



FLORIDA Standards Correlations



Component Codes

- BF: Biotechnology Focus
- CA: Chapter Assessment
- CI: Chapter Investigation
- Conn: Connections
- CR: Chapter Review
- CS: Case Study
- Explorer: Explorer feature
- LAD: Looking At the Data
- ML: Minilab
- Math/ELA: Math and English Language Arts Connections
- PT: Performance Task
- RP: Revisit the Phenomenon
- SR: Section Review
- TIAT: Tying It All Together
- U: Unit
- UO: Unit Opener

*Bold numbers indicate chapters or sections.
Standards unique to Honors Biology 1 are indicated with an asterisk (*).*

Next Generation Sunshine State

Standards (NGSSS) Correlations for Biology 1 FL2

Additional Standards for Biology 1 FL12



Next Generation Sunshine State Standards

BIOLOGY 1		
STANDARD	STUDENT/TEACHER EDITION	ONLINE RESOURCES
SC.912.E.7.1 Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.	2.1 p. 42, pp. 44–45; 2.1 SR p. 45 #4; 2.3 pp. 54–55; 2.4 pp. 59–60; 2.5 pp. 65–68, p. 70; 2.5 SR p. 71 #1, #3, #4; 2 TIAT p. 73 #1–3; 2 CR pp. 74–75 #6, #10–13, Math/ELA #4, RP #1; U1 Activity p. 123; 6 CR p. 195 #17	2 CA #4, #5, #7, #12; U1 PT1 #1–4; U1 PT2 #1–4
SC.912.L.14.1 Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.	1.1 p. 4; 6.1 p. 166; 6.1 Conn p. 167; 6 CR p. 195 #15, Math/ELA #4	
SC.912.L.14.2 Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).	6.1 p. 169, pp. 171–173; 6.1 SR p. 174 #1–3; 6.2 pp. 178–183; 6.2 SR p. 183 #1–3; 6 ML p. 184; 6.3 pp. 186–188, pp. 190–191; 6 CR pp. 194–195 #2, #4, #7, #9, #10, #16, Math/ELA #3; 7.3 pp. 211–212; 9.1 pp. 266–267; 9 ML p. 272 #1; 9.4 SR p. 291 #1; 9 CR pp. 294–295 #10, #14	6 CA #1, #3–6, #13–15, #17; CI 7B
SC.912.L.14.3 Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.	6.1 pp. 166–169, pp. 171–174; 6.1 SR p. 174 #1, #2; 6 CR pp. 194–195 #1, #3, #12, #13, #16; U2 Activity p. 219; 8.1 p. 227; 8.2 SR p. 241 #1; 8 ML p. 242 #2; 8 CR pp. 262–263 #1, Math/ELA #3; 11 CR p. 364 #1	6 CA #2, #3, #13; 8 CA #4; 11 CA #3
SC.912.L.14.4 Compare and contrast structure and function of various types of microscopes.	6.1 Conn p. 167; 6 CR p. 195 #14, Math/ELA #3, #4; 8.4 p. 252; Appendix A pp. 546–547	

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SC.912.L.14.5* Explain the evidence supporting the scientific theory of the origin of eukaryotic cells (endosymbiosis).	6.1 p. 174; 6.1 SR p. 174 #4; 6 CR p. 195 #13	
SC.912.L.14.6 Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	4.3 pp. 111–113; U2 p. 125; 6 LAD p. 175 #4; 8 CS p. 225; 8.1 pp. 231–232; 8.1 SR p. 233 #2; 8.4 p. 256, p. 258; 8.4 SR p. 258 #4; 8 Explorer p. 260; 8 CR pp. 262–263 #3, #12, #13; 10.2 p. 306; 12 CS p. 367; 12.2 p. 381; 12.4 pp. 393–395; 13.2 p. 419; 13 Explorer p. 423; 13.3 p. 427, p. 429; U4 Activity p. 441; 15 CS p. 477; 16.3 pp. 522–524	8 CA #18; U4 PT2 #1–4; CI 15B; U5 PT2 #1–4
SC.912.L.14.7 Relate the structure of each of the major plant organs and tissues to physiological processes.	9.1 pp. 266–271; 9.1 SR p. 271 #1–3; 9 ML p. 272 #1–4; 9.2 p. 273, pp. 275–277; 9.2 SR p. 277 #1–4; 9.3 pp. 279–285; 9.3 SR p. 285 #1–4; 9.4 pp. 287–288, p. 291; 9.4 SR p. 291 #1–3; 9 LAD p. 292 #7; 9 TIAT p. 293 #1–3; 9 CR pp. 294–295 #1, #3, #4, #6–11, #13, #15, #17, #18, Math/ELA #1, RP #1	CI 7A; 9 CA #1–12, #14–17; CI 9A
SC.912.L.14.26 Identify the major parts of the [human] brain on diagrams or models.	10.3 pp. 308–309; 10.3 SR p. 312 #1	
SC.912.L.14.27* Identify the functions of the major parts of the [human] brain, including the meninges, medulla, pons, midbrain, hypothalamus, thalamus, cerebellum and cerebrum.	10.3 pp. 308–309, p. 311; 10.3 SR p. 312 #1; 10 CR p. 327 #12	
SC.912.L.14.36 Describe the factors affecting blood flow through the cardiovascular system.	10.3 p. 311	U3 PT2 #1–3
SC.912.L.14.52 Explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.	U2 Explorer p. 126; 6 CR p. 195 RP #1; 8.4 p. 258; 9.4 pp. 289–290; 10.2 pp. 305–306; 10.2 SR p. 306 #3; 13.3 pp. 426–428, pp. 430–433, p. 435; U4 Activity p. 441	CI 8B
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.	14.1 pp. 448–450; 14.1 SR p. 453 #2; 14 ML p. 454 #1–3; 14.2 pp. 455–458, p. 462; 14.2 SR p. 462 #1, #4, #5; 14.3 pp. 466–471; 14.3 SR p. 471 #1–3; 14 TIAT p. 473 #1, #2; 14 CR pp. 474–475 #2–6, #8, #9, #11, #14, #15, Math/ELA #3, #4, RP #1; 15.1 pp. 479–480, p. 485; 15.1 SR p. 485 #1; 15.2 p. 492; 15 CR p. 503 #13; 16 CR p. 538 #3; U5 Activity p. 541	14 CA #1, #2, #4, #6, #8, #12–15; CI 14A; CI 14B; 16 CA #14; U5 PT1 #1–4; U5 PT2 #1–4; U5 PT3 #1–4

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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.	14.3 pp. 469–470; 14.3 SR p. 471 #2; 14 CR p. 475 #14	
SC.912.L.15.3* Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.	16.1 pp. 506–508; 16.2 pp. 512–513, pp. 516–518; 16 CR p. 539 #15; U5 Activity p. 541	CI 16A
SC.912.L.15.4 Describe how and why organisms are hierarchically classified and based on evolutionary relationships.	1 CR p. 34 #6; 8.1 pp. 226–227; 8.2 p. 234; 8.2 SR p. 241 #4; 8.3 p. 244; 8.4 pp. 252–253; 8 CR p. 263 #11; 9.1 SR p. 271 #1, #2; 9.3 p. 281; 9 CR pp. 294–295 #1, #2, #5, #13, #15; 10.1 p. 300; 10.1 SR p. 301 #2, #3; 14.1 pp. 452–453; Appendix E pp. 562–564, pp. 566–567, p. 570	1 CA #1, #3, #4, #11; 9 CA #13; 10 CA #3; U5 PT1 #1–4
SC.912.L.15.5 Explain the reasons for changes in how organisms are classified.	8.1 pp. 226–227; 8.2 p. 234; Appendix E pp. 562–564, pp. 566–567	8 CA #1
SC.912.L.15.6 Discuss distinguishing characteristics of the domains and kingdoms of living organisms.	8.1 p. 226, p. 233; 8.2 p. 234; 8.2 SR p. 241 #2; 8.3 SR p. 249 #1; 8 CR p. 263 #11; Appendix E pp. 562–564, p. 567, p. 570	8 CA #1, #3, #8, #11, #14, #16
SC.912.L.15.8 Describe the scientific explanations of the origin of life on Earth.	6.1 p. 174; 10.1 p. 301; 11.1 pp. 343–345; 11.1 SR p. 345 #4; 14.2 pp. 461–462	
SC.912.L.15.10 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.	Appendix F pp. 572–573; Appendix F p. 573 Apply #1–4	
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.	1 CR p. 35 #9, Math/ELA #1; 15 CS p. 477; 15.1 p. 478, pp. 482–483, p. 485; 15.1 SR p. 485 #3, #4; 15.2 p. 489–492; 15 TIAT p. 501; 15 CR p. 502 #4	1 CA #12, #13; CI 15B; CI 16A; U5 PT2 #1–4; U5 PT3 #1–4
SC.912.L.15.14 Discuss mechanisms of evolutionary change other than natural selection such as genetic drift and gene flow.	15.2 p. 492; 15.3 pp. 496–498; 15.3 SR p. 499 #1, #3; 15 CR p. 502 #9	15 CA #14; CI 15A
SC.912.L.15.15 Describe how mutation and genetic recombination increase genetic variation.	12.2 p. 378, p. 382; 12.2 SR p. 381 #1, #3, #4; 14.1 p. 448; 15 CS p. 477; 15.2 pp. 487–488; 15.3 SR p. 499 #2; 15 TIAT p. 501; U5 Activity p. 541	15 CA #4

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SC.912.L.16.1 Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.	12.1 pp. 375–376; 12.3 p. 384; 12.3 SR p. 389 #3; 12.4 p. 391; 12 ML p. 396 #1–4; 12 TIAT p. 397 #1, #2	12 CA #8, #9, #18; U4 PT1 #1, #3, #4
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.	12.3 pp. 386–388; 12.3 SR p. 389 #2, #4; 12 LAD p. 390 LAD #1–3; 12.4 pp. 392–394; 12.4 SR p. 395 #2, #4; 12 ML p. 396 Procedure; 12 TIAT p. 397 #2, #3; 12 CR pp. 398–399 #1, #5–9, #11, Math/ELA #3–5	12 CA #7, #10, #17, #18–21; CI 12A; CI 12B; U4 PT1 #1–4; U4 PT2 #1–4
SC.912.L.16.3 Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.	7.1 p. 200; 7.2 p. 204, p. 207; 11.1 pp. 336–337; 11.1 p. 341; 11.1 SR p. 341 #2; 11.2 pp. 346–347, p. 349; 11.2 SR p. 353 #1, #3; 11 ML p. 354 #1–4; 11 CR pp. 364–365 #3, #8, #12, #13, RP #2; 14.3 pp. 469–470	1 CA #2; 11 CA #13, #15, #16
SC.912.L.16.4 Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.	7.1 pp. 200–201; 7 LAD p. 203; 7.2 p. 204; 12.2 pp. 378–380; 12.2 SR p. 381 #2–4; 12 CR pp. 398–399 #4, #12, Math/ELA #2, RP #1, #2; 13.2 p. 415, p. 418; 14.3 p. 469; 14.3 p. 471; 14.3 SR p. 471 #4; 14 CR p. 475 #13; 15 CS p. 477; 15.2 p. 488; 15 TIAT p. 501; U5 Activity p. 541	12 CA #5, #6, #12
SC.912.L.16.5 Explain the basic processes of transcription and translation, and how they result in the expression of genes.	11.1 pp. 340–341; 11.1 SR p. 341 #2, #3; 11.2 p. 346, pp. 348–353; 11.2 SR p. 353 #2–4; 11 ML p. 354 #1–4; 11.3 pp. 355–356, pp. 358–359, p. 361; 11.3 SR p. 361 #1–4; 11 LAD p. 362 #1–4; 11 TIAT p. 363 #1–3; 11 CR pp. 364–365 #4–12, #14, #16, #17, Math/ELA #1–3, RP #1; 12.2 p. 378; 12 CR p. 399 #13	11 CA #1, #5–13, #17; CI 11A; CI 11B
SC.912.L.16.8 Explain the relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	7.1 pp. 201–202; 7.1 SR p. 202 #3; 7 LAD p. 203 #1–4; 7 Explorer p. 214; 7 TIAT p. 215 #1; 7 CR p. 216 #9, #10	7 CA #4, #15
SC.912.L.16.9 Explain how and why the genetic code is universal and is common to almost all organisms.	1.1 p. 6; 5.3 pp. 147–148; 11.1 p. 338, p. 343; 11.2 pp. 349–350; 8 LAD p. 251 #1, #2, #4, #5; 14.1 p. 449	CI 14A; CI 14B
SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	5.4 BF p. 159; 7.3 BF p. 211; 7 TIAT p. 215; 7 CR p. 217 #14; 8 CS p. 225; 12.1 BF p. 371; 13 CS p. 401; 13.2 pp. 412–415, p. 419, pp. 421–422; 13 LAD p. 425 #5; 13 Conn p. 414; 13.3 pp. 428–430, pp. 432–433; 13 ML p. 436 #4; 13 TIAT p. 437; 13 CR p. 439 #13, Math/ELA #2, #4; U4 Activity p. 441; 16.4 p. 535	13 CA #5, #14; CI 13A; CI 13B; U4 PT3 #3; U4 PT4 #1–4

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<p>SC.912.L.16.12* Describe how basic DNA technology (restriction digestion by endonucleases, gel electrophoresis, polymerase chain reaction, ligation, and transformation) is used to construct recombinant DNA molecules (DNA cloning).</p>	<p>13.1 pp. 402–406; 13.1 SR p. 409 #1–3; 13 CR pp. 438–439 #1–3, #10, Math/ELA #3, RP #1</p>	<p>13 CA #1, #2, #11–13; CI 13A</p>
<p>SC.912.L.16.13 Describe the basic anatomy and physiology of the human reproductive system. Describe the process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.</p>	<p>10.2 p. 303; Appendix G pp. 575–581; Appendix G Apply #1–3</p>	
<p>SC.912.L.16.14 Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction.</p>	<p>7.1 pp. 198–200; 7.1 SR p. 202 #2, #4; 7.2 pp. 204–205, p. 207; 7.2 SR p. 207 #3; 7 ML p. 208; 7 CR pp. 216–217 #2, #6, #7, #4, #11–13, Math/ELA #1, #2; 9.3 p. 279; 11.2 p. 346; 12.1 p. 370; 12.1 SR p. 376 #1</p>	<p>7 CA #1–3, #5, #7–9, #13, #14, #16; CI 7A; 12 CA #16</p>
<p>SC.912.L.16.15* Compare and contrast binary fission and mitotic cell division.</p>	<p>7.1 pp. 198–199; 7 CR p. 216 #1, #3</p>	<p>7 CA #1</p>
<p>SC.912.L.16.16 Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.</p>	<p>12.1 pp. 372–376; 12.1 SR p. 376 #2; 12 CR pp. 398–399 #3, #10, Math/ELA #1; 15.2 p. 487</p>	<p>12 CA #2, #3, #13; CI 12B</p>
<p>SC.912.L.16.17 Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.</p>	<p>7.1 pp. 198–200; 7.2 pp. 204–207; 7 ML p. 208 procedure; 9.3 p. 285; 9 CR pp. 294–295 #12, Math/ELA #3, #4; 12.1 pp. 370–371, pp. 373–376; 12.1 SR p. 376 #1, #3; 12 CR pp. 398–399 #2, #14; 14 CR p. 475 #10</p>	<p>9 CA #11; 10 CA #5; 12 CA #4, #14, #15</p>
<p>SC.912.L.17.2 Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.</p>	<p>2.2 pp. 48–53; 2.2 SR p. 53 #2, #3; 2 CR p. 75 #12; 3 ML p. 94 #4</p>	<p>CI 1A</p>

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SC.912.L.17.4 Describe changes in ecosystems resulting from seasonal variations, climate change and succession.	1.2 pp. 10–11; 1 CR p. 35 #9; 2 Explorer p. 58; 2.4 p. 62; 2.5 p. 70; 3.3 p. 88, pp. 91–93; 3.3 SR p. 93 #3, #4; 3 TIAT p. 95 #1–3; 3 CR p. 96 #6, #8, #9; 9.4 p. 290; 12 Explorer p. 377; 12.4 p. 394; 14.1 p. 449; 15.2 p. 492; 16 Explorer p. 519; 16.3 p. 524; 16 CR p. 539 #12; U5 Activity p. 541	3 CA #9–11, #17; U1 PT3 #1–4; U1 PT4 #1–3; U1 PT5 #1–4; U4 PT4 #1; U5 PT3 #1–4; U5 PT5 #1–4
SC.912.L.17.5 Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.	2.1 SR p. 45 #2; 2 LAD p. 72 #2, #3; 4.1 pp. 100–101, p. 103; 4.1 SR p. 103 #1–4; 4 ML p. 104 #1; 4.2 pp. 105–107; 4.2 SR p. 109 #1–4; 4 Explorer p. 110; 4.3 pp. 111–114; 4.3 SR p. 115 #1–4; 4 LAD p. 118 #1–5; 4 CR pp. 120–121 #1–10, #12–19, Math/ELA #1–6, RP #1, #2; U1 Activity p. 123; 16.3 pp. 520–521	4 CA #1–12; CI 4A; U1 PT4 #1–3; U1 PT5 #1–4
SC.912.L.17.8 Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.	2.1 p. 42; 2 Explorer p. 58; 2.4 SR p. 62 #3; 2.5 p. 66; 2 CR p. 75 #11; 3 CS p. 77; 3.3 pp. 88–90; 4.3 p. 113; 4 TIAT p. 119 #1–3; 16.2 pp. 512–513, pp. 516–518; 16.3 pp. 522–528; 16.3 SR p. 528 #3; 16.4 p. 531; 16 ML p. 536 #1–5; 16 CR pp. 538–539 #4, #13, RP #1	3 CA #8; CI 16B; U5 PT4 #1–5; U5 PT5 #1–4
SC.912.L.17.9 Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.	2.3 pp. 54–57; 2.3 SR p. 57 #1–4; 2.4 pp. 59–60; 2.4 SR p. 62 #1, #2, #4, #5; 2 ML p. 64 #1; 2 LAD p. 72 #1–3; 2 CR pp. 74–75 #2–6, #9, #11; U1 Activity p. 123	2 CA #1, #2, #11, #13
SC.912.L.17.11 Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.	1 Explorer p. 32; 2 CR p. 75 #10; 3.3 p. 89; 6 TIAT p. 193 #3; 16 CS p. 505; 16.2 p. 516; 16.3 pp. 520–521, p. 524, pp. 527–528; 16.4 pp. 531–532	
SC.912.L.17.13 Discuss the need for adequate monitoring of environmental parameters when making policy decisions.	2 LAD p. 72; 3 CS p. 77; 3 TIAT p. 95 #2; 16.2 p. 513, p. 516; 16.2 SR p. 518 #4; 16.3 p. 525; 16.4 p. 531; 16.4 SR p. 535 #3	
SC.912.L.17.16* Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.	1 CR p. 35 #12; 2.5 p. 70; 3.3 p. 89; 3.3 SR p. 93 #1; 4.3 p. 114; 14 LAD p. 463 #4; 16.3 pp. 522–523, p. 525; 16.4 p. 531	2 CA #8, #10; 16 CA #7

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SC.912.L.17.20 Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.	1 CR p. 35 #11, #12, Math/ELA #2; 3.3 p. 89; 4 TIAT p. 119 #1–3; 4 CR p. 121 RP #1, #2; 16.2 SR p. 518 #4; 16.3 pp. 520–521, pp. 523–528; 16.3 SR p. 528 #4; 16 LAD p. 529 #1–4; 16.4 pp. 530–534; 16 TIAT p. 537 #4; 16 CR p. 538 #8, #9	1 CA #14
SC.912.L.18.1 Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.	1 CR p. 35 #10; 5.3 pp. 144–150; 5.3 SR p. 150 #1–4; 5 CR pp. 162–163 #1–3, #12, #14; 6.2 p. 179, p. 182; 6 CR p. 194 #7, #9; Appendix C pp. 545–555	5 CA #4, #8, #13; U2 PT3 #1–4; CI 11A; U4 PT1 #3, #4
SC.912.L.18.2* Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things.	5.3 pp. 144–146; 5.4 pp. 153–154, pp. 156–157	
SC.912.L.18.3* Describe the structures of fatty acids, triglycerides, phospholipids, and steroids. Explain the functions of lipids in living organisms. Identify some reactions that fatty acids undergo. Relate the structure and function of cell membranes.	5.3 pp. 146–147; 5 CR p. 163 #12; 6.2 pp. 178–183	5 CA #14; U4 PT1 #3, #4
SC.912.L.18.4* Describe the structures of proteins and amino acids. Explain the functions of proteins in living organisms. Identify some reactions that amino acids undergo. Relate the structure and function of enzymes.	5.3 pp. 149–150; 5 Explorer p. 152; 5.4 pp. 157–158; 5.4 SR p. 159 #4; 5 CR pp. 162–163 #11, #15, Math/ELA #2, #3	5 CA #9, #10, #13, #15; CI 11A; CI 14A
SC.912.L.18.7 Identify the reactants, products, and basic functions of photosynthesis.	2.1 p. 45; 2.3 p. 54; 2.5 SR p. 71 #1; 6.3 pp. 185–186, pp. 190–191; 6.3 SR p. 191 #1, #2; 6 TIAT p. 193 #1, #2; 6 CR pp. 194–195 #5, #6, #17, Math/ELA #2; Appendix D pp. 560–561	6 CA #7, #11; U2 PT2 #1
SC.912.L.18.8 Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.	2.5 SR p. 71 #2; 5 CR p. 162 #10; 6.3 pp. 185–188; 6.3 SR p. 191 #1, #3, #4; 6 CR pp. 194–195 #5, #6, #8, #11, #15, #17; Appendix D pp. 556–559	6 CA #8, #12, #16, #17; CI 6A
SC.912.L.18.9 Explain the interrelated nature of photosynthesis and cellular respiration.	2.1 p. 45; 2.5 p. 67; 2.5 SR p. 71 #1; 2 CR p. 74 #8; 6.3 pp. 185–186; Appendix D pp. 556–561	
SC.912.L.18.10 Connect the role of adenosine triphosphate (ATP) to energy transfers within a cell.	6.3 pp. 186–191; Appendix D pp. 556–561	6 CA #9

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<p>SC.912.L.18.11 Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.</p>	<p>5.4 pp. 157–158; 5 LAD p. 160 #1; 5 CR p. 163 Math/ELA #2; 6.3 SR p. 191 #2</p>	<p>5 CA #9, #10, #15</p>
<p>SC.912.L.18.12 Discuss the special properties of water that contribute to Earth’s suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.</p>	<p>5.2 pp. 137–139; 5.2 SR p. 140 #1, #2, #4</p>	<p>5 CA #2, #6</p>
<p>SC.912.N.1.1 Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:</p> <ol style="list-style-type: none"> 1. Pose questions about the natural world, (Articulate the purpose of the investigation and identify the relevant scientific concepts). 2. Conduct systematic observations, (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines). 3. Examine books and other sources of information to see what is already known, 4. Review what is known in light of empirical evidence, (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models). 	<p>1.1 p. 4; 1.1 SR p. 7 #2; 1 ML p. 8; 1.2 pp. 12–15; 1.2 p. 14; 1.4 pp. 22–29; 1.4 SR p. 29 #1–3; 1 Explorer p. 32; 1 TIAT p. 33 #1, #2; 1 CR pp. 34–35 #2, #12, Math/ELA #3; 2.1 pp. 42–43; 2.2 p. 49; 2.3 p. 54; 2 Explorer p. 58; 2 ML p. 64; 2.5 p. 68; 2 CR p. 75 RP #2; 3.1 p. 78, p. 80; 3.1 SR p. 80 #1–3; 3 Explorer p. 81; 3.2 pp. 82–83; 3.2 SR p. 86 #1–3; 3 LAD p. 87 #1–4; 3.3 p. 90; 3.3 SR p. 93 #2; 3 ML p. 94 #1–5; 3 TIAT p. 95 #1, #3; 3 CR pp. 96–97 #1–5, #10–13, Math/ELA #1–3, RP #1, #2; 4.1 SR p. 103 #4; 4 ML p. 104; 4.2 SR p. 109 #4; 4 Explorer p. 110; 4.3 SR p. 115 #3, #4; 4 LAD p. 118 #2, #3; 4 TIAT p. 119 #1–3; 4 CR pp. 120–121 #11, #18, #19; 5.1 p. 136; 5.2 p. 138; 5.2 SR p. 140 #3; 5 ML p. 141 #1–4; 5.3 pp. 143–144, p. 147; 5.3 SR p. 150 #3; 5 Explorer p. 152; 5.4 p. 155, pp. 157–158; 5 TIAT p. 161 #1; 5 CR pp. 162–163 #4, #8, #9, #12–15, Math/ELA #4, RP #1, #2; 6.1 p. 174; 6 ML p. 184; 6 CR p. 195, Math/ELA #4, RP #2; 7.1 p. 199; 7 LAD p. 203 #3; 7 ML p. 208; 7 CR p. 217 #11, #13, RP #1, #2; 8.1 SR p. 233 #1; 8 ML p. 242; 8 LAD p. 251 #1, #2, #5; 8 Explorer p. 260; 8 TIAT p. 261 #1–3; 8 CR p. 263 #13, Math/ELA #1, #2; 9 ML p. 272; 9 Explorer p. 286; 9 TIAT p. 293 #1, #3; 9 CR p. 295 #16, Math/ELA #1, #5, RP #2; 10 ML p. 307; 10.3 p. 310, p. 312; 10 LAD p. 313 #1–4; 10 TIAT p. 325 #1, #2, #4; 10 CR p. 327 #11, Math/ELA #2–4, RP #1, #2; 11.1 p. 340; 11 Explorer p. 344; 11 ML p. 354; 11 LAD p. 362 #1–4; 11 TIAT p. 363 #1;</p>	<p>1 CA #14; CI 1A; CI 1B; CI 2A; CI 2B; 3 CA #7, #8, #15; CI 3A; CI 3B; 4 CA #10–12; CI 4A; CI 4B; U1 PT3 #1, #3, #4; U1 PT4 #3; 5 CA #6, #7, #11–15; CI 5A; CI 5B; CI 6A; CI 6B; 7 CA #4, #14–18; CI 7A; CI 7B; 8 CA #13, #18; CI 8A; CI 8B; 9 CA #15, #17, #18; CI 9A; CI 9B; 10 CA #11–13; CI 10A; CI 10B; U3 PT1 #1, #4; U3 PT2 #1, #3; U3 PT3 #1–3; 11 CA #17; CI 11A; CI 11B; 12 CA #17; CI 12A; CI 12B; 13 CA #12, #13; CI 13A; CI 13B; U4 PT1 #1–4; U4 PT2 #1–4; U4 PT3 #1–3; U4 PT4 #1–4; CI 14A; CI 14B; 15 CA #12–14; CI 15A; CI 15B; 16 CA #13–17; CI 16A; CI 16B; U5 PT1 #1–4; U5 PT2 #1–4; U5 PT3 #1–4;</p>

STANDARD	STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>5. Plan investigations, (Design and evaluate a scientific investigation).</p> <p>6. Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs), (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).</p> <p>7. Pose answers, explanations, or descriptions of events,</p> <p>8. Generate explanations that explicate or describe natural phenomena (inferences),</p> <p>9. Use appropriate evidence and reasoning to justify these explanations to others,</p> <p>10. Communicate results of scientific investigations, and</p> <p>11. Evaluate the merits of the explanations produced by others.</p>	<p>11 CR p. 365 Math/ELA #4, RP #2; 12 ML p. 396; 12 CR p. 399 #11; 13.2 p. 413, p. 417; 13.3 p. 428; 13 ML p. 436; 13 TIAT p. 437 #1; 13 CR p. 439 #11, #12, #14, RP #2; 14.1 SR p. 453 #1; 14 ML p. 454; 14 LAD p. 463 #1, #2; 14 Explorer p. 472; 14 CR p. 475 RP #2; 15 ML p. 486; 15 LAD p. 495 #5, #6; 15 CR p. 503 #10–13, Math/ELA #3, RP #2; 16.2 p. 512; 16.3 p. 522; 16 LAD p. 529 #1–3; 16 ML p. 536; 16 CR p. 539 #12, #13, RP #2; Appendix A pp. 543–549; Appendix B pp. 550–551</p>	<p>U5 PT4 #1–5; U5 PT5 #1–4</p>
<p>SC.912.N.1.3 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.</p>	<p>1.2 p. 12, pp. 14–15; U1 Activity p. 123; 6 ML p. 184 #4; U2 Activity p. 219; 10 CR p. 327 Math/ELA #1; U3 Activity p. 329; U4 Activity p. 441; U5 Activity p. 541</p>	<p>CI 7A; CI 7B; CI 8A; CI 8B; CI 9B; U5 PT3 #1–4</p>
<p>SC.912.N.1.4 Identify sources of information and assess their reliability according to the strict standards of scientific investigation.</p>	<p>1.2 p. 12, pp. 14–15; 3 TIAT p. 95 #1; 5 CR p. 163 Math/ELA #4; 8 TIAT p. 261 #1</p>	
<p>SC.912.N.1.6 Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.</p>	<p>1 ML p. 8 #2; 1.2 p. 12; 5.1 BF p. 131; 14.1 p. 450; 15.1 p. 481</p>	<p>CI 1A; CI 3B</p>

STANDARD	STUDENT/TEACHER EDITION	ONLINE RESOURCES
SC.912.N.2.1 Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).	1.2 p. 12, pp. 14–15; 11 TIAT p. 363 #1	
SC.912.N.2.2 Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.	1.2 p. 12, p. 15	
SC.912.N.2.4* Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scientific knowledge becomes stronger, leading to its durability.	1.2 pp. 14–15; 1 CR p. 35 #10; 3.2 p. 82; 3 TIAT p. 95 #2; 8.1 p. 226 #2; 8 CR p. 263 Math/ELA #3; 11.1 pp. 336–337; 11 CR p. 365 #15, Math/ELA #4; 15.1 p. 479; 15.3 p. 496	11 CA #2, #14
SC.912.N.3.1 Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have to offer.	1.2 p. 14; 1.2 SR p. 15 #4	
SC.912.N.3.4 Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.	1.2 p. 14; 1.2 SR p. 15 #4	
SC.912.P.8.7* Interpret formula representations of molecules and compounds in terms of composition and structure.	5.1 pp. 133–134; 5.1 SR p. 136 #2; 5.3 pp. 143–149; 5 CR p. 163 #13, #14	
SC.912.P.10.1* Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	2.1 pp. 44–45; 2.1 SR p. 45 #4; 2.3 pp. 54–55; 2.4 p. 60; 2 CR p. 75 #13; U1 Activity p. 123; 5.4 pp. 155–156	

Additional Standards for Biology 1

The following table includes **Florida’s Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards, Health Education (HE) Standards,** and the **English Language Development (ELD) Standards** associated with Biology 1.

BIOLOGY 1	
STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>MA.K12.MTR.1.1 Actively participate in effortful learning both individually and collectively. Mathematicians who participate in effortful learning both individually and with others:</p> <ul style="list-style-type: none"> Analyze the problem in a way that makes sense given the task. Ask questions that will help with solving the task. Build perseverance by modifying methods as needed while solving a challenging task. Stay engaged and maintain a positive mindset when working to solve tasks. Help and support each other when attempting a new method or approach. <p>Clarifications: Teachers who encourage students to participate actively in effortful learning both individually and with others:</p> <ul style="list-style-type: none"> Cultivate a community of growth mindset learners. Foster perseverance in students by choosing tasks that are challenging. Develop students’ ability to analyze and problem solve. Recognize students’ effort when solving challenging problems. 	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to participate in effortful learning.</i> <i>For example:</i></p> <p>1 ML p. 8 #3; 1.3 pp. 18–21; 1.4 pp. 22–23; 1.4 SR p. 29 #2; 1 LAD p. 31 #6; 1 Explorer p. 32; 2 LAD p. 72 #8; 2 CR p. 75 RP #2; 3 LAD p. 87 #4–5; 3 ML p. 94 #5; 4.1 pp. 100–101; 4.1 SR p. 103 #4; 4 ML p. 104 #5; 4 TIAT p. 119 #3; 4 CR p. 121 #14; U1 Activity p. 123; 5 LAD p. 160 #5; 6 TIAT p. 193 #1; 6 CR p. 195 RP #2; U2 Activity p. 219; 9 LAD p. 292 #3, #7; 9 TIAT p. 293 #3; 10 CR p. 327 RP #2; U3 Activity p. 331; 11 LAD p. 364 #4; 12 CR p. 401 Math/ELA #5; 13 ML p. 438 #4; 13 TIAT p. 439 #1–4; 13 CR p. 441 #14; U4 Activity p. 441; 15 LAD p. 495 #1–#4; 15 CR p. 503 Math/ELA #3; 16.2 SR p. 518 #4; 16 LAD p. 529 #3; 16 CR p. 539 Math/ELA #1, RP #2; U5 Activity p. 541</p>	<p>CI 1A; CI 2A; CI 2B; CI 3B; CI 4B; U1 PT5 #1–3; CI 5B; CI 6B; CI 8A; CI 8B; CI 9B; CI 10A; 10 CA #13; U3 PT3 #1–3; 13 CA #15; U4 PT2 #3; U4 PT4 #3; CI 16B; U5 PT2 #1–4; U5 PT3 #1; U5 PT4 #1, #4; U5 PT5 #2</p>

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>MA.K12.MTR.2.1 Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:</p> <ul style="list-style-type: none"> • Build understanding through modeling and using manipulatives. • Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations. • Progress from modeling problems with objects and drawings to using algorithms and equations. • Express connections between concepts and representations. • Choose a representation based on the given context or purpose. <p>Clarifications: Teachers who encourage students to demonstrate understanding by representing problems in multiple ways:</p> <ul style="list-style-type: none"> • Help students make connections between concepts and representations. • Provide opportunities for students to use manipulatives when investigating concepts. • Guide students from concrete to pictorial to abstract representations as understanding progresses. • Show students that various representations can have different purposes and can be useful in different situations. 	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to represent problems in multiple ways. For example:</i></p> <p>1 LAD p. 31 #2, #5; 1 CR p. 35 Math/ELA #3; 2 ML p. 64 #1, #2; 2.5 p. 67; 2.5 SR p. 71 #4; 2 CR p. 75 #12, Math/ELA #1, #2, #4; 3 LAD p. 87 #5; 3 ML p. 94 #5; 4.1 p. 101; 4 ML p. 104 #1–4; 4.2 SR p. 109 #3; 4.3 SR p. 115 #2; 4 LAD p. 118 #1, #3–5; 4 CR pp. 120–121 #1, #2, Math/ELA #2–4, #6; 5.1 p. 134; 5.1 SR p. 136 #1, #4; 5.3 SR p. 150 #4; 5.4 p. 154; 5.4 SR p. 159 #1, #3; 5 CR pp. 162–163 #7, Math/ELA #1, #3; 6 LAD p. 175 #3; 6.3 SR p. 191 #4; 6 CR p. 195 Math/ELA #2; 7.1 SR p. 202 #1; 7 ML p. 208 #1; 7 CR p. 217 #12, Math/ELA #1; 9 LAD p. 292 #1–7; 9 CR p. 295 Math/ELA #1, #5; 10.2 p. 304; 10.2 SR p. 306 #1; 10 ML p. 307 #1; 10 LAD p. 313 #2; 10 TIAT p. 325 #4; 10 CR p. 327 Math/ELA #3; 11 ML p. 354 #1–4; 14.2 p. 459; 11 LAD p. 362 #1, #2; 11 TIAT p. 363 #2, #3; 11 CR p. 365 Math/ELA #2, #3; 12 LAD p. 390 #2; 12 TIAT p. 397 #2; 13 CR p. 439 Math/ELA #1, #3; 16 ML p. 536 #2; 16 TIAT p. 537 #1</p>	<p>CI 4A; U1 PT1 #3; U1 PT2 #3; U1 PT4 #2; 6 CA #13, #15; CI 6A; 7 CA #5, #7; CI 7A; CI 7B; CI 8B; CI 9B; 10 CA #1; CI 10A; CI 10B; U3 PT1 #4; U3 PT2 #2, #3; U3 PT3 #3; CI 11A; CI 12A; CI 12B; 13 CA #11; U4 PT1 #4; U4 PT2 #4; U4 PT3 #1, #2; U4 PT4 #3, #4; 14 CA #3; 15 CA #6; CI 16B; CI 16A; U5 PT5 #3, #4</p>
<p>MA.K12.MTR.3.1 Complete tasks with mathematical fluency. Mathematicians who complete tasks with mathematical fluency:</p> <ul style="list-style-type: none"> • Select efficient and appropriate methods for solving problems within the given context. • Maintain flexibility and accuracy while performing procedures and mental calculations. • Complete tasks accurately and with confidence. • Adapt procedures to apply them to a new context. • Use feedback to improve efficiency when performing calculations. <p>Clarifications: Teachers who encourage students to complete tasks with mathematical fluency:</p> <ul style="list-style-type: none"> • Provide students with the flexibility to solve problems by selecting a procedure that allows them to solve efficiently and accurately. • Offer multiple opportunities for students to practice efficient and generalizable methods. • Provide opportunities for students to reflect on the method they used and determine if a more efficient method could have been used. 	

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>National Geographic Biology <i>includes opportunities throughout the program for students to exhibit mathematical fluency.</i> For example: 1 LAD p. 31 #1, #3, #5; 2.4 p. 60; 2 CR p. 75 Math/ELA #1; 12.3 SR p. 389 #1; 12.4 SR p. 395 #2; 12 ML p. 396 #1–3; 12 CR p. 399 Math/ELA #5; 13 ML p. 436 #1; 13 CR p. 439 Math/ELA #1; 14.2 SR p. 462 #2; 15 ML p. 486 #1, #2; 15.2 p. 488; 15 LAD p. 495 #1–3; 15 CR p. 503 Math/ELA #4</p>	<p>2 CA #6, #14; CI 4A; U1 PT1 #1; 5 CA #5, #12; 7 CA #9; CI 7A</p>
<p>MA.K12.MTR.4.1 Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:</p> <ul style="list-style-type: none"> • Communicate mathematical ideas, vocabulary and methods effectively. • Analyze the mathematical thinking of others. • Compare the efficiency of a method to those expressed by others. • Recognize errors and suggest how to correctly solve the task. • Justify results by explaining methods and processes. • Construct possible arguments based on evidence. <p>Clarifications: Teachers who encourage students to engage in discussions that reflect on the mathematical thinking of self and others:</p> <ul style="list-style-type: none"> • Establish a culture in which students ask questions of the teacher and their peers, and error is an opportunity for learning. • Create opportunities for students to discuss their thinking with peers. • Select, sequence and present student work to advance and deepen understanding of correct and increasingly efficient methods. • Develop students’ ability to justify methods and compare their responses to the responses of their peers. 	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to discuss their mathematical thinking.</i> For example: 1 LAD p. 31 #6; 3 LAD p. 87 #5; 3 CR p. 97 Math/ELA #2; 5 CR p. 163 Math/ELA #3; 7 LAD p. 203 #1–4; 7 CR p. 217 Math/ELA #2; 8 LAD p. 251 #6; 9 LAD p. 292 #3, #7; 10 LAD p. 313 #3; 11 LAD p. 364 #4; 11 CR p. 367 Math/ELA #3, #5; 12 CR p. 401 Math/ELA #1, #5; 14 LAD p. 463 #3–4; 15 LAD p. 495 #1–4; 15 CR p. 503 Math/ELA #3; 16 LAD p. 529 #3</p>	<p>CI 1A; U1 PT1 #3–4; U1 PT4 #3; CI 2A; CI 2B; CI 3A; CI 4A; CI 10A; U4 PT3 #1–2; U5 PT2 #1, #3; U5 PT4 #1, #3</p>

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>MA.K12.MTR.5.1 Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts:</p> <ul style="list-style-type: none"> • Focus on relevant details within a problem. • Create plans and procedures to logically order events, steps or ideas to solve problems. • Decompose a complex problem into manageable parts. • Relate previously learned concepts to new concepts. • Look for similarities among problems. • Connect solutions of problems to more complicated large-scale situations. <p>Clarifications: Teachers who encourage students to use patterns and structure to help understand and connect mathematical concepts:</p> <ul style="list-style-type: none"> • Help students recognize the patterns in the world around them and connect these patterns to mathematical concepts. • Support students to develop generalizations based on the similarities found among problems. • Provide opportunities for students to create plans and procedures to solve problems. • Develop students’ ability to construct relationships between their current understanding and more sophisticated ways of thinking. 	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to use patterns and structure.</i> <i>For example:</i> 1 LAD p. 31 #4, #6; 2.4 SR p. 62 #1, #4; 2 ML p. 64 #1–4; 2 LAD p. 72 #1, #4–7; 2 CR p. 74 #7; 3.2 SR p. 86 #3; 3 LAD p. 87 #1–5; 3 ML p. 94 #5; 3 CR p. 97 Math/ELA #1; 8 LAD p. 251 #1, #3, #4; 10 LAD p. 313 #1; 10 TIAT p. 325 #3; 10 CR p. 327 Math/ELA #3, #4; 11 LAD p. 362 #3, #4; 11 CR p. 365 Math/ELA #1, #5; 14 CR p. 475 Math/ELA #1, #2</p>	<p>2 CA #6, #11–14; 8 CA #18; CI 9B; 10 CA #13; CI 10B; U3 PT2 #3; U3 PT3 #3; U4 PT3 #3; U4 PT4 #3; CI 14A; U5 PT2 #1–4; U5 PT4 #4</p>
<p>MA.K12.MTR.6.1 Assess the reasonableness of solutions. Mathematicians who assess the reasonableness of solutions:</p> <ul style="list-style-type: none"> • Estimate to discover possible solutions. • Use benchmark quantities to determine if a solution makes sense. • Check calculations when solving problems. • Verify possible solutions by explaining the methods used. • Evaluate results based on the given context. <p>Clarifications: Teachers who encourage students to assess the reasonableness of solutions:</p> <ul style="list-style-type: none"> • Have students estimate or predict solutions prior to solving. • Prompt students to continually ask, “Does this solution make sense? How do you know?” • Reinforce that students check their work as they progress within and after a task. • Strengthen students’ ability to verify solutions through justifications. 	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to assess reasonableness of solutions.</i> <i>For example:</i> 1 ML p. 8 #3; 1.3 p. 19, pp. 20–21; 1 CR p. 35 Math/ELA #4, #5; 3 LAD p. 87 #1–#2, #5; 4.1 pp. 100–101; 4.1 SR p. 103 #4; 4 ML p. 104 #1–#5; 4 TIAT p. 119 #3; 4 CR p. 121 #14; 9 TIAT p. 293 #3; 14.2 p. 460; 15 LAD p. 495 #1–#4; 16 CR p. 539 Math/ELA #1; Appendix B pp. 550–551</p>	<p>CI 1B; U1 PT1 #1; U1 PT3 #1, #4; U1 PT4 #2; CI 2A; CI 2B; CI 4A; CI 12B; U5 PT4 #1; U5 PT5 #1–4</p>

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>MA.K12.MTR.7.1 Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:</p> <ul style="list-style-type: none"> • Connect mathematical concepts to everyday experiences. • Use models and methods to understand, represent and solve problems. • Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency. <p>Clarifications: Teachers who encourage students to apply mathematics to real-world contexts:</p> <ul style="list-style-type: none"> • Provide opportunities for students to create models, both concrete and abstract, and perform investigations. • Challenge students to question the accuracy of their models and methods. • Support students as they validate conclusions by comparing them to the given situation. • Indicate how various concepts can be applied to other disciplines. 	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to apply mathematics to real-world contexts. For example:</i></p> <p>1 LAD p. 31 #1–6; 1 CR p. 34 #3; 2.1 SR p. 45 #3; 2.4 p. 62; 2.4 SR p. 62 #4; 2 ML p. 64 #3, #4; 2.5 p. 67; 2 LAD p. 72 #4, #5, #7, #8; 2 TIAT p. 73 #1–3; 2 CR p. 74 #7; 3 LAD p. 87 #1–4; 3 CR p. 97 Math/ELA #2, #3; 4 ML p. 104 #5; 4.3 SR p. 115 #2; 4 CR p. 121 Math/ELA #2–4, #6; 5.1 p. 132, p. 134; 5.1 SR p. 136 #1; 6 LAD p. 175 #1, #2; 6.3 pp. 190–191; 7.1 SR p. 202 #2; 7.2 SR p. 207 #1; 8 LAD p. 251 #1; 8 TIAT p. 261 #2; 8 CR p. 263 Math/ELA #2; 9.1 p. 270; 9 LAD p. 292 #1–7; 9 TIAT p. 293 #2; 10.1 SR p. 301 #3; 10.2 p. 304; 10.2 SR p. 306 #1; 10 ML p. 307 #1–3; 10.3 p. 310; 10 LAD p. 313 #3, #4; 10 TIAT p. 325 #2–4; 11.1 p. 341; 11.2 p. 347, p. 351; 11 ML p. 354 #1–3; 11.3 p. 356, p. 359; 11 LAD p. 362 #4; 11 TIAT p. 363 #2, #3; 11 CR p. 365 Math/ELA #5, RP #1; 12 LAD p. 390 #1; 12.4 p. 394; 12 ML p. 396 #4; 13 ML p. 436 #1–4; 14 ML p. 454 #2, #3; 14 TIAT p. 473 #3</p>	<p>CI 2A; CI 4A; U1 PT4 #1; U2 PT1 #3; U2 PT2 #2–4; CI 7A; CI 7B; 8 CA #18; CI 8A; CI 8B; CI 9A; CI 9B; CI 10A; CI 10B; U3 PT1 #2–4; U3 PT2 #2, #3; U3 PT3 #2, #3; 11 CA #15; CI 11A; 12 CA #7, #9, #18; CI 12A; CI 12B; U4 PT1 #1–4; U4 PT2 #3; U4 PT3 #1, #2; U4 PT4 #2–4; CI 16A; CI 16B; U5 PT4 #4; U5 PT5 #3</p>
<p>ELA.K12.EE.1.1 Cite evidence to explain and justify reasoning.</p> <p>Clarifications: K-1 Students include textual evidence in their oral communication with guidance and support from adults. The evidence can consist of details from the text without naming the text. During 1st grade, students learn how to incorporate the evidence in their writing. 2-3 Students include relevant textual evidence in their written and oral communication. Students should name the text when they refer to it. In 3rd grade, students should use a combination of direct and indirect citations. 4-5 Students continue with previous skills and reference comments made by speakers and peers. Students cite texts that they’ve directly quoted, paraphrased, or used for information. When writing, students will use the form of citation dictated by the instructor or the style guide referenced by the instructor. 6-8 Students continue with previous skills and use a style guide to create a proper citation. 9-12 Students continue with previous skills and should be aware of existing style guides and the ways in which they differ.</p>	

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>National Geographic Biology <i>includes opportunities throughout the program for students to cite evidence and justify reasoning. For example:</i></p> <p>1 CR p. 35 #9; 2.3 p. 54; 2.4 p. 60; 2 LAD p. 72 #6; 2 TIAT p. 73 #3; 2 CR pp. 74–75 #8, #9, Math/ELA #3; 4 TIAT p. 119 #3; 4 CR p. 121 #13, Math/ELA #1, #5; 5.1 p. 136; 5 ML p. 141 #1; 5.3 p. 143; 5.4 p. 155; 5 TIAT p. 161 #3; 5 CR pp. 162–163 #8, #15, Math/ELA #4; 6 CR p. 195 Math/ELA #4; 7 LAD p. 203 #3; 7 ML p. 208 #3, #4; 7.3 SR p. 212 #2; 7 CR p. 217 Math/ELA #3; 10.4 p. 322; 10 CR p. 327 Math/ELA #1, #2, RP #1, #2; 9 TIAT p. 357 #3; 9 CR p. 359 Math/ELA #2–5; 12 CR p. 399 Math/ELA #2; 13 LAD p. 425 #4; 14 CR p. 475 Math/ELA #3; 15.1 pp. 482–483; 15 LAD p. 495 #4; 15 TIAT p. 501 #1; 15 CR p. 503 Math/ELA #1, #2; 16.1 p. 509; 16.2 SR p. 518 #1; 16 LAD p. 529 #3; 16 CR p. 539 Math/ELA #2, #3</p>	<p>CI 1A; CI 2A; CI 2B; CI 3A; CI 3B; 4 CA #10; U1 PT1 #4; U1 PT2 #2–4; U1 PT4 #3; 5 CA #11; U2 PT1 #1, #2; U2 PT2 #4; CI 10A; U3 PT3 #2; CI 11B; CI 12B; CI 13A; U4 PT2 #2, #4; U4 PT3 #3; CI 14A; CI 14B; CI 15A; CI 15B; 16 CA #20; CI 16A; U5 PT1 #1–4; U5 PT2 #1–4; U5 PT3 #1, #2; U5 PT4 #1–3, #5; U5 PT5 #1–4</p>
<p>ELA.K12.EE.2.1 Read and comprehend grade-level complex texts proficiently.</p> <p>Clarifications: See Text Complexity for grade-level complexity bands and a text complexity rubric. https://cpalmsmediaproduct.blob.core.windows.net/uploads/docs/standards/best/la/appendixb.pdf</p>	
<p>National Geographic Biology <i>is medium-to-high text complexity. It includes opportunities throughout the program for students to demonstrate that they can read and comprehend the text proficiently. For example:</i></p> <p>1.2 SR p. 15 #4; 2.1 SR p. 45 #4; 2.3 SR p. 57 #2; 2.5 SR p. 71 #3; 2 CR p. 75 #13, 3.2 SR p. 86 #2; 4.2 SR p. 109 #1; 4 CR p. 121 #13; 5.1 SR p. 136 #3; 6.2 SR p. 183 #2; 6 TIAT p. 192 #2; 6 CR p. 539 Math/ELA #4; 7.1 SR p. 202 #3; 7 CR p. 216 #13; 8.1 SR p. 233 #4; 9 CR p. 295 #17; 10.1 SR p. 301 #4; 10 CR p. 327 #12; 11.3 SR p. 363 #3; 11 CR p. 367 #15; 12.4 SR p. 397 #2; 12 CR p. 401 #13, Math/ELA #4; 14.3 SR p. 471 #2; 14 CR p. 475 #13; 15.3 SR p. 499 #3; 15 CR p. 503 Math/ELA #1; 16.2 SR p. 518 #2; 16.4 SR p. 55 #1</p>	<p>U1 PT1 #2; U1 PT2 #1; U1 PT3 #2–4; U2 PT1 #1, #2; U2 PT2 #2; 10 CA #11, #12; U5 PT3 #2</p>
<p>ELA.K12.EE.3.1 Make inferences to support comprehension.</p> <p>Clarifications: Students will make inferences before the words infer or inference are introduced. Kindergarten students will answer questions like “Why is the girl smiling?” or make predictions about what will happen based on the title page. Students will use the terms and apply them in 2nd grade and beyond.</p>	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to make inferences. For example:</i></p> <p>1.2 p. 12; 1.4 SR p. 29 #3; 5.2 p. 137; 5.3 p. 141; 7.2 p. 204; 7 Explorer, p. 214; 7 CR p. 217 #11, Math/ELA #2; U3 Explorer p. 222; 8 ML p. 242 #3; 8 CR p. 262 #9; 9 ML p. 272 #2–3; 9.3 p. 279; 10 Explorer p. 324; 11 CR p. 367 Math/ELA #3; U5 Explorer p. 444; 14.2 p. 455; 14 LAD p. 463 #4; 15 LAD p. 495 #6; 15 Explorer p. 500</p>	<p>CI 1A; CI 3A; U1 PT 2 #2; 3 CA #15; CI 5B; 6 CA #17; CI 7B; 7 CA #13–15; CI 8A; CI 9A; 9 CA #14; 10 CA #13; 12 CA #15; U4 PT3 #2; 14 CA #14; CI 15A; CI 15B; 15 CA #11; 16 CA #13, #15; U5 PT3 #1; U5 PT4 #1</p>

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>ELA.K12.EE.4.1 Use appropriate collaborative techniques and active listening skills when engaging in discussions in a variety of situations.</p> <p>Clarifications: In kindergarten, students learn to listen to one another respectfully. In grades 1-2, students build upon these skills by justifying what they are thinking. For example: “I think _____ because _____.” The collaborative conversations are becoming academic conversations. In grades 3-12, students engage in academic conversations discussing claims and justifying their reasoning, refining and applying skills. Students build on ideas, propel the conversation, and support claims and counterclaims with evidence.</p> <p>National Geographic Biology <i>includes opportunities throughout the program for students to collaborate and engage in active listening. For example:</i> 1.2 p. 15; 1 Explorer p. 32; U1 Explorer pp. 38–39; 4 On Assignment pp. 116–117; U1 Activity p. 123; U2 Explorer pp. 126–127; 5 LAD p. 160 #5; U2 Activity p. 219; U3 Explorer pp. 222–223; 8 On Assignment p. 259; U3 Activity p. 331; 11 On Assignment p. 347; 13 TIAT p. 439 #1–4; U4 Explorer pp. 332–333; U4 Activity p. 441; U5 Explorer pp. 444–445; 16 On Assignment pp. 514–515; U5 Activity p. 541; Appendix A p. 545 #1–4</p>	<p>CI 1B; CI 2B; CI 4B; U1 PT5 #3; CI 6B; U2 PT2 #3; U2 PT3 #2, #4; CI 8B; CI 10A; CI 10B; U3 PT2 #3; CI 12A; CI 16B; U5 PT5 #2–4</p>
<p>ELA.K12.EE.5.1 Use the accepted rules governing a specific format to create quality work.</p> <p>Clarifications: Students will incorporate skills learned into work products to produce quality work. For students to incorporate these skills appropriately, they must receive instruction. A 3rd grade student creating a poster board display must have instruction in how to effectively present information to do quality work.</p>	
<p>National Geographic Biology <i>includes opportunities throughout the program for students to use accepted rules to create quality work. For example:</i> 1 CR p. 35 Math/ELA #3; 2 CR p. 75 Math/ELA #4; 4 CR p. 121 Math/ELA #1, #2, #5; U1 Activity p. 123; 5 TIAT p. 161 #2; 5 CR p. 163 Math/ELA #2; 7 ML p. 208 #3; 7 TIAT p. 215 #3; 7 CR p. 217 Math/ELA #4; U2 Activity p. 219; 8 TIAT p. 261 #3; 9 TIAT p. 293 #2; 10 TIAT p. 325 #4; 10 CR p. 327 Math/ELA #4; U3 Activity p. 331; 11 CR p. 387 Math/ELA #5; 12 CR p. 401 Math/ELA #4; 13 TIAT p. 439 #1–4; U4 Activity p. 441; 14 TIAT p. 473 #3; 14 CR p. 474 #3; 15 CR p. 503 Math/ELA #2–3; 16 CR p. 339 Math/ELA #1; U5 Activity p. 541</p>	<p>CI 1B; U1 PT1 #4; U1 PT2 #4; U1 PT3 #4; U1 PT5 #3; CI 6B; CI 7B; U2 PT1 #4; U2 PT3 #4; U3 PT1 #4; U3 PT3 #3; U4 PT1 #4; U4 PT2 #4; U4 PT3 #3; U5 PT1 #4; U5 PT2 #4; U5 PT3 #4; U5 PT4 #5; U5 PT5 #4</p>
<p>ELA.K12.EE.6.1 Use appropriate voice and tone when speaking or writing.</p> <p>Clarifications: In kindergarten and 1st grade, students learn the difference between formal and informal language. For example, the way we talk to our friends differs from the way we speak to adults. In 2nd grade and beyond, students practice appropriate social and academic language to discuss texts.</p>	

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>National Geographic Biology <i>includes opportunities throughout the program for students to use appropriate voice and tone when speaking or writing. For example:</i></p> <p>1 Explorer p. 32; 1 LAD p. 31 #6; 1.2 p. 15; 1 CR p. 35 Math/ELA #3; U1 Explorer pp. 38–39; 2 CR p. 75 Math/ELA #4; 3 LAD p. 87 #5; 3 CR p. 97 Math/ELA #2; 4 On Assignment pp. 116–117; 4 CR p. 121 Math/ELA #1, #2, #5; U1 Activity p. 123; U2 Explorer pp. 126–127; 5 LAD p. 160 #5; 5 TIAT p. 161 #2; 5 CR p. 163 Math/ELA #2–3; 7 LAD p. 203 #1–#4; 7 ML p. 208 #3; 7 TIAT p. 215 #3; 7 CR p. 217 Math/ELA #2, #4; U2 Activity p. 219; U3 Explorer pp. 222–223; 8 LAD p. 251 #6; 8 On Assignment p. 259; 8 TIAT p. 261 #3; 9 LAD p. 292 #3, #7; 9 TIAT p. 293 #2; 10 LAD p. 313 #3; 10 TIAT p. 325 #4; 10 CR p. 327 Math/ELA #4; U3 Activity p. 331; U4 Explorer pp. 332–333; 11 On Assignment p. 347; 11 LAD p. 364 #4; 11 CR p. 367 Math/ELA #3, #5; 12 CR p. 401 Math/ELA #1, #4–5; U4 Activity p. 441; U5 Explorer pp. 444–445; 14 LAD p. 463 #3–#4; 14 TIAT p. 473 #3; 14 CR p. 474 #3; 15 LAD p. 495 #1–#4; 15 CR p. 503 Math/ELA #2–3; 16 On Assignment pp. 514–515; 16 LAD p. 529 #3; 16 CR p. 339 Math/ELA #1; U5 Activity p. 541; Appendix A p. 545 #1–#4</p>	<p>CI 1B; CI 2B; 1 CA #13; 3 CA #17; CI 4B; U1 PT1 #3–4; U1 PT2 #4; U1 PT3 #4; U1 PT4 #3; U1 PT5 #3; CI 6B; 6 CA #13; U2 PT1 #4; U2 PT2 #3; U2 PT3 #2, #4; CI 8B; 8 CA #13; CI 10A; CI 10B; 10 CA #11; U3 PT1 #4; U3 PT2 #3; U3 PT3 #3; CI 12A; 12 CA #16–17; 13 CA #14; U4 PT1 #4; U4 PT2 #4; U4 PT3 #1–3; 14 CA #15; CI 16B; U5 PT1 #4; U5 PT2 #1, #3–4; U5 PT3 #4; U5 PT4 #1, #3, #5; U5 PT5 #2–4</p>
<p>HE.912.C.1.3 Evaluate how environment and personal health are interrelated.</p> <p>Clarifications: Food options within a community; prenatal-care services; availability of recreational facilities; air quality; weather-safety awareness; and weather, air, and water conditions.</p>	
<p>U2 Explorer p. 126; 8.1 p. 232; 13.2 Conn p. 414; 16.3 p. 523, p. 525; Appendix H pp. 582–588; Appendix H p. 583 #1–2</p>	<p>U4 PT2 #1; CI 15B</p>
<p>HE.912.C.1.5 Analyze strategies for prevention, detection, and treatment of communicable and chronic diseases.</p> <p>Clarifications: Health prevention, detection, and treatment of: breast and testicular cancer, suicide, obesity, and industrial-related chronic disease.</p>	
<p>U2 Explorer p. 126; Appendix H pp. 582–588; Appendix H p. 585 #1–2</p>	
<p>HE.912.C.1.7 Analyze how heredity and family history can impact personal health.</p> <p>Clarifications: Drug use, family obesity, heart disease, mental health, and non-communicable illness or disease.</p>	
<p>11.3 p. 361; 12.2 p. 381; 13.2 p. 418; Appendix H pp. 582–588; Appendix H p. 586 Apply #1–3</p>	

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>HE.912.C.1.8* Assess the degree of susceptibility to injury, illness, or death if engaging in unhealthy/risky behaviors.</p> <p>Clarifications: Risks associated with alcohol abuse, including poison, date rape, and death; cancer and chronic lung disease related to tobacco use; overdose from drug use; child abuse or neglect; and dating violence.</p>	
<p>Appendix H pp. 582–588; Appendix H p. 587 Apply #1–3; Appendix H p. 588 Apply #1–2</p>	
<p>ELD.K12.ELL.SC.1 English language learners communicate information, ideas and concepts necessary for academic success in the content area of Science.</p>	
<p>1 CS p. 3; 1.1 p. 6; 1.2 p. 10; 1.2 p. 17; 1.3 p. 18; U1 Explorer p. 39; 2 CS p. 41; 2.1 p. 42; 2 Explorer p. 58; 2.4 p. 66; 2.4 p. 70; 3 CS p. 77; 4 CS p. 99; 4.1 p. 100; 4.3 p. 116; U1 Activity p. 123; U2 Explorer p. 127; 5 CS p. 129; 5.1 p. 134; 5.2 p. 138; 5.3 p. 142; 5.4 p. 154; 6.2 p. 174; 6 Explorer p. 192; 7.3 p. 210; U3 Explorer p. 223; 8 CS p. 225; 8.1 p. 229; 8.2 p. 235; 8.2 p. 240; 8.4 p. 256; 9.2 p. 274; 9.4 p. 288; 10 CS p. 297; 10.1 p. 298; 10.2 p. 305; 10.3 p. 311; 10.4 p. 316; U3 Summary p. 328; U4 Explorer p. 332; U4 Explorer p. 333; 11 CS p. 335; 11.2 p. 347; 11.3 p. 355; 11.3 p. 360; 12.2 p. 380; 12 TIAT p. 397; 13.1 p. 407; 13.2 p. 418; 13.3 p. 427; 13.3 p. 429; U4 Summary p. 440; U4 Activity p. 441; U5 Explorer p. 445; 14 CS p. 447; 14.1 p. 451; 14.1 p. 452; 14.2 p. 455; 14.2 p. 458; 15 CS p. 477; 15.1 p. 479; 15.1 p. 481; 15.2 p. 487; 15 LAD p. 494; 15.3 p. 497; 16 CS p. 505; 16 Explorer p. 589; 16.1 p. 506; 16.3 p. 522; 16.3 p. 524; 16.3 p. 526; 16.4 p. 533; U5 Activity p. 541; U5 Summary p. 540</p>	

STUDENT/TEACHER EDITION	ONLINE RESOURCES
<p>ELD.K12.ELL.SI.1 English language learners communicate for social and instructional purposes within the school setting.</p>	
<p> 1.1 p. 6; 1.2 p. 13; 1.2 p. 16; 1.2 p. 17; 1.3 p. 18; 1 LAD p. 31; 1 Explorer p. 32; U1 Explorer p. 39; 2 CS p. 41; 2.1 p. 42; 2 Explorer p. 58; 2.4 p. 66; 2.4 p. 70; 3 CS p. 77; 3.3 p. 92; 4 CS p. 99; 4.1 p. 100; 4 Explorer p. 110; 4.3 p. 116; U1 Activity p. 123; U2 Explorer p. 127; 5.1 p. 134; 5.2 p. 138; 5.3 p. 142; 5.4 p. 154; 6 CS p. 165; 6.1 p. 166; 6.1 p. 172; 6.2 p. 182; 7 CS p. 197; 7.1 p. 200; 7.3 p. 210; U2 Activity p. 219; U3 Explorer p. 223; 8.1 p. 226; 8.1 p. 229; 8.2 p. 240; 8.3 p. 243; 9 CS p. 265; 9.1 p. 268; 9.2 p. 274; 9 Explorer p. 286; 9.4 p. 288; 9.4 p. 290; 10 CS p. 297; 10.1 p. 298; 10.3 p. 311; 10 Explorer p. 324; U3 Summary p. 328; U3 Activity p. 329; 11 CS p. 335; 11.1 p. 339; 11.2 p. 351; 11.3 p. 355; 11.3 p. 360; 12 CS p. 367; 12.1 p. 368; 12 Explorer p. 377; 12.2 p. 379; 12.2 p. 380; 12.4 p. 393; 12 TIAT p. 397; 13 CS p. 401; 13.1 p. 402; 13.2 p. 412; 13.2 p. 418; 13.3 p. 427; 13.3 p. 429; U5 Explorer p. 445; 14.1 p. 449; 14.1 p. 451; 14.1 p. 452; 14.2 p. 455; 14.2 p. 458; 14.2 p. 461; 14.3 p. 469; 15 CS p. 477; 15.1 p. 479; 15.1 p. 481; 15.2 p. 487; 15 LAD p. 494; 15.3 p. 497; 16.1 p. 506; 16.2 p. 585; 16.2 p. 586; 16.3 p. 522; 16.3 p. 524; U5 Activity p. 541; U5 Summary p. 540 </p>	