

Biology Weeks 2 & 3 – Assignment #1

Teacher: Hutton

Name: _____ Period: _____

Genes and Variation

1. On a separate sheet of paper use pages 393-396 in the book to take notes.
2. Answer the following questions on a separate sheet:
 - a. What two processes can lead to inherited variation in populations?
 - b. How does the range of phenotypes differ between single-gene traits and polygenic traits?
 - c. What is a gene pool?
 - d. How are allele frequencies related to gene pools?
 - e. Look at figure 16-2 on page 394. In the picture there are 50 alleles, 20 are B (black) and 30 are b (brown). How many of each allele would be present if there were 100 alleles?
3. The following data was collected from mice in the gene pool from figure 16-2.

Population Allele Frequencies		
	B	b
Generation 1	40%	60%
Generation 2	46%	54%
Generation 3	48%	52%
Generation 4	78%	22%
Generation 5	82%	18%
Generation 6	86%	14%

- a. On a separate sheet of paper graph the data.
- b. Answer the following:
 - i. Between two generations there was a large fire turning all the land black with soot. When do you predict that occurred? (Remember 'B' is the allele for black and 'b' is the allele for brown).
 - ii. What could have caused the change in allele frequencies over the years? (Think about why black mice might do better in an area where a fire occurred)
 - iii. Is the population evolving? Why or why not?

Biology Weeks 2 & 3 – Assignment #2

Speciation

On a separate sheet of paper use pages 404 – 409 in your book to answer the following questions.

1. What is speciation?
2. What do biologistist define a species as?
3. What will happen if a genetic change increases fitness?
4. What is reproductive isolation and how does it occur?
5. Define, explain, and give an example of each isolating mechanism:
 - a. Behavioral isolation:
 - b. Geographic isolation:
 - c. Temporal isolation:
6. Describe how speciation was tested by Darwin and the Grants using finches:
7. Describe the variation found in the finches:
8. Describe how the beaks of the finches were related to natural selection:
9. Describe each step of speciation found in the finches:
 - a. Founders arrive:
 - b. Geographic isolation:
 - c. Changes in gene pool:
 - d. Reproductive isolation:
 - e. Ecological competition:
 - f. Continued evolution:

Biology Weeks 2 & 3 – Assignment #3

The History of Life

1. On a separate sheet of paper use pages 421-422 in the book to take notes.
2. Use figure 17-5 on page 421 to fill in the following table:

Geologic Time Scale		
Era	Period	Time (millions of years ago)

3. Use pages 429-434 to describe each time period on the geologic time scale on a separate sheet of paper:
 - a. Precambrian time
 - b. Paleozoic era
 - i. Cambrian period
 - ii. Ordovician and Silurian periods
 - iii. Devonian period
 - iv. Carboniferous and Permian periods
 - c. Mesozoic era
 - i. Triassic period
 - ii. Jurassic period
 - iii. Cretaceous period
 - d. Cenozoic era
 - i. Tertiary period
 - ii. Quaternary period