# 2021–22 NC Check-In Biology
# Evolution and Genetics
# State Item Statistics

| | Content Standard | Item Number | Percent Correct by Item |
|---|---|---|---|
| **Bio.3.1.1** | Explain the double-stranded, complementary nature of DNA as related to its function in the cell. | 1 | 74.5 |
| | | 14 | 43.6 |
| | | 27 | 77.8 |
| **Bio.3.1.2** | Explain how DNA and RNA code for proteins and determine traits. | 2 | 78.8 |
| | | 15 | 61.9 |
| | | 28 | 99.3 |
| **Bio.3.1.3** | Explain how mutations in DNA that result from interactions with the environment (i.e. radiation and chemicals) or new combinations in existing genes lead to changes in function and phenotype. | 3 | 74.7 |
| | | 16 | 56.7 |
| | | 29 | 59.0 |
| **Bio.3.2.1** | Explain the role of meiosis in sexual reproduction and genetic variation. | 4 | 75.3 |
| | | 17 | 52.5 |
| | | 30 | 55.1 |
| **Bio.3.2.2** | Predict offspring ratios based on a variety of inheritance patterns (including: dominance, co-dominance, incomplete dominance, multiple alleles, and sex-linked traits). | 5 | 67.3 |
| | | 18 | 42.7 |
| | | 31 | 66.5 |
| **Bio.3.2.3** | Explain how the environment can influence the expression of genetic traits. | 6 | 61.7 |
| | | 19 | 59.1 |
| | | 32 | 72.3 |
| **Bio.3.3.1** | Interpret how DNA is used for comparison and identification of organisms. | 7 | 82.0 |
| | | 20 | 71.1 |
| | | 33 | 92.0 |
| **Bio.3.3.2** | Summarize how transgenic organisms are engineered to benefit society. | 8 | 56.9 |
| | | 21 | 69.4 |
| | | 34 | 79.9 |
| **Bio.3.4.1** | Explain how fossil, biochemical, and anatomical evidence support the theory of evolution. | 9 | 77.5 |
| | | 22 | 91.3 |
| | | 35 | 62.5 |
| **Bio.3.4.2** | Explain how natural selection influences the changes in species over time. | 10 | 74.9 |
| | | 23 | 71.8 |
| | | 36 | 47.7 |
| **Bio.3.4.3** | Explain how various disease agents (bacteria, viruses, chemicals) can influence natural selection. | 11 | 78.2 |
| | | 24 | 52.5 |
| | | 37 | 82.9 |
| **Bio.3.5.1** | Explain the historical development and changing nature of classification systems. | 12 | 68.1 |
| | | 25 | 65.2 |
| | | 38 | 76.7 |
| **Bio.3.5.2** | Analyze the classification of organisms according to their evolutionary relationships (including: dichotomous keys and phylogenetic trees). | 13 | 87.2 |
| | | 26 | 83.5 |
| | | 39 | 51.3 |

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| Mean Percent Correct | 69.3 |

Note: Results from this NC Check-In should not be compared across Check-Ins, districts, or the state. Each Biology NC Check-In assesses different content standards.