Name _____ Date _____

Science Mastery

Microscopes

1. State the equation to calculate magnification using an image and its actual size.

2. Explain why electron microscopes are particularly useful.

_____

_____

_____

3. Use the magnification equation to help you complete the missing values in the table. Show all working and units where necessary.

Size of Image	Size of Object	Magnification
10 mm	0.001 mm	
20 mm		5000
	5 µm	10000
15 mm	0.03 mm	
0.5 cm		2500
	0.035 mm	1000

Name _____ Date _____

Science Mastery

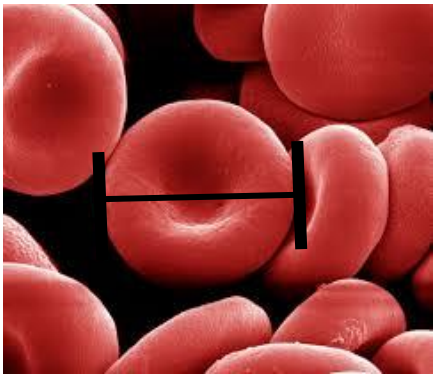
4. The image below shows a chloroplast which has a length of 50 µm.

   a. Is 50 µm the image size or actual object size?

   b. Use a ruler to measure the length of the bar in the image.

   c. Use your measurement to calculate the magnification used to produce this image.

5. The image below shows a selection of red blood cells, with the diameter of one marked.



   Measure the length of the diameter in the image. This image was obtained at a magnification of 5000.

   Use this information to calculate the actual diameter of this red blood cell.

6. Ova have an approximate length of 0.1 mm. How big should an image of an ovum appear if it has been magnified 100 times?