

Name: _____ Grade ____/100 +10 bonus Percent: _____

GY 112L Lab Assignment 12
Cenozoic Rocks and Fossils

Note: This is the first and only one of the GY 112 labs that deals with the Cenozoic Era. The lab is broken up into four parts. Part 1 deals with fossils, Part 2 focuses on Cenozoic surface rocks from Alabama, Florida and Colorado, Part 3 is your last drawing 101 exercise ever, and Part 4 is about the distribution of Cenozoic rocks in Alabama.

Part One: Fossils

Reptiles and Mammals

Specimen 12-1a (PI 2040) and **Specimen 12-1b (PI 2041)**; Unknown vertebrate fossils, Pleistocene, sample location unknown.

a) Given the shape/characteristics of these bones, what part(s) of the skeleton are likely represented by the two specimens? **[4 points]**

12-1a: _____ 12-1b: _____

b) How are they preserved (careful observation is needed here)

_____ **[2 points]**

Question 12-2; There may or may not be a fossil example of an Avian Ichnofossils (AKA bird foot prints) to illustrate this question.

Hey want to freak out a friend or family member? The next time you go with them for a walk along the beach, keep your eyes open for bird tracks. When you find some, run around screaming "Oh my God! Dinosaur footprints! Run for your life!"

Paleontologists have determined that birds may be descended from one very early line of reptiles. What common features link the two groups of beasties together?

_____ **[3 points]**

Question 12-3: What, in your own opinion, killed off the dinosaurs? _____

_____ **[3 points]**

Question 12-4: With the exception of my wonderful GY 112 instructor, the one person that I would most like to see eaten by *Tyrannosaurus rex* is

because _____

_____ [3 points]

Question 12-5: What characteristic(s) typify the mammals?

_____ [3 points]

Question 12-6: In which way(s) do monotremes and marsupials differ from placental mammals?

_____ [3 points]

More annoying fossils. This is a mixed bag of Cenozoic fossils from Alabama and Florida.

Specimen 12-7: Scleractinian Coral (Pleistocene; South Florida)

a) This group of corals really got started in the Mesozoic, and they are the only remaining order today. In fact, it is primarily because of these beasts that we have the Florida Keys, the Great Barrier Reef (Australia) and the Bahamas. They grow fastest and best in tropical, very shallow marine environments. Why?

_____ [3 points]

Specimen 12-8: Gastropods: a) *Oliva* sp. (Eocene to Recent); b) *Busycon* sp (Oligocene to Recent)

a) Remember these beasts? To which Phylum do they belong?

_____ [2 points]

b) What was their mode of life? _____

_____ [2 points]

c) Why are some of the shells colored by pigment and others are not? (Think mode(s) of preservation).

_____ [2 points]

Specimen 12-9: Gingko (modern), south side of Life Sciences Building, University of South Alabama Campus

a) Alright, so it isn't a fossil yet, but it is still a geologically significant plant. How did this plant propagate?

_____ [2 points]

b) To which plant division do the ginkgos belong and when did they evolve?

_____ [3 points]

Specimen 12-10 (PI 2063 and/or PI 2064): Arthropods (Eocene, Green River Formation, Utah). You will need a microscope to see these beasts.

a) The last time we examined a beastie in this phylum, we were examining Paleozoic rocks, but those were trilobites. What are you looking at today? (careful observation is needed). _____ [2points]

b) How were they fossilized? _____

_____ [2 points]

Part Four: Cenozoic Rocks

The following questions refer to rock specimens. The formation names and their ages are also indicated in the boxes that contain the rocks.

Specimen 12-11 (RI 3416); Jackson Group (Moody's Branch Formation), Eocene, Monroe Co., Alabama

a) What is the name of this rock? _____ [2 points]

b) The prominent fossil is *Periarchus lyelli*. What kind of beastie is it?
_____ [2 points]

Specimen 12-12a (RI 3199), 12-12b (RI 3887); Green River Formation, Eocene, Utah

a) Specimen 12-12a is a neat rock. It is a limestone, but it has undergone quite a bit of alteration. What kind of limestone was it?
_____ [2 points]

b) How did the holes form in 12-12a? You will not find the answer in any book or the internet; think about it.

_____ [3 points]

c) Specimen 12-12b is a carbon-rich shale (AKA oil shale). We have seen a few other carbon-rich rocks in this class. This one is a lot lighter in color. Why?

_____ [3 points]

Specimen 12-13 (RI 3441); Wilcox Group (Salt Mountain Formation), Paleocene-Eocene, Jackson, AL

a) What is the geological name of this rock? _____ [2 points]

b) What's the yellow mineral that coats one side of the rock? (Don't guess! Test it).
_____ [2 points]

Specimen 12-14 (RI 3361); Tallahatta Formation, Eocene, Monroe County, Alabama

- a) What is the geological name of this rock? _____ [2 points]
- b) What kind of fossils does it contain? _____ [2 points]
- c) How are the fossils preserved? _____ [2 points]

Specimens 12-15 and 12-16 (RI 3361 and RI 1157); Tallahatta Formation, Eocene, Washington County, Alabama

- a) Both of these rocks are more or less the same, but one was especially useful to the indigenous people of the area. Which one was most useful? How and why?

[3 points]

Specimen 12-17 (RI 3104); Tallahatta Formation, Eocene, Washington County, Alabama

- a) Yet another chunk of Tallahatta! This one is useful for modern Alabamians (at least those who use knives and axes). It goes by the trade name of **novaculite** and is sought after as a sharpening stone. What properties make it useful for this purpose?

[3 points]

Specimen 12-18 (RI 3337); Key Largo Formation, Pleistocene, Florida Keys

- a) What is the name of this rock? _____ [2 points]
- b) What fossils can you identify? _____

[2 points]

There are a few beasties in this rock that we have not been able to discuss in GY 112. If you are interested, ask us during the lab and we'll point some out for you.

Specimen 12-19 (RI 1744); Citronelle Formation, Plio-Pleistocene, Mobile, Alabama. This rock was found right next to the USA campus. Damn near broke my toe on it!

a) What is the geological name of this rock? _____ [2 points]

b) Why don't we have more rocks in Mobile County? (Think age and depositional environment).

_____ [3 points]

Part Four: One last crack at the geological map of Alabama.

Color the Cenozoic sedimentary units on the Alabama map provided on the next page. Use the map outside of room 335 to help you with this. There is another smaller map outside of Mary Anne Connor's office and it has a legend on it. Use a yellow color for the Cenozoic rocks. Use care; the Cenozoic is more variable than either the Mesozoic or the Paleozoic. [4 points]



Bonus: Help us to make this lab manual better next time it is revised. Use a separate page if you need more space [5 points]

1) The best thing about the lab manual is : _____

2) The worst thing about the lab manual is : _____

3) I would improve the lab manual by : _____

Name: _____

