**Mathematical Modeling: Hardy Weinberg**

**Q1- How do inheritance patterns or allele frequencies change in a population over one generation?**

**Q2- Do alleles behave the same way if you make a particular value more extreme, less extreme?**

**Q3- Do alleles behave the same way no matter what the population size is?**

Using spreadsheet, create your model, find the frequency of A, frequency of B, A2, B2, 2AB and save snips of different starting allele frequencies ( develop and use a pattern to select you values to organize your exploration). Change your model by adding more zygote to increase the population size. Save snips.

**Q4- Do alleles behave the same way no matter what the population size is?**

Using computers to model H-W <http://www.radford.edu/~rsheehy/Gen_flash/popgen/>

Construct graphs of p,q, p2, q2, 2pq with different numbers of populations, different population sizes. Save snips of each one.

**Q5- In the absence of random events (an infinitely large population), are the allele frequencies of the original population expected to change from generation to generation?** **How does this compare to a population that has random gamete selection but is small?** **What happens to allele frequencies in such a population? Is it predictable?**

**Q6- What would happen if there were no randomness in gamete selection from an infinite gene pool?**

**Q7- What kind of pattern of genotypes would you expect in the next generation?**

**Q8-** **what factors can cause allele frequencies to change in a population and how you would model them. Choose one of your answers, and try it out using your spreadsheet and the computer simulation.**