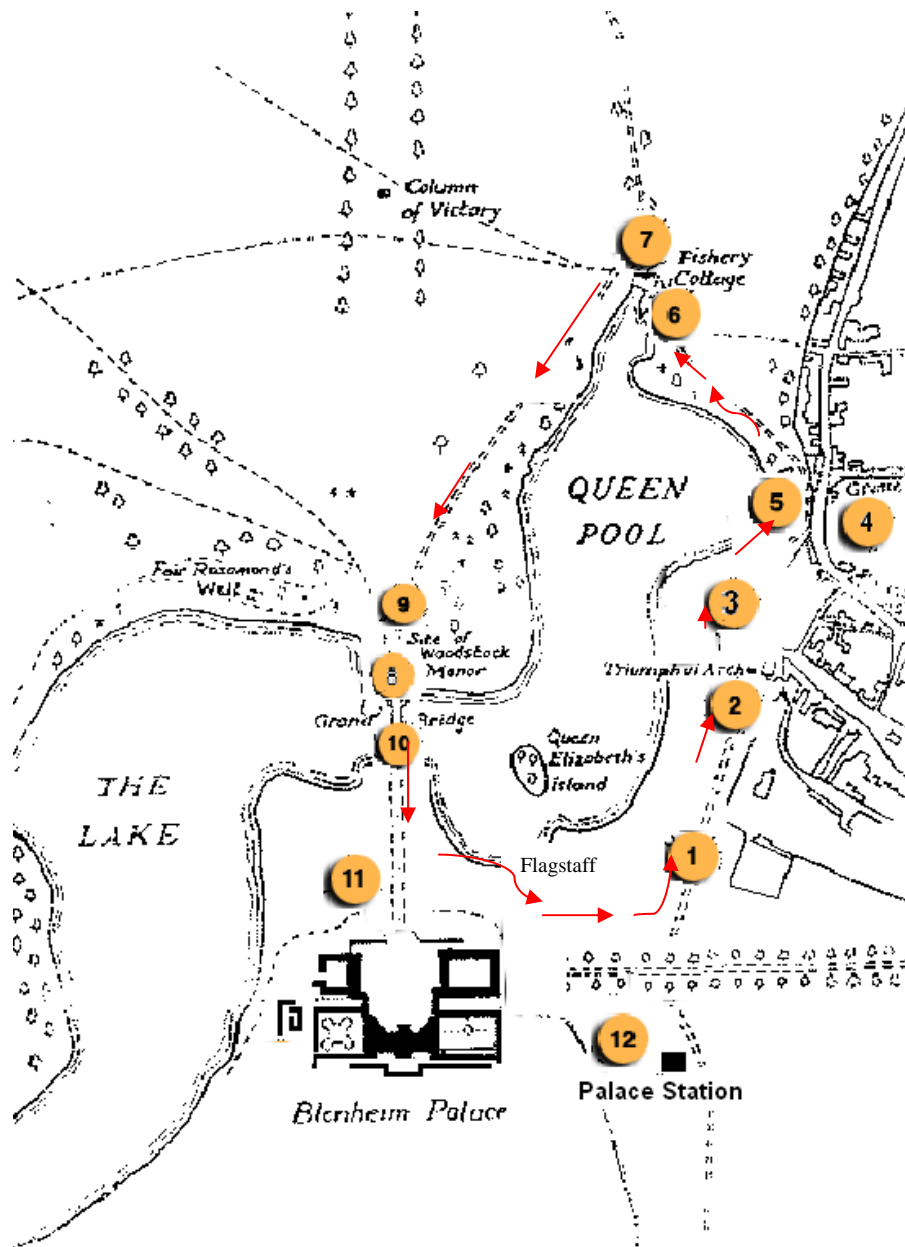


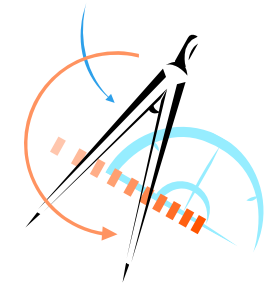
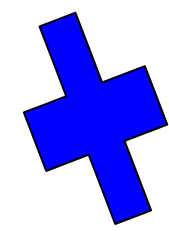
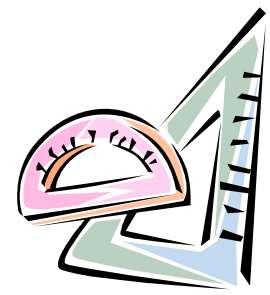
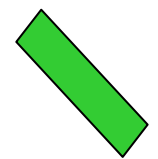
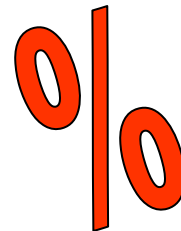
MAP OF THE GROUNDS



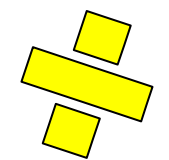
MATHS TRAIL

KEY STAGE 3: MATHEMATICS

Name _____



BLENHEIM PALACE





PLEASE REMEMBER TO WATCH OUT FOR TRAFFIC WHEN WALKING ON ALL ROADS

THE QUESTION NUMBERS RELATE TO THE NUMBERED POINTS ON THE MAP AT THE BACK OF THIS BOOKLET.

Start at the Flagstaff Gate entrance

BONUS a How many hours is the cinema open each day?

Leave the car park with Flagstaff gate behind you and walk to the crossroads.

BONUS b How many fingers are there on the signpost?



At the crossroads turn left and stand to face the Triumphal Arch at the Woodstock Gate.

1. From work at school, you should know approximately how many paces you take to walk 10m. Use this knowledge to estimate the distance from the crossroads to the Triumphal Arch. Write down each of your team member's answers.

Find the mean average estimate of the distance



Make sure you are facing the Triumphal Arch

Turn left and follow the path back to the Flagstaff Gate then walk to the Palace station and catch the next train to the Pleasure Gardens Station.

12 Time how long your journey takes, to the nearest minute. This stretch of railway track is 800m long.

Find the average speed of the train

a) in m/min

b) in km/hour



BONUS PUZZLE

Fill in this table with your answers to the bonus questions.

BONUS	a	b	c	d	e	f	g	h
ANSWER								

Now substitute your values for **a** to **h** in this expression.

$$bc(2g - h) + 2f^2 + \frac{7(d + e)}{a}$$

Your answer will be a year in the 20th century.

What significance does this year have in the life of Winston Churchill?

Turn back towards the bridge.

10 There are some small square based stone pyramids decorating the bridge.

If the base of each pyramid is about 50 cm by 50 cm and the perpendicular height is about 33 cm.

Use the formula Volume of Pyramid

$$= \frac{1}{3} \text{ area base} \times \text{height}$$

to find the volume of one pyramid.

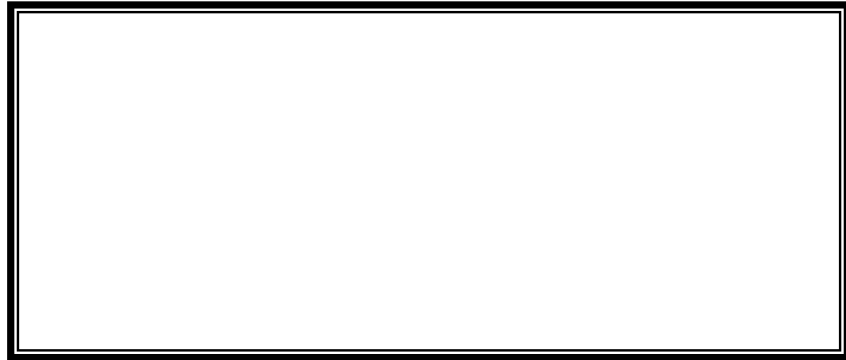


BONUS g How many pyramids are there altogether on the bridge?

Walk across the Grand Bridge towards the main entrance to the Palace.

Stop at the Palace gates.

11 Choose, and then sketch, a section of the gate that displays symmetry.



BONUS h How many golden spheres (orbs of Victory) can you see decorating the Palace?

BONUS c What is the speed limit for cars entering the Park by this gate?

2. The date on the Triumphal Arch is written in Roman numerals. Write the date in Arabic numerals.

Turn away from the gate and face the path that goes downhill towards the lake

BONUS d There is a number on one of the trees. What is it?



Walk down the hill.

3. If, for the last, steepest part of the path, the horizontal distance you have travelled is 150m and the vertical distance is 15m, what is the gradient of the hill?

Give your answer as a percentage.

Walk on until you reach the first bridge.

BONUS e How many arches form this bridge?

4 How old was Roland Minchin when he died?
How many leap years was he alive for?

Continue a short distance to the next bridge

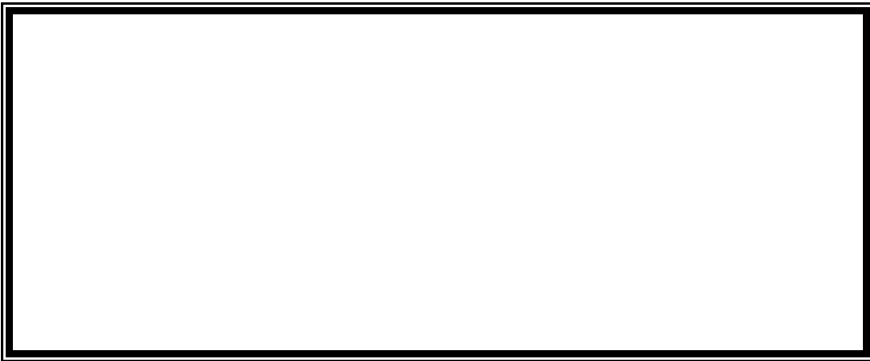
- 5 a. Briefly describe a method to estimate the speed of water passing under the bridge



- b. Use your method to find an estimate of the speed in metres per second. The distance from the side of the bridge to the weir is approximately 5m

Continue along the path to Fishery Cottage

- 6 a. Stand in front of Fishery Cottage and sketch a front elevation of the house.



- b. Name the different polygons that are in your diagram?

Continue a little further along the path to a triangle of grass between the paths. There is a large old tree growing here.

- 7 a. Suggest a method to estimate the circumference of the tree growing on the triangle.



- b. Use your method to find an estimate.

Turn left and follow the path keeping the lake on your left. Stop when you come to a stile over the electric fence on your right.

- BONUS f** How many steps are there on the stile?

Continue along the path until you come to a stone sign post just before the Grand Bridge.

- 8 Standing at the sign post with your back to the Palace you will see a tall monument called the Column of Victory. Find the 3 figure bearing of the column from the sign post.



- 9 Just in front of you is a gate into a field. The gate is 50 inches wide and 50 inches high. Use Pythagoras' Theorem to calculate an estimate for the length of the diagonal strut on the gate.

