



A Skeletal Plan

They stopped and stared. Only the edge of one hip bone and claw were exposed at the surface. The team immediately recognized the characteristic shape of these bones—they belonged to a predatory dinosaur. Everyone was wondering how much of the animal lay beneath the surface.

With each passing day, the team found more bones. Unlike those of the sauropod, the bones of the theropod were scattered around the site and were located within inches of the surface. The team soon realized they had found bones from all parts of the skeleton, included the skull. It was the most important find of the field season—a new theropod!

Theropods are bipedal (two-legged), carnivorous (meat-eating) dinosaurs. Their short, strong front limbs are adapted for grasping and tearing flesh. Their three-toed limbs are built for running. The long tail is used for balance and the narrow skull has rows of long curved teeth for holding onto live prey.

*The team named the new theropod from Niger, **Afrovenator**, meaning “African hunter.” Afrovenator has a particularly long skull (more than 2 feet long) and a lightly-built skeleton about 30 feet long. The long hind limbs indicate that Afrovenator was a particularly fast predator. Sauropod bones were found close to the Afrovenator site, and it is very likely that Afrovenator preyed upon the large plant-eating sauropods.*



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BACKGROUND

Did you know that you can match almost all the bones in your skeleton with those in a dinosaur skeleton? Humans and dinosaurs belong to a large group of animals called vertebrates, all of which have bones that follow a similar skeletal plan. The vertebrate skeletal plan evolved long ago (about 350 million years ago) in the ancestors of the vertebrates and was inherited by all of their descendants.

VERTEBRATE SKELETAL PLAN

Main Parts

Skull

Characteristics

contains brain, jaws, and teeth

Vertebrae

bones that form the backbone

Shoulder blade and pelvic girdle

plate-shaped bones for limb attachment

Paired front and hind limbs

Each limb has 3 long bones
Front limb: humerus, radius, ulna
Hind limb: femur, tibia, fibula



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DIRECTIONS:

Study the labeled diagram of the human skeleton (next page). Learn the names of the major bones.

1. The bones in a skeleton of a sauropod dinosaur (following pages) are labeled with letters. Name each bone next to the same letter listed below (use the technical bone names). (HINT: look for the same bones in the human skeleton).

A _____

H _____

B _____

I _____

C _____

J _____

D _____

K _____

E _____

L _____

F _____

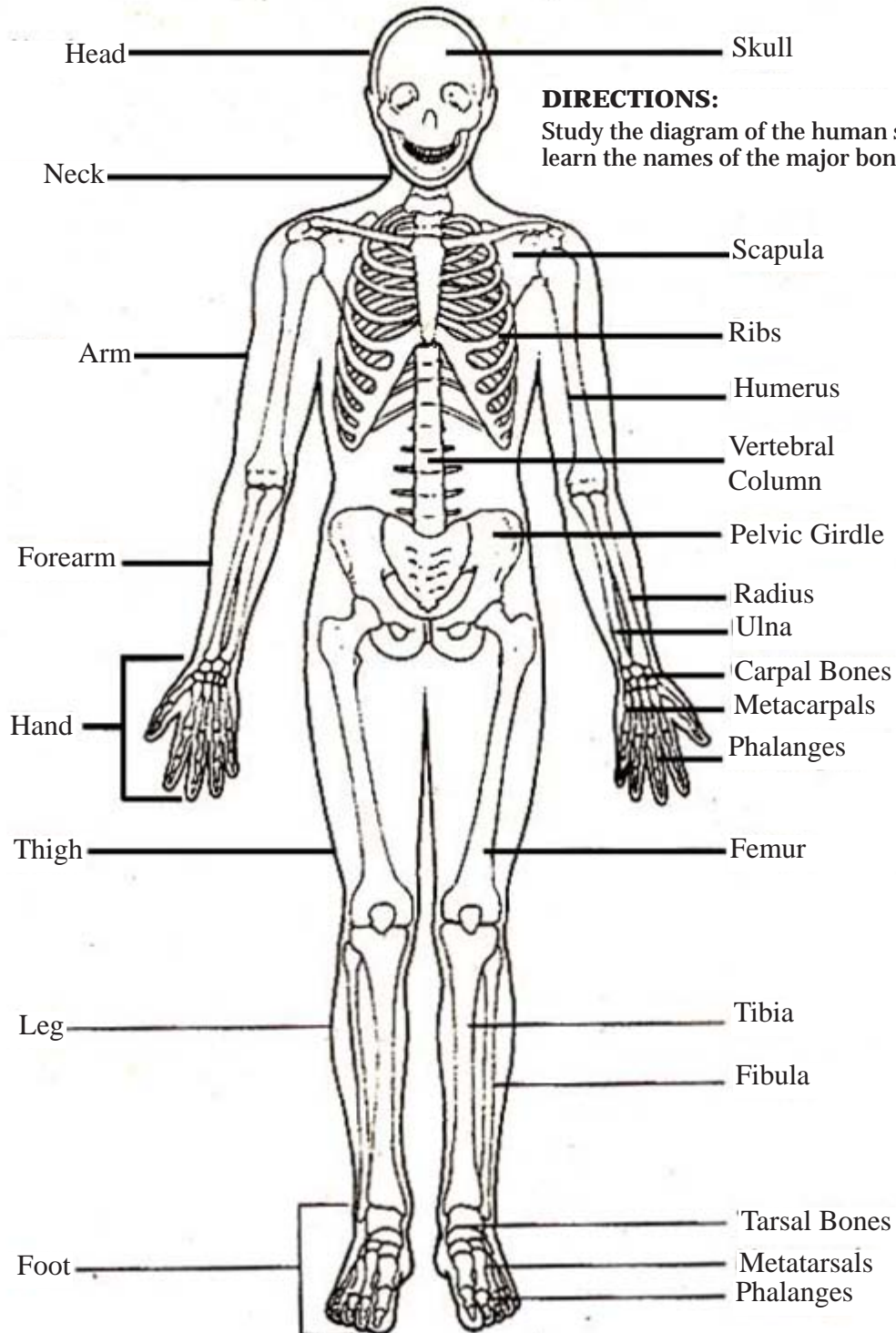
M _____

G _____

2. List the bones that are missing in the skeleton of *Afrovenator*.

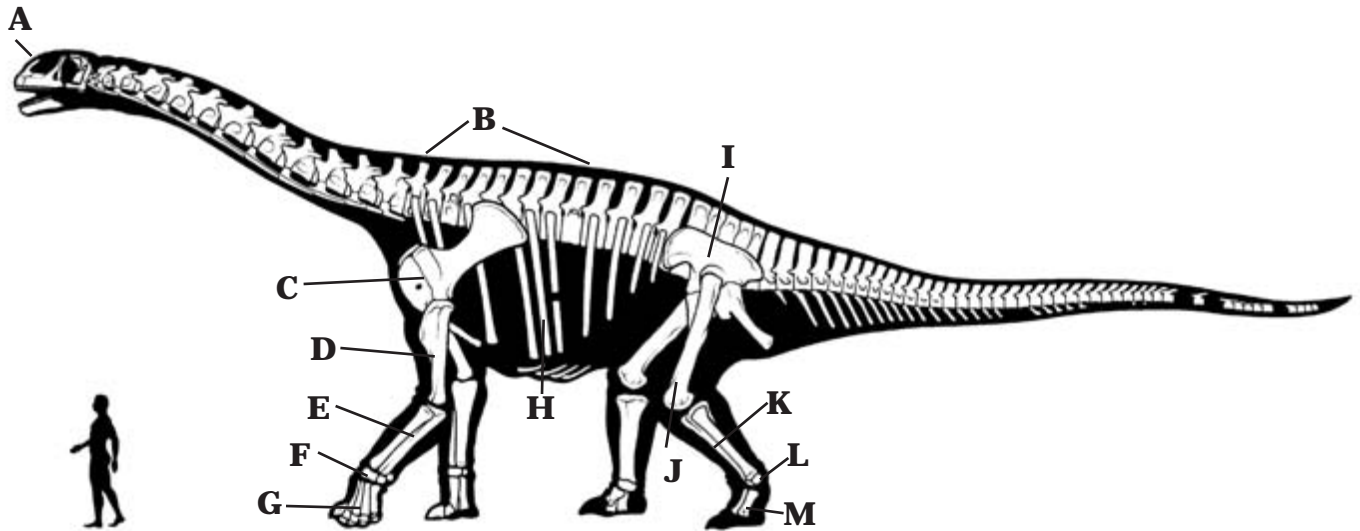


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Teacher's Answer Key

1. The bones in a skeleton of a sauropod dinosaur (following pages) are labeled with letters. Name each bone next to the same letter listed below (use the technical bone names). (HINT: look for the same bones in the human skeleton)

- A- Skull
- B- Vertebrae (backbone)
- C-Scapula (shoulder blade)
- D- Humerus (upper arm bone)
- E- Radius and Ulna (forearm bones)
- F- Carpals (wrist bones)
- G- Metacarpals (hand bones)
- H- Rib
- I- Pelvic Girdle (hip bones)
- J- Femur (thigh bone)
- K- Tibia and Fibula (lower leg bones)
- L- Tarsals (ankle bones)
- M- Metatarsals (foot bones)

2. List the bones that are missing in the skeleton of Afrovenator.

- Skull bones
- Vertebrae
- Ribs
- Scapula
- Radius and ulna
- Carpals
- Metacarpals
- Phalanges