Microfossils Labs (Labs 2 and 4)

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Paleontology – Lab 2. Foraminifera & Microfossils Name:

References to use:
Prothero: **Bringing Fossils to Life** (our textbook).
Moore, Lalicker, and Fisher (1952): **Invertebrate Fossils**.
Moore (editor), Treatise on Invertebrate Paleontology:
Part B. Protoctista

Goals of this lab: (1) Learn the important characteristics and terminology of microfossils including conodonts, foraminifera and radiolaria; (2) learn to identify representative members of important microfossil groups based on specific morphological features; (3) infer paleobiological information using characteristics of the shells.

1. Examine sample A which contains specimens of *Nummulites laevigatus*. To which group of microfossils do these specimens belong?

What is the composition of their shell walls?

What can we say about the paleobathymetry of these specimens? (Were they benthic or planktonic? Were they found in shallow or deep water?) Give your reasons for this answer.

2. Examine the specimens on the slide in sample B. The majority of specimens on the slide (excluding those on squares 11, 12, 23, and 24) belong to which group of microfossils?

What is the composition of their shell walls?

To which major group do the specimens on squares 11, 12, 23, and 24 belong?

What is the composition of their shell walls?

Do their shell walls differ in composition from those of the majority of specimens on the slide?

3. Examine the specimens on the slides in sample C. To which major group do these specimens belong?

What is their composition?

Estimate the burial temperature of these specimens?

4. Examine the specimens on the slide in sample D. To which major group do these specimens belong?

What is the composition of their shell walls?

Are these specimens benthic or planktonic?

5. Examine the specimens on the slide in sample E. To which major group do these specimens belong?

What is the composition of their shell walls?

Are these specimens benthic or planktonic?

6. Prepare a glued slide and write your name on it in pencil. Pick from the sediment samples (sample F) an example of each type of conodont:
a) coniform element (simple, cusp-shaped)
b) ramiform element (multi-cusped, blade-like)
c) platform element (multi-cusped with ridges on the top and a broad base)

What was the burial temperature of this sediment?

7. What type of animals are conodonts thought to have been?

How do conodont elements relate to the soft tissues of the animal and what is their function?

8. Fusulinids are extinct foraminifera that were prolific in the Paleozoic. Some species were able to grow up to 10 cm in length. How were they able to do this? In what water depth would they have lived? Why?

8. Refer to the diagrams on the handouts and examine and identify the features on the foraminifera models provided by your instructor.

Sample	Wall type	Perforate/ Imperforate	Unilocular/ Multilocular	Test Shape	Location and Form of Primary Aperture	Ornamentation
G	Hyaline					
H	Hyaline					
I	Porcelaneous					
J	Hyaline					
K	Agglutinated					
L	Hyaline					

After identifying the features on the forams classify the forams by Order and Superfamily/Family.

G:

H:

I:

J:

K:

L:

9. Pick and mount 10 foraminiferal specimens from the sediment provided (try at least two different samples of sediment). You must have at least 3-5 different species of foraminifera. Add specimens to your glued slide from question 6. Fill in the following table. For sediment list the sediment examined and give a possible location of collection. Two of your specimens must be chosen for the SEM. The specimens you would like photographed with the SEM are on sq. _____.

Sq.	Wall type	Unilocular/ Multilocular	Sediment & Location

Paleontology – Lab 4 Scanning Electron Microscope Name:

Instructions: You will work with Joyce Miller to produce a scanning electron micrograph of two foraminifera specimens. You will then fill in the table below and attach your micrographs to this page.

References to use:
Prothero: **Bringing Fossils to Life** (our textbook), Chapter 12.
Moore (editor), **Treatise on Invertebrate Paleontology**: Part C. Protista 2. 2 volumes.

	Specimen 1	Specimen 2
Filename		
Wall Type		
Perforate/Imperforate		
Unilocular/Multilocular		
Test Shape (eg., planispiral or trochospiral)		
Dorsal or ventral side		
Evolute or involute		
Location and Form of Primary Aperture		
Ornamentation		
Other		
Order		
Family		
Genus		