

Fossils – Key
Kenston Invitational
January 16, 2016



Name(s): _____ Key _____

School and Team #: _____ Key _____

Score: ____/80

Tiebreakers (in order): Bonus Station, Station 9 Bonus, Station 16 score, Station 15 score

Station #1

1) What is the Class of this specimen?

_____ **Graptolithina** _____

2) What is this specimen's mode of preservation?

a) Permineralization

b) Mold

c) Carbonization

d) Compression

3) What was the ecological role of this specimen?

a) Suspension feeding

b) Filter feeding

c) Protrusion

d) Pivot feeding

4) What does the color and mineral composition of the specimen suggest about the surrounding tectonic environment?

a) Tectonically active

b) Tectonically stable

5) Identify the anatomic feature labelled "A".

_____ **Stipe** _____

Station #2

1) What is the Genus of this specimen?

_____ **Pentremites** _____

2) This specimen's class reached the height of its diversity during which period?

_____ **Carboniferous** _____

3) The letter "A" is located on top of what anatomic feature?

_____ **Ambulacrum** _____

4) The arrow above "B" is pointing to what anatomic feature?

_____ **Basal Plate** _____

5) In what environment did this specimen live?

- a) Demersal infaunal
- b) Benthic epifaunal**
- c) Benthic infaunal
- d) Demersal epifaunal

Station #3

1) What is the Genus of this specimen?

_____ **Carcharodon** _____

2) What is the stratigraphic age range of this specimens Genus?

a) **Eocene-Present**

b) Miocene-Pliocene

c) Miocene-Present

d) Cretaceous-Present

3) The Class of this specimen originated in which geologic period?

_____ **Silurian** _____

4) Besides teeth, what other fossilized anatomy of this specimen's Species have been found?

_____ **Vertebrae** _____

5) What is the mineral composition of this fossil? (compound name, no formula needed)

_____ **Calcium Phosphate** _____

Station #4

1) What is the Genus of this specimen?

_____ **Calymene** _____

2) What is the stratigraphic age range of this specimen?

a) Cambrian-Silurian

b) Ordovician-Devonian

c) Ordovician-Silurian

d) Cambrian-Devonian

3) This specimen shares an Order with what other Genus on the Fossil List?

_____ **Phacops** _____

4) This specimen is a molt.

a) True

b) False

5) What type of eyes does this specimen possess?

a) Abathochroal

b) Schizochroal

c) Holochroal

d) None of the above

Station #5

1) Identify this specimen.

_____ **Stromatolite** _____

2) This specimen first appeared in the fossil record during what eon?

_____ **Archean** _____

3) Which organism(s) produced this specimen?

_____ **Cyanobacteria** _____

4) Which of the following environments do modern representatives of this specimen NOT inhabit?

- a) hypersaline lakes
- b) marine lagoons
- c) open marine environments
- d) none of the above**

5) This specimen's representatives peaked in diversity and abundance approximately how many years ago?

- a) 250 million years ago
- b) 750 million years ago
- c) 1.25 billion years ago**
- d) 500 million years ago

Station #6

1) What is the Genus of this specimen?

_____ **Gryphaea** _____

2) What is the stratigraphic age range of this specimen?

a) Triassic-Oligocene

b) Triassic-Present

c) Triassic-Paleocene

d) Triassic-Eocene

3) Which valve is labelled "A"?

a) Right

b) Left

4) What was the ecological role of this specimen?

a) Non-Durophagous Predator

b) Detritus Feeder

c) Filter Feeder

d) Suspension Feeder

5) Does this specimen display teeth or sockets?

a) Yes

b) No

Station #7

1) What is the Genus of the specimen labelled "A"?

_____ **Phacops** _____

2) What type of eyes does this specimen possess?

a) Abathochroal

b) Schizochroal

c) Holochroal

d) None of the above

3) The arrow marked "B" is pointing at what anatomic feature?

_____ **Glabella** _____

4) What kind of rock is this specimen preserved in? (be specific)

_____ **Fossiliferous Limestone** _____

5) What kind of environment does this rock represent?

a) Shallow marine, low energy

b) Shallow marine, high energy

c) Deep marine, low energy

d) Tidal zone

Station #8

1) What is the Class of this specimen?

_____ **Actinopterygii** _____

2) Members of this Class first appeared during which geologic period?

a) Ordovician

b) Silurian

c) Devonian

d) Cambrian

3) This specimen was found in an area known as Fossil Lake. Fossil Lake is located within what Konservat-Lagerstätte?

_____ **Green River Formation** _____

4) The above-mentioned Konservat-Lagerstätte represents what geologic period?

_____ **Paleogene** _____

5) What kind of environment does this rock represent?

a) Shallow marine

b) Epicontinental marine

c) Deltaic

d) Lacustrine

Station #9

1) What is the Genus of this specimen?

_____ **Orthoceras** _____

2) What is the stratigraphic age range of this specimen?

a) Cambrian-Permian

b) Ordovician-Triassic

c) Ordovician-Permian

d) Cambrian-Triassic

3) What is the anatomic feature labelled "A"?

_____ **Siphuncle** _____

4) What is the anatomic feature labelled "B"?

_____ **Camera** _____

5) What is the anatomic feature labelled "C"?

_____ **Orthochoantic Septal Neck (accept Septal Neck)** _____

TB2: What kind of rock is this specimen preserved in?

_____ **Agate** _____

Station #10

1) What is the class of this specimen?

_____ **Crinoidea** _____

2) What is the stratigraphic age range of this organism?

a) Ordovician-Permian

b) Ordovician-Present

c) Cambrian-Permian

d) Cambrian-Cretaceous

3) What is the anatomic structure labelled "A"?

_____ **Aboral Cup** _____

4) What are the anatomic structures labelled "B"?

_____ **Pinnules** _____

5) What roles do the anatomic structures labelled "B" serve?

a) Feeding

b) Locomotion

c) Reproduction

d) All of the above

Station #11

1) What is the Genus of this specimen?

_____ **Nummulites** _____

2) Is this organism single-cellular or multi-cellular?

a) Single-cellular

b) Multi-cellular

3) What is the stratigraphic age range of this specimen?

a) Eocene-Present

b) Eocene-Pliocene

c) Eocene-Pleistocene

d) Eocene-Miocene

4) This specimen is a useful index fossil for which geologic epoch?

_____ **Eocene** _____

5) This members of this specimens Genus comprise the limestone in what man-made structures?

_____ **The Great Pyramids** _____

Station #12

1) What is the Genus of this specimen?

_____ **Archimedes** _____

2) What is the stratigraphic age range of this specimen?

a) Carboniferous-Permian

b) Ordovician-Permian

c) Ordovician-Carboniferous

d) Carboniferous

3) Which growth form does this Genus possess?

a) Branching

b) Massive

c) Fenestrate

d) Encrusting

4) A colony of this specimen is known by what name?

_____ **Zooaria** _____

5) This specimen lived in what kind of environment?

a) High-energy freshwater

b) Low-energy freshwater

c) High-energy marine

d) Low-energy marine

Station #13

1) What is the Genus of this specimen?

_____ **Meshippus** _____

2) What is the stratigraphic age range of this specimen?

a) Paleocene-Miocene

b) Oligocene-Miocene

c) Paleocene-Eocene

d) Eocene-Oligocene

3) What was the ecological role of this specimen?

a) Browser

b) Scavenger

c) Grazer

d) Carnivore

4) How many molars did this organism have?

_____ **12 (6 on each side)** _____

5) Could this fossil have been found in Ohio?

a) Yes

b) No

Station #14

1) What is the Subclass of this specimen?

_____ **Ammonoidea** _____

2) What suture pattern does this specimen possess?

_____ **Ammonitic** _____

3) What is the stratigraphic age range for the suture pattern above?

a) Cambrian-Recent

b) Jurassic-Cretaceous

c) Devonian-Permian

d) Permian-Triassic

4) What is the white, pearly outer shell on the specimen called?

_____ **Nacre OR Mother of Pearl** _____

5) What is the mode of preservation of this specimen?

a) Cast

b) Mold

c) Permineralization

d) Actual Remains

e) A and C

f) B and D

Station #15 – TB4

1) What is the Genus of this specimen?

_____ **Composita** _____

2) What is the stratigraphic age range of this specimen?

- a) Ordovician-Devonian
- b) Devonian-Permian**
- c) Cambrian-Ordovician
- d) Ordovician-Carboniferous

3) What is the shell form of this specimen?

- a) Convexo-concave
- b) Concavo-convex
- c) Dorsi-convex
- d) Biconvex**

4) Is the location marked "X" located on the anterior or posterior end of the specimen?

- a) Anterior**
- b) Posterior

5) Is the location marked "X" located on the dorsal valve or the ventral valve of the specimen?

- a) Dorsal Valve
- b) Ventral Valve**

Station #16 – TB3

1) Identify the specimen marked “A”.

_____ **Worm Burrow (accept Burrow)** _____

2) What behavior is seen in the trace labelled “B”?

_____ **Walking Track (accept crawling, walking, scuttling, etc. track)** _____

3) Trace “B” was produced by an organism from what Phylum?

_____ **Arthropoda** _____

4) Is the side labelled “X” the top or bottom of the bed?

a) Top

b) Bottom

5) This sample was collected from the Chagrin Shale Member of the Ohio Shale.
This Member is from what geologic period?

_____ **Devonian** _____

Bonus – TB1

Listed below are five stratigraphic units found in Northeast Ohio. Please list the units in order from oldest to youngest.

Ohio Shale

Cuyahoga Formation

Sunbury Shale

Berea Sandstone

Bedford Shale

Oldest

_____ **Ohio Shale** _____

_____ **Bedford Shale** _____

_____ **Berea Sandstone** _____

_____ **Sunbury Shale** _____

Youngest

_____ **Cuyahoga Formation** _____