Underlying Principle: Ecosystem webs are composed of a series of interactions between two or more organisms.

Learning Objectives:

Apply: Students will understand symbiosis well enough to give examples of the different types and explain their reasoning.

Analyze: Students will understand symbiosis well enough to identify the type and means of interaction in a given system.

Synthesize: Students will be able to draw a descriptive and predictive model of the symbiosis described in a given example.

Evaluation: Students will propose an experiment to test an idea, evaluate an argument/claim/prediction/advertisement.

Assessments:

Formative: Practice identifying type of interaction, Character matrix

Summative Homework: True/False questions, literature research of chosen organism

Summative Exam Question: Given an example, draw a model of the types of interactions

Lesson Outline:

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| **Stage of Teaching** | **Representation of Content** | **Connections** | **Timing** |
| Establish a Problem | Narrative | Ecological interactions are important & complex | 3 min |
| Model | Definition & Prototype | Symbiosis in personal life | 2 min |
| Model | Definitions & Examples | Symbiosis with outside world | 4 |
|  | Definition | Expand on Problem Statement | 4 |
| Coach | Examples | Types of symbiosis to established problem | 10 |

Lesson Context:

This lesson is in the context of an introductory ecology course. Students will have an understanding of the purpose and structure of the field of ecology. This lesson is meant as part of a series about ecological principles at different levels (organismal, population, community and ecosystem). Students will need to know how to construct and interpret box and arrow models.