**The Effect of Climate Change on Living Organisms**

Focus Question: How do organisms respond to environmental change? Does that change always involve genetic differences that could be acted on by natural selection, or is phenotypic plasticity at work?  **WHAT IS PHENOTYPIC PLASTICITY**?

1. Watch the [Khan Academy video, “Phenotype Plasticity”](https://www.khanacademy.org/science/ap-biology/heredity/environmental-effects-on-phenotype/v/phenotype-plasticity), https://www.khanacademy.org/science/ap-biology/heredity/environmental-effects-on-phenotype/v/phenotype-plasticity. Take note of the key concepts in the space below.
2. Read [“Coping With Climate Change”](https://evolution.berkeley.edu/evolibrary/news/090501_climatechange), https://evolution.berkeley.edu/evolibrary/news/090501\_climatechange. Answer the following questions:

* In your own words, explain what an evolutionary adaptation is.
* In your own words, explain what phenotypic plasticity is.
* Is phenotypic plasticity an individual or a population phenomenon? Explain.
* Is evolutionary adaptation an individual or a population phenomenon? Explain.
* Why are evolutionary adaptations NEVER intentional?
* Imagine that a friend is concerned about how penguins will fare as the climate continues to warm. He says that he’s worried because “they might not be smart enough to adapt as the temperature keeps going up.” How would you explain the error in his thinking?

3. Watch [“Video #2: Phenotypic Plasticity,” https://www.youtube.com/watch?list=PLEC34ED558101B182&time\_continue=80&v=DRZ\_PD7e3XA.](“Video%20#2:  Phenotypic Plasticity,\” https://www.youtube.com/watch?list=PLEC34ED558101B182&time_continue=80&v=DRZ_PD7e3XA. ) Take notes on any ideas you learned that add to your previous learning.