

Correcting Misconceptions in Evolution

Introduction: What is a misconception?

When you first started this unit, you came already with many ideas about how evolution works; some of these ideas were reinforced during your studies. Some of these ideas needed to be corrected. These latter ideas are called *misconceptions*. Misconceptions can occur for various reasons. Could be from lack of knowledge, but also from knowing about particular examples, that you thought are the rule, and turned out to be exceptional. As we learn and gain experience we never stop re-visiting our understanding of life, not to mention the new discoveries that reveal more fascinating facts and therefore concepts.

What is the objective?

In this project you will address common misconceptions that people have about evolution. You will design a PRODUCT that will graphically present both the misconceptions as well as its correction. To demonstrate the correction you must include a particular example that demonstrates the right idea. Examples can be descriptions of cases, annotated pictures, charts, graphs. Choose the example wisely, so you won't add to the confusion students already have in the subject!

Be creative, think outside the box; what about illustrating the concepts using the evolution of videogames!

How do I go about doing this project?

1. Choose no more than 2 misconceptions per student
2. Explain in a paragraph why the misconception is wrong.
3. Meet and discuss with your teammates. If you cannot explain it to them you might be perpetuating the problem.
4. Illustrate both the right and wrong concept (use drawings, examples, visuals). **LABEL CLEARLY**
5. Develop the campaign

Where can I find the information I need?

All of the misconceptions were taken from a website that was designed for teachers. I have included the misconception and pointed you in the right direction.

MISCONCEPTION	Correct information
“Evolution is like a climb up a ladder of progress; organisms are always getting better.”	http://evolution.berkeley.edu/eosite/misconcepts/IBladder.shtml
“Evolution means that life changed ‘by chance.’”	http://evolution.berkeley.edu/eosite/misconcepts/ICchance.shtml
“Natural selection involves organisms ‘trying’ to adapt.”	http://evolution.berkeley.edu/eosite/misconcepts/IDtrying.shtml
“Natural selection gives organisms what they ‘need.’ ”	http://evolution.berkeley.edu/eosite/misconcepts/INEeds.shtml
“Humans evolved from monkeys”	http://www.pbs.org/wgbh/evolution/library/faq/cat02.html (use a cladogram to explain this one)
Individual organisms can evolve during a single lifespan.	This misconception probably came to be because of the simplified definition of evolution being "a change over time". Individuals cannot evolve - they can only adapt to their environments to help them live longer. Remember that <u>Natural Selection</u> is the mechanism for evolution. Since Natural Selection requires more than one generation to occur, individuals can't evolve. Only populations can evolve. Most organisms need more than one to reproduce via sexual reproduction. This is especially important in evolutionary terms because new combinations of genes that code of characteristics cannot be made with just a single individual (well, except in the case of a rare genetic mutation or two).
All traits of organisms are adaptations.	http://evolution.berkeley.edu/evolibrary/article/0_0_0/misconcep_07

Rubric for Evolution Project

	Excellent	Successful	Acceptable	Attempted
Content Accuracy	Describes both the “how” and the “when.” 10 9 8	Describes either the “how” or the “when.” 7 6 5	Does not describe either the “how” or the “when.” 4 3 2	Does not address the issue described. 1 0
Content depth	Evolutionary concepts are well explained and documented 10 9 8	Evolutionary concepts are explained but lack documentation 7 6 5	Evolutionary concepts are mentioned. 4 3 2	Evolutionary concepts are not mentioned. 1 0
Make inferences	Uses direct evidence from multiple sources to substantiate claims. 10 9 8	Uses only one source of direct evidence. 7 6 5	Uses only inference. 4 3 2	Does not use either direct evidence or inference. 1 0
Suggest other evidence to look for.	Identifies missing evidence to support and to disprove the claims. 10 9 8	Identifies evidence that could disprove the claims. 7 6 5	Identifies missing evidence that could support the claim. 4 3 2	Does not suggest other evidence to look for. 1 0
Be neat, well organized and communicate effectively.	Is neat and well organized with information clearly and effectively communicated. 10 9 8	Is mostly neat and organized and most information is clearly presented. 7 6 5	Parts are neat and organized with some information clearly presented. 4 3 2	Is not neat or well organized and/or lacks information. 1 0

Total Rubric Score: _____

50–41 = Excellent

40–31 = Successful

30–21 = Acceptable

20–0 = Poor