**Plankton Lesson Sequence: Assessment**

**POSSIBLE FORMATIVE ASSESSMENTS:**

* (Not Graded) Class discussion of Pre-Assessment and Intro to Plankton questions; plankton activity card sort
* (Graded) Observation worksheet with live plankton sketches (if live plankton specimens are not available, students can sketch from photos on the plankton activity cards provided or videos from the resource list)
* (Graded) Construction of Plankton Net. *Optional:* If students innovate to create an original design, the process could be documented (sketches, notes, reflection) in science journal and/or reported orally to the class.
* (Graded) Post-Assessment questions addressed in science journal or in a creative format of their choice (blog, children’s book, animation, game, etc…)

**SUMMATIVE PROJECT:**

* A model describing the cycling of matter and flow of energy among living and nonliving factors in a *specific* aquatic ecosystem, whether ocean or freshwater (i.e. the Chesapeake Bay, Lake Victoria, Northwestern Hawaiian Islands’ coral reef, etc…).

**Summative Project Requirements:**

The model should contain a **food web** for the specific ecosystem that incorporates these criteria:

* At least 20 different *specific* organisms with a visual representation and a label
* Representation of producers primary consumers, secondary consumers and tertiary consumers, and decomposers (each must also be labeled)
* Arrows drawn that depict the flow of energy among food web organisms
* At least 5 of the depicted organisms must be types of plankton
* At least 3 specific nonliving factors with a visual representation and a label

The model should also contain a **narrative** that includes:

* An explanation of how matter is cycled through interactions among the living and nonliving components in the ecosystem
* A description of a scenario where a *specific* living factor changed and prediction about how this might impact the ecosystem energy flow
* A description of a scenario where a *specific* nonliving factor changed and prediction about how this might impact the ecosystem energy flow

**Summative Project Scoring Rubric Options:**

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| --- | --- | --- |
| **Score** | **Model Descriptions** | **Comments** |
| 3 | * All **food web** criteria incorporated including accurate visuals, labels and arrows
* **Narrative** explains how matter is cycled through living and nonliving components in the ecosystem with total accuracy and substantial details
* **Narrative** describes two potential cause-and-effect scenarios and predictions that demonstrate conceptual understanding of ecosystem energy flow with total accuracy and substantial details
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| 2 | * Most **food web** criteria incorporated including accurate visuals, labels and arrows
* **Narrative** explains how matter is cycled through living and nonliving components in the ecosystem with nearly total accuracy and adequate details
* **Narrative** describes two potential cause-and-effect scenarios and predictions that demonstrate conceptual understanding of ecosystem energy flow with nearly total accuracy and adequate details
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| 1 | * Few **food web** criteria incorporated including accurate visuals, labels and arrows
* **Narrative** explains how matter is cycled through living and nonliving components in the ecosystem with limited accuracy and/or detail
* **Narrative** describes two potential cause-and-effect scenarios and predictions that demonstrate conceptual understanding of ecosystem energy flow with limited accuracy and/or detail
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| --- | --- | --- |
| **Requirement** **Not Met--****Evidence** | **Model Requirements** | **Requirement Met/Exceeded--****Evidence** |
|  | * All **food web** criteria incorporated including accurate visuals, labels and arrows
* **Narrative** explains how matter is cycled through living and nonliving components in the ecosystem with total accuracy and substantial details
* **Narrative** describes two potential cause-and-effect scenarios and predictions that demonstrate conceptual understanding of ecosystem energy flow with total accuracy and substantial details
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