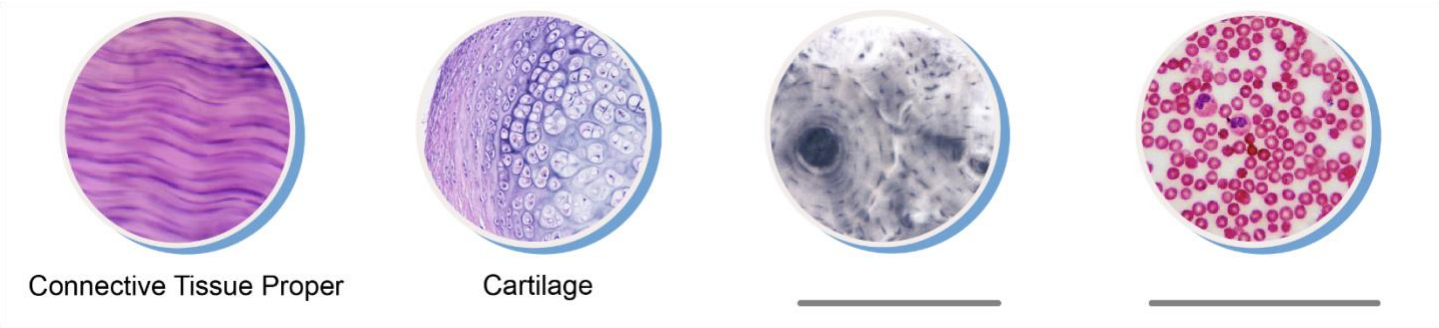
TOPIC: INTRODUCTION TO CONNECTIVE TISSUE

- **Connective Tissue**: the most abundant, widely distributed, & _____ tissue class.



- However, despite the diversity, all connective tissues have the following in common:

  1) derived from embryonic _____ & 2) *cells* occupy far _____ space than their ECM.

Structure of Connective Tissue

- Connective tissues have the most *prominent* _____.

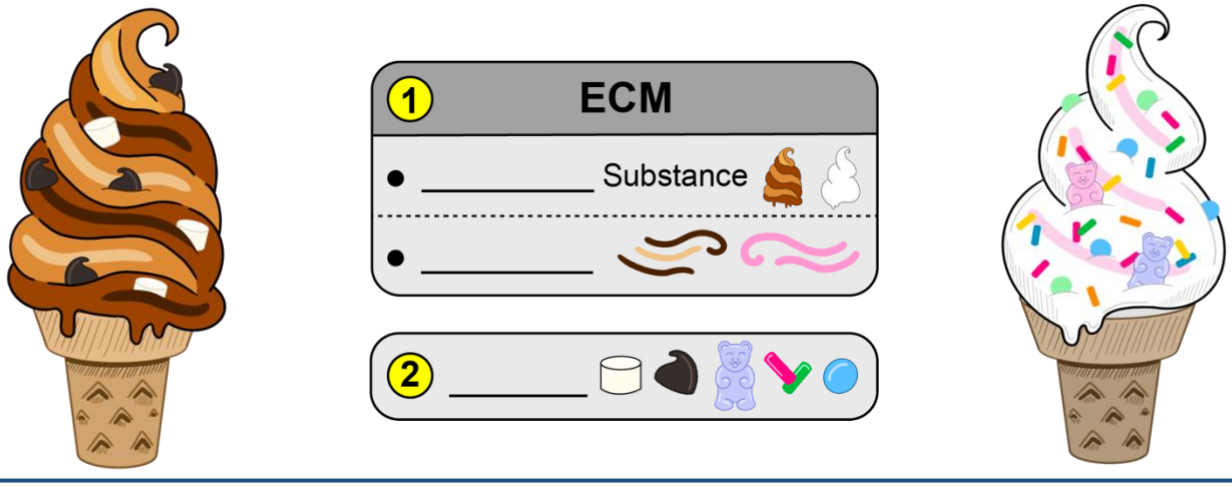
1 **Extracellular Matrix (ECM)**: material _____ cells made of *ground substance* & *protein fibers*.

- □ **Ground Substance**: unstructured material between cells & fibers, ranges in viscosity (solid → liquid).
- □ **Protein Fibers**: different fibers contribute to tissue's physical properties: strength, flexibility, recoil.

2 **Cells:** cells secrete and maintain the ECM and support specialized functions of the connective tissue.

- □ "**-blast" cells:** immature cells that actively _____ & secrete ECM (E.g., Fibro*blasts*).
- □ "**-cyte" cells:** mature cells that *maintain* ECM (E.g., Fibro*cytes*).

EXAMPLE: How is connective tissue like ice-cream with different toppings *mixed* in?



PRACTICE: What part of connective tissue takes up most of the volume?

a) Extracellular Matrix b) Cells c) Epithelium d) Glands

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Functions of Connective Tissue

- Connective tissue functions are very _____ but *can be* grouped into 5 main functions:

1. Provide _____

E.g. Bones protect soft structures like the brain.

2. _____ Materials

E.g. Blood transports gases and nutrients.

3. Binding & _____

E.g. Connective Tissue supports epithelial tissue.

4. Offer _____

E.g. Connective Tissue insulates the body with fat.

5. Provide _____

E.g. Connective Tissue stores energy as fat.

Functions: Epithelial vs. Connective Tissue

- Epithelial & connective tissue are both _____ in function & may seem to overlap a bit: let's compare them!

Epithelial Tissue	Function	Connective Tissue
	Protection	
.	**Transport**	
Epithelial and nervous tissue work together to allow sensations.	**Sensation**	
Glands secrete products.	**Secretion**	
	Support	
	Insulation	Fat insulates the body.
	Storage	Bones store calcium.

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EXAMPLE: What type of tissue is responsible for support of the body?

a) Epithelial Tissue

b) Connective Tissue

c) Muscle Tissue

d) Nervous Tissue

PRACTICE: During a dissection, a student comes across a tissue they don't recognize. They note it makes the internal structure of the spleen (an organ of the immune system that filters blood) and when they examine a section under the microscope, they see long dark branched structures, small circular cells, and a significant amount of ECM. What type of tissue could this be?

a) Nervous Tissue

b) Muscle Tissue

c) Epithelial Tissue

d) Connective Tissue

PRACTICE: Both epithelial and connective tissue are involved in transport of materials in the body. How do their functions differ?

a) Epithelial tissue provides a mechanism of transport while connective tissue regulates transport.

b) Epithelial tissue facilitates diffusion while connective tissue uses active transport.

c) Epithelial tissue regulates transport while connective tissue provides a mechanism for transport.

d) Epithelial tissue transports nutrients while connective tissue transports hormones.