**What Is a Species?**

***Action Bio Lesson***

The 5E model: Engage

1. Ask students how they define a biological species.

Write the important aspects of their definitions on the board or an overhead transparency.

Accept all responses and do not correct their preconceptions.

2. Ask students how they think their definitions of species might compare to that of

Charles Darwin.

Some students may think that their definitions are likely not as good as that of Charles

Darwin because he was an expert who gave the concept a great deal of thought. Other

students may believe that their definitions are better than Darwin’s because today we

know more about biology than in Darwin’s time.

3. Display a transparency of Master 1.1, Darwin Quotation and ask for a volunteer to

read it aloud.

4. Ask students if they are surprised by Darwin’s view of species.

Some students may be surprised that Darwin viewed species as a term “arbitrarily given

for the sake of convenience.” Others may not be surprised because they feel that the

science of biology was not very sophisticated in Darwin’s time.

5. Explain that in this activity, they will explore the concept of species and investigate

its strengths and limitations.

The 5E model: Explore

1. Divide the class into groups of four students.

2. Display a transparency of Master 1.2, Textbook Definition and ask for a volunteer to

read it aloud.

Explain that this is a typical definition of species taken from a high school biology

textbook.

3. Pass out to each group one copy of Master 1.3a–d and one copy of Master 1.4, First

Worksheet.

4. Instruct the students to read the four case descriptions and use the textbook

definition of species to answer the questions on Master 1.4.

Give groups about 15 minutes to complete their tasks.

5. After students have completed their worksheets, ask for a volunteer to read his or

her group’s responses to the first case description.

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**Case 1**

Students should conclude that the mule is not a separate species since mules cannot

interbreed with each other. Some students may believe that the second part of the

definition (individuals possessing similar anatomical characteristics) is consistent with

the mule being its own species.

6. Ask for additional volunteers to share responses to the other cases.

**Case 2**

Students should conclude that the liger is not a separate species because they cannot

breed with each other. Some students may note that the female ligers are fertile and use

this as evidence for ligers being a species. If not mentioned by a student, point out that

female ligers cannot breed with male ligers as required by the species definition.

**Case 3**

Students should recognize that Poodles and Pekingese are both dogs and members of the

same species. This means that the “Peakapoo” is also a member of the same species.

**Case 4**

Bacteria reproduce asexually. Students may respond that the species definition doesn’t

work for bacteria since it requires interbreeding.















