**Anatomy Worksheet 3**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The Axial Skeletal System (Skull)**

**Exercise 1.** Anatomical Features of Bones

It is advisable to understand the terminology and vocabulary commonly used to describe the anatomical features of bones. Find the definitions for the important terms listed and fill them in below.

**Articulations**

condyle -

facet -

head -

**Extensions and Projections**

crest -

epicondyle -

line -

process -

trochanter -

tubercle -

tuberosity -

spine –

**Depressions**

alveolus -

fossa -

fovea -

sulcus or groove -

**Passages**

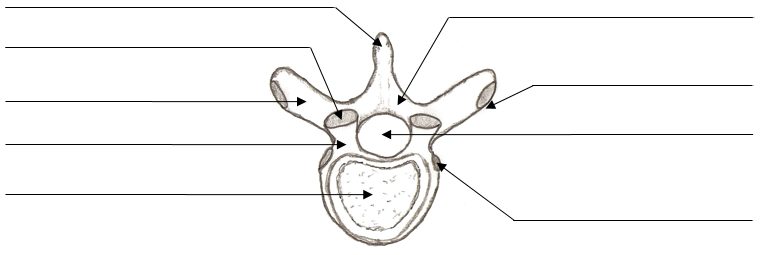
canal or meatus -

foramen (foramina) -

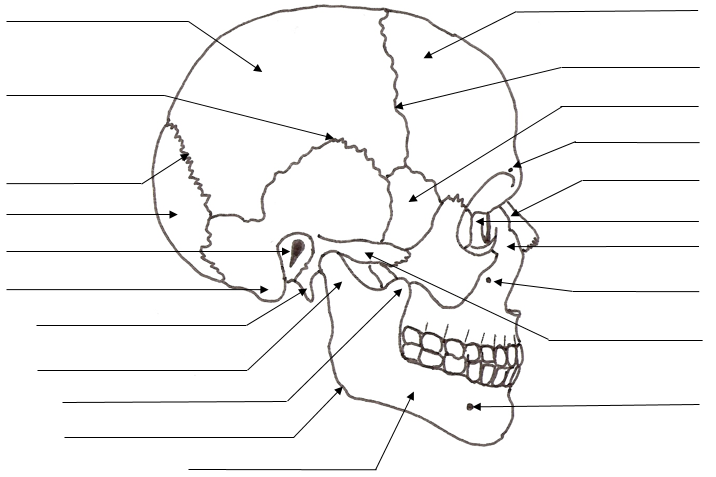
fissure -

**Exercise 2.**

**1)** Write the name of the specific structures at the end of each arrow on the lines for each.



**2)** Write the name of the specific structures at the end of each arrow.



**3)** Match bone names in Column A with the descriptions in Column B. Some answers are used more than once.

**Column A**

A. Ethmoid

B. Frontal

C. Hyoid

D. Lacrimal

E. Mandible

F. Maxilla

G. Nasal

H. Occipital

I. Palatine

J. Parietal

K. Sphenoid

L. Temporal

M. Vomer

N. Zygomatic

**Column B**

\_\_\_\_ 1. forehead bone

\_\_\_\_ 2. cheekbone

\_\_\_\_ 3. lower jaw

\_\_\_\_ 4. bridge of nose

\_\_\_\_ 5. posterior bones of the hard palate

\_\_\_\_ 6. most of lateral and superior cranium

\_\_\_\_ 7. most posterior part of cranium

\_\_\_\_ 8. Inferior portion of bony nasal septum

\_\_\_\_ 9. tiny bones bearing tear ducts

\_\_\_\_ 10. anterior part of hard palate

\_\_\_\_ 11. superior nasal conchae is a projection

\_\_\_\_ 12. site of mastoid process

\_\_\_\_ 13. has sella turcica

\_\_\_\_ 14. foramen magnum contained here

\_\_\_\_ 15. contains the mental foramen

\_\_\_\_ 16. has a styloid process

\_\_\_\_ 17. contain alveoli that bear teeth

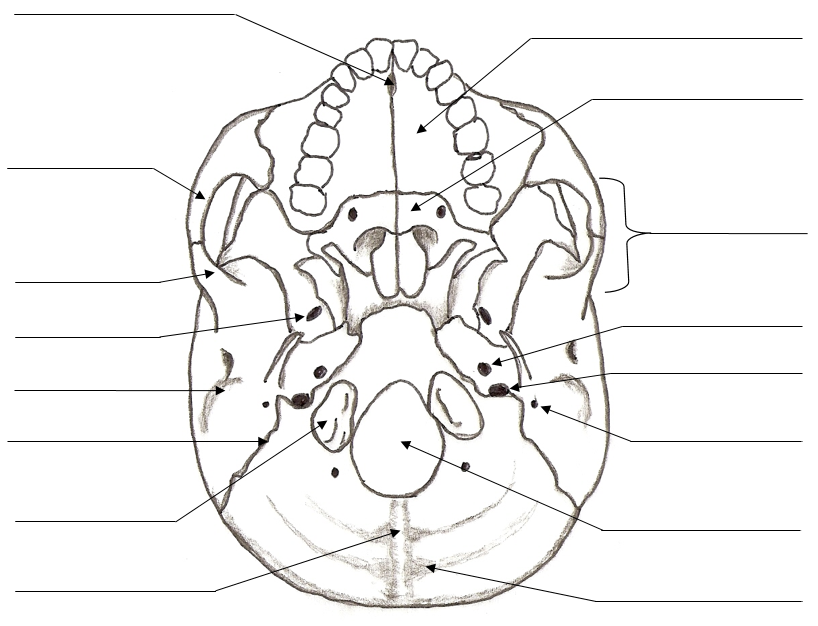
\_\_\_\_ 18. condyles here articulate with the atlas

\_\_\_\_ 19. has a "cock's comb" or crista galli

\_\_\_\_ 20. U-shaped bone, with no articulations

**4)** **Complete the Fill-Ins**:

1. The 2 \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ forms the bridge of the nose.
2. This bone creates the prominence of the cheek, inferior and lateral to the eye: ­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_\_ bone forms superior portion of nasal septum.
4. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the only movable bone in the skull; it articulates with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Forms anterior portion of zygomatic arch; the \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ of the\_\_\_\_\_\_\_\_\_\_\_\_\_ bone.
6. This facial bone, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contains the coronoid process and the mental protuberance.
7. The sockets of upper teeth are called \_\_\_\_\_\_\_\_\_\_\_\_\_. Teeth are held in place by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. The \_\_\_\_\_\_\_\_\_\_\_\_\_ canal allows a large artery to travel through the temporal bone.
9. Forms posterior roof of mouth and contributes to a small medial part in wall of orbit \_\_\_\_\_\_\_\_\_\_\_\_\_.
10. The incisive fossa is formed by the \_\_\_\_\_\_\_\_\_\_\_\_\_ bones. It also contains the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ canal.

**5)** For the drawing of the inferior view of the skull below, write the name of the specific structures at the end of each arrow.

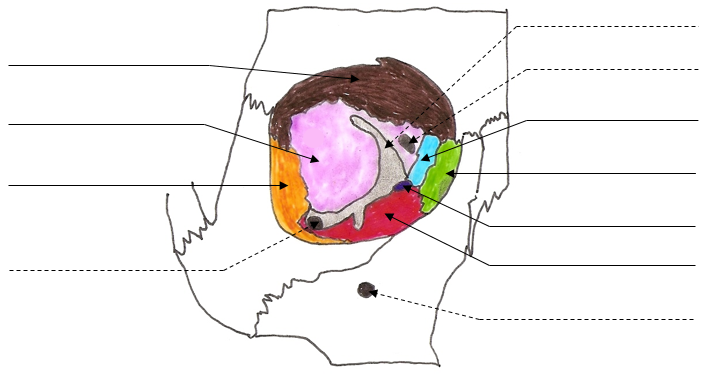
Inferior View of the Skull

**Exercise 3.** Examine the information regarding structures passing the skull foramina, canals and fissures.

**Table 1.** The ‘holes’ in the skull and the structures that pass through them.

|  |  |  |
| --- | --- | --- |
| **Foramina/Canal** | **Major Vessels** | **Major Nerves** |
| **Foramen magnum** | Vertebral arteries and veins |  |
| **Foramen rotundum** |  | Maxillary branch of Trigeminal N. (Cranial N. V) provides sensation from face. |
| **Foramen ovale** | Accessory meningeal artery |  |
| **Foramen spinosum** |  | None |
| **Foramen lacerum** |  | None |
| **Supraorbital foramen** | Supraorbital artery and vein | Supraorbital N., Ophthalmic N. |
| **Infraorbital foramen** | Infraorbital artery and vein |  |
| **Superior orbital fissure** | Superior and inferior ophthalmic veins |  |
| **Inferior orbital fissure** | None | Maxillary branch of Trigeminal N. (Cranial N. V) sensation from face. |
| **Olfactory foramina** |  | Olfactory N. (I) for sense of smell. |
| **Jugular foramen** |  | Glossopharyngeal N (IX); Vagus N. (X) and Accessory N. (XI). |
| **Hypoglossal canal** | None |  |
| **Carotid canal** |  |  |
| **Optic canal** | Ophthalmic artery |  |
| **Internal acoustic meatus** | None | Vestibulocochlear N. (XIII) |

**Exercise 4.** How many bones create the orbit? \_\_\_\_\_\_\_. Write the names of the bones indicated in the drawing below. The dashed lines ( ) indicate ‘holes’ in the skull, name these structures too.



**Exercise 5.** Multiple Choice and Thoughtful Questions:

**1.** Which bone does not contain a paranasal sinus?

**a)** ethmoid **b)** maxilla **c)** sphenoid **d)** occipital **e)** frontal

**2.** The suture between the parietal and temporal bones is the

**a)** lambdoid **b)** coronal **c)** squamous **d)** sagittal **e)** posterolateral

**3.** Of the following bones, the one that does not help form part of the orbit is the

**a)** frontal **b)** occipital **c** sphenoid **)** **d)** lacrimal **e)** palatine

**4.** Which bone does not form a border for a fontanel?

**a)** maxilla **b)** temporal **c)** occipital **d)** parietal **e)** frontal

**5.** Which bone does not belong with the others?

**a)** occipital **b)** frontal **c)** parietal **d)** mandible **e)** temporal

**6.** What is an important role of the crista galli? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**7.** What bones make up the hard palate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What is the purpose of the hard palate? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**8.** What does the word ‘pterygoid’ mean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. How about ‘petrous’ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**9.** How many separate bones make up the vertebral column? \_\_\_\_\_\_\_\_\_\_\_\_.

**10.** The “wishbone” in a bird is actually the fusions of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**11.** Another term for true rib is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

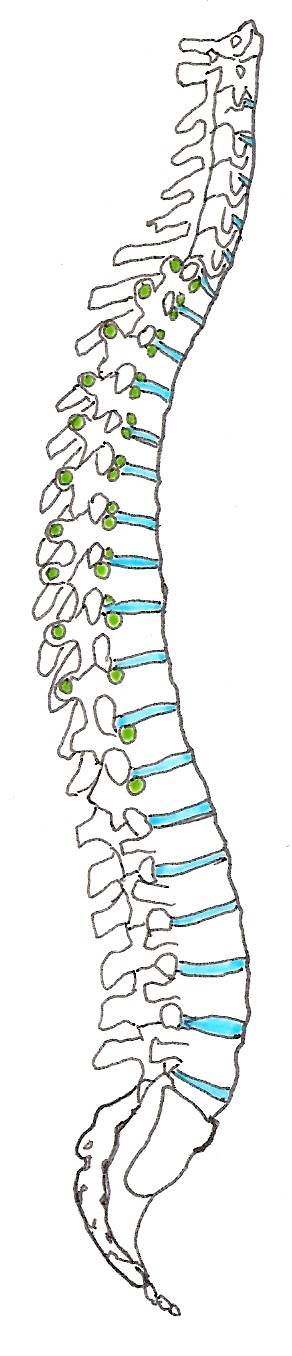
**12.** Another term for false ribs is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**13.** Another term for floating ribs is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**14.** In a ‘herniated’ or slipped disc, what does hernia mean in this case? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What are the significant potential problems from a herniated disc? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**15.** Locate one example of each of the following structures or regions listed, in the drawing below:

Intervertebral discs; spinous process; costal facet; intervertebral foramen; coccyx; sacrum; auricular surface of sacrum; transverse process; lumbar vertebra; lumbar curvature; cervical vertebra; cervical curvature; thoracic vertebra; thoracic curvature; sacral curvature.



The Vertebral Column