

23

Sharks typically reproduce sexually. A particular female shark, however, gave birth in a zoo despite having no recent contact with a male shark.

- a. Identify the type of cell division that produces eggs and sperm in animals such as sharks.
- b. Describe what normally happens during fertilization in animals such as sharks. Be sure to identify the end product of fertilization.

Female sharks can store sperm after mating and then wait to fertilize their eggs. Scientists investigated whether the female shark in the zoo did this.

- c. Describe how DNA analysis can determine if the shark reproduced using stored sperm or if she reproduced asexually. Be sure to include the source(s) of DNA being analyzed and the results of the analysis in your answer.
- d. Explain why sexual reproduction is important for the long-term survival of shark species.