State Science Curriculum Standards for Unit 5: It's In Your Genes		
Level	Exercise 1	Exercise 2
K-3	2-3.1.1, 2-3.1.2, 2-3.2.1*, 2-3.2.3*, 2-3.4.1, 2-3.4.2, 2-3.5.1, 3.5.2*,	3.1.1, 3.1.2, 3.2.1*, 3.2.3*, 3.4.1, 2-3.4.2, 3.5.2*,
4-5	4-5.1.1, 4-5.4.1, 4-5.4.2, 4-5.5.1*, 4-5.5.2*, 4-5.12.1	4-5.1.1, 4-5.4.1, 4-5.4.2, 4-5.5.1*, 4-5.5.2*, 4-5.12.1
6-8	7.1.3*, 7.4.1*, 8.4.1, 8.4.2, 6.5.1*, 8.5.1*, 6.6.2*	7.1.3*, 7.4.1*, 8.4.1, 8.4.2, 6.5.1*, 8.5.1*,6.6.2
Biology I	CLE 3210.Inq.1, CLE 3210.Inq.2, CLE 3210.Inq.3, CLE 3210.Inq.4, CLE 3210.Inq.5, CLE 3210.Math.1, CLE 3210.Math.2, CLE 3210.1.3* CLE 3210.4.1, CLE 3210.4.2, CLE 3210.4.3, CLE 3210.4.4, CLE 3210.4.5, CLE 3210.4.6, CLE 3210.4.7*, CLE 3210.5.3*	CLE 3210.Inq.1, CLE 3210.Inq.2, CLE 3210.Inq.3, CLE 3210.Inq.4, CLE 3210.Inq.5, CLE 3210.Math.1, CLE 3210.Math.2, CLE 3210.1.3* CLE 3210.4.1, CLE 3210.4.2, CLE 3210.4.3, CLE 3210.4.4, CLE 3210.4.5, CLE 3210.4.6, CLE 3210.4.7*, CLE 3210.5.3*
Biology II	CLE 3210.Inq.1, CLE 3210.Inq.2, CLE 3210.Inq.3, CLE 3210.Inq.4, CLE 3210.Inq.5, CLE 3210.Math.1, CLE 3210.Math.2, CLE 3216.4.1, CLE 3216.4.2, CLE 3216.4.3, CLE 3216.4.4, CLE 3216.4.5*, CLE 3216.4.6*, CLE 3216.5.1* CLE 3216.5.2	CLE 3210.Inq.1, CLE 3210.Inq.2, CLE 3210.Inq.3, CLE 3210.Inq.4, CLE 3210.Inq.5, CLE 3210.Math.1, CLE 3210.Math.2, CLE 3216.4.1, CLE 3216.4.2, CLE 3216.4.3, CLE 3216.4.4, CLE 3216.4.5*, CLE 3216.4.6*, CLE 3216.5.1* CLE 3216.5.2
Ecology	CLE 3210.Inq.1, CLE 3210.Inq.2, CLE 3210.Inq.3, CLE 3210.Inq.4, CLE 3210.Inq.5, CLE 3210.Math.1, CLE 3210.Math.2, CLE 3255.1.1, CLE 3255.2.3*	CLE 3210.Inq.1, CLE 3210.Inq.2, CLE 3210.Inq.3, CLE 3210.Inq.4, CLE 3210.Inq.5, CLE 3210.Math.1, CLE 3210.Math.2, CLE 3255.1.1, CLE 3255.2.3*
Chemistry I	CLE 3221.1.3*, CLE 3221.3.1*	
Scientific Research		CLE 3295.2.1, CLE 3295.2.4, CLE 3295.4.1, CLE 3295.4.3*

* Denotes learning expectations that may not be addressed directly by a particular exercise, but could easily be related to the material covered through the use of additional assignments or activities, or brought into lecture using suggested information below. Teachers may want to also examine suggestions for grade levels outside their own for further inspiration.

For Teachers K-3
- You may wish to explain to students that one characteristic of living things (versus non-living things) is the presence of nucleic acids (such as DNA), which encode directions for the construction of proteins (though some biologists might argue about whether viruses are "living"). This addresses standard K-3.2.1.
- This is a very easy unit to talk about how an organism's adaptations to their environments have a heritable basis, and how the environment can influence which traits are passed on to subsequent generations (addresses K-3.2.3 & K-3.5.2).
- This is a really easy exercise to touch on differences between organisms, whether of different species, or between individuals of the same species. You can talk about how genetic differences (in terms of different base pairs in the organisms' genomes) may not always be externally visible, but that they can be examined to help biologists think about relationships among organisms. This addresses standard K-3.5.1.
- NOTE: The mathematics in the exercises for this unit is most appropriate for grades 4 and up. However, the scientific principles addressed in this unit are appropriate for at least grades 2 and up. Feel free to use the materials in the box, as well as the provided suggested reading and links to determine how you to most effectively use this unit in your classroom.

For Teachers 4-5
- See the suggestions for lower grades for ideas to address standards 4-5.5.1 and 4-5.5.2.

For Teachers 6-8
- You may wish to go into a more detailed discussion of differences and similarities between mitosis and meiosis (addresses 7.1.3).
- You may wish to also discuss differences in the processes (and genetic makeup of the offspring) of sexual and asexual reproduction (addresses 7.4.1).
- The suggestions for lower grades also are a good starting point to think about adaptation (to address 6.5.1) and classification (addresses 8.5.1).
- You could also easily address how genetic information (such as allele frequencies) can be (and is often) used to document changes in populations over time (addresses 6.6.2).

For High School Teachers
- As suggested for lower grades, discussion of population level variation and the role of the environment as a selective pressure goes hand-in-hand with this unit! You could easily move from this unit into more complex problems, such as Hardy-Weinberg equilibrium in populations, for an ecology course.
- A discussion on translation, and how differences in base pair sequences may affect amino acid sequences (and thus the conformations of proteins) is definitely appropriate with this unit! This addresses standard CLE 3216.4.5.
- If you wish, the brief discussion of enzymes in Exercise 1 might lend itself well to this unit being a good introduction to a more detailed discussion of enzymes and their importance and activity.
- This unit is also an excellent starting point for more in-depth discussion about "the scientific and ethical ramifications of emerging genetic technologies" (CLE 3210.4.7) and genetic engineering (CLE 3216.4.6). This unit also offers plenty of opportunity for interesting discussions of genetic screening for potential parents, genetic disorders, etc.
- The presentation of chemical structures of nitrogenous bases, as well as types of bonding seen in the DNA molecule are a good opportunity to go into more detail regarding atomic structure and bonding, particularly for those teachers (and interested students) that are interested in biochemistry.
- In Exercise 2, since students are simulating the production of multiple "offspring," this addresses CLE 3295.4.1. Exercise 2 also presents an excellent opportunity for more detailed statistical analysis of the students' obtained results (for example, through the use of a χ^2 test) to compare them to Mendelian expectations.