



Ecology

Group Activity: Sourcing the Source of Selection

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Names of Group Members: _____

Objectives of this Activity:

1. Explain how a particular trait possessed by a specific organism was shaped by natural selection;
2. Use the internet to find sources of scientific data that test specific hypotheses about the adaptive value of the focal trait; and
3. Decide which sources provide valid scientific data, which provide valuable information but not true scientific data, and which sources are unreliable.

Instructions:

1. This is a multi-part activity. Please make sure to pay attention to sections below that indicate that you must obtain instructor permission to move forward. When in question, ask questions (of your instructor).
2. During this exercise, your overall goal will be to find internet sources that explain how a particular trait evolved. Your "focal trait" is:



Counter-shading found in the Caribbean reef shark:

"Counter-shading" refers to the color pattern seen to the left, where the shark is darker in color when viewed from above but lighter in color when viewed from below.

Source: <http://www.flmnh.ufl.edu/fish/education/questions/color.jpg>

3. Using as many computers as your group has been allocated, sign on to the LMS and look for the forum provided for your group letter (indicated at the top right of this sheet).
4. When your instructor gives you the go-ahead, use an internet search engine to find sources that might help you explain how natural selection might have shaped your focal trait. You can work collaboratively in the real world of the classroom, but post things that you find individually in the virtual environment of the LMS. Discard sources that are uninformative or clearly unreliable, but for any source you suspect may be valuable, make a new posting under your group's forum that provides the following information:
 - a. A title (subject) for your post that describes the source that you found;
 - b. A weblink for your source; and
 - c. A brief description of the relevance of the information found in this source to the question of *how natural selection might have shaped your focal trait*.
5. When your instructor gives you the go-ahead, discuss and answer **Question #1** (see back).
6. When your instructor gives you the go-ahead, scrutinize the postings made by another group (as assigned by your instructor). Post replies (indicating whether you believe this is a source of questionable validity, valuable conjecture, or true scientific evidence) to as many of their sources as possible. Make sure each reply contains a clear explanation of your judgment.
7. When your instructor gives you the go-ahead, discuss and answer **Question #2** (see back).
8. When your instructor gives you the go-ahead, read and discuss the feedback that you received from the other group on your sources. Decide what feedback you should and should not heed. Then, make a final post with the subject "OUR TOP THREE SOURCES + CONCLUSION" that identifies your top three sources and explains what they tell us about *how natural selection might have shaped your focal trait*.
9. When your instructor gives you the go-ahead, discuss and answer **Questions #3 & 4** (see back).

Questions:

1. Based on your initial research, what are some hypotheses that explain how your focal trait was produced by natural selection? Have any of these hypotheses been tested? Explain your answer.
2. Based on your experience scrutinizing the internet sources of another group, explain what criteria you believe should be used to judge the validity of an internet source purporting to explain how a particular trait evolved. What qualifies a source as “reliable”? What disqualifies a source?
3. In trying to decide how your focal trait evolved, how did you decide what sources were valid? Why were some sources considered substandard?
4. Based on your research, has the evolution of your focal trait been scientifically explained? Why or why not? Explain your answer.