**The Changing Tree of Life Model**

In this activity, you will explore how the tree of life model changed through history. At each step, you will be asked to develop a model using organism cards you will find in the envelopes. After each model, **do not put your organism cards away**, but, instead, revise or add to your model as you gather more information at each step.

**1758**

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|  | ***Open the envelope labeled “1758 - A” and follow the prompt.*** |

**1. Once you build your model by grouping organisms, be prepared to discuss the following questions:**

1. What are the main groups you made?
2. What information did you use to group the organisms? (i.e. What are the defining characteristics of each group?)

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**2. Describe/draw Linneaus’ classification system. How is it the same and/or different from your system?**

*Note: Leave the cards as you have arranged them and move on to the next step.*

**1866**

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|  | ***Open the envelope labeled “1866 - A” and follow the prompt. Use your previous model (your arrangement of cards) as a starting point.*** |

**3. After you have revised your model of organism groupings, be prepared to discuss the following questions:**

1. What are the main groups you made?
2. What information did you use to group the organisms? (i.e. What are the defining characteristics of each group?)
3. How did the new information factor into the revision of your model?

**4. How might Darwin’s new theory of evolution have affected the tree of life model? How did you use this information when developing your model?**

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**5. Draw and label a simplified version of Haeckel’s tree of life model. Identify the three main groups of organisms.**

**6. Answer the following questions about Haeckel’s tree of life model:**

1. How is Haeckel’s model the same or different from how your group organized the organism cards?
2. How is Haeckel’s grouping of organisms the same or different to Linnaeus’ major groups.
3. How did Darwin’s theories about evolution impact how Haeckel organized living things and how he drew his model?
4. What do you notice at the very bottom of the tree in Haeckel’s drawing?
5. What does the placement on the tree suggest about how the organisms evolved over time?

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*Note: Leave the cards as you have arranged them and move on to the next step.*

**1969**

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|  | ***Open the envelope labeled “1969 - A” and follow the prompt. Use your previous model as a starting point.*** |

**7. After you have revised your model of organism groupings, be prepared to discuss the following questions:**

1. What are the main groups you made?
2. What information did you use to group the organisms? (i.e. What are the defining characteristics of each group?)
3. What are the evolutionary relationships between the groups? What information would you use to determine this?
4. How did the new information factor into the revision of your model?

**8. What was Chatton’s major contribution to the tree of life model? Indicate the two major empires he proposed for grouping organisms.**

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**9. Draw/describe Whittaker’s tree of life model. Indicate the 5 major kingdoms and the prokaryote vs. eukaryote distinction.**

**10. Answer the following questions about Whittaker’s tree of life model:**

1. How does Whittaker’s model of the tree differ from Haeckel’s model?
2. What led to these revisions to the model?
3. What does Whittaker’s model indicate about evolutionary relationships between groups of organisms?

1. Which organisms appear to have evolved first?
2. Which groups are most closely related?

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*Note: Leave the cards as you have arranged them and move on to the next step.*

**The tree of life timeline**

**Tell the story of how the tree of life changed over time. The story can be in the form of a poster of a clearly explained diagram. Include the following elements in your story:**

* Who were the main scientists?
* What changes were made to the tree of life model at each step?
* Why did the tree of life model change at each step?
* What were the evolutionary implications in each model?