

CLASS - 8

DATE - 07.10.2024

SUBJECT - BIOLOGY

TEACHER - Nidhi Rana

CHAPTER - 12 Skeleton - Movement and Locomotion

This lesson is of Class 8 for the subject of Biology Topic - Axial Skeleton which is covered in Chapter 12 titled Skeleton - movement and locomotion starting on Page No 117 of your text book titled - Concise Biology Selina Publications and is being submitted to you on 07.10.2024

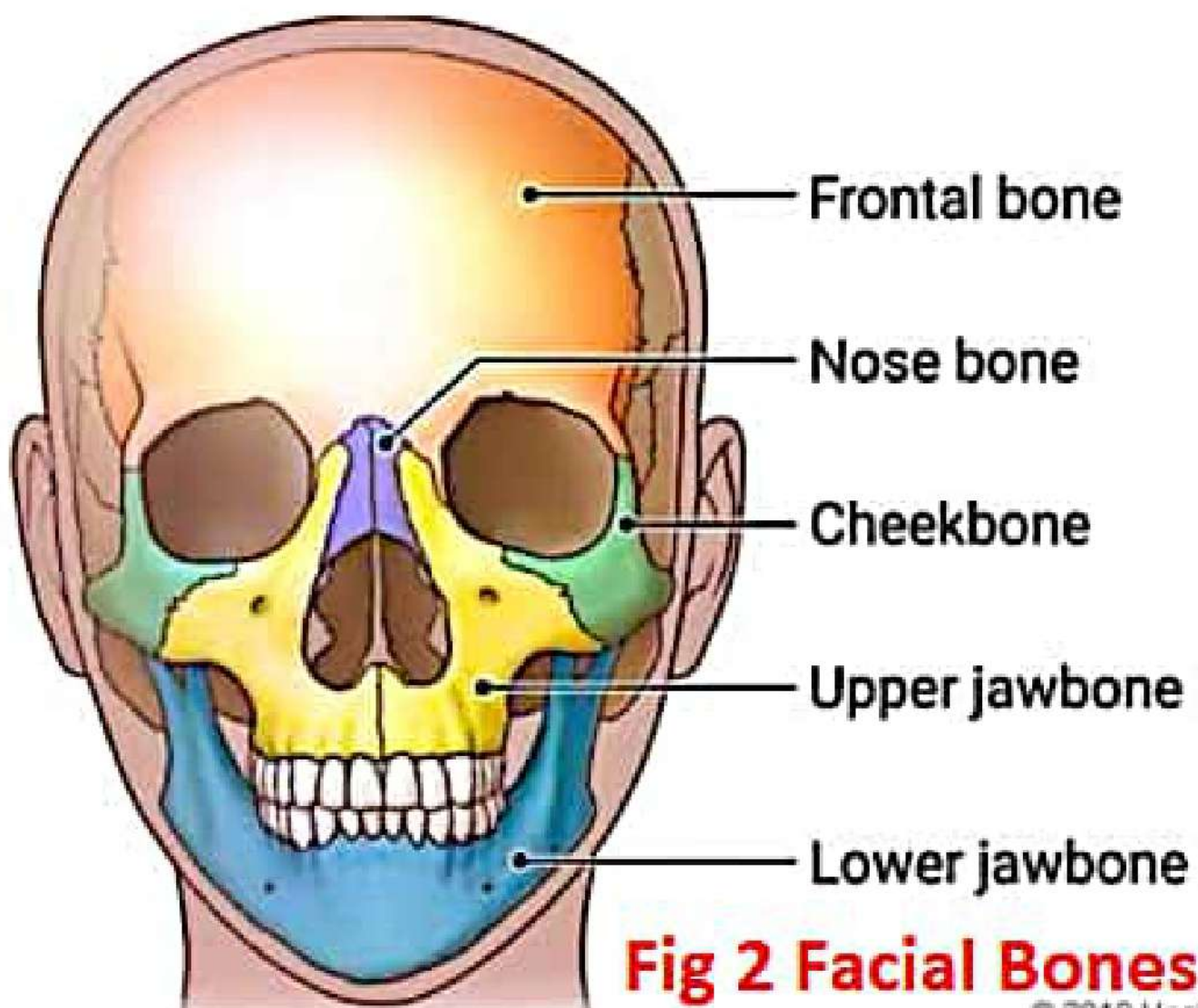
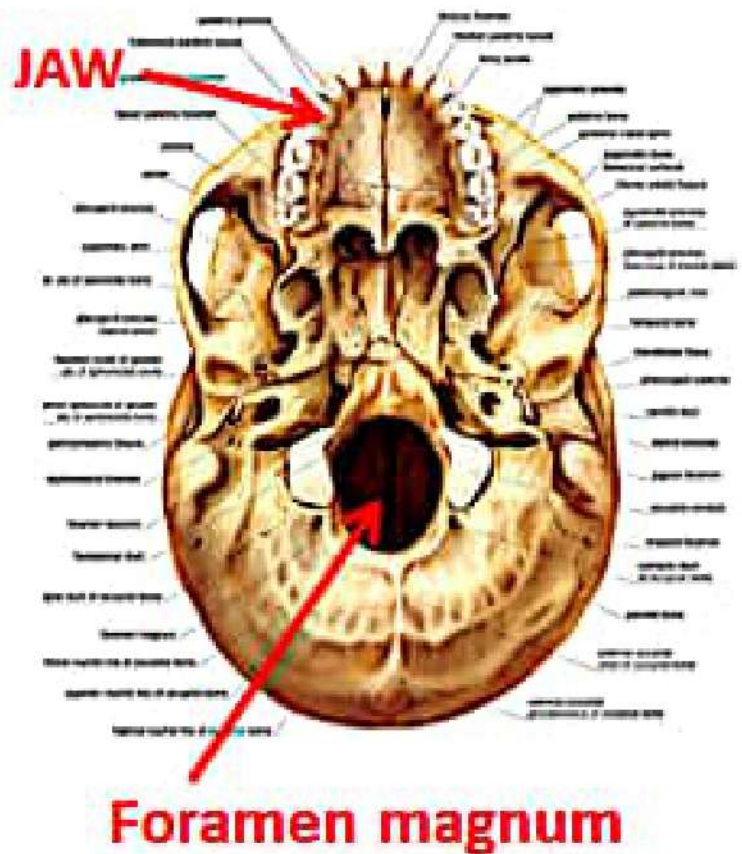
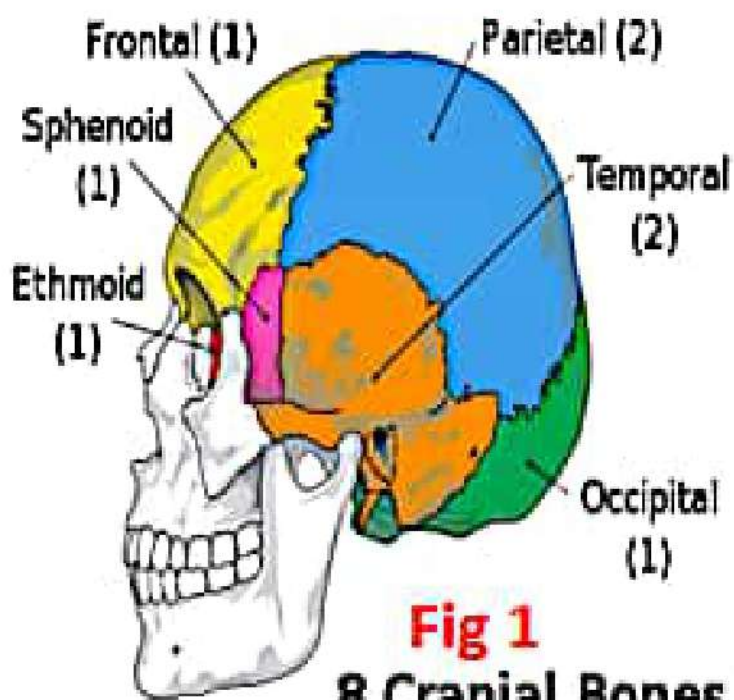
AXIAL SKELETON consists of

- | | |
|----------------------|-------------|
| i) Skull | iii) Ribs |
| ii) Vertebral column | iv) Sternum |

SKULL is the bony covering protecting the head or the brain. It consists of 22 bones in a bony box forming the cranium and the face.

CRANIUM Upper top part the cranium or brain box consists of 8 flattened bones which are tightly interlocked with each other in the way that they are permanently fixed. It protects the brain (mainly), nose, middle and inner ear and the eyes. At the posterior end of the skull there is a large opening or hole called the foramen magnum through which spinal cord after emerging from the brain continues behind in the backbone. See Fig 1

Face The front portion of the skull is the face. It consists of 14 bones. Upper and lower jaw are made / formed by some of these bones. Upper jaw is fused with the cranium and lower jaw articulates with it. See Fig. 2



VERTEBRAL COLUMN or Backbone is the main axis of the body. It is made up of linear series of 33 individual ring like bones called vertebrae, placed end to end, and separated by intervertebral discs or gristle which are cushioning pads of cartilage.

The vertebrae are held together by ligaments which prevent their dislocation, but permit a degree of movement so that vertebral column as a whole is flexible. Vertebral column gives protection to spinal cord.

The vertebrae are divided into 5 groups according to the region they occupy -

- i **CERVICAL** present in the neck region and are 7 in number. Vertebra No 1-Atlas; 2-Axis
- ii **THORACIC** present in chest and are 12 in number
- iii **LUMBAR** present in waist region and are 5 in number
- iv **SACRAL** present in the hip region and are 5 in number
- v **COCCYX** These are tail vertebrae and are 4 in number. These four bones are fused in the adult to form coccyx. which represent rudimentary tail of humans

STRUCTURE OF VERTEBRA

The main body of the vertebrae is called Centrum. On the dorsal side of the centrum is a neural canal formed by the union of two neural arches arising from the sides of the centrum. Spinal cord runs through this neural canal

Please refer to Fig 3 Structure of Vertebra

Neural spine is flat longitudinal ridge projecting upward from the meeting point of the two neural arches. Two transverse processes project laterally (sideward) from the base of the neural arches. Transverse processes provide additional surface for the attachment of muscles. The articular facets arise from the anterior and the posterior ends of the centrum. They provide surfaces for articulation with adjacent vertebrae. Before going further let us recapitulate quickly what we have learnt so far.

Answer the following questions -

Q1 Name the four parts that make up our axial skeletal system.

Q2 How many bones are present in the
(i) Skull (ii) Vertebral column.

Q3 Name the 5 groups into which the vertebrae have been divided into.

You may now pause the lesson for 3 mins. to write the answers in your notebooks.

Break is over children. Listen to the correct answers.

A1 Four parts of Axial skeleton are

i) Skull

iii) Ribs

ii) Vertebral Column

iv) Sternum

A2 Skull is made up of 22 bones

8 bones in cranium and 14 in face.

Vertebral column has 33 small bones.

A3 Vertebrae have been divided into 5 groups -

(i) Cervical

(iv) Sacral

(ii) Thoracic

(v) Coccyx

(iii) Lumbar

STERNUM is the breast bone. It is a flat narrow bone located in the middle of the front part of the chest. The first 10 pairs of ribs are directly or indirectly attached to the sternum.

RIBS There are 12 pairs of ribs which are long, flat and curved. The thoracic vertebrae at the dorsal (back) side, the sternum on the ventral (front) side and the ribs on the sides together form bony cage or rib cage. Each rib articulates with vertebrae at the back and is attached to sternum in the front. Please refer to Fig 4.

TRUE RIBS The first 7 pairs of ribs are attached in the front to the sternum with the help of hyaline cartilage.

These 7 pairs of ribs are the true ribs.

FALSE RIBS The 8th, 9th and 10th pairs of ribs do not articulate or join directly with the sternum but join the 7th rib. These are called false ribs.

FLOATING RIBS The last two pairs of ribs i.e. 11th and 12th pairs are not attached to sternum and are therefore called floating ribs.

Please refer to Fig 5

This finishes with the discussion of Axial skeleton. Appendicular skeleton we will discuss in the next class.

Kindly go through the notes carefully and with reference to the detailed explanation of the topics you are required to answer the following

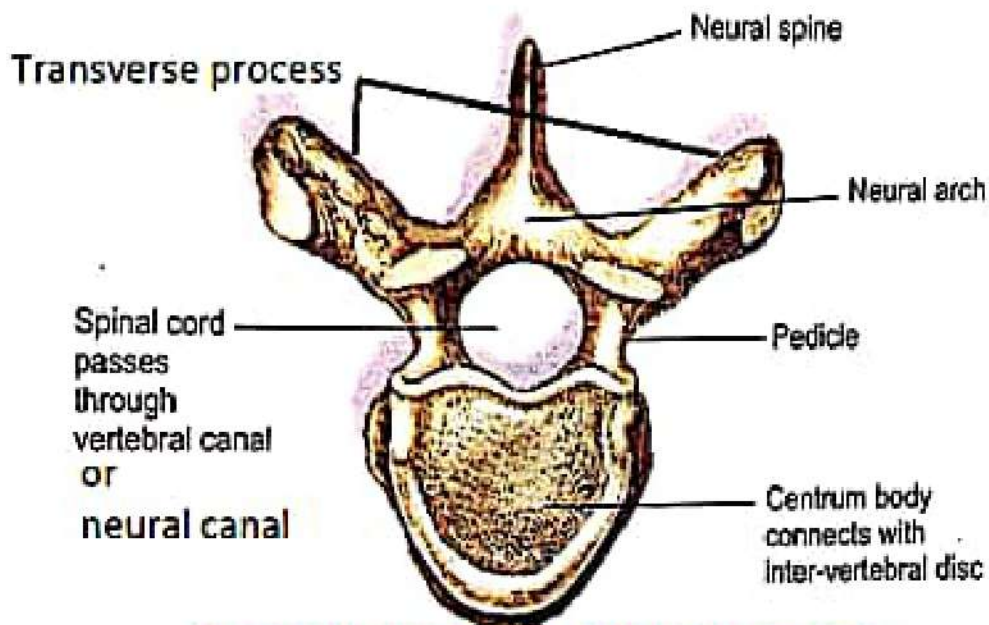
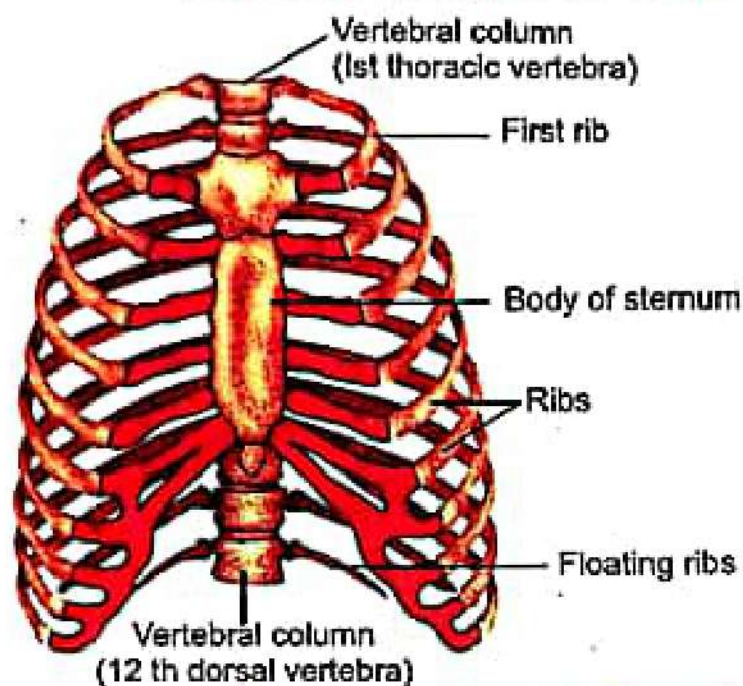


Fig 3 STRUCTURE OF A VERTEBRA



**Fig 4
RIBS
and
STERNUM**

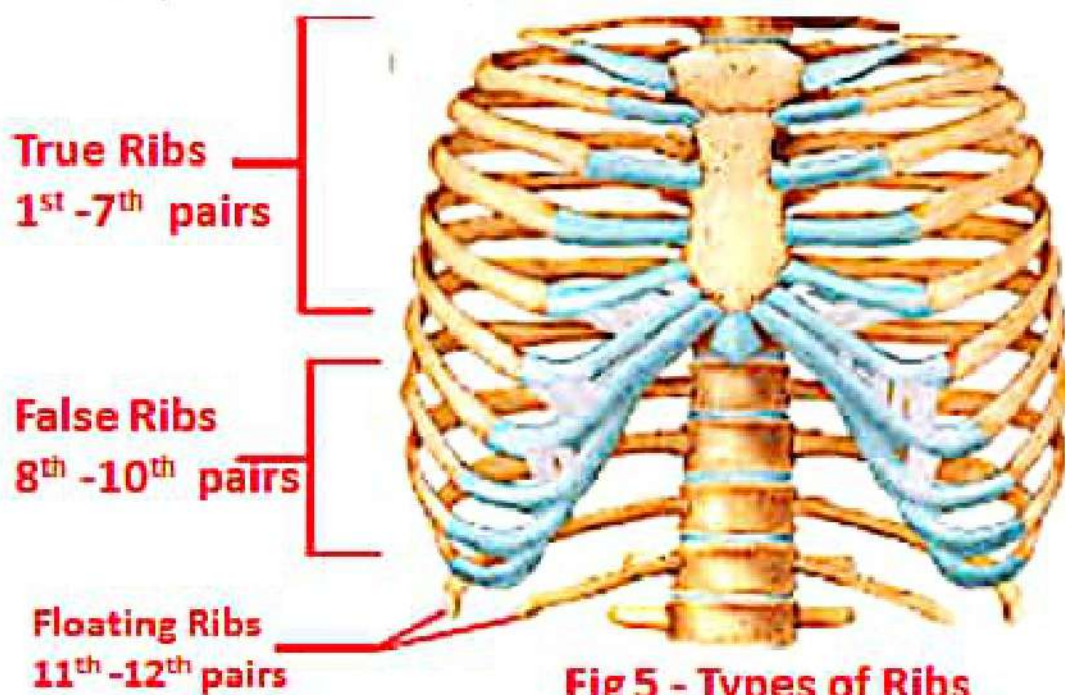


Fig 5 - Types of Ribs

home assignment questions in your notebooks

HOME ASSIGNMENT

- Q1 Answer the following 'Review question' given on Page No 126 in your text book

C SHORT ANSWER TYPE

Q No 1

- Q2 Draw well labelled diagrams of
- (i) Cervical vertebrae
[Atlas vertebra Fig 12.3 B]
 - (ii) Thoracic vertebrae
[Fig 12.3 D of your text book]

THANK YOU