327 Chordate Context Lab

**Station 1: Vertebrates Have True Tissues**

1) What are the simplest and among earliest forms of animals? Provide common term and Phylum name

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2) What is MOST notable about the structural organization of this group? Do they have true tissues?

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3) What is a tissue?

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4) Name four types of tissues in animals.

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**Station 2: Vertebrates are Triploblastic and Have Bilateral Symmetry**

1) What is the difference between diploblastic and triploblastic

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2) What is the difference between radial symmetry and bilateral symmetry?

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3) Name two Phyla of animals that are diploblastic and radially symmetric?

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4) Which germ layers are found in diploblastic animals and which germ layer arises with the emergence of triploblastic animals?

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5) Indicate some major structures associated with:
a) Endoderm

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b) Mesoderm

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c) Ectoderm

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**Station 3: Protostome & Deuterostome Characteristics**

1) What is cleavage and how can it distinguish deuterostomes from protostomes?

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2) Describe how indeterminate growth can help distinguish deuterostomes from protostomes?

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3) How does the formation of the coelom help distinguish deuterostomes from protostomes?

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4) What is a blastopore and how does its formation help distinguish deuterostomes from protostomes?

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5) Identify which phyla are classified as deuterostomes

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**Station 4: Chordate Characteristics**

1) Name the four major chordate characteristics.

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2) Describe how a notochord serves a function.

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3) How do the nerve cords of chordates and most invertebrates compare?

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4) Identify two functions that could be served by the formation of pharyngeal slits.

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5) What adaptive advantage might a postanal tail have provided in the evolution of chordates?

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**Station 5: Urochordates & Cephalochordates**

1) Which life stage shows all four chordate characteristics in urochordates?

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2) Draw your perception of a larval form of a urochordate and label key chordate structures.

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3) Which chordate structures remain in the adult stage of the urochordate?   What is its function there?

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4) What key differences are there between cephalochordates and urochordates?

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5) What sort of transformation process accounts for the adult form of Cephalochoradtes as compared to that   of urochordates (from lecture notes)?

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**Station 6: Subphylum Vertebrata**

1) Examine the Whale vertebra in the photograph.  Sketch it, and identify on the  drawing the centrum and the neural arch.

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2) Which structure does the neural arch surround?

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3) What is the role of the neural arch?

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4) Why are vertebrae not the best key characteristic for all vertebrates?

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5) What other morphological structure is becoming THE key structure for the subphylum Vertebrata?

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6) Where does neural crest tissue form in a developing vertebrate embryo?

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7) What types of structures are derived from neural crest tissue?

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8) What is a Hox gene?

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9) What does it mean that a gene duplication has occurred?

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10) Why would Hox gene duplications play a key role in the diversity of form and function seen in vertebrates?

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**Station 7: Orientation**

1) Find a partner and have them take the stance of a quadruped.  Now describe, using their body as a reference, the terms below:

* Bilateral symmetry

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* Anterior (cranial)

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* Posterior (caudal)

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* Dorsal

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* Ventral

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* Medial

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* Lateral

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* Distal Proximal

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2) Then have your partner stand erect and repeat the process.