



Hitachi TM3000 - SEM Exploration Activity

Welcome to the amazing world of microscopy! In this activity, you and your teammates will be exploring two specimens utilizing the Hitachi TM3000 Scanning Electron Microscope. By the end of this activity, you will have collected six images at three different magnifications (100X, 500X, 1500X) from each of the two different specimens (12 images total) and provided a detailed report of your findings utilizing this document as your framework. You can use this document to record initial findings. Your final submission will be submitted electronically by accessing this document on Dropbox and entering your research notes, images and findings. Good luck and happy exploring!

Use the SEM Operation Instructions located in Dropbox or in the folder in front of the SEM.

1. Select two specimen stubs to analyze and record all information on the specimen analysis sheet below. After you have recorded your information and obtained Mr. Boyer's signature, load your two selected specimens into the SEM according to the class demonstration and the instruction packet.

Team Logo

Team Name

SEM Exploration – Specimen Analysis Sheet

Team Member 1
 Team Member 2
 Team Member 3

 Door	Sample ID	Line 1: Specimen Description Line 2: Purpose for Analysis	Page number in Journal
NOTES:		APPROVAL:	

OBSERVATIONS:

Specimen #1:

Specimen #2:



- Analyze the first specimen. Take your time to look around the specimen to find a point of interest. Once you do, adjust your focus, brightness and contrast and acquire images from that point at 100X, 500X and 1500X. Save the images to your desktop team folder for inclusion to the digital version of this document when you are completed the activity.

Specimen 1 _____, Point 1

100X
OBSERVATIONS:

500X
OBSERVATIONS:

1500X
OBSERVATIONS:

- Find a second point of interest on the specimen and save three images again at the same magnifications.

Specimen 1 _____, Point 2

100X
OBSERVATIONS:

500X
OBSERVATIONS:

1500X
OBSERVATIONS:



Conclusion:

1. What conclusions can you make about the first specimen you analyzed? Does it look like it could be biological, natural, man-made... ? Why?
2. What conclusions can you make about the second specimen you analyzed? Does it look like it could be biological, natural, man-made... ? Why?
3. What other analysis tools do you think could be utilized to help you draw conclusions to what you are observing?

In future research, we will be exploring the use of a feature known as elemental analysis and an image analysis software known as Image J that you can use to take measurements of the sample to help you further draw conclusions to your findings.

Congratulations! Please complete a digital copy of this activity and upload it to your team dropbox submission folder.