Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **The Nature of Life**

Content Standard: **Identify and analyze biological themes and characteristics of life.**
Analyze processes, tools and techniques biologists use to add to their body of knowledge.

State Curriculum Standard: **3.1.7 A Explain the parts of a simple system and their relationship to each other.**
3.1.10D Apply scale as a way of relating concepts and ideas to one another by some measure.
3.1.10E Describe patterns of change in nature, physical and man-made systems.
3.2.10B Apply process knowledge and organize scientific and technological phenomena in varied ways.
3.2.10C Apply the elements of scientific inquiry to solve problems.
3.2.10D Identify and apply the technological design process to solve problems.

Course Content	Student Performance	Resources	Assessments
A. What is Science? B. How Science Works.	• Read section 1-1 in text • Review questions, p.1 teaching resources • Guided reading and discussion, workbook p.5 • Read section 1-2 in text • Review questions, p.2 teaching resources • Guided reading and discussion, workbook pp. 7 to 9 • Complete scientific method lab, "Solving a problem with a Scientific Method" • Research Pasteur and Redi's experiments to explain how they led to the development of pasteurization	• Biology: Concepts and Connections (Prentice-Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Discussion • Section 1-1 assessment questions, text p.1 • Note packet and review worksheets • Formal lab report identifying the hypothesis of the scientific method lab • Section 1-2 assessment questions, text p.15 • Student discussion

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **The Nature of Life**

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State Curriculum Standard: **3.1.7 A Explain the parts of a simple system and their relationship to each other.**
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3.2.10B Apply process knowledge and organize scientific and technological phenomena in varied ways.
3.2.10C Apply the elements of scientific inquiry to solve problems.
3.2.10D Identify and apply the technological design process to solve problems.

Course Content	Student Performance	Resources	Assessments
C. Studying Life. D. Tools and Procedures.	• Read section 1-3 in text • Review questions, p.3 teaching resources • Guided reading and study workbook pp. 10 and 11 • Read section 1-4 in text • Review questions, p.4 teaching resources • Guided reading and study, workbook pp. 12 and 13 • Lab Manual A - Making Metric Measurements, p.27 • Lab Manual A - Observing the Uncertainty of Measurement, p.55 • Lab Manual B - Measuring Length, Mass, Volume and Temperature, p.55	• Biology: Concepts and Connections (Prentice-Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• PSSA – One-page research paper on an assigned scientist and their role in biology • Note packet and review worksheets • Student discussion • Section 1-3 assessment questions, text p.28 • Section 1-4 quiz • Lab write up questions and discussion • Teaching resources vocabulary review, p.5 • Section 1-4 assessment questions, text p.28 • Test chapter 1

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **The Nature of Life**

Content Standard: **Review and develop fundamental principles of chemistry.**
Identify and analyze organic compounds.

State Curriculum Standard: **3.3.10A Explain the structural and functional similarities and differences found among living things.**
3.3.10B Describe and explain the chemical and structural basis of living organisms.
3.4.10A Explain concepts about the structure and properties of matter.
3.3.10B Analyze energy sources and transfers of heat.

Course Content	Student Performance	Resources	Assessments
A. Nature of Matter.	• Read section 2-1 in text • Review questions, p.15 teaching resources • Guided reading and study workbook p.15	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• PSSA - Element paper • Note packet and review worksheets • Student discussion • Section 2-1 assessment questions, text p.39
B. Properties of Water.	• Read section 2-2 in text • Review questions, p.16 teaching resources • Guided reading and study, workbook p.17 • Acid/Base comparison activity		• Section 2-2 quiz • Note packet and review worksheets • Acid/Base comparison lab • Section 2-2 assessment questions, text p.43 • Student discussion
C. Carbon Compounds.	• Read section 2-3 in text • Review questions, p.17, teaching resources • Guided reading and study, workbook p.20 • Lab Manual A - Identify Organic Compounds, p.59 or, • Lab Manual B - Discovering Where Proteins are Found, p.59		• Section 2-3 quiz • Note packet and review worksheets • Lab report - carbon compound comparison • Section 2-3 assessment questions, text p.48 • Student discussion

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **The Nature of Life**

Content Standard: **Review and develop fundamental principles of chemistry.**
Identify and analyze organic compounds.

State Curriculum Standard: **3.3.10A Explain the structural and functional similarities and differences found among living things.**
3.3.10B Describe and explain the chemical and structural basis of living organisms.
3.4.10A Explain concepts about the structure and properties of matter.
3.3.10B Analyze energy sources and transfers of heat.

Course Content	Student Performance	Resources	Assessments
D. Chemical Reaction and Enzymes.	• Read section 2-4 in text • Review questions, p.18 teaching resources • Guided reading and study, workbook p.23 • Lab - Investigating effect of temperature on enzyme activity, p.54 in text • Assessment anchors - Analyzing data activity text p.51	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Lab Manual A/B results • Teaching resources vocabulary, p.19 • Discuss p.51 pH results • Test chapter 2 • Student discussion

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Ecology**

Content Standard: **Identify the niche of organisms in a food web while explaining the flow of energy.**
Explain the consequences of interrupting natural cycles.

State Curriculum Standard: **4.1.7A Explain the role of the water cycle within a watershed.**
4.6.4B Understand the concept of cycles.
4.6.10A Explain the biotic and abiotic components of an ecosystem and their interaction.
4.6.10B Explain how cycles affect the balance in an ecosystem.
4.6.12A Analyze the interdependence of an ecosystem.

Course Content	Student Performance	Resources	Assessments
A. What is Ecology?	• Read section 3-1 in text • Review questions, p.29 teaching resources • Guided reading and study, workbook pp. 26 and 27 • Review levels of organization in ecology through a poster design	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006)	• Note packet and review worksheets • Student discussions on naming organisms, populations, communities and ecosystems • Section 3-1 assessment questions, text p.65 • Poster
B. Energy Flow.	• Read section 3-2 in text • Teaching resources p.30 • Guided reading and study, workbook pp. 28 to 30 • Create a food web with a specific assigned ecosystem • Calculate the amount of energy available at different trophic levels	• Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• Quiz on section 3-2 • Note packet and review worksheets • Food web poster, display and discussion • Section 3-2 assessment questions, text p.73 • Student discussion

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Ecology**

Content Standard: **Identify the niche of organisms in a food web while explaining the flow of energy.**
Explain the consequences of interrupting natural cycles.

State Curriculum Standard: **4.1.7A Explain the role of the water cycle within a watershed.**
4.6.4B Understand the concept of cycles.
4.6.10A Explain the biotic and abiotic components of an ecosystem and their interaction.
4.6.10B Explain how cycles affect the balance in an ecosystem.
4.6.12A Analyze the interdependence of an ecosystem.

Course Content	Student Performance	Resources	Assessments
C. Cycles of Matter.	• Read section 3-3 in text • Review questions, p.31 teaching resources • Guided reading and study, workbook pp. 31 to 33 • Analyze data: Farming in the rye, text p.79 • Lab Manual A – Investigating Chemical Cycles in the Biosphere or, • Lab Manual B – Investigating Chemical Cycles in the Biosphere	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, Internet, and periodicals	• Quiz on section 3-3 on cycles • Note packet and review worksheets • Section 3-3 assessment questions, text p.80 • Teaching resources, p.35 concept map cycle diagram • Student discussion • Teaching resources vocabulary review, p.32 • Model/poster identification of movement of molecules • Test chapter 3

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Ecology**

Content Standard: **Explain the factors that determine biomes and an ecosystem.**
Explain the "Greenhouse Effect" and its relation to Global Warming.
Explain the effects of global warming.

State Curriculum Standard: **4.6.10A Explain the biotic and abiotic components of an ecosystem and their interaction.**
4.6.12A Analyze the interdependence of an ecosystem.
4.8.12A Explain how technology has influenced the sustainability of natural resources overtime.

Course Content	Student Performance	Resources	Assessments
A. Role of Climate. B. What Shapes an Ecosystem?	• Read section 4-1 in text • Review questions, p.41 teaching resources • Guided reading and study, workbook pp. 34 and 35 • Identify how heat is transferred and relate to the greenhouse effect • Read section 4-2 in text • Review questions, p.42 teaching resources • Guided reading and study, workbook pp. 36 and 37 • Teaching resources enrichment activity, p.47 • Teaching resources exploration activity, p.49 • Lab Manual A - Observing the Effect of Bacteria on Bean Plant Growth p.69	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section 4-1 assessment questions, text page 89 • Note packet and review worksheets • Student discussion on niches • Section assessment 4-2 questions text p.97

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Ecology**

Content Standard: **Explain the factors that determine biomes and an ecosystem.**
Explain the "Greenhouse Effect" and its relation to Global Warming.
Explain the effects of global warming.

State Curriculum Standard: **4.6.10A Explain the biotic and abiotic components of an ecosystem and their interaction.**
4.6.12A Analyze the interdependence of an ecosystem.
4.8.12A Explain how technology has influenced the sustainability of natural resources overtime.

Course Content	Student Performance	Resources	Assessments
C. Biomes. D. Aquatic Ecosystems.	• Read section 4-3 in text • Review questions, p.43 teaching resources • Guided reading and study workbook pp. 38 to 41 • Using the PSSA format write a 2 page paper comparing and contrasting any 2 biomes • BioDetective workbook - using range and habitat to track evidence pp. 11 to 16 • Video "Biomes" • Read section 4-4 in text • Review questions, p.44 teaching resources • Guided reading and study, workbook pp. 42 to 45 • Construct a display to show different kinds of aquatic ecosystems and ocean zones	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • PSSA paper • Student discussion • Section 4-3 assessment questions text p.105 • Note packet and review worksheets • Section 4-4 assessment questions text p.112 • Display of ecosystem and ocean zone • Vocabulary review p.45 in teaching resources • Student discussion: Explain how the benthic zone is like an upside down mountain • Test chapter 4

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Explain the relationship between structure and function at the molecular and cellular levels.**
Explain how cells store and use information to guide their functions.
Explain cell functions and processes in terms of chemical reactions and energy changes.

State Curriculum Standard:
3.1.10E Describe patterns of change in nature, physical and man made systems.
3.3.10A Explain the structural and functional similarities and differences found among living things.
3.3.10B Describe and explain the chemical and structural basis of living organisms.
3.7.10A Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions.
3.7.10B Apply appropriate instruments and apparatus to examine a variety of objects and processes.

Course Content	Student Performance	Resources	Assessments
A. Life is Cellular. B. Eukaryotic Cell Structure.	• Read section 7-1 in text • Review questions, p.81 teaching resources • Guided reading and study, workbook pp. 64 and 65 • Study images from a variety of microscopes comparing images • Read text section 18-1 • Lab Manual A - Using and Constructing a Dichotomous Key, pp. 147 to 152 • Read section 7-2 in text • Review questions, p.82 teaching resources • Guided reading and study, workbook pp. 66 and 69 • Teaching resources lab - Investigating the cell structure and process, p.89	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Investigating Living Systems, (Glencoe, 1994) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment text p.173 • Student discussion: comparing eukaryotic cells vs. prokaryotic cells • Dichotomous lab discussion • Quiz on organelle structure and function • Note packet and review worksheets • Teaching resources concept map p.88 • Section assessment text p.181 • Create a Venn diagram comparing organelles in eukaryotes/prokaryotes • Poster drawing of cells and their organelles

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Explain the relationship between structure and function at the molecular and cellular levels.**
Explain how cells store and use information to guide their functions.
Explain cell functions and processes in terms of chemical reactions and energy changes.

State Curriculum Standard:
3.1.10E Describe patterns of change in nature, physical and man made systems.
3.3.10A Explain the structural and functional similarities and differences found among living things.
3.3.10B Describe and explain the chemical and structural basis of living organisms.
3.7.10A Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions.
3.7.10B Apply appropriate instruments and apparatus to examine a variety of objects and processes.

Course Content	Student Performance	Resources	Assessments
C. Cell Boundaries. D. The Diversity of Cellular Life.	• Read section 7-3 in text • Review Questions, p.83 teaching resources • Guided reading and study, workbook pp. 70 and 72 • Lab Manual A - Observing Osmosis, pp. 85 to 90 • Text p.188 - Analyze data crossing the cell membrane • Read section 7-4 in text • Review questions, p.84 teaching resources • Guided reading and study, workbook pp. 73 and 74 • Slide comparison - Unicellular vs. Multicellular organisms • Microviewer activity - Ultrastructure of the animal cell or cells of the body • Teaching resources enrichment activity, p.87 • Video “Death by Design” • Read text section 18-3, pp. 457 to 461	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Quiz on Passive vs. Active transport • Note packet and review worksheets • Osmosis lab question review • Section assessment text p.189 • Student discussion • Note packet and review worksheets • Section assessment text p.193 • Teaching resources vocabulary review, p.85 • Test chapter 7 • Student discussion

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Understand that all living things use energy for life processes.**
Evaluate energy changes in chemical reactions.

State Curriculum Standard: **3.2.10C Apply the elements of scientific inquiry to solve problems.**
3.4.10B Analyze energy sources and transfers of heat.

Course Content	Student Performance	Resources	Assessments
A. Energy and Life.	• Read section 8-1 in text • Review questions, p.95 teaching resources • Guided reading and study, workbook pp. 75 and76 • Read sections 24-2 to 24-4 in text	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment text p.203 • Section assessment text pp. 588 and 594 to 598 • Student discussion
B. Photosynthesis.	• Read section 8-2 in text • Review questions, p.96 teaching resources • Guided reading and study, workbook pp. 77 and 78 • Teaching resources enrichment activity, p.100 • Video "Photosynthesis" • Quick lab p.206 in text - What waste material is produced during photosynthesis?		• Quiz section 8-1 & 8-2 • Note packet and review worksheets • Section assessment text p.207 • PSSA writing - summarize how scientists contribute to our understanding of photosynthesis • Chromatography lab • Discussion on video and questions

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Understand that all living things use energy for life processes.**
Evaluate energy changes in chemical reactions.

State Curriculum Standard: **3.2.10C Apply the elements of scientific inquiry to solve problems.**
3.4.10B Analyze energy sources and transfers of heat.

Course Content	Student Performance	Resources	Assessments
C. Reactions of Photosynthesis.	• Read section 8-3 in text • Review questions, p.97 teaching resources • Guided reading and study, workbook pp. 79 to 81 • Design an experiment, p.215 in text • Analyze data p.213 in text - Rate of photosynthesis • Lab Manual A - Measuring the Effect of Light Intensity on Photosynthesis, p.91	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Teaching resources vocabulary review, p.98 • Student discussion • Construct an illustration of the stages of the electron transport chain and stages of photosynthesis • Section assessment text p.214 • Test chapter 8

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Determine the efficiency of chemical systems by applying mathematical formulas.**
Evaluate energy changes in chemical reactions.
Understanding that all living things require energy for life processes.

State Curriculum Standard: **3.2.10C Apply the elements of scientific inquiry to solve problems.**
3.4.10B Analyze energy sources and transfers of heat.

Course Content	Student Performance	Resources	Assessments
A. Chemical Pathways.	• Read section 9-1 in text • Review questions, p.107 teaching resources • Guided reading and study, workbook pp. 83 to 85 • Teaching resources enrichment activity, p.111 • Teaching resources, p.113 real world lab	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006)	• Note packet and review worksheets • Section assessment text p.225 • Discuss events of glycolysis - write an equation for alcoholic and lactic acid fermentation • Create a flow chart to show steps of cellular respiration
B. The Krebs Cycle and Electron Transport.	• Read section 9-2 in text • Review questions, p.108 teaching resources • Guided reading and study, workbook pp. 86 to 89 • Lab Manual A - Observing Respiration, p.95 or, • Lab Manual B, p.91 • Teaching resources comparison table p.112	• Encyclopedia, internet, and periodicals	• Note packet and review worksheets • PSSA - Discuss pathways the body uses to release energy during exercise. • Prepare a poster to identify the main events of cellular respiration • Teaching resources vocabulary review p.109 and 110 • Test chapter 9

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Explain the importance of order in a system.**
Explain different types of inheritance.

State Curriculum Standards: **3.1.7 A Explain the parts of a simple system and their relationship to each other.**
3.3.10C Describe how genetic information is inherited and expressed.

Course Content	Student Performance	Resources	Assessments
A. Cell Growth. B. Cell Division.	• Read section 10-1 in text • Review questions, p.119 teaching resources • Guided reading and study, workbook p.91 • Quick lab - What limits the size of cells, text p.242 • Read section 10-2 in text • Review questions, p.120 teaching resources • Guided reading and study workbook, pp. 92 to 94 • Lab Manual A - Karyotype Lab Activity p.123 • Teaching resources enrichment, p.124 • Teaching resources exploration, p.126 • Microviewer lab - Mitosis	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment, text p.243 • PSSA - Write a paragraph to explain why human body cells do not exceed their current size • Calculate the ratio of surface area to volume for a cell • Student discussion • Note packet and review worksheets • Section assessment, text p.249 • Teaching resources graphic organizer, p.125 • Student discussion cell cycle and mitosis • Create a poster identifying stages of mitosis

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Cells**

Content Standard: **Explain the importance of order in a system.**
Explain different types of inheritance.

State Curriculum Standards: **3.1.7 A Explain the parts of a simple system and their relationship to each other.**
3.3.10C Describe how genetic information is inherited and expressed.

Course Content	Student Performance	Resources	Assessments
C. Regulating the Cell Cycle.	• Read section 10-3 in text • Review questions, p.121 teaching resources • Guided reading and study, workbook pp. 95 and 96	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment in text p.252 • Teaching resources vocabulary review, p.122 • Teaching resources concept map, p.125 • PSSA - Research report stem cells and the implications involved. How does this technology impact the future of medicine? • Test chapter 10

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Genetics**

Content Standard: **Apply mathematical models to science and technology.**
Explain different types of inheritance.

State Curriculum Standard: **3.1.10B Describe concepts of models as a way to predict and understand science and technology.**
3.3.10C Describe how genetic information is inherited and expressed.

Course Content	Student Performance	Resources	Assessments
A. The Work of Gregor Mendel.	• Read section 11-1 in text • Review questions, p.131 teaching resources • Guided reading and study, workbook pp. 97 and 98 • Read section 24-1 in text pp. 612 and 613	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006)	• Note packet and review worksheets • Section assessment in text p.266 • Draw and label figure 24-5
B. Probability and Punnett Squares.	• Read section 11-2 in text • Review questions, p.132 teaching resources • Guided reading and study, workbook pp. 99 to 100 • Practice completing Punnett squares • Teaching resources enrichment, p.138 • Video "GATTACA"	• Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment in text p.269 • Create and perform punnett squares • Student discussion genetic engineering • Determine probability/apply rules
C. Exploring Mendelian Genetics.	• Read section 11-3 in text • Review questions, p.133 teaching resources • Guided reading and study, workbook p.101 to 103 • Lab Manual A - Investigating Inherited Traits, p.107 • Enrichment activity design and complete trihybrid crosses		• Note packet and review worksheets • Section assessment in text p.274 • Quiz dihybrid

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Genetics**

Content Standard; **Apply mathematical models to science and technology.**
Explain different types of inheritance.

State Curriculum Standard: **3.1.10B Describe concepts of models as a way to predict and understand science and technology.**
3.3.10C Describe how genetic information is inherited and expressed.

Course Content	Student Performance	Resources	Assessments
D. Meiosis.	• Read section 11-4 in text • Review questions, p.134 teaching resources • Guided reading and study, workbook pp. 104 to 105 • Video "Meiosis" • Teaching resources exploration, p.140	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006)	• Note packet and review worksheets • Section assessment in text p.278 • Student discussion stages of meiosis, compare to mitosis
E. Linkage and Gene Maps.	• Read section 11-5 in text • Review questions, p.135 teaching resources • Guided reading and study, workbook p.106 • Read sections 14-1 & 14-2 • Pedigree construction • Research a genetic disease and present to class • Blood grouping activity	• Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Genetic disease presentation • Section assessment in text p.280 • Teaching resources graphic organizer, p.139 • Teaching resources vocabulary review, p.136 • Chapter 11 test • Student discussion

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Genetics**

Content Standard: **Distinguish between different types of models and modeling techniques and apply their appropriate use in specific applications.**
Know and use the ongoing scientific processes to continually improve and better understand how things work.
Conduct a multiple step experiment.
Explain how cells store and use information to guide their functions.

State Curriculum Standard: **3.1.10B Describe concepts of models as a way to predict and understand science and technology.**
3.2.12A Evaluate the nature of scientific and technological knowledge.
3.2.10C Apply the elements of scientific inquiry to solve problems.
3.3.10B Describe and explain the chemical and structural basis of living organisms.
3.3.10C Describe how genetic information is inherited and expressed.

Course Content	Student Performance	Resources	Assessments
A. DNA.	• Read section 12-1 in text • Review questions, p.145 teaching resources • Guided reading and study, workbook pp. 108 to 110 • Teaching resources enrichment, p.152 • Lab Manual A - Extracting DNA p.113	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006) • Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment p.294 • Student discussion
B. Chromosome and DNA Replication.	• Read section 12-2 in text • Review questions, p.146 teaching resources • Guided reading and study workbook, pp.111 and 112 • Teaching resources exploration, p.154 • Biodetective p.21 - DNA analysis • Video "Chromosomes"		• Note packet and review worksheets • Section assessment p.299 • Student discussion molecule formation
C. RNA and Protein Synthesis.	• Read section 12-3 in text • Review questions, p.147 teaching resources • Guided reading and study, workbook pp. 113 to 115		• Note packet and review worksheet • Section assessment p.306 • Discussion similarities/differences between DNA/RNA

Science Planned Course - College Preparatory Biology I: Grade 10

Unit: **Genetics**

Content Standard: **Distinguish between different types of models and modeling techniques and apply their appropriate use in specific applications.**
Know and use the ongoing scientific processes to continually improve and better understand how things work.
Conduct a multiple step experiment.
Explain how cells store and use information to guide their functions.

State Curriculum Standard: **3.1.10B Describe concepts of models as a way to predict and understand science and technology.**
3.2.12A Evaluate the nature of scientific and technological knowledge.
3.2.10C Apply the elements of scientific inquiry to solve problems.
3.3.10B Describe and explain the chemical and structural basis of living organisms.
3.3.10C Describe how genetic information is inherited and expressed.
3.3.10D Explain the mechanisms of the theory of evolution.

Course Content	Student Performance	Resources	Assessments
D. Mutations.	• Read section 12-4 in text • Review questions, p.148 teaching resources • Guided reading and study, workbook pp. 116 and 117	• Biology, (Prentice Hall, 2006) • Biology - Teaching Resources, (Prentice Hall, 2006) • Biology - Guided Reading and Study Workbook, (Prentice Hall, 2006) • Biology - Lab Manual A, (Prentice Hall, 2006)	• Note packet and review worksheets • Section assessment in text p.308 • Compare and contrast genetic mutations and chromosomal mutations • Student discussion
E. Gene Regulation.	• Read section 12-5 in text • Review questions, p.145 teaching resources • Guided reading and study, workbook pp. 118 to 120 • Video "National Geographic - Cloning" • Video "6th Day"	• Biology - Lab Manual B, (Prentice Hall, 2006) • Encyclopedia, internet, and periodicals	• Note packet and review worksheets • Section assessment in text p.312 • Teaching resources graphic organizer, p.153 • Create a comparison identifying misconceptions behind cloning • Teaching resources vocabulary review, p.150 • Test chapter 12 • Student discussion