Skeletal System

BERRYHILL & CASHION

HS1

DHO 7.3
Skeletal System Facts:

The skeletal system is made up of organs called bones.

An adult human has 206 bones, but babies are born with 270 bones. Why?

The male and female skeleton have 1 major difference - what is it?

The female pelvis is wider and deeper. Why?
There are 5 functions:

1. _______________: bones form a framework to support the body’s muscles, fat, and skin

2. _______________: bones surround vital organs to protect them. Can you think of an example? The skull surrounds the brain. The ribs surround the heart and lungs.
Functions of the skeletal system:

3. _________________: muscles attach to bones to help provide movement

4. ________________________________: bones help produce ________________________, a process called ________________________________.

5. _________________: bones store most of the ______ supply of the body in addition to __________________________.
Bones vary in shape & size depending on their locations within the body

BONES OF THE EXTREMITIES ARE CALLED LONG BONES
Parts of a long bone:

1. __________________________ – long shaft
2. __________________________ – the 2 ends
3. ___________________________ – cavity in the diaphysis
4. ___________________________ – found in the medullary canal, it is a storage area for _________________.
   ▶ Contains cells that form ____________________________
5. ___________________________ – membrane that lines the medullary canal & keeps the _____________________________.
   ▶ It produces some bone growth.
Parts of a long bone:

6. __________________— found in certain bones (vertebrae, ribs, sternum, cranium, and in the proximal ends of humerus & femur)
   ▶ Produces ____________________________________________
   ▶ Red marrow is used to __________________________________& can be __________________________ in people with diseases of the immune system.
Parts of a long bone:

7. __________________—— tough membrane that covers the outside of the bone.
   - It contains blood vessels, lymph vessels, and ____________________ (special cells that form new bones).

8. __________________—— covers the epiphysis and acts as a ____________________________ when 2 bones meet to form a joint.
Long Bone

Diagram of long bone from DHO
The skeletal system is responsible for the production of:

A) Adrenalin.
B) Red blood cells.
C) Vitamins A and D.
D) Calcium.

And the answer is...
Do you know?

- Of the following bones, which would MOST LIKELY contain red marrow?

  A) Metacarpals
  B) Sternum
  C) Patella
  D) Fibula

And the answer is ....
What is the function of an osteoblast?

A) To form new bone tissue
B) To fight infection
C) To produce erythrocytes and leukocytes
D) Protection

And the answer is…
Skeletal system is divided into 2 sections:

**Axial skeleton**
- Forms the ______________ of the body and is composed of the _____, __________________________, __________________________, __________________________

**Appendicular skeleton**
- Forms the ______________ and is composed of the __________________________, __________________________, __________________________
Axial Skeleton: Skull

- Made of __________________ bones
- ____________________ = spherical structure that __________________
- It is made of 8 bones
- 1 __________, 2 __________, 2 __________, 1 __________, 1 __________, 1 __________
Axial Skeleton: Skull

- Facial bones – 14 bones
  - 1 ____________, 2 ____________,
  - 2 ____________, 2 ____________,
  - 5 ____________, 2 ______________
Axial Skeleton:

- At birth the cranium isn’t solid bone. There are spaces that allow for the enlargement of the skull as brain growth occurs.

- What are these spaces called?

- ___________________ or soft spots

- They are made of ___________________________ and turn to ___________________________ by about ______ months of age.
Fontanels

- Posterior fontanel
- Sagittal suture
- Coronal sutures
- Anterior fontanel

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Fontanels

- Soft spots with no bones when babies are born. (Connective tissue)
Axial Skeleton:

_________: areas where ___________________________ have joined together

_________: air spaces in the bones of the skull that act as _______________________________. They are lined with _________________________________.

_________: openings in bones that allow ________________________________ to enter or leave the bone
Skull bones and sutures diagram from DHO
Axial Skeleton: Spinal Column

- **Vertebrae**: 26 bones form spinal column. Why? To _______________________________& _______________________________.
- 7 _______________ (neck)
- 12 ______________________ (chest)
- 5 _______________________ (waist)
- 1 ______________________
- 1 _____________________ (tailbone)
- ___________________________ - pads of cartilage that separate the vertebrae. Act as ___________________& permit ___________________ motions of the vertebral column
Ribs - 12 pairs. They attach to the thoracic vertebrae on the [ ] of the body.

[ ] - 1st 7 pairs, they attach directly to the [ ]

[ ] - Next 5 pairs. The 1st 3 pairs of false ribs attach to the [ ] of the rib above.

[ ] - Last 2 pairs of false ribs, they have [ ]
Axial Skeleton:

**Sternum** = _____________________________ – small piece of cartilage at the bottom of the sternum

The ribs are attached to the sternum with ____________ to form a cage that protects the heart and lungs.
Shoulder girdle is made of 2 ___________ (collarbones) and 2 ________________ (shoulder bones).
The scapula provide for the ________________ of the upper arm bones.
Appendicular Skeleton: Arm

Bones of the arm:

• 1 ________________ (upper arm)
• 1 ______ (lower arm, thumb side)
• 1 ____ (larger bone of the lower arm with projection called the _________________ at its upper end that forms the elbow)
• 8 ________________ (wrist)
• 5 _________________ (palm)
• 14 ________________ (3 on each finger, 2 on thumb)
Appendicular Skeleton: Pelvic Girdle

- Pelvic girdle is made of 2 ____________ (coxal, or hip bones), which join the ____________ on the dorsal part of the body. On the ventral part of the body the os coxae join together at a joint called the _______________________.

- Each os coxae is made of 3 fused sections: ______________________

- Pelvic girdle contains 2 recessed areas or sockets called ____________ which provide for the attachment of the smooth rounded head of the femur.

- ______________________ - opening between the ischium and pubis, it allows for the passage of nerves and blood vessels to and from the legs.
Bones of the leg:

- 1 _______________ (thigh)
- 1 _______________ (kneecap)
- 1 _____________ (shin bone, it is the larger weight bearing bone of the lower leg)
- 1 _____________ (slender, smaller bone of lower leg that attaches to the proximal end of the tibia)
- 7 ___________________ (ankle)
- 5 _________________ (instep of foot), and 14 ____________________ (2 on great toe, 3 on other toes)

Heel is formed by the large tarsal bone - calcaneous
Do you know?

The vertebrae are part of the:
A) Pelvic girdle.
B) Shoulder girdle.
C) Axial skeleton.
D) Appendicular skeleton.

And the answer is...
Do you know?

What two bones articulate with each other?
A) Patella and ulna
B) Vertebrae and sternum
C) Metacarpals and phalanges
D) Carpals and humerus

And the answer is...
**Joints**

- **Joints** - areas where 2 or more bones join together. Connective tissue bands, called ________________, help hold long bones together at joints.

- There are 3 main types of joints:
  1. ________________________________ – freely movable joint. Can you name an example?

- Ball-and-socket joints of the shoulder and hip or hinge joints of the elbow and knee
2. ______________________________ – slightly movable joint. Can you name an example?
   ▶ Attachment of ribs to thoracic vertebrae or the joint between the 2 pelvic bones (symphysis pubis)
3. ______________________________ – immovable joint. Can you name an example?
   ▶ Suture joints of the cranium