**MODELS** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_

**PS 10: Explains the purpose and limitations of a model.**

**L2**

* Recognizes the phenomena that a given model represents.
* Identifies and labels the parts of a model and what the parts represent.
* Identifies a part or parts of a model that do not accurately represent the real phenomena.
* Identifies that parts of a model are variables and can change or be different.

**L3**

* Selects and explains how a model or simulation represents the behavior of objects, events, systems, or processes.
* Uses the model to explore the relationship between two variables.
* Compares and contrasts the model to the actual phenomenon; explains the strengths and limitations of a model.

**L4**

* Creates a new model or simulation to represent the behavior of objects, events, systems, or processes.

**NOTES:**

* **A representation / replica –**
* **Physical or abstract / conceptual**
* **If physical - an enlargement, actual size, or miniature.**
* **Simplified versions** of the real thing
* **Represents** another **object, system, event, process, concept or an idea.**
* **Based on our current knowledge**
* **Looks like, describes, behaves like, or explains the real thing**
* **Parts of a model are variables** and can change or be different.
* **Purpose / tool:** They **help us understand how things work, or explain a difficult concept.** They can enable us to **make and test predictions**
* **Models are human inventions, and are not perfect, and have limitations**. Scientific debate often is based on which is the best model for a system, or process, or task.
* Models come under scrutiny and **change over time as our knowledge improves/changes.**

**DEFINITION**

A model is a simplified physical or abstract representation of an object, system, event, process, concept or idea that is based on our current knowledge, and is used to help understand how things work or what happens when a variable of the model changes so that predictions can be tested.

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|  | **Name of the phenomena that are represented?** | **Earth’s Layers** |
| 1. | **Type of model?** Check all correct descriptors.   * Structural * 2D diagram * 3D object * Enlarged (scale up) * miniature (scale down) * Digital animation or simulation, * An experiment / investigation * Mathematical * Hypothetical * System * Event * Concept * Idea | **Graphic:**  http://www.ducksters.com/science/earth_composition.gif |
| 2. | **Purpose** of the model? |  |
| 3. | Parts of the Model | Purpose of the part/parts represents in the real world. |
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| 4. | **Strengths** of the model?  What things are correctly represented?  What is clearly understood? |  |
| 5. | **Limitations** of the model? Errors or omissions in the model?  Proportions? Materials?  What is left out? Variables not represented properly? Other? |  |
|  | **Name of the phenomena that are represented?** | **Earth’s Layers** |
| 1. | **Type of model?** Check or highlight all correct descriptors.   * Structural * 2D diagram * 3D object * Enlarged (scale up) * miniature (scale down) * Digital animation or simulation, * An experiment / investigation * Mathematical * Hypothetical * System * Event * Concept | https://encrypted-tbn1.gstatic.com/images?q=tbn:ANd9GcR2sA1K8Ro9kyJPuRf3sz4fn0KyXlXnZ45H4zqXYMvhw1ASjHwZEg |
| 2. | **Purpose** of the model? |  |
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|  | **Name of the phenomena that are represented?** | **Select a Model from a magazine or a newspaper to insert below:** |
| 1. | **Type of model?** Check or highlight all correct descriptors.   * Structural * 2D diagram * 3D object * Enlarged (scale up) * miniature (scale down) * Digital animation or simulation, * An experiment / investigation * Mathematical * Hypothetical * System * Event * Concept * Idea | **Graphic:**  From: |
| 2. | **Purpose** of the model? |  |
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