Look at someone’s face and make sure you can locate the following features – draw diagrams and add labels to the figures below:

**Nose:**
- Nostrils
- Nasal septum
- Alae
- Bridge

**Mouth:**
- Lips (labia)
- Philtrum of the lip
- Vestibule of the mouth
- Teeth (incisors, canines, premolars, molars)
  - Buccal, labial, lingual and occlusal surfaces
- Gums
- Tongue
- Hard and soft palate

**Eye:**
- Palpebrae
- Medial and lateral canthus
- Palpebral fissure
- Lachrymal caruncle and puncta
- Lachrymal gland
- Medial and lateral canthus

**Ear:**
- External acoustic meatus
- The auricle
- Tragus
- Antitragus
- Intertragateric notch
- Concha
- Helix
- Antihelix
- Tubercle
- Lobule.

**The Scalp**
Is composed of 5 layers: the skin, dense connective tissue, and the flat tendon of occipitofrontalis, which can slide forwards and backwards on a loose connective tissue layer over the periosteum of the skull
FACIAL MUSCLES

Look at the projections of the face. Identify and draw in the space provided, each of the following muscles, try to use that muscle on your own face, while watching a friend doing the same. Spend some time at home testing these muscles in front of the mirror.

**Platysma**
Draws up the skin on the neck.

**Orbicularis oris**
 purses the lips.

**Orbicularis oculi**
(palpebral part) - blink.
(orbital part) - screws up the eyes.

**Occipitofrontalis**
raises the eyebrows
(horizontal lines on the forehead)
occipital part retracts the hair

**Corrugator supercilii**
pulls the eyebrows medially
(vertical lines on the forehead)

**Procerus**
wrinkles skin on the bridge of the nose.

**Zygomaticus major and minor**
pulls the corner of the mouth up and out.

**Levator labii alaque nasi**
flares the nostrils and bares the canines.

**Depressor anguli oris**
pulls the corners of the mouth down.

**Levator anguli oris**
lifts corners of the mouth.

**Mentalis**
puckers the skin on the chin.

**Buccinator**
muscle in the cheek used for blowing.

Find **motor branches of the facial nerve (temporal, zygomatic, buccal, mandibular, and cervical)** coming out of the parotid gland between the ear and the back of the mandible, and radiating out to supply the muscles of facial expression.

Identify the facial artery and vein crossing the face. Why is the facial artery tortuous?
ARTERIES AND VEINS OF THE HEAD

Find the common carotid artery in the neck and follow it until it divides into internal and external carotid arteries. The internal carotid artery goes directly to the brain. The Internal jugular vein runs back down the neck inside the carotid sheath with the internal and common carotid arteries and the vagus nerve.

The external carotid artery gives 6 collateral branches:
1. Superior thyroid
2. Lingual
3. Facial
4. Occipital
5. Posterior auricular
6. Ascending pharyngeal

The external carotid artery ends by dividing into:
1. Maxillary
2. Superficial temporal arteries

The external carotid arteries branches are distributed to the face scalp and neck.

Superficial veins
On superficial dissection of the head and neck identify the retromandibular vein, in the parotid gland, behind the mandible. The retromandibular vein divides, just below the mandible, into anterior and posterior branches. The posterior branch joins the posterior auricular vein to form the external jugular vein which lies on top and sternomastoid as it travels down the neck to join the subclavian vein.

The anterior branch of the retromandibular vein joins the facial vein and these go deep to join the internal jugular vein.
THE TRIGEMINAL NERVE

Look inside the cranial cavity (middle cranial fossa) of a skull and a wet specimen. Use a piece of wire, and a skull, to trace the course of each of the three divisions of the trigeminal nerve, identifying the bony landmarks as you go. Start at the trigeminal ganglion, which lies in a fossa near the carotid canal at the apex of the petrous temporal bone. First, what kind of ganglion is the trigeminal ganglion?

The ophthalmic division passes through the superior orbital fissure, the supraorbital and supratrochlear branches (together known as the frontal nerve) continue through the orbit and emerge onto the forehead at the supraorbital and supratrochlear notches (or foramen). The ophthalmic division also sends branches to the front of the eye (nasociliary), and into the ethmoid and frontal sinuses through ethmoid foramina in the medial wall of the orbit.

The maxillary division passes through the foramen rotundum into the pterygopalatine fossa. The infraorbital branch goes through the inferior orbital fissure into the orbit, before sinking into the floor and emerging on the face through the infraorbital foramen. In the orbit the infraorbital nerve gives off a zygomatic branch which goes through foramina in the zygomatic bone on its way to the cheek (zygomaticofacial and zygomaticotemporal nerves). Other branches of the maxillary nerve go through the pterygopalatine fossa into the nasal cavity via sphenopalatine foramen, and to the palate via the greater and lesser palatine canals. The maxillary nerve also supplies the upper teeth by tiny posterior superior alveolar branches that stream over the back of the mandible, and anterior superior alveolar branches of the infraorbital nerve.
The mandibular division of the trigeminal nerve passes out of the cranial cavity through foramen ovale, it immediately gives of sensory branches to the side of the head (auriculotemporal), tongue (lingual), cheeks and gums (buccal), and to the lower teeth and chin (inferior alveolar and mental nerves). The inferior alveolar nerve goes into the mandibular foramen and emerges at the mental foramen, after supplying the lower teeth, as the mental nerve to the chin. The mandibular nerve is also motor to the muscles of mastication (derived from the 1st pharyngeal arch).

**Meninges**
All three divisions of the trigeminal nerve also send recurrent meningeal branches to the cranial dura.

**Skin**
Use the outline of the head to indicate the areas of skin supplied by the three divisions of the trigeminal nerve.:  
- Ophthalmic  
- Maxillary  
- Mandibular

What nerves supply the neck and the back of the head?

**Nose and mouth**
Use the outline of the hemisected head, to indicate the distribution of the trigeminal nerve to the regions of mucous membrane in the nose, nasal sinuses and mouth, and dura in the cranial cavity.
1. Ophthalmic  
2. Maxillary  
3. Mandibular
**OPENINGS (foramina, fissures and canals)**
Each of the following openings in the skull connects two regions. Identify each opening and name the regions connected, and indicate the contents of the foramen.

<table>
<thead>
<tr>
<th>Opening</th>
<th>region 1</th>
<th>region 2</th>
<th>contents</th>
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</thead>
<tbody>
<tr>
<td>Cribriform plate</td>
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<tr>
<td>Superior orbital fissure</td>
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<td>Supraorbital foramen or notch</td>
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<td>Optic canal</td>
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<td>Foramen rotundum</td>
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<td>Foramen ovale</td>
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<td>Foramen spinosum</td>
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<td>Foramen lacerum</td>
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<td>Carotid canal</td>
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<td>Auditory canal</td>
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<td>Petrotympanic fissure</td>
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<td>Jugular foramen</td>
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<td>Hypoglossal canal</td>
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<td>Stylomastoid foramen</td>
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<td>Inferior orbital fissure</td>
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<td>Infraorbital foramen</td>
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<td>Sphenopalatine foramen</td>
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<td>Nasolacrimal canal</td>
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<td>Pterygoid canal</td>
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<td>Palatine canals</td>
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<td>Incisive canal</td>
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<tr>
<td>Mandibular canal</td>
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Practical anatomy checklist

Osteology
The skull
By now you should know most of the features of the skull outlined in week 8

Surface anatomy of the face
Eye
Nose
Mouth
Ear

Muscles of facial expression

Vessels of the head and neck

Trigeminal nerve
The three divisions and their main branches

Foraminae of the head and their contents