Fossil Frenzy 2016 – Event Leader Instructions

Event Set up
This is a station event. There are 23 stations. If you have more than 23 teams you can print two sets of stations. Spread the stations around the room, and place any corresponding fossils with their station (take them out of the bags). Put one team at each station, they will rotate through all 23 stations in order. Teams can’t go back to a station after their 2 minutes is up.

Materials
If you have any of these specimens, please set them out with the questions, otherwise the pictures are fine. If you asked for this from the State Office we are sending a bunch of the fossils to you.

Station 1: Dinosaurs: A = triceratops, B = stegosaurus, C = Anklosaurus, D = Apatosaurus
Station 2: #3 = shark jaw, #4 = omnivore jaw, #5 = sperm whale tooth, #6 = deer jaw
Station 3: nothing
Station 4: #11 = pic, #12 = vertebrae, #13 = shark teeth, #14 = borings, #15 = dino skin
Station 5: brachiopods, any kind
Station 6: #19 = cast/mold, #20 = fossilized shells, #21 = amber, #23 = petrified wood
Station 7: J = shell with barnacles, K = crayfish, L = crab
Station 8: raptor toy
Station 9: Coral, any kind
Station 10: starfish, jellyfish, fern fossil
Station 11: trilobite
Station 12: ammonite
Station 13: 2 types of bivalves and a snail shell
Station 14: nothing
Station 15: A = Iguanodaun, B = Plateosaurus, C = Parasaurolophus
Station 16: nothing
Station 17: A = bony fish fossil, B = shark, C = plesiosaur toy
Station 18: nothing
Station 19: dino stamps
Station 20: nothing

Each team is allowed to bring:
Something to write with, one 8.5”x11” double-sided piece of paper with information of any kind from any source. If they have anything else, take it away.

Running the Event:
Teams have 2 minutes per station. Teams should leave station pages with the question side down until instructed to flip them over and begin. When each team is done at a station, they should flip the station page back over. Be sure to instruct teams which way to move and allow adequate time for transition between stations. Make sure they realize that after Station 23 they go to Station 1, and where station 1 is.

A copy of the official rules is on the next page in case you or the students have a question about the event that wasn’t answered here.
Fossil Frenzy – Student Response Sheet

For each answer, fill in the blank or circle the correct response.

Station 1
1. A ____________
   B ____________
   C ____________
   D ____________
2. ______________

Station 2
3. ______________
4. ______________
5. ______________
6. ______________

Station 3
7. A B C D
8. A B C D
9. A B C D
10. A B C D

Station 4
11. TRACE or BODY
12. TRACE or BODY
13. TRACE or BODY
14. TRACE or BODY
15. TRACE or BODY

Station 5
16. ______________
17. A B C D
18. A B C D

Station 6
19. ______________
20. ______________
21. ______________
22. ______________
23. ______________

Station 7
24. ______________
25. A B C D
26. A B C D
27. A B C D

Station 8
28. ______________
29. ______________
30. A B C D
31. ______________

Station 9
32. ______________
33. ______________
34. A B C D

Station 10
35. ______________
36. ______________
37. ______________

Station 11
38. ______________
39. A B C D
40. A B C D
41. ______________
Station 12
42. ________________
43. ________________
44. A B C D

Station 13
45. ________________
46. ________________
47. ________________

Station 14
48. A B C D
49. A B C D
50. Epoch: ________________
    Period: ________________
    Era: ________________

Station 15
51. A. ________________
    B. ________________
    C. ________________
52. ________________
53. ________________

Station 16
54. ________________
55. ________________

Station 17
56. A B C D
57. ________________
58. A B C D

Station 18
59. A B C D
60. A B C D
61. A B C D
62. A B C D

Station 19
63. ________________

<table>
<thead>
<tr>
<th>Therapods</th>
<th>Sauropods</th>
</tr>
</thead>
</table>

64. A B C D

Station 20
65. MARINE or TERRESTRIAL
66. MARINE or TERRESTRIAL
67. MARINE or TERRESTRIAL
68. MARINE or TERRESTRIAL
Fossil Frenzy – Student Response Sheet

ANSWER KEY  EACH ANSWER WORTH 1 POINT UNLESS INDICATED. TOTAL POINTS: 80
TIEBREAKERS: 28, 55, 37, 2, 24

Station 1
1. A  TRICERATOPS
   B  STEGOSAURUS
   C  ANKYLOSAURUS
   D  APATOSAURUS
2.  MESOZOIC

Station 2
3.  CARNIVORE
4.  OMNIVORE
5.  CARNIVORE
6.  HERBIVORE

Station 3
7.  A  B  C  D
8.  A  B  C  D
9.  A  B  C  D
10. A  B  C  D

Station 4
11. TRACE or BODY
12. TRACE or BODY
13. TRACE or BODY
14. TRACE or BODY
15. TRACE or BODY

Station 5
16. BRACHIOPODS
17. A  B  C  D
18. A  B  C  D

Station 6
19.  CAST/MOLD
20.  MINERAL REPLACEMENT
21.  ENCASEMENT IN AMBER
22.  ENTRAPMENT IN TAR
23.  PETRIFICATION

Station 7
24.  BARNACLE
25.  A  B  C  D
26.  A  B  C  D
27.  A  B  C  D

Station 8
28.  VELOCIRAPTOR
    DEINONYCHUS (EITHER ORDER)
29.  SIZE
30.  A  B  C  D
31.  FEATHERS

Station 9
32.  CORAL
33.  ANIMALS
34.  A  B  C  D

Station 10
35.  M
36.  O
37.  SOFT BODY DOESN'T MAKE AN IMPRESSION TO PRESERVE

Station 11
38.  TRILOBITE
39.  A  B  C  D
40.  A  B  C  D
41.  INVERTEBRATES
Station 12
42. __AMMONITES__
43. 
44. A B C D

Station 13
45. ____D____
46. __YES__
47. __BIVALVES__

Station 14
48. A B C D
49. A B C D
50. Epoch: __HOLOCENE__
    Period: __QUATERNARY__
    Era: __CENOZOIC__

Station 15
51. A. __IGUANODON__
    B. __PLATEOSAURUS__
    C. __PARASAUROLOPHUS__
52. ___A&C (BOTH NEEDED FOR PT)___
53. ___A, B, C (ALL NEEDED FOR PT)___

Station 16
54. 
55. __ANY 2: IT FLEW AWAY, IT GOT EATEN, IT DIED, IT JUMPED IN THE WATER__

Station 17
56. A B C D
57. __VERTEBRATES__
58. A B C D

Station 18
59. A B C D
60. A B C D
61. A B C D
62. A B C D

Station 19
63. 4 pts - 1 pt each
Theropods | Sauropods
|________|________|
| [Image of Theropod] | [Image of Sauropod] |

Station 20
65. MARINE or TERRESTRIAL
66. MARINE or TERRESTRIAL
67. MARINE or TERRESTRIAL
68. MARINE or TERRESTRIAL
1. Identify the specimens A - D at this station. Choose from:

<table>
<thead>
<tr>
<th>Acrocanthosaurus</th>
<th>Coelophysis</th>
<th>Velociraptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allosaurus</td>
<td>Deinonychus</td>
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</tr>
<tr>
<td>Archaeopteryx</td>
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</tr>
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</table>

2. During what ERA did all these creatures live?
Station 2

Look at the teeth at this station. Classify each animal as Carnivore, Herbivore, or Omnivore.
Station 3

7. All of the following types of fossils have been discovered EXCEPT:
   a. Eggs
   b. Poop
   c. Footprints
   d. Blood

8. Which of the following fossil types would be most useful for learning what a dinosaur ate?
   a. Footprints
   b. Poop
   c. Eggs
   d. Feathers

9. Which of the following would be most useful for learning if a dinosaur traveled in herds?
   a. Footprints
   b. Poop
   c. Eggs
   d. Feathers

10. Why did some dinosaurs swallow stones?
    a. To help them dive under water
    b. To help mash the food in their digestive tract
    c. To obtain important minerals that they couldn’t get from their food
    d. To act as a laxative
Station 4

Classify each fossil as a TRACE or BODY fossils.

11. Serpulid Worm Tube Fossils © Glen Kuban

13.

14.

15.
16. What is this specimen’s name?

17. What environment are they usually found in?
   a. Arctic
   b. Marine
   c. Desert
   d. Fresh water

18. What description best fits this fossil?
   a. Solid shell like a snail
   b. Hinged shell
   c. Swims like a fish in the water
   d. Crawls like a turtle on land
Station 6

<table>
<thead>
<tr>
<th>Word Bank</th>
</tr>
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<tbody>
<tr>
<td>petrification</td>
</tr>
<tr>
<td>mineral replacement</td>
</tr>
<tr>
<td>cast/mold</td>
</tr>
<tr>
<td>imprint</td>
</tr>
<tr>
<td>encasement in amber</td>
</tr>
<tr>
<td>mummification</td>
</tr>
<tr>
<td>freezing</td>
</tr>
<tr>
<td>entrapment in tar/asphalt</td>
</tr>
</tbody>
</table>

Name the type of preservation for each example shown below.

19. [Image of a fossil in rock]

20. [Image of several small rock fragments]

21. [Image of a fossil in amber]

22. [Image of a fossil covered in mud]

23. [Image of a fossil covered in rock fragments]
24. What is the name of the animal growing on this shell in sample J?

25. What Era did these animals first appear in the fossil record?
   a. Cenozoic
   b. Mesozoic
   c. Permian
   d. Cambrian

26. All of these specimens are classified as:
   a. Crustaceans
   b. Asteroids
   c. Stromatolites
   d. Corals

27. What environment would you find these species in?
   a. Arctic
   b. Marine
   c. Desert
   d. Freshwater
Station 8

28. This dinosaur is a Raptor. What are the 2 raptors on your official dinosaur list?

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29. What is the major difference between these 2 types of raptors – if you dug up their skeleton, what is the easiest way to tell them apart?

30. How did raptors eat?
   a. Hunted other animals
   b. Scavenged dead animals
   c. Ate plants

31. Many scientists now believe that this model of the scaly raptors is wrong. What do paleontologists think raptors had on their skin?
Station 9

32. What is the name of all these examples?

33. Are these plants or animals?

34. These species usually live in:
   a. muddy freshwater
   b. warm, shallow seas
   c. dry, dusty deserts
   d. hydrothermal vents
35. Which of these is in the Family Asteroid?

36. Which is most likely to be found in a fossil with other species that live in a swamp?

37. Very few fossils of sample N have ever been found. Explain why.
38. What is the name of this animal?

39. This animal is classified as a(n):
   a. Crustaceans
   b. Asteroids
   c. Arthropods
   d. Corals

40. These species usually live in:
   a. muddy freshwater
   b. warm, shallow seas
   c. dry, dusty deserts
   d. hydrothermal vents

41. Are these animals vertebrates or invertebrates?
42. What group do these fossils belong to?

43. This is not the whole body of this animal. Draw what this animal looked like on your answer sheet.

44. These animals went extinct with many others in what major event 65 million years ago?
   a. K-T extinction
   b. O-S extinction
   c. Late Devonian extinction
   d. Triassic-Jurassic extinction
45. Which of these samples is not a bivalve?

46. Are these animals still alive today?

47. Did brachiopods or bivalves increase in number after the Permian extinction?
45. Geologists are reasonably convinced that Earth is:
   a. 4,500,000,000,000 yrs. old
   b. 4,500,000,000 yrs. old
   c. 450,000,000 yrs. old
   d. 45,000,000 yrs. old

46. Mammals became abundant during the ____Era.
   a. Cenozoic
   b. Mesozoic
   c. Paleozoic
   d. Precambrian

47. What epoch, period, and era do we currently live in?
47. What is the name of each dinosaur at this station?

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48. Which two of these dinosaurs lived during the same period?

49. Which were herbivores? List all that apply.
50. Scientists cannot observe dinosaurs and other extinct animals in the wild, and are left with only fossils to help them try and determine how they moved and who they interacted with. Circle the area on your answer sheet that shows where the 3-toed animal was running.

51. The small footprints do no continue into the 3rd section. List 2 reasons why that might be.
52. Which of the animals at this station does not live in the same environment as the others?

53. Are these vertebrates or invertebrates?

54. Which of these is a plesiosaur?
Station 18

55. While looking for fossils on an eroded hillside, you discover fossil coral and fish in one layer. In a layer just above, you find the fossil imprint of a fern frond and some fossil land plants. Assuming the rock has not been disturbed, which of the following is the most probably conclusion?
   a. The area had been a sea until recent times
   b. A sea had been replaced by land in ancient times
   c. A saltwater sea had changed to a freshwater lake in ancient times
   d. A forest had once grown there but had become submerged by water

56. What type of rocks are almost all fossils found in?
   a. Igneous
   b. Sedimentary
   c. Metamorphic
   d. None of the above

57. A scientist that studies ancient life to understand events that happened long ago is a ____.
   a. Biologist
   b. Chemist
   c. Geologist
   d. Paleontologist

58. Which of the following will not make a fossil?
   a. decomposed organic material
   b. plant impressions
   c. animal footprints
   d. loose animal bones
59. The stamps at this station show several different dinosaurs. On your answer sheet, stamp them in to 2 columns: theropods and sauropods.

60. In what environment were most fossilized footprints likely formed?
   a. Forest
   b. Marine
   c. Desert
   d. Edge of a lake
Station 20
List the environment each of the following would have been found in.
Choose from: Marine or Terrestrial.

61.

62.

63. 6 cm

64.