

FOSSILS

Massachusetts State Science Olympiad • B Division • March 5, 2016

For competitors to complete:

Full School Name: _____

Team Number: _____ Team Type (circle): *Alternate* *Competing*

Competitor: _____
First Name Last Name Middle Initial

Competitor: _____
First Name Last Name Middle Initial

For event supervisor to complete:

Individual Part Scores
Part 1 Score: _____ / 60
Part 2 Score: _____ / 15
Tie Breaker: _____ (+)

Overall Score
<div style="border: 1px solid black; height: 40px; width: 100%;"></div>
out of 75 possible points

In the event of a tie, ties are broken first by the highest score on Part 2 and then the highest score on Part 1.

EXAM FORMAT

- Part 1: Quick Response. You will rotate through twelve stations and have three minutes at each station. Each station is worth five points. Do not move any of the test questions or specimens when you are rotating.
 - Part 2: Document Based Question. You will have ten minutes to answer one document-based question with designated subsections. This question is worth 15 points.
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EXAM INSTRUCTIONS

- By writing your names above, you are agreeing to follow the Science Olympiad Student Code of Conduct.
 - You are allowed only to use the information contained within one three-ringed binder and a field guide during the exam. All electronic devices are prohibited.
 - Mark your answers on the appropriate blanks. Any illegible response will be counted as an incorrect response.
 - The exam supervisor will *not* answer any questions regarding the content of the exam. The event supervisor can deduct points at his/her discretion for breaking Science Olympiad and/or Fossils rules.
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Exam by Phoebe Cohen, Abigail Kelly, Spencer Irvine, and Jeffrey Rubel (Williams College Geosciences Department)

PART 1: QUICK RESPONSE

DIRECTIONS: *You have three minutes to answer the questions at a station. Each station is worth five points, but the individual point value of questions may vary. You are not allowed to revisit a station after the time is up. Be sure to write your responses in the appropriate blanks! (5 points per station; 60 points total)*

STATION ONE: IDENTIFICATION

1. Class: _____

Genus: _____

2. Order: _____

Genus: _____

3. Class: _____

Genus: _____

4. Phylum: _____

Genus: _____

5. Phylum: _____

Class: _____

6. Class: _____

Genus: _____

7. Class: _____

Genus: _____

8. Class: _____

Genus: _____

9. Phylum: _____

Class: _____

10. Order: _____

Genus: _____

Continue to the next page for Station Two.

STATION TWO: MODES OF PRESERVATION

1. a. _____
b. _____
2. a. _____
b. _____
3. a. _____
b. _____
4. a. _____
b. _____
5. a. _____
b. _____

STATION THREE: BIOSTRATIGRAPHY

1. Shade the appropriate boxes below.

Era	Period	Fossil A	Fossil B	Fossil C
Cenozoic	Quaternary			
	Neogene			
	Paleogene			
Mesozoic	Cretaceous			
	Jurassic			
	Triassic			
Paleozoic	Permian			
	Carboniferous			
	Devonian			
	Silurian			
	Ordovician			
	Cambrian			

2. Circle the best response: A B C D E
3. Circle the best response: A B C D E

Continue to the next page for Station Four.

STATION FOUR: MORPHOLOGY

1. _____

2. _____

3. _____

4. _____

5. Circle the correct skulls.

I. Dinosauria: Skull A Skull B Neither skull

II. Saurischian: Skull A Skull B Neither skull

III. Ornithischian: Skull A Skull B Neither skull

Continue to the next page for Station Five.

STATION FIVE: LAGERSTÄTTEN

1. _____

2. _____

Continue to the next page for Station Six.

STATION SIX: DIVERSITY

1. Complete below for time period #1.

	Predatory	Eating foods/plants on a surface	Filter feeding	Eating buried food	Photosynthesis
Living on land	1	2	3	4	5
Living on the ocean surface	6	7	8	9	10
Burrowing into the ocean floor	11	12	13	14	15
Flying	16	17	18	19	20
Floating in the ocean	21	22	23	24	25

2. Complete below for time period #2.

	Predatory	Eating foods/plants on a surface	Filter feeding	Eating buried food	Photosynthesis
Living on land	1	2	3	4	5
Living on the ocean surface	6	7	8	9	10
Burrowing into the ocean floor	11	12	13	14	15
Flying	16	17	18	19	20
Floating in the ocean	21	22	23	24	25

STATION SEVEN: MASS EXTINCTIONS, I

1. _____

2. _____

3. _____

4. _____

Continue to the next page for Station Eight.

STATION EIGHT: MASS EXTINCTIONS, II

1. Circle the best response: A B

2. _____

STATION NINE: ENVIRONMENTS

1. Circle the correct rock: A B C D

2. Circle the correct rock: A B C D

3. Circle the correct rock: A B C D

4. Circle the correct rock: A B C D

5. _____
6. _____
7. _____

Continue to the next page for Station Ten.

STATION TEN: TRACE FOSSILS

1. Circle the correct trace fossil: A B C
2. Circle the correct trace fossil: A B C
3. Circle the correct trace fossil: A B C
4. Circle the correct trace fossil: A B C
5. Circle the best response: A B C D E
6. Circle the best response: A B C D E
7. Circle the best response: A B C D E

STATION ELEVEN: PRESERVATION POTENTIAL

1. *Least likely* _____ _____ _____ _____ _____ *Most likely*

2. _____

STATION TWELVE: RELATIVE DATING

1. Oldest _____ Youngest
2. Feature 1: _____
Feature 2: _____

Continue to Page 2 for Station One.