

Adaptation

Lesson Overview:

This lesson is designed to assess student understanding of adaptation. Students will complete a Frayer model on Adaptation following several lessons of instruction on the concept of Adaptation.

Standards Addressed

SC 2005 8-2.1 Explain how biological adaptations of populations enhance their survival in a particular environment.

SC 2014 8.E.6B.1 Construct explanations for how biological adaptations and genetic variations of traits in a population enhance the probability of survival in a particular environment.

NGSS MS-LS 4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

Disciplinary Literacy Best Practices

Frayer Model

Lesson Plan

Time Required: 1 60-minute Class Period

Disciplinary Vocabulary: Adaptation

Materials Needed:

- Frayer Model sheet

Assessment:

Group discussion, whole class discussion, and completed Frayer Model.

Engage:

- The teacher will explain to students that, today, they will be working on completing a Frayer Model using the word Adaptation. Prior to this lesson, students should have already participated in activities related to Adaptation and how it is important to the Geological Time Scale
- In today's lesson, as a group, they will use what they have learned and determine the Definition, Characteristics, Examples and Nonexamples of Adaptation. Remind students that the definition is going to be a "working definition" for them at this point. *What are they thinking about adaptation based on what they have learned so far?* Characteristics are typically a difficult part of the Frayer Model. It is typically easier for students to list characteristics than to write in paragraph form. Explain to students that the characteristics and definition are closely related or similar, so it might be easiest to write their working definition first then write characteristics that support that definition. But, do not repeat what is written for the definition in the characteristics box. Also, explain to students that *Nonexamples* are not just off the wall "nonexamples". These should be well-thought out nonexamples that might be mistaken for adaptation or closely related. These might be items that a teacher would put on a test to confuse students into thinking they are examples of adaptation, so they should really think about their nonexamples. (Explaining this way should help deter students from just writing anything down.)
- Remind students that they will be working as a group. While they do not all have to have the same thing written for each box in the Frayer Model, they **MUST** dialogue about each box as a group.

Explore:

- Hand out the Adaptation Frayer Model. Students explore the Definition of Adaptation first. (This was very difficult for students because they wanted to use the word adapt! If students try using "adapt" in the definition, then they will need to define adapt as well.) Once students have completed their working definition, they move on to characteristics, then examples and nonexamples.
- ****NOTE:** Students are only allowed to use each other to complete the boxes. No outside resources.

Explain:

- (The teacher monitors and acts as facilitator while groups are working.)
- Ask each group how they determined their response for each of the boxes for the Frayer Model while they are working. Students should be able to explain their thoughts and justify what they have written. This led to some very heated and deep conversations within the groups.
- At the end of class, lead students in whole class dialogue about each of the boxes of the Frayer Model. While the class could come to an agreement on the definition, and the characteristics seemed to make sense to them, many students debated on examples/nonexamples. What they were really debating over were examples that were adaptations and some that were actually instincts (which led to the extension for the next day).

Extend:

- Completion of this lesson led to a debate and discussion on the difference between adaptation and instinct. The next day, students worked on a Frayer Model for Instinct (after reading a bit on adaptation and instinct to ensure they understood the difference). This way, students will have visuals of both Adaptations and Instincts to use for future reference.

Teacher Reflections and Biographical Information:

This lesson was not the first time students were completing a Frayer Model. If this is the first time for your students, explain the parts of the Frayer in more detail and perhaps, model another vocabulary term with the whole class first.

This was a great strategy to use as a formative assessment of any concept. I knew students would have some misconceptions which would lead to a great opportunity for student dialogue. I was amazed at how deeply they justified their thoughts which resulted in me being a mediator for some groups. I extended this lesson a second day to differentiate between adaptation and instinct.

Lesson Author:

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Definition

Characteristics

Adaptation

Examples

Non Examples