**Mendelian Genetics**

**Benchmark:**

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| SC.912.L.16.2 | **Discuss observed inheritance patterns caused by various modes of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles** |
| SC.912.L.16.1 | Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance |
| SC.912.C.1.4 | **Analyze how heredity and family history can impact personal health** |

**Relevant Achievement Level Descriptions:**

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| Interpret, analyze, and synthesize data to determine causal relationships in a complex investigation |
| Evaluate the reliability of other sources of information, to make predictions and defend conclusions based on experimental design or scientific argumentation |
| Use scientific reasoning to justify abstract explanations |
| Make sound scientific inferences based on natural phenomena |
| Use Mendel's laws to analyze patterns of inheritance |
| Analyze and predict inheritance patterns caused by various modes of inheritance. |

**Evolution**

**Benchmarks:**

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| SC.912.L.15.1 | Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change. |
| SC.912.L.15.19 | Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools. |
| SC.912.L.14.26 | Identify the major parts of the brain on diagrams or models. |
| SC.912.L.15.6 | Discuss distinguishing characteristics of the domains and kingdoms of living organisms. |
| SC.912.L.15.4 | Describe how and why organisms are hierarchically classified and based on evolutionary relationships. |
| SC.912.L.15.5 | Explain the reasons for changes in how organisms are classified. |
| SC.912.L.15.8 | Describe the scientific explanations of the origin of life on Earth. |
| SC.912.L.15.13 | Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success. |
| SC.912.L.15.14 | Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow. |
| SC.912.L.15.15 | Describe how mutation and genetic recombination increase genetic variation. |
| [SC.912.L.15.10](http://www.cpalms.org/Public/PreviewStandard/Preview/2004) | Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools. |
| SC.912.L.15.19 | Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented. |

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| [SC.912.L.14.27](http://www.cpalms.org/Public/PreviewStandard/Preview/1965) | Identify the functions of the major parts of the brain, including the meninges, medulla, pons, midbrain, hypothalamus, thalamus, cerebellum and cerebrum. | Honors extension. Not directly assessed |
| [SC.912.L.14.36](http://www.cpalms.org/Public/PreviewStandard/Preview/1974) | Describe the factors affecting blood flow through the cardiovascular system. | EOC assessed |
| [SC.912.L.14.5](http://www.cpalms.org/Public/PreviewStandard/Preview/1947) | Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis). | Honors extension. Not directly assessed |
| [SC.912.L.14.52](http://www.cpalms.org/Public/PreviewStandard/Preview/1990) | Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics. | EOC assessed |
| [SC.912.L.14.6](http://www.cpalms.org/Public/PreviewStandard/Preview/1948) | Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health. | EOC with SC.912.L.14.52 |
| SC.912.L.15.2 | Discuss the use of molecular clocks to estimate how long ago various groups of organisms diverged evolutionarily from one another. | Not directly assessed |
| [SC.912.L.15.3](http://www.cpalms.org/Public/PreviewStandard/Preview/1997) | Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction. | Not directly assessed |
| [SC.912.L.16.10](http://www.cpalms.org/Public/PreviewStandard/Preview/2021) | Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues. | Not directly assessed |