

Name: _____ Date: _____ Section: _____

Model Evaluation Form

Scientific models are simplified representations of complex biological phenomena. This evaluation will help you critically analyze the model you used today. Remember that all models have limitations. The goal is to understand how models can be useful tools for scientific understanding, not to find what's "wrong" with them. Consider how this model compares to others used in the course and how models contribute to scientific progress through simplification, the existence of multiple models for the same phenomenon, and evolution with new evidence.

AP Biology Science Practice Alignment:

- SP 1: Concept Explanation
- SP 2: Visual Representations
- SP 4: Scientific Questions

Model Name: _____

Model Location: _____

Part A: Model Classification (MAPP Framework)

1. MODE of Representation

How is this model presented? (Check all that apply)

- ☐ Visual (images, diagrams)
- ☐ Concrete/Physical (3D objects)
- ☐ Symbolic (equations, formulas)
- ☐ Verbal (descriptions, analogies)
- ☐ 2-Dimensional
- ☐ 3-Dimensional
- ☐ Static (unchanging)
- ☐ Dynamic (changing/animated)
- ☐ Digital/Computer-based
- ☐ Interactive (responds to input)

Describe the specific mode(s) used in this model:

2. ACCURACY of the Model

How closely does this model represent reality?

Identify THREE specific ways the model:

a) Accurately represents the biological system:

1. _____

2. _____

3. _____

b) Simplifies or differs from reality:

1. _____

2. _____

3. _____

3. PURPOSE of the Model

What is this model designed to do? (Check all that apply)

- ☐ Teaching/Educational model - helps learn concepts
- ☐ Explanatory model - shows how something works
- ☐ Predictive model - forecasts outcomes
- ☐ Mental model - represents abstract ideas
- ☐ Theoretical model - tests hypotheses
- ☐ Analogical model - compares to familiar systems
- ☐ Scale model - shows relative sizes/proportions
- ☐ Simulation - mimics real processes

Primary purpose:

Secondary purpose(s):

4. PERMANENCY of the Model

How established is this model in science?

- ☐ Accepted as scientific fact (unlikely to change)
- ☐ Well-supported theory (strong evidence, may be refined)
- ☐ Working hypothesis (current best explanation)
- ☐ Preliminary idea (needs more testing)
- ☐ One of several competing models

Explain your choice:

Part B: Model Analysis

5. Strengths and Limitations

What can this model help you understand? _____

What questions can this model NOT answer? _____

6. Improvements

Suggest TWO specific improvements to make this model more accurate or useful:

1.

2.

Part C: Discussion Component

7. Small Group Discussion (10 minutes)

In groups of 3-4, discuss:

- Compare your MAPP analyses - where do you agree/disagree?
- What surprised you most about this model?
- How does this model compare to other biological models you've used?

Group consensus on model's greatest strength: _____

Group consensus on model's greatest limitation: _____

8. Scientific Modeling Reflection

How do models like this one contribute to scientific understanding? Consider:

- The role of simplification in science
- Why multiple models might exist for the same phenomenon
- How models evolve with new evidence

Part D: Peer Evaluation

9. Model Communication

Present your model analysis to a partner. After their presentation, answer:

Partner's name: _____

One insight from their analysis you hadn't considered: _____

One question their analysis raised for you: _____
