**HSPVA Academic Biology Review Sheet: Mutations and DNA Fingerprints**

Due on the day of the exam: 1st & 6th periods: 2/21 (Wed); 4th period: 2/22 (Thurs)

**Mutations:**

1. What is a mutation?
2. What are the TWO major types of mutations?
3. Which would be the worst mutation: a point or a frame shift mutation and why?
4. What causes mutations?
5. If a mutation happens in a somatic (non sex) cell, can it be passed to offspring? Why/why not?
6. If a mutation happens in a gamete (sex cell), can it be passed on to offspring? Why/why not?
7. Who is your favorite superhero mutant?
8. List 1 human disease caused by a mutation in the DNA (not by extra chromosomes).

**Karyotypes and DNA Fingerprinting:**

1. What is a karyotype?
2. What is the normal number of chromosomes for a human to have?
3. What are the sex chromosomes of a biological human male?
4. What are the sex chromosomes of a biological human female?
5. What is a restriction enzyme used for in DNA fingerprinting?
6. What does gel electrophoresis do in DNA fingerprinting?
7. What are some uses of DNA fingerprinting?
8. Which type of DNA moves farther down the gel during electrophoresis: large or small pieces?
9. How can DNA fingerprinting be used to determine paternity?
10. What characteristic about the DNA molecule fragments allows them to separate when an electrical current is applied to gel in the electrophoresis box?

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