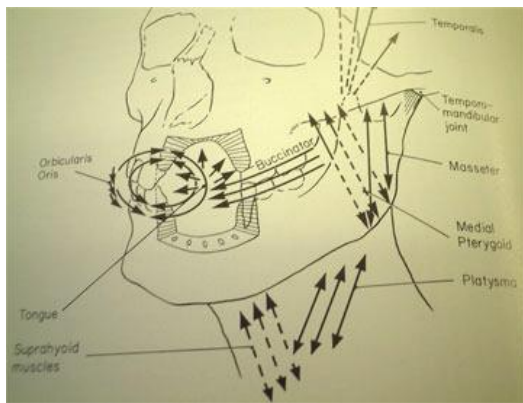
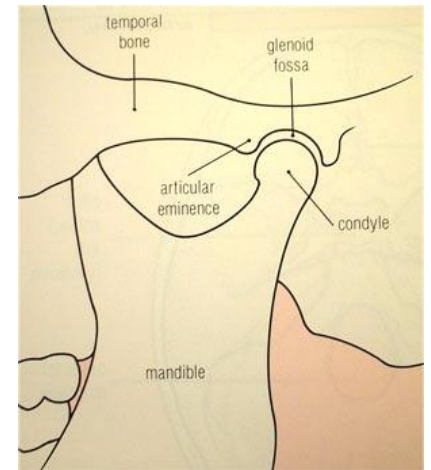
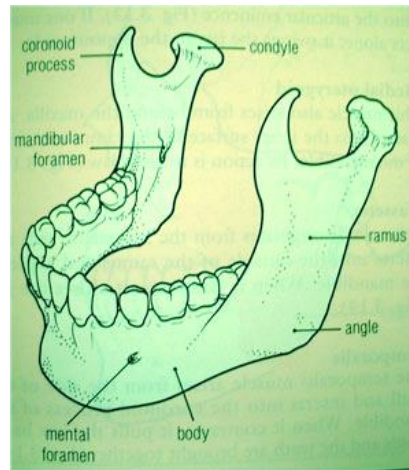
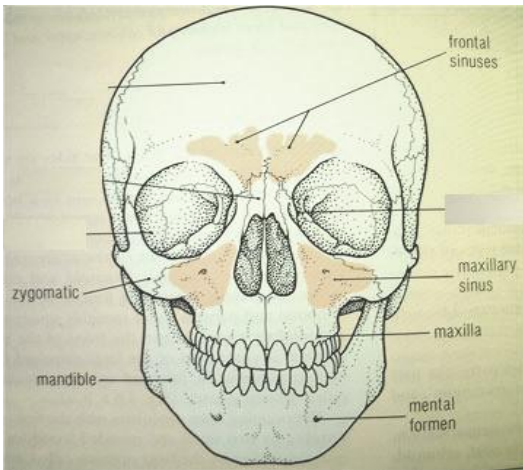
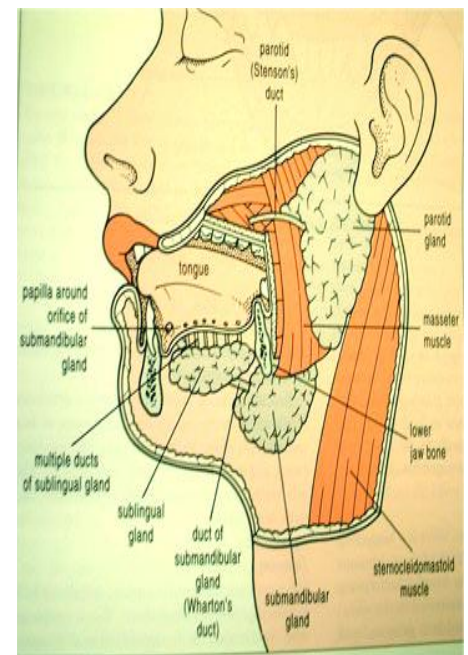


The Oral Cavity

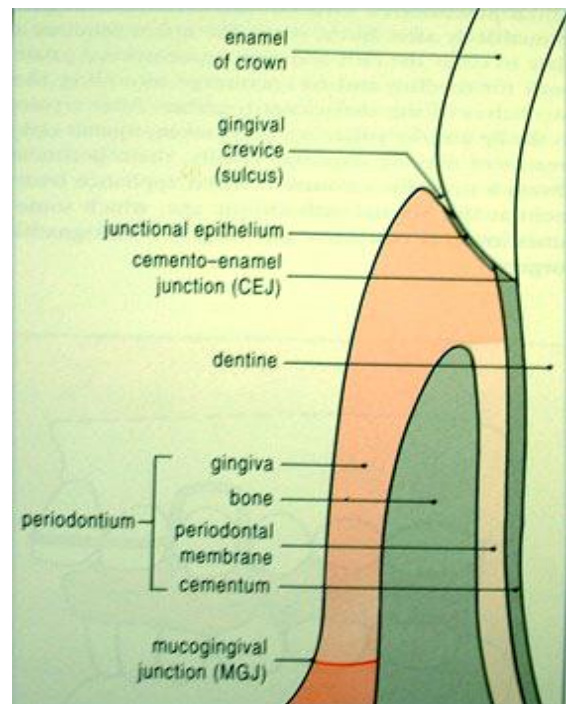
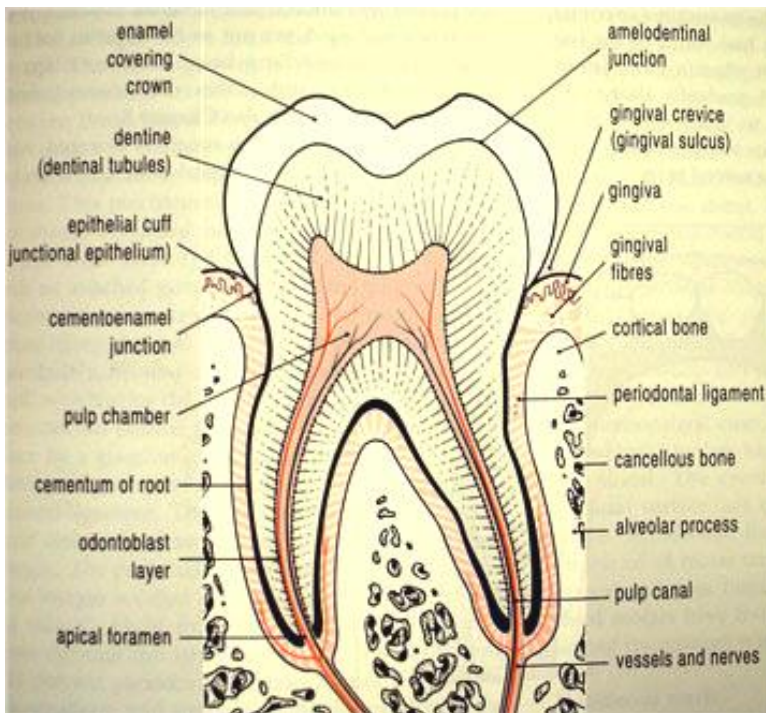


The mouth is supported by 2 main bones. The **maxilla** supporting the upper teeth and the **mandible** supporting the lower teeth. These bones have **foramen** which are small holes in the bone that carry blood vessels and nerves to the teeth and soft tissue of the mouth. The mandible is hinged to the skull by a joint called the **Temporal Mandibular Joint** (often called TMJ) and is controlled by a series of muscles called the **muscles of mastication**. There are also muscle attached to these bones that control the lips and face and are called the **muscles of facial expression**.

Underneath the skin we have a thin later of fatty tissue called adipose tissue and then we have muscle. Surrounding our mouth we have three major salivary glands on each side of the face which have ducts (a tube with an opening) making saliva in response to food intake. The **Parotid** gland, the **Submandibular** gland, the **Sublingual** gland. **Saliva** is 98% water but also contains mineral salts calcium and phosphate which are involved in making calculus, mucus mainly proteins, antibacterial compounds, and enzymes such as amylase and lysozyme 60% is from the submandibular glands, 25% from the parotid glands, 7-8% from the sublingual glands and the remainder from the minor salivary glands. Salivary flow increases in response to the chewing action of the jaws or to the thought, taste, sight, or smell of food: the salivary flow decreases during sleep. Saliva has many functions including reducing the effect of acid on teeth, helping chewing and swallowing, helping speech, direct antibacterial activity, and starting the digestive process. Salivary flow may be reduced by radiotherapy, disease, drugs, hormonal disturbances, dehydration, or old age.



The tissue that lines the inside of the mouth is called mucous membrane. It is like skin but it does not have so much keratin on the surface. It is kept moist(wet) by many minor(small) salivary glands. Next to the bone is a layer of **periosteum** a tissue rich in blood vessels and cells called osteoblasts which can help form bone after oral surgery.



Enamel. The hard outer covering of the crown of a tooth overlying the dentine. It is 96-97% inorganic consisting of mainly hydroxyapatite, 1% organic protein and 2-3% water (by weight). Enamel has a prismatic structure with millions of enamel prisms or **rods** which run from the surface of the dentine (amelodentinal junction) to the external enamel surface. Enamel is laid down by ameloblasts in layers during the formation of the tooth. Enamel has no live cells – it cannot feel any sensation and cannot repair. If fluoride is present during formation it forms fluoroapatite which is stronger and less liable to acid attack of dental caries.

Dentine The tissue that makes up the bulk of the tooth surrounding the pulp, covered on the root surface by cementum and on the crown surface by enamel. It is pale yellow in colour and is harder than bone but not as hard as enamel or cementum. Dentine is 70% inorganic by weight consisting mainly of calcium hydroxyapatite and 20% organic by weight consisting mainly of collagen. The remaining 10% is water. Dentine is made up of many fine parallel tubules (**dental tubules**) extending from the pulpal surface to the amelodentinal junction. Each tubule contains an odontoblast cell which has a process extending along the tubule and can sense hot, cold, sweet and pain sensation. The odontoblast can also produce more dentine on the inside of the tooth called secondary dentine.

Cementum A pale yellow calcified tissue providing a protective covering for the root surface to which the fibres of the periodontal membrane are secured. It is thicker towards the apical region of the root. It consists of approximately 65% inorganic hydroxyapatite, 23% organic collagen and 12% water. It has no nerves and is insensitive to pain.

Pulp A highly vascular connective tissue occupying the centre of the tooth. In addition to blood vessels, it contains nerves: it is surrounded by dentine on the surface of which lie a layer of odontoblasts capable of laying down dentine. The shape of the pulp is dictated by the shape of the tooth and consists of a **pulp chamber** in the crown of the tooth and root canals extending the length of the roots: The functions of the pulp include providing nutrients for the odontoblasts, acting as a sensory organ in response to external or internal sensations. The pulp may become inflamed (pulpitis) as a result of the presence of bacteria or due to trauma. Pulpal age changes result in a reduction in volume due to continued secondary dentine formation.