Pre-lab Barcoding I

Watch this quick intro to DNA barcoding:

<http://www.dnabarcoding101.org/>

Read this introduction and answer the following questions:

<http://www.dnabarcoding101.org/introduction.html>

1. What is a DNA barcode?
2. What genes are typically used? Why are they useful for barcoding?
3. Genes must be *haploid* to be useful for barcoding. What does haploid mean and why would this be more useful for barcoding?
4. Hypothesize as to why chloroplast and mitochondrial genes are haploid.
5. What is a trait?
6. Explain the relationship between DNA and traits.
7. Describe the structure of DNA and how it is a code for traits.

Pre-Lab Barcoding Parts II and II

Do the virtual labs on these sites

<http://learn.genetics.utah.edu/content/labs/pcr/>

<http://learn.genetics.utah.edu/content/labs/extraction/>

Describe how DNA is extracted and purified from cells.

Why is a detergent used?

What is PCR?

How does it work?

Why is it necessary?

What is a primer and what does it do?

Next week will do gel electrophoresis. What is this and why do we do it after the PCR?

Do this simulated lab:

<http://learn.genetics.utah.edu/content/labs/gel/>

Post-Lab for DNA Barcoding

1. What is barcoding and how can it be used?
2. How is it useful in biodiversity studies?
3. What have you learned by participating in this lab?
4. Briefly describe the following processes and how they can be used:
   1. DNA extraction
   2. PCR
   3. Electrophoresis
   4. Sequencing (this link will help) <http://seqcore.brcf.med.umich.edu/doc/educ/dnapr/sequencing.html>