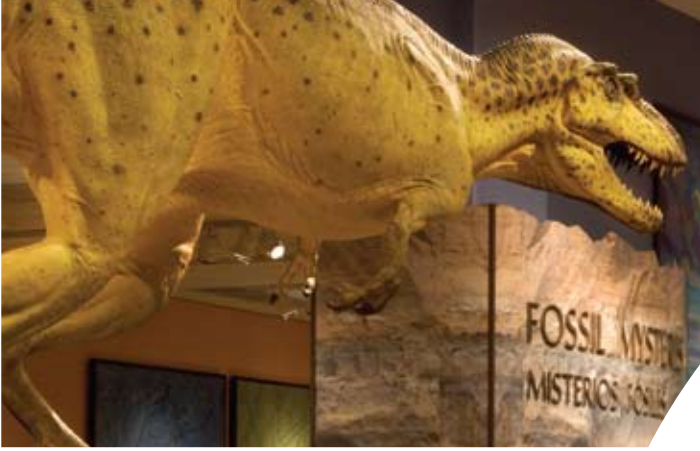


theNAT
SAN DIEGO NATURAL HISTORY MUSEUM

FOSSIL MYSTERIES
Guide to Evolution in San Diego

Cretaceous (144–65 MYA) Dinosaurs Rule!

Predator or prey? Describe some features of each dinosaur that identify it as predator or prey.

Albertosaurus vs Lambeosaurus

A new menu for dinosaurs

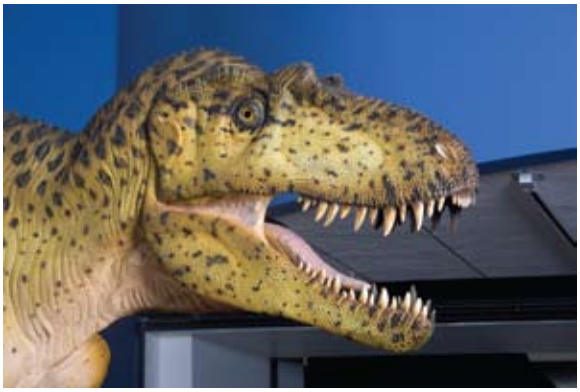
How did discovering the diet of hadrosaurs help scientists learn about the evolution of grasses?

How do you think the evolution of flowering plants (including grasses) influenced the evolution of dinosaurs?

Now you see them now you don't

How did mammals (such as the ancient opossum seen in the display) survive the event and why did they evolve so rapidly afterwards?

Why do scientists think dinosaurs became extinct after the impact event?



Eocene (55–34 MYA) Entering the Age of Mammals

Gnawing their way to the top

Explain the advantage that allowed rodents to evolve to represent 40% of all mammal species.

Welcome to Eocene San Diego

Name three types of organisms that lived in San Diego during this time, but no longer exist here. What do you think happened to cause them to die out?

Taking hold in the trees

Primate Family Tree How many species of primates lived in San Diego during the Eocene?

How do you think the tropical forest environment influenced the evolution of primates?

What characteristics do humans share with ancient primates?

Oligocene (34–23 MYA) From Forests to Grasslands

Runners from the past/Run for your life

How did the ankle and foot evolve between the time of the extinct plant eater and the modern deer?

How could this be used as an example of survival of the fittest?

Evolution transformed these arm bones
Which bones are they?

Blue _____ Orange _____

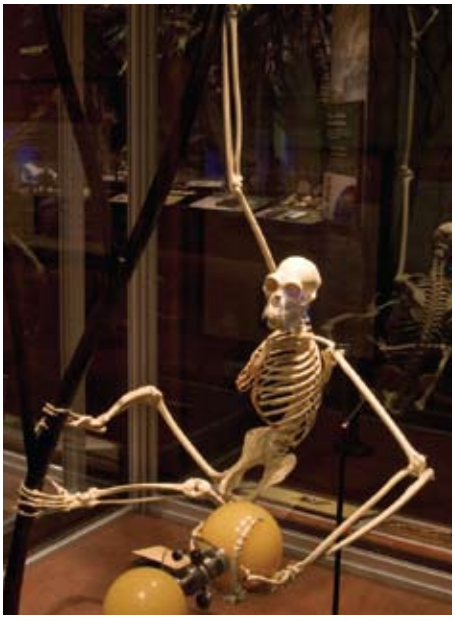
Green _____ Yellow _____

Describe how the arm bones evolved to suit each lifestyle. How are the bones different in each example and how does this help the animal either swim, climb, or run?

Swimmer

Climber

Runner



(Go straight through the hall and bypass the geology display on your right)

Clam Sucker/Fish Chaser (walrus fossil skulls)

Examine the two walrus skulls and describe how they are different. How did the skulls help scientists determine the lifestyles of these extinct marine mammals?

Which species of fossil walrus is more closely related to the modern walrus? How do we know?

A feast of familiar fish

Why have the fish in San Diego Bay not changed much since the Pliocene? How do we know?

Giant predators hunt tiny prey

How did scientists use the feeding habits of modern gray whales to nickname the ancient gray whale the "vacuum cleaner?"

World changes shape the sea cow

What changes in their environment caused giant sea cows to evolve to lose their teeth?

Pleistocene (2.5 MYA–10,000 years ago) BIG Mammals!

A fierce competition

Why do we think lions became extinct in the Americas and Europe but survived and continued to evolve in Africa and Asia?

A mystery in history 1796

How did the "father of paleontology," Georges Cuvier, realize this animal was extinct and thus represented the first example of extinction?

Why do you think modern sloths evolved to live in trees, instead of on the ground?

Going, Going…Gone

What are the two most popular theories as to why mammoths, mastodons, and other Pleistocene "megafauna" became extinct?