**L-6 Tissue**

**Tissues are group of cell similar in function and perform a specific function.**

**There are two types of Tissues**

1. **Plant Tissue.**
2. **Animal Tissue.**
3. **Plant Tissue :- Plant Tissues are Mainly of two types**
4. **Meristamatic Tissue**
5. **Permanent Tissue.**
6. **Meristamatic Tissue: -Meristamatic tissues are mostly found in the growing tips of the plant. Meristamatic tissues have thin cell wall and dense cytoplasm and lack of vacuoles and are capable of dividing themselves and producing new cells. There are three types of tissues in Meristamatic Tissue 1. Apical Meristamatic 2. Intercalary Meristamatic 3. Internal Meristamatic.**
7. **Apical Meristamatic: -Apical Meristamatic tissues are mostly found in the growing tips and stems of the plant. This is early tissue of the growing plant. This help in longitudinal Growth of the plant. E g: -Roots and Tip of the stem.**
8. **Intercalary Meristamatic: -Intercalary Tissue is mostly found in the Internodes of the plant. It is a part of the apical Meristamatic which is left behind in the early growth. It helps in the space between the nodes of the plant. Thus, helps in growth of the plant in upwards.**
9. **Lateral Meristamatic: -Lateral Meristamatic tissue is mostly found in the Stem of the plant. It helps in the girth (Thickness) growth of the plant.**
10. **Permanent Tissue: - After completing the growth the tissue take up permanent shape size and function are known as Permanent Tissue.**

**Differentiation: - The process of losing the ability of dividing and producing and take up a permanent shape size and Function.**

**Three are two types of Permanent Tissue 1. Simple Permanent Tissue 2. Complex permanent Tissue.**

**What is Epidermis?**

**The outermost layer of the cell is called the epidermis. The epidermis is usually made of single layer of cells. Plants in dry Habitat the epidermis is thicker because not much water gets vaporized. There are tiny pores on epidermis called stomata. Stomata are enclosed by two tiny pores cell called the guard cells which help in the transpiration of the water in vapour form.**

1. **Simple Permanent Tissue: -**

**Simple permanent tissues are mostly found below the epidermis. There are three types of Simple permanent Tissue A. Parenchyma B. Sclerenchyma C. Collenchyma.**

1. **Parenchyma Tissue: -These tissues cells have a thin wall and have large space (Intercellular Space). This Tissues generally stores food. Some tissue contains chlorophyll and performs photosynthesis. These tissues are called Chlorenchyma and in aquatic plant have the air cavities which help them to float inside the water.**
2. **Collenchyma Tissue: -The flexibility of the plant because of the Collenchyma tissue. There cells are living and have thicker corner and give mechanical support to the plant. Some examples are Roots of the climber and tendrus.**
3. **Sclerenchyma Tissue: -These tissues have mostly dead cells. They are long and narrow as the walls are thickened and the walls are strong that they are made up of lignin (Cementing material in plant) which gives hardness to the tissue. There is no a space between them. Some examples are Husk of the coconut.**
4. **Complex Permanent Tissue**

**Complex tissues are made up of more than one cell. All these cells coordinate to perform a specific function. There are two types of tissues in Complex Xylem and Phloem. These both tissues creates the vascular Tissue (Tissue which perform the transportation of the essential items for survival)**

1. **Xylem: -The main responsibility of these tissues is transportation of Waters and Minerals. The Transportation of these water and minerals in one direction bottom to top. Xylem consists of tracheid, vessels, and xylem parenchyma and xylem fibers.**
2. **Xylem Parenchyma: -The function of the Xylem Parenchyma is to Stores the food.**
3. **Tracheid and Vessel: -The tracheid and vessels are mostly made up of dead cells. They have tabular structure and thick walls. The perform the function of transportation of waters and Minerals.**
4. **Xylem Fibers: -The Xylem Fibers perform supportive function.**
5. **Phloem: -The main responsibility of the Phloem is transportation of the food from the leaves in the by-directional way. There are five types of cells Sieve cells, sieve tubes, companion cells, phloem fibers and the phloem parenchyma.**
6. **Sieve Tubes: -They are in tube like structures having thin walls placed end to end. Function of the Sieve Tubes is transportation of the foods.**
7. **Companion cells: -They support the function of Sieve tubes.**
8. **Phloem Fibers: -Provide flexibility to the plants.**
9. **Phloem parenchyma: -Stores Starch and protins.**

**B. Animal Tissues: - The movement fells when you breathing this is because your lungs take the oxygen send it to the heart then it was send by the blood to other parts of the body. This movement is fell by the Muscular Tissue in lungs and blood is Connective tissue. The construction and relaxation of these cells result in movement. There are four types of Animal Tissues 1. Epithelial Tissue 2. Muscular Tissue 3. Connective Tissue 4. Nervous Tissue.**

**1. Epithelial Tissue: - The covering protective tissues in the animal body are epithelial tissues. Epithelial Tissue covers most of the body part and cavities within the body. It also forms a barrier to separate body system. Epithelial Tissues are tightly packed so there is no any intercellular space between them and they have a small Cementing material between them. Anything enter in the body should have passed one layer of Epithelium. There are five types of Epithelial Tissue’s A. Simple Squamous B. Cuboidal 3. Stratified Squamous 4. Columnar 5.Glandular Epithelium.**

1. **Simple Squamous: -Simple squamous is a single layer extremely thin and form a delicate lining. It mostly found in the mouth.**
2. **Cuboidal: -Cuboidal Epithelial for the lining of kidney and provide mechanical support.**
3. **Stratified Squamous: -Skin cells are arranged in multiple layers which help them to prevent from wear and tear. This type of cells is known as Stratified Squamous.**
4. **Glandular Epithelium: -Epithelial cells often acquire additional specialization as gland cells which can secrete substances on the epithelial tissue.**
5. **Columnar (Ciliated): -Absorption and secretion occur in the inner lining of the intestine, tall epithelial cells are present. This epithelial facilitates movement across the epithelial barrier. In the respiratory system there are cilia(Hair like structures)**

**2. Muscular Tissue: -Example given in the Introduction of the video is the movement of the body while you breathe is done by the cardiac Muscles. Muscles contain a special protein contractile which help in movement. There are three types of muscles 1. Skeletal Muscles 2. Smooth Muscles 3. Cardiac Muscles.**

**1. Skeletal Muscles: -Muscles consists of elongated cells and responsible for movement of the body. There are light and dark band on the striation as a result they are called striated muscles. These cells are unbranched and are Multinucleus (Having more than one nucleus) these are voluntary muscles. (They can be control by us).**

**2. Smooth Muscles: -The digestion of food in the digestive system and contraction and relaxation of blood in blood vessels are all not in our control. Therefore they are not Voluntary muscles. The cells are long with pointed ends (spindle shaped) and uninucleued (having one nucleus). They are unstriated muscles. They are found in iris of the eyes and in the bronchi in the lungs.**

**3. Cardiac Muscles: -The muscles of the heart show rhythmic contraction and relaxation throughout the life. These**

**Are also involuntary Muscles. One example is Heart. Heart is cylindrical shape, branched and Uninucleued**

1. **Connective Tissue: -The cells of connective tissues are loosely spaced and embedded in an intercellular matrix. The matrix can be a jelly like fluid, dense and rigid. The nature of matrix differs in concordance with the function of the particular connective tissue. There are many connective tissues in which few are Blood, Bone, Cartilage, and Areolar.**
2. **Blood: -Blood has a fluid (Liquid) matrix called plasma in which red blood corpuscles (RBC) white blood corpuscles (WBC) and Platelets are suspended. The plasma contains proteins, salts and hormones. Blood flows and transport food, gases and wastage of our body.**