ($\pi = 3.14$)

Blank area for answer to question c(i).

- (ii) By measuring the circumference of the purple pillar, calculate the area of the circular seat (top portion, made of wood). Elaborate on the steps taken to derive the final answer. ($\pi = 3.14$)



Blank area for answer to question c(ii).

- c. Calculate the ratio of the circumference of the thinner portion of the lamp post to the thicker portion.

Blank area for answer to question c.

- d. Calculate the ratio of the radius of the thinner portion of the lamp post to the thicker portion.

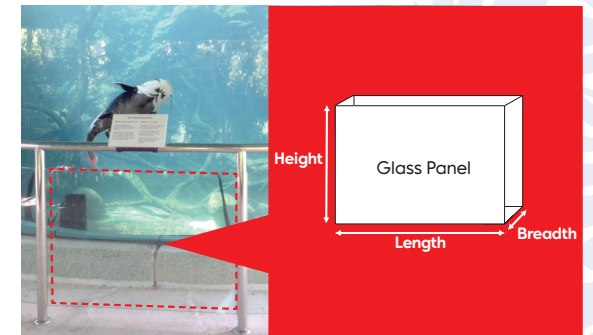
Blank area for answer to question d.

- e. By comparing the two ratios from (c) and (d), what conclusion can you draw?

Blank area for answer to question e.

3. Big Fish Aquarium

At the Big Fish Aquarium, measure and record the length, breadth and height of any glass panel located under the metal railing.



Length=_____ cm Breadth=_____ cm Height=_____ cm

- a. Calculate the volume of one glass panel.

Blank area for answer to question a.

- b. If all the glass panels below the metal railing are removed and stacked together, calculate the volume of the new solid formed, assuming all glass panels are of the same dimension.

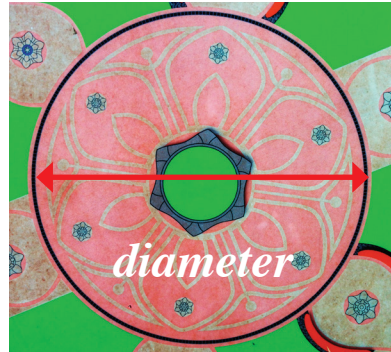
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AT THE HERITAGE GARDENS

4. Indian Garden

Locate the map of the Indian Garden.

- a. Using a measuring tape and string, measure the circumference of the big pink circle.



Blank area for student response.

- b. Using a measuring tape, measure the diameter of the pink circle.

Blank area for student response.

- c. Using the formula for the circumference of a circle, derive the value of π based on the set of data you have obtained from (a) and (b).

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- d. Compare the value of π you have calculated based on your set of data and its true value. Explain why the two values are unlikely to be exactly the same. (Hint: true value of π is 3.141592.....)

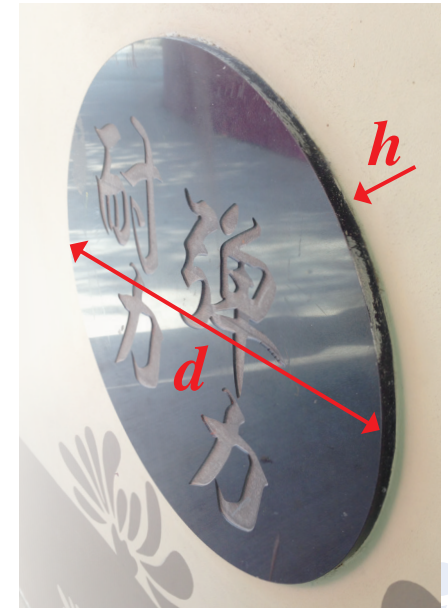
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5. Chinese Garden

Locate the following display at the Chinese Garden.

- a. Using a measuring tape to find the value of d , calculate the cross-sectional area of this cylindrical-shaped display in square centimetres. ($\pi = 3.14$)

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- b. By measuring the value of h , the thickness of this cylindrical-shaped display, calculate its volume in cubic centimetres.

Blank area for student response.

- c. Convert your answer from (b) into cubic millimetres.

Blank area for student response.

6. Malay Garden

Locate the map of the Malay Garden.

Using a ruler, measure the length of the various sides of the figure that is made up of red rectangles.

