

Name: _____

Answers/Key

Planet Earth - Caves

1. What is the single biggest **limiting factor** for life in caves?

Caves are least explored places on earth
- has to cope with complete blackness.

2. List two adaptations the cave glow worm has for capturing prey in a cave.

- drops a line of silk to trap prey
- silk comes from glands in the mouth.

- produces light to lure prey

- insects are drawn towards light and get trapped in silk

3. What is the single biggest challenge for living organisms in caves?

= finding a regular food source.

4. What is limestone made of? How is it possible that limestone can be found in areas of dry land?

- limestone is composed of minerals and corals ^{from a marine ecosystem}
- it was formed under water thousands of years ago

5. Water has the ability to dissolve and carve itself into limestone. What environmental process is this?

- dissolving power of rain water produces dramatic effects underground

- absorbs CO₂ making it slightly acidic so over thousands of years Deer Cave, Borneo it erodes the limestone

6. Deer Cave cannot support photosynthesis, as not enough sunlight is present. In spite of this, it still has a complex food chain. What is the energy foundation of this food chain?

- guano (bat droppings)

food chain based on bat droppings

7. What would be the correct ecological classification for the cockroaches?
- Producers
 - Primary consumers
 - Secondary consumers
 - Scavengers / Decomposers.

8. What behavioral adaptation do the wrinkle-lipped bats possess that helps them evade the rufous-bellied eagles, peregrine falcons, and bat hawks?

- attach to ceiling so they are safe from
- form a circle to confuse eagles
- use echo location

9. Which bats do the falcons seem to target the most? Why?

ones separated from groups

Gomaring, Borneo

10. What physical adaptation do cave swiftlets have to navigate through the dark caves to their nests?

echo location - little clicks to determine location

- a. How do they build nests without any materials in the cave to use?

threads of saliva
- takes 30 days to complete a nest

11. What is the name for the calcite formations that hang from the ceilings?

stalactites

12. What is the name for the calcite formations that grow from the floor?

stalagmite

Yucatán Peninsula, Mexico

13. As this part of Mexico has no lakes or rivers, what did the Maya use as a source of fresh water?

- Flooded caves - since the last ice-age (Cenote)
- Supported the Maya (500 years ago)
- Flooded entrance to caves

14. Saltwater does not dissolve limestone like freshwater. How then, are sea caves formed?

Salt water - low in oxygen
created by mechanical pounding of waves

15. Neither the bats nor the cave snakes are able to actually see in the cave. Explain what special sensory adaptation each has to allow it to navigate through the darkness.

- echo location for bats
- snakes are blind in the dark - sense bats using heat detectors in their head

16. What are troglobites?

- animals that never emerge from caves or see daylight

17. Evolution can result in the development of new adaptations, as well as the loss of vestigial structures that are no longer useful. What vestigial structures have been lost by the troglobites?

- eyes - have no use

Villa Luz Cave, Mexico

18. Why is the water flowing out of this cave colored white?

- flows with sulfuric acid

19. What is the poisonous gas that bubbles up from below the cave?

to
hydrogen sulfide gas mixes with other gases to
forms sulfuric gas → form

20. "Snottites" are colonies of bacteria. These bacteria are often classified as extremophiles. Why is this an appropriate term?

- drops droplets of sulfuric acid
- extract energy from hydrogen sulfide

- Ability to survive in extreme conditions

Lechuguilla Cave, New Mexico, United States

21. Many of the crystal formations in Lechuguilla are made from a mineral called gypsum. What rock is the source of this mineral?

- gypsum is a mineral that comes from limestone

22. Lechuguilla is an unusual cave because its limestone was not carved away by water. What was responsible for creating its caverns and crystals?

- limestone was eaten through by sulfuric acid miles and miles
- when sulfuric acid dissolves limestones it leaves behind gypsum