

Genetics Standards Eagle Ridge Academy

9.4.3.1.1

Explain the relationships among DNA, genes and chromosomes.

9.4.3.1.2

In the context of a monohybrid cross, apply the terms phenotype, genotype, allele, homozygous and heterozygous.

9.4.3.1.3

Describe the process of DNA replication and the role of DNA and RNA in assembling protein molecules.

9.4.3.2.1

Use concepts from Mendel's laws of segregation and independent assortment to explain how sorting and recombination (crossing over) of genes during sexual reproduction (meiosis) increases the occurrence of variation in a species.

9.4.3.2.2

Use the processes of mitosis and meiosis to explain the advantages and disadvantages of asexual and sexual reproduction.

9.4.3.2.3

Explain how mutations like deletions, insertions, rearrangements or substitutions of DNA segments in gametes may have no effect, may harm, or rarely may be beneficial, and can result in genetic variation within a species.

9.4.4.2.1

Describe how some diseases can sometimes be predicted by genetic testing and how this affects parental and community decisions.

9.4.4.2.5

Recognize that a gene mutation in a cell can result in uncontrolled cell division called cancer, and how exposure of cells to certain chemicals and radiation increases mutations and thus increases the chance of cancer.