Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Genetic Patterns

*Meiosis, Crossing Over, DNA Replication, Transcription/Translation, Protein Synthesis*

Standard 3 / Objective 1

# **Goals**:

# I can construct an explanation for how the structure of DNA is replicated.

# I can construct an explanation for how DNA and RNA code for the structure of proteins, which regulate and carry out the essential functions of life and result in speciﬁc traits.

# I can obtain, evaluate and communicate a conceptual understanding that the sequence of nucleotides in DNA determines the amino acid sequence of proteins through the processes of transcription and translation.

# **Lab Book:**

* Definitions – *DNA, RNA, Replication, Nucleotide, Amino Acid, Protein, Protein Synthesis, Transcription (for protein synthesis), Translation (for protein synthesis), Meiosis, Crossing Over, Diploid, Haploid, Fertilization, Gene, Chromosome, Germ Cell, Gamete, Homologous, Parent, Offspring, Trait*
* Notes: PowerPoint Slides – DNA Replication
* Notes: PowerPoint Slides – Meiosis/Crossing Over
* Notes: PowerPoint Slides – Transcription/Translation/Protein Synthesis
* Meiosis Model and Explanation
	+ *Is your model from the Level 4 submission during 2nd quarter? \_\_\_\_\_\_\_\_\_\_*
* Pop Beads – Crossing Over
	+ Drawing (phenotype) of plant from original chromatid’s genotype
	+ Drawing (phenotype) of plant after two homologous chromosome cross-overs
* Translating DNA – Creature Coding (lavender handout)
* Transcription and Translation – Practice Worksheet (pink handout)
* From Transcription → to Translation → to Proteins (blue handout)
* Genetic Code Chart (yellow handout)
* learngenetics.com: *Transcribe and Translate a Gene*
	+ Brief explanation of what you learned during this computer interactive
* Bioman: *Protein Synthesis Race*
	+ Brief explanation of what you learned during this computer interactive