Evolution by Natural Selection: The Basics

Biological evolution: the change in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over time.

Observation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Question: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Summary of possible logical hypotheses:

|  |  |
| --- | --- |
| Independent Development | Evolution from Common Ancestor |
|  |  |

Remember Occam’s Razor / *lex parsimoniae*: the least complex solution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which solution is more parsimonious? (least complex) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scientific explanations require evidence for a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by which a given hypothesis might happen.

Kettlewell’s Peppered Moth Experiments

 The peppered moth species has two color phenotypes, \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 Kettlewell released moths in 2 different environments, one was \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and dark, the other was unpolluted and \_\_\_\_\_\_\_\_\_\_\_\_\_.

 Which phenotype was more successful in the unpolluted environment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Which phenotype was more successful in the darker environment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3 Conditions for natural selection**

|  |  |  |
| --- | --- | --- |
|  | Definition | Example |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

Natural Selection: the process by which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make it more likely for an organism to

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ become \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over successive generations.

Major Lines of Evidence for Evolution by Natural Selection

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2B.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2C. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Significance of “Darwin’s” Moth:

**Modes of Selection**



**Adaptation** (process): the process by which a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of organisms becomes

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as a result of natural selection

**Adaptation** (characteristic): a specific feature that makes an organism \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Example: Through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, horses developed the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 for grinding tough plants they eat.

**Artificial Selection**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_