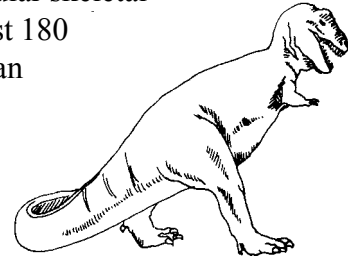


## ***TEACHER INFORMATION - DINOSAURS: FACTS AND FICTION***

### **What is a dinosaur?**

Dinosaurs are a groups of prehistoric animals that had a set of particular skeletal features. They lived during the Mesozoic Era, which lasted for almost 180 million years. Some dinosaurs were huge - over 15 times the size of an elephant; others - more than half - were less than 15 feet long.



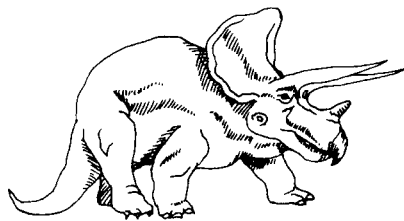
All dinosaurs probably lived on land. Although some dinosaurs waded into swamps, marshes and lakes for food and water, none were totally aquatic. As far as we know, no dinosaur could fly.

Some walked on all four feet and some balanced on their hind feet. Some were plant eaters and others ate meat. Perhaps some ate both plants and meat.

### **Which animals are not dinosaurs?**

Non-dinosaur animals included: flying reptiles such as pterodactyls; giant aquatic creatures such as the plesiosaurs, giant sea turtles, and huge prehistoric crocodiles; primitive sail-back reptiles such as Dimerodon; and saber-toothed cats and wooly mammoths.

### **How many types of dinosaurs are known?**



Approximately 700 species have been named. However, a recent scientific review suggests that only about half of these are based on almost complete specimens that can be shown to be unique and separate. Even if all of the roughly 700 published dinosaur species are valid, their number is still less than one-tenth the number of currently known living animal species and less than one-fifth the number of currently known mammal species. But not all animals were fossilized, so many lived for which we have no evidence.s

### **How are dinosaurs named?**

Dinosaurs are generally named after a characteristic body feature, the place where they were found, or a person involved in the discovery. Like all living things named by scientists, the name consists of two Greek or Latin words (or combinations). For example, the Greek and Latin combination *Tyrannosaurus rex* means “king of the tyrant lizards.” The word “dinosaur” comes from two Greek words meaning “terrible lizard.”

### **How are dinosaurs grouped?**

Paleontologists have divided dinosaurs into two separate order of reptiles, based upon their skeletons: lizard-hipped dinosaurs (the saursischians) and bird-hipped dinosaurs (the ornithischians). Lizard-hipped dinosaurs had hips shaped like those of lizards. Some were meat eaters, like the *Tyrannosaurus*. Others were plant eaters, like the *Apatosaurus* (also known as *Brontosaurus*) and its relatives.



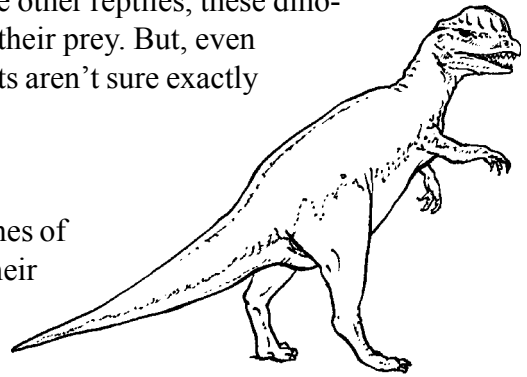
Bird-hipped dinosaurs had hips that were similar to those of birds. Most bird-hipped dinosaurs were plant eaters. Many of them, like *Stegosaurus* and *Triceratops*, had horns, frills, spikes or plates on their bodies.

### How were dinosaurs different from other reptiles?

Dinosaurs moved differently from a reptiles such as a turtle, crocodile or lizard. Most dinosaurs walked with their legs under their bodies for support, which raised them above the ground. But lizards, crocodiles and turtles move very close to the ground, with their legs sprawled out to the sides away from their bodies.

Paleontologists believe that dinosaurs laid hard-shelled eggs, similar to those laid by birds, instead of soft-shelled eggs like those of turtles and other reptiles.

Some dinosaurs also had grasping hands, as people do. Unlike other reptiles, these dinosaurs would have been able to grasp and hold things, such as their prey. But, even though there are many differing characteristics, paleontologists aren't sure exactly how dinosaurs compare to modern day reptiles.



### Were dinosaurs able to regulate their body temperature?

Scientists have conflicting opinions on this subject. Several lines of evidence suggest that some dinosaurs were able to regulate their body temperature in the same sense that modern birds and mammals are. Other scientists think it unlikely that any dinosaur could have had a rapid metabolic rate.

### How long could a dinosaur live?

Dinosaur life spans probably varied in length from tens of years to hundreds of years. Their possible maximum age can be estimated from the maximum life spans of modern reptiles, such as the 66-year life span of the common alligator and the Seychelles tortoise. One specimen of this now-extinct tortoise lived 152 years in captivity and had an accidental death. These estimates, based on life spans of cold-blooded (ectothermic) animals, would be too long if dinosaurs had metabolisms more similar to modern birds and mammals.



Meat-eater

### What did dinosaurs eat?

The teeth of dinosaurs reveal that some were plant eaters, others ate meat and perhaps some ate both. Some hunted other dinosaurs or scavenged dead animals. Most, however, ate plants (but not grass, which hadn't evolved yet). Some scientists think that some dinosaurs ate eggs.

### Which was the biggest dinosaur? Which was the smallest?

The largest dinosaur we know from a complete skeleton was *Brachiosaurus* ("arm lizard"). It reached 23 meters in length and 12 meters in height (about the length of two large school busses and the height of a four-story building). Fragments of leg bones and vertebrae of even larger dinosaur species are known, but these skeletal remains are too incomplete to determine their exact size. Several of these (*Andesaurus*, *Seismosaurus* and *Supersaurus*) might have been one and one half to two times larger than *Brachiosaurus* and almost the weight of a blue whale. The smallest dinosaurs were about the size of a chicken.

### **Why did some dinosaurs grow so big?**

Paleontologists don't know for certain, but perhaps a large body size protected them from most predators, helped to regulate internal body temperature, or let them reach new sources of food (some probably browsed treetops, as giraffes do today).

### **Were dinosaurs social animals?**

Some dinosaurs were social creatures. Recently discovered evidence indicates that some traveled together and some may even have migrated. Grouped hadrosaur nest sites have been found with badly crushed eggshells and skeletons of baby dinosaurs still in the nests, suggesting that some young stayed in their nests after hatching and probably were fed by parents.

### **Did dinosaurs communicate?**

Dinosaurs probably communicated both vocally and visually. The chambered headcrests on some dinosaurs might have been used to amplify grunts or bellows.

### **When did dinosaurs become extinct?**

Dinosaurs became extinct at the end of the Mesozoic era, about 65 million years ago. They had lived on earth for about 180 million years! If all earth time from the very beginning of dinosaurs to today were compressed into 365 days (one calendar year), the dinosaurs appeared January 1 and became extinct the third week of September. By comparison, people have been on earth only since December 31 (New Year's Eve).

### **Why did the dinosaurs become extinct?**

There are dozens of theories to explain a probable cause or causes. Throughout the Mesozoic era (lasted for about 180 million years), individual dinosaur species were evolving and becoming extinct for various reasons. The unusually massive extinction near the end of the Mesozoic era exterminated the last of the dinosaurs, the flying reptiles and the large swimming reptiles, as well as many of the marine animals. There is now widespread evidence that a meteorite impact was likely at least the partial cause for this extinction. Other factors such as extensive release of volcanic gasses, climatic cooling, sea-level change, low reproduction rates, poison gasses from a comet, or changes in the earth's orbit or magnetic field may have contributed to this extinction event.

Scientific theories about dinosaurs are changing with new discoveries. For even more current information on these fascinating creatures, check the website listed under **Organizations** in the *Resources* list: [www.ZoomDinosaurs.com](http://www.ZoomDinosaurs.com)

### **References**

The above information is compiled from material listed under *Resources* in this packet.

