



NOVA Dinosaur Apocalypse: The Last Day Video Questions [Key]

Name: _____

Date: _____ Class: _____

An asteroid strike near present day Chicxulub in Yucatan, Mexico likely led to the extinction of the dinosaurs 66 million years ago. In *NOVA Dinosaur Apocalypse: The Last Day*, natural historian David Attenborough details the discovery of fossil animals from Hell Creek, North Dakota that may have died on the day of the impact! The fossils were found in a single layer of rock, a "mass-death assemblage" that appears to have resulted from earthquake induced flooding. Scientists are also able to recreate the major events on that day for North Dakota and the rest of the earth, a day that was likely the worst in earth history. *Select the correct multiple-choice response for each question. After the video, write the letter of each answer in the blank at the beginning of each question. The questions follow the same order as the information shown in the video.*

1. A . Which area has been famous for more than a century of major dinosaur discoveries?

- A) Hell Creek Formation B) Green River C) Lodi

Matching: Fossil discoveries at Tanis

2. D . Fossilized skin A) Carnivorous dinosaurs (T. rex)

3. C . Unhatched egg & embryo B) PEDIOMYID (mammal)

4. B . Jawbones C) Pterosaur

5. A . Teeth & footprints

6. A . Right above the "crumbly layer" with the fossils is the K-Pg boundary, a layer of iridium-rich debris from the asteroid impact that hit the earth... A) 66 million yrs. ago B) 540 million yrs. ago C) 4.6 billion yrs. ago

7. C . What is the four-foot-thick layer of rock at Tanis full of?

- A) Desert environment sediments B) Iridium-rich debris C) Impact ejecta spherules

8. A . According to Sonia Tikoo, matching spherules to the impact site geochemically, and in terms of radiometric ages, is... A) a "smoking gun" B) ambitious C) too tentative

9. B . The asteroid which struck the earth 66 million years ago created what is today known as...

- A) the Sudbury Structure B) the Chicxulub Crater C) Meteor Crater, Arizona

10. A . According to Phil Manning, after synchrotron scanning and comparing to other sites around the world—Haiti-Mexico, and North Dakota—the data from Tanis is a match... What did the synchrotron scan show inside the spherule from North Dakota? A) A piece of a meteoritic body B) "a large coloured globule" C) A fragment of bone

11. B . In the mass death assemblage... Robert uncovered a tangled mass of fossilized creatures and logs surrounded by spherules and crushed together into a... A) thriving community B) "log jam" C) a neatly sorted throng

12. B . How could an impact-generated tsunami have reached Hell Creek? A) The wave was the size of a building B) It could have moved up the Western Interior Seaway C) The water could have been carried by seismic waves

13. C . According to computational models... the ejecta spherules landed at Tanis between 13 minutes and 2 hours after the impact... Data from recent tsunamis show... A) that the wave could have arrived within 2 hours

- B) that there wasn't enough water in the oceans 66 million years ago

- C) a powerful wave would take longer than this to travel 2000 miles

14. C . In 2011... a magnitude 9.0 earthquake had devastated the northeast of... A) Haiti B) Sumatra C) Japan

15. A . Eventually, Stein Bondevik realized that seismic waves from a distant earthquake had caused the normally calm water of the fjord to slosh turbulently back and forth. A) True B) False

16. B . Instead of a tsunami, how could the impact have caused a powerful surge of water at Tanis at the same time as the spherules fell? A) Perigee lunar tides B) Seismic waves traveling through the earth C) Heavy winds

17. C . According to Attenborough, if the extinction of the dinosaurs was a crime scene... what very important thing was missing? A) The asteroid B) A piece of the murder weapon C) A body

18. A . What indicated that the triceratops had died before the impact?

- A) Signs of partial decay B) Signs of new bone growth in the horn C) It had been in a fight



19. __B__. According to Attenborough, why was the triceratops fossil an extraordinary discovery? A) Skin was present
B) It showed dinosaurs were alive shortly before the asteroid hit C) It contained samples of Cretaceous water
20. __A__. According to Brusatte, we should be extra skeptical when there are...
A) big claims B) rocks to examine C) competing explanations
21. __C__. According to Paul Barrett, the dinosaur leg is likely what? A) Triceratops B) A young T. rex C) Thecelosaur
22. __A__. According to Barrett, it is entirely ____ that the animal was a victim of the meteor strike.
A) possible B) unlikely C) tragic
23. __B__. Why do paleobotanists think it was late spring when the impact occurred?
A) Pollen B) Fossilized flowers C) Meteor showers are more prevalent in the spring
24. __C__. According to Attenborough, the asteroid is around seven miles across—bigger than...
A) the Eiffel Tower B) the Great Pyramid of Giza C) Mount Everest
25. __C__. According to Attenborough, the impact causes an explosion with over a ____ times the power of the first atomic bomb. A) thousand B) million C) billion
26. __A__. At the impact site, more than 3 trillion tons of rocks are... A) ejected into space B) compressed C) melted
27. __B__. After the impact, winds higher than 600 mph, a colossal earthquake, and what else followed?
A) A colossal crater B) A ring of massive tsunamis C) A shift in earth's tilt
28. __B__. Dinosaurs and creatures of all shapes and sizes are ____ by the blast. A) spared B) obliterated C) canceled
29. __A__. At Tanis, seismic waves shake the region causing water to... A) slosh & churn B) vaporize C) boil
30. __C__. Next, it begins to rain ejecta spherules. As they plummet, the spherules become ____ due to friction.
A) bullet-shaped B) oblate C) red hot
31. __C__. As seismic waves rock the whole region, what rushes up the Tanis River?
A) A tsunami B) A cloud of superheated vapor & debris C) A violent surge wave 30 ft. high
32. __B__. According to Riley Black, the air around the planet was effectively set to ____ and was inescapable out on the surface. A) 11 B) broil C) upheaval
33. __A__. The mud from two waves will gradually turn into the thick layer of ____ entombing the creatures which died here. A) crumbly rock B) the K-Pg boundary C) spherules
34. __C__. Research shows that the angle at which the asteroid hit and the sulfur-rich rocks at the impact site ____ the devastation. A) negated B) minimized C) amplified
35. __A__. In the oceans, nearly all of the world's plankton died leading to the ____ of most marine creatures.
A) starvation B) extinction C) disintegration
36. __B__. After a huge change in climate caused by the impact, how much of all species, including the dinosaurs, were wiped out? A) 50% B) 3/4 C) 90%
37. __A__. According to studies, how long was the planet in semi-darkness as dust and soot slowly fell to earth? A) Around a decade B) A century C) A millennium
38. __C__. What is one likely reason that some mammals survived the Great Extinction?
A) Hair B) Warm blood C) Burrows
39. __B__. Along with small mammals, what other animals found a way to survive?
A) Ammonites & trilobites B) Turtles, crocodiles, snakes, & some fish C) Pterosaurs & marine reptiles
40. __A__. What we call birds originally evolved from the smallest feathered _____. To be correct, we should say that all non-avian dinosaurs are extinct. A) dinosaurs B) pterosaurs C) whales
41. __C__. What is possibly having as big an impact on the world as the asteroid that ended the age of the dinosaurs?
A) Climate B) End of the ice age C) Humanity

