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**If They Can Mate, Did They Speciate?
A Case Study in Evolution and Meaning of Species**

2.3.1: Research a question and generate a conclusion by evaluating scientific literature (including both written text and visual displays).

2.3.3: Evaluate data, hypothesis, and/or conclusions in scientific literature when given competing information or accounts.

2.3.4: Communicate and defend scientific data and/or claims both in oral and written form (e.g. short written work, presentation, lab report, and/or research paper, etc.) including appropriately formatted bibliography.

Part 1: Ligers and Chumans and Pizzly Bears! Oh, My!

Directions: Read part 1 of the case study found on moodle.

1. Complete the chart below based upon your prior knowledge, what you just read, and questions you have now.

I Know...	I Think I Know...	I Want to Know...

2. Using the information in the case study, write out the definitions for the following terms:

a. The stages of Natural Selection:

b. Species:

c. Hybrid:

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3. Visit the following website:

http://evolution.berkeley.edu/evolibrary/article/evo_40. Read through all five subpages under “Speciation”. You can do this by clicking the “next” button at the bottom of each page. Take brief notes on the information you read.

Notes:

Does the information on this site change any of your definitions above? Indicate these changes in a different color pen on page one of the packet.

If you change the definitions, why did you change them? What evidence did the website provide that convinced you to revise your definitions?

4. Read these brief articles at these websites:

Grizzly-Polar Bear Hybrid Found—But What Does It Mean?

<http://news.nationalgeographic.com/news/2006/05/polar-bears.html>

Did Humans and Chimps Once Interbreed?

<http://www.newscientist.com/article.ns?id=mg19025525.000>

Morocco’s Miracle Mule

<http://news.bbc.co.uk/2/hi/science/nature/2290491.stm>

Ligers and Tigons (including pictures)

http://www.pbs.org/wgbh/evolution/library/05/2/1_052_02.html

Are any of these sources credible? If so, indicate which sources and explain why they are credible.

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5. Relate your research to the “want to know” column. What questions can you now answer?

6. Based upon your research, indicate your proposed explanation for why we have different species of plants and animals on earth, and provide data from your research to support your hypothesis.

<u>Hypothesis</u>	<u>Data</u>

Part 2: The Sisterhood of the Rings

Directions: Read part 2 of the case study found on moodle.

1. Complete the chart below based upon your prior knowledge, what you just read, and questions you have now.

I Know...	I Think I Know...	I Want to Know...

2. Using the information in the case study, write out the definitions for the following terms:

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a. Divergent evolution:

b. Convergent evolution:

c. Coevolution:

3. Visit the following website: <http://bioweb.cs.earlham.edu/9-12/evolution/HTML/converge.html>. Take brief notes on the information you read.

Notes:

Does the information on this site change any of your definitions above? Indicate these changes in a different color pen on page four of the packet.

If you change the definitions, why did you change them? What evidence did the website provide that convinced you to revise your definitions?

4. Read the brief articles at the following websites:

The Larus Gulls Circumpolar Species Ring
<http://darwiniana.org/zimmergulls.htm>

Ring Species (from the PBS Evolution Website)
http://www.pbs.org/wgbh/evolution/library/05/2/1_052_05.html

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Ring Species: Unusual Demonstrations of Speciation
<http://www.actionbioscience.org/evolution/irwin.html>

Ring Species and Clinal variation
<http://darwiniana.org/rings.htm#Rings>

5. Relate your research to the “want to know” column. What questions can you now answer?

6. Based upon the new information provided in your additional research, revise your proposed explanation for why we have different species of plants and animals on earth, and provide data from your new research to support your revised hypothesis.

<u>Hypothesis</u>	<u>Data</u>

Part 3: The Mouse That Caused the Roar

Directions: Read part 3 of the case study found on moodle.

1. Complete the chart below based upon your prior knowledge, what you just read, and questions you have now.

I Know...	I Think I Know...	I Want to Know...

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2. Read the brief articles at the following websites:

Status Of Threatened Mouse On Trial

http://www.denverpost.com/news/ci_4021577

Government Postpones Decision On Jumping Mouse Status

<http://www.foxnews.com/story/0,2933,185418,00.html>

Subspecies Fight For Space On Protected List (listen to news story)

<http://www.npr.org/templates/story/story.php?storyId=5028780>

5. Relate your research to the “want to know” column. What questions can you now answer?

6. Based upon the new information provided in your additional research, revise your proposed explanation for why we have different species of plants and animals on earth, and provide data from your new research to support your revised hypothesis.

<u>Hypothesis</u>	<u>Data</u>

Part 4: Communication of Information

Write a 3-paragraph essay (create a Google Document to do so) in which you argue for or against the importance of government funding of research into evolution as the cause of the diversity of life on Earth (especially research into speciation). Include an introduction with background and a thesis, a body paragraph with two well-supported arguments to support your position, and a conclusion restating your thesis and the main points of your argument. Please include a separate works cited page that is properly formatted.