

**City of Angels School
Independent Study
Los Angeles Unified School District**

**Field Test
01/07/08**

**Biology A: Course #360701
Student's Instructional Guide**

TEXT: Prentice Hall Biology, Miller and Levine
Prentice Hall Biology, Adapted Reading and Study Workbook B

Student _____

Teacher _____

Beginning Date _____

Ending Date _____

Final Mark _____ **Credits** 5

Evaluation
Homework(40%) : _____ **Lab(30%) :** _____ **Test(30%) :** _____

Assignment No. 1: This assignment is designed to meet CA Biology Standards pre-requisites.

(1) **Read - Prentice Hall Biology, Chapter 1: The Nature of Life**

- Section 1-1: *all*, pages 3-7
- Section 1-2: *Designing an Experiment*, pages 8-10
- Section 1-3: *Characteristics of Living Things*, pages 15-17
- Section 1-4: *all*, pages 24-28

Adapted Reading and Study Workbook B, pages 1-3

(2) **Homework**

- **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 1-1: science, observation, data, inference, hypothesis
 - Section 1-2: spontaneous generation, controlled experiment, manipulated variable, responding variable
 - Section 1-3: biology
 - Section 1-4: metric system, microscope, compound light microscope, electron microscope, cell structure, cell fractionation
- **Section Assessments** - Answer all questions in complete sentences.
 - Section 1-1, page 7 (1-6)
 - Section 1-4, page 28 (1-5)
- **Workbook** - Adapted Reading and Study B, pages 4, 7 and 8

(3) **Lab** - do **both** of the following:

- PH Lab Manual B - *Safety Lab*, PH Text p. 19-22. Complete and turn in given copy of lab manual pages
- Create a Safety Poster, PH text p. 28. Complete and turn in poster.

And pick one of the following:

- Active Art - go online www.PHSchool.com. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Redi's Experiment*, student code cbp-1012, text p. 9
- Attached lab worksheet. Complete and turn given copy of attached worksheet.
 - *The Power of Observation*.
- Froguts CD
 - *Cow Eye*. Completes all lessons. After lesson completion, complete test, print test completion certificate and turn in.
- PH Lab Manual B. Complete and turn in given copy of lab manual questions.
 - *Applying the Scientific Method*, p. 31-33.

(4) **Test** – to be completed in class.

- **Chapter Assessment**, page 31 (1-10) and **Standards Practice**, page 33 (1-6)

Evaluation

Homework(40%) : _____ Lab(30%) : _____ Test(30%) : _____

Assignment No. 2

This assignment is designed to meet CA Standards 1b, 1h, 4e, 4f

- (1) **Read - Prentice Hall Biology, Chapter 2: The Chemistry of Life**
 - Section 2-1: *all*, pages 35-39
 - Section 2-2: *all*, pages 40-43
 - Section 2-3: *all*, pages 44-48
 - Section 2-4: *Chemical Reactions, Energy in Reactions, and Enzymes*, pages 49-52
Adapted Reading and Study Workbook B, pages 9-11

- (2) **Homework**
 - **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 2-1: atom, nucleus, electron, element, isotopes, compound, ionic bond, ions, covalent bond, molecule, Van der Waals forces
 - Section 2-2: cohesion, adhesion, mixture, solution, solute, solvent, suspensions, pH scale, acid, base, buffers
 - Section 2-3: monomers, polymers, carbohydrate, monosaccharide, polysaccharide, lipid, nucleic acid, ribonucleic acid (RNA), deoxyribonucleic acid (DNA), protein, amino acid
 - Section 2-4: chemical reaction, reactants, products, activation energy, catalyst, enzymes
 - **Section Assessments** - Answer all questions in complete sentences.
 - Section 2-1, page 39 (1-6)
 - Section 2-3, page 48 (1-5)
 - **Workbook** - Adapted Reading and Study B, pages 12-19

- (3) **Labs - pick one** of the following:
 - Active Art - go online www.PHSchool.com. Enters student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Enzyme Action*, student code cbp-1024, text p. 50
 - Attached lab worksheet. Complete and turn in given copy of attached worksheet.
 - *Sweet 16* game.
 - Lab Simulation CD. Take self-quiz following *both* labs. Turn in printout of completed quizzes.
 - *Properties of Biomolecules*
 - *Building Biomolecules*
 - Virtual Lab CD. Print record sheet lab to complete and turn in.
 - *Lab 1: Catalase Action in Living Tissue* (see text p. 54)

- (4) **Test** – to be completed in class.
 - **Chapter Assessment**, page 57 (1-9) and **Standards Practice**, page 59 (1-10)

Evaluation

Homework(40%) : ____ Lab(30%) : ____ Test(30%) : ____

Assignment No. 3

This assignment is designed to meet CA Standards 1a, 1c, 1e, 1j

(1) **Read - Prentice Hall Biology, Chapter 7: Cell Structure and Function**

- Section 7-1: *all*, pages 169-173
- Section 7-2: *all*, pages 174-181
- Section 7-3: *all*, pages 182-187
- Section 7-4: *all*, pages 190-193

Adapted Reading and Study Workbook B, pages 61-63

(2) **Homework**

- **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 7-1: cell, cell theory, nucleus, eukaryotes, prokaryotes
 - Section 7-2: organelles, cytoplasm, nuclear envelope, chromatin, chromosomes, nucleolus, ribosome, endoplasmic reticulum, Golgi apparatus, lysosome, vacuoles, mitochondria, chloroplast, cytoskeleton, centriole
 - Section 7-3: cell membrane, cell wall, lipid bilayer, concentration, diffusion, equilibrium, osmosis, isotonic, hypertonic, hypotonic, facilitated diffusion, active transport
 - Section 7-4: cell specialization, tissue, organ, organ system
- **Section Assessments** - Answer all questions in complete sentences.
 - Section 7-1, page 173 (1-5)
 - Section 7-2, page 181 (1-5)
 - Section 7-3, page 189 (1-6)
 - Section 7-4, page 193 (1-4)
- **Workbook** - Adapted Reading and Study B, pages 64-72

(3) **Labs - pick one** of the following:

- Active Art - go online www.PHSchool.com - do all 3 activities. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Cell Structure*, student code cbp-3072, text p.175
 - *Diffusion*, student code cbp-3073, text p. 184
 - *Osmosis*, student code cbp-3075, text p.185
- Attached lab worksheet. Complete and turn in given copy of attached worksheet.
 - *Osmosis Lab*
- Attached lab worksheet. Complete and turn in given copy of attached worksheet.
 - *Cell Factory Poster*
- Virtual Lab CD. Print record sheet for *both* labs to complete and turn in.
 - *Lab 3: Diffusion*
 - *Lab 4: Osmosis*

(4) **Test** – to be completed in class-

Chapter Assessment, p 197 (1-10) and **Standards Practice**, p 199 (1-9)

Evaluation

Homework(40%) : ____ **Lab(30%)** : ____ **Test(30%)** : ____

Assignment No. 4

This assignment is designed to meet CA Standards 1d, 1f, 1g, 1i

(1) **Read** - **Prentice Hall Biology, Chapter 8: Photosynthesis**
Prentice Hall Biology, Chapter 9: Cellular Respiration

- Section 8-1: *all*, pages 201-203
 - Section 8-2: *The Photosynthesis Equation*, page 206
 - Section 8-3: *study all figures*
 - Section 9-1: *all*, pages 221-225
 - Section 9-2: *Comparing Photosynthesis and Cellular Respiration*, pages 232
- Adapted Reading and Study Workbook B**, pages 73-74 and 82-83

(2) **Homework**

- **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 8-1: autotrophs, heterotrophs, ATP,
 - Section 8-2: photosynthesis
 - Section 9-1: calorie, glycolysis, cellular respiration, NAD, fermentation, anaerobic
- **Section Assessments** - Answer all questions in complete sentences.
 - Section 8-1, page 203 (1-5)
 - Section 9-1, page 225 (1-6)
 - Section 9-2: page 232 (1-6)
- **Workbook** - Adapted Reading and Study B, pages 75-81 and 84-90

(3) **Labs** - pick one of the following:

- Active Art - go online www.PHSchool.com – do both activities. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Photosynthesis*, student code cbp-3083, text p. 211
 - *Cellular Respiration*, student code cbp-3091, text p. 222
- Lab Simulation CD. Take *both* self-quizzes following *both* labs. Turn in printout of completed quizzes.
 - *Photosynthesis* (see text p. 215)
 - *Cell Respiration*
- Virtual Lab CD. Print record sheet for *all three* labs to complete and turn in.
 - *Lab 6: Paper Chromatography*
 - *Lab 7: Light-Dependent Reactions*
 - *Lab 8: Cell Respiration*

(4) **Test** – to be completed in class.

- **Chapter Assessment**, page 217 (1-10) and 237 (1-10) and **Standards Practice**, page 219 (1-9) and 239 (1-9)

Evaluation

Homework(40%) : ____ **Lab(30%) :** ____ **Test(30%) :** ____

Assignment No. 5

This assignment is designed to meet CA Standards 1d, 2a, 2b, 2c, 2d, 2e, 2g, 3a, 3b, 3d

(1) **Read** - **Prentice Hall Biology, Chapter 11: Introduction to Genetics**

- Section 11-1: *all*, pages 262-266
 - Section 11-2: *all*, pages 267-269
 - Section 11-3: *Independent Assortment*, pages 270-271
 - Section 11-4: *all*, pages 275-278
 - Section 11-5: *Gene Linkage*, pages 279
- Adapted Reading and Study Workbook B**, pages 99-101

(2) **Homework**

- **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 11-1: genetics, fertilization, true-breeding, hybrids, genes, alleles, segregation, gametes.
 - Section 11-2: probability, Punnett square, homozygous, heterozygous, phenotype, genotype
 - Section 11-3: independent assortment
 - Section 11-4: homologous, diploid, haploid, meiosis, tetrad, crossing-over
- **Section Assessments** - Answer all questions in complete sentences.
 - Section 11-1: page 266 (1-6)
 - Section 11-2: page 269 (1-5)
 - Section 11-4: page 278 (1-5)
- **Workbook** - Adapted Reading and Study B, pages 102-106

(3) **Labs** - pick one of the following:

- Active Art - go online www.PHSchool.com – do both activities. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Punnett Square*, student code cbp-4112, text p. 272
 - *Meiosis*, student code cbp-4114, text p. 276
- Attached worksheet. Complete and turn in given copy of attached worksheet.
 - *Punnett Square*.
- BioDetectives workbook. Complete and turn in given copy of workbook questions.
 - *Investigation 4 – Interpreting DNA Analysis*, p. 21-26
- Lab Simulation CD. Take self-quiz following lab. Turn in printout of completed quiz.
 - *Meiosis*

(4) **Test** – to be completed in class.

- **Chapter Assessment**, page 293 (1-5, 9) and **Standards Practice**, page 285 (1-10)

Evaluation

Homework(40%) : _____ Lab(30%) : _____ Test(30%) : _____

Assignment No. 6

This assignment is designed to meet CA Standards 4a, 4b, 4c, 4d, 5a, 5b

(5) **Read - Prentice Hall Biology, Chapter 12: DNA and RNA**

- Section 12-1: *The Components and Structure of DNA*, pages 291
- Section 12-2: *all*, pages 295-299
- Section 12-3: *all*, pages 300-306

Adapted Reading and Study Workbook B, pages 107-109

(6) **Homework**

- **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 12-1: nucleotides
 - Section 12-2: histones, chromatin, replication, DNA polymerase
 - Section 12-3: genes, messenger RNA, ribosomal RNA, transfer RNA, transcription, RNA polymerase, promoters, introns, exons, codon, translation, anticodon
- **Section Assessments** - Answer all questions in complete sentences.
 - Section 12-2: page 299 (1-6)
 - Section 12-3: page 306 (1-5)
- **Workbook** - Adapted Reading and Study B, pages 110-118

(7) **Labs - pick one** of the following:

- Active Art - go online www.PHSchool.com – do both activities. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *DNA Replication*, student code cbp-4122, text p. 298
 - *Protein Synthesis*, student code cbp-4123, text p. 305
- Attached Worksheets. Complete and turn in given copy of attached worksheet.
 - *DNA*
- Lab Simulation CD. Take self-quiz following *all three* labs. Turn in printout of completed quizzes.
 - *DNA Structure and Replication* (see text p. 313)
 - *From Gene to Protein: Transcription*
 - *From gene to protein: Translation*
- PH Lab Manual B. Student is given a copy of lab manual questions to be completed and turned in. Answers found in teacher's edition.
 - *Building a DNA Model*, pages 113-118

(8) **Test** – to be completed in class.

- **Chapter Assessment**, page 315 (1-8) and **Standards Practice**, page 317 (1-9)

Evaluation

Homework(40%) : ____ Lab(30%) : ____ Test(30%) : ____

Assignment No. 7

This assignment is designed to meet CA Standards 5c, 5d, 5e

- (1) **Read - Prentice Hall Biology, Chapter 13: Genetic Engineering**
 - Section 13-1: *all*, pages 319-321
 - Section 13-2: *all*, pages 322-326
 - Section 13-3: *all*, pages 327-329

Adapted Reading and Study Workbook B, pages 119-121 and 127-128

- (2) **Homework**
 - **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 13-1: selective breeding, hybridization, inbreeding
 - Section 13-2: genetic engineering, restriction enzymes, gel electrophoresis, recombinant DNA, polymerase chain reaction
 - Section 13-3: plasmid, genetic marker
 - **Section Assessments** - Answer all questions in complete sentences.
 - Section 13-1: page 321 (1-5)
 - Section 13-2: page 326 (1-5)
 - Section 13-3: page 329 (1-5)
 - **Workbook** - Adapted Reading and Study B, pages 122-126

- (3) **Labs - pick one** of the following:
 - Active Art – go online www.PHSchool.com. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Gel Electrophoresis*, student code cbp-4132, text p. 324
 - Lab simulation CD. Take self-quiz following lab. Turn in printout of completed quiz.
 - *Restriction Enzyme Digestion on DNA*
 - Quick Lab - PH text, p. 326. Complete and turn in lab.
 - *How can Restriction Enzymes be Modeled*
 - Virtual Lab CD. Print record sheet for *all three* labs to complete and turn in.
 - *Lab 11: Restriction Enzyme Cleavage*
 - *Lab 12: Bacterial Transformation*

- (4) **Test** – to be completed in class.
 - **Chapter Assessment**, page 337 (1-8) and **Standards Practice**, page 339 (1-10)

Evaluation

Homework(40%) : _____ Lab(30%) : _____ Test(30%) : _____

Assignment No. 8

This assignment is designed to meet CA Standards, Standard Group 5, DNA Technology; 4d, 5c, 5d, 5e

- (1) **Read - Prentice Hall Biology, Chapter 14: The Human Genome**
 - Section 14-1: *Human Chromosomes and Human Traits*, pages 341-343
 - Section 14-2: *Sex-Linked Genes, X-Chromosome Inactivation and Chromosomal Disorders*, pages 350-353
 - Section 14-3: all, pages 355-360
Adapted Reading and Study Workbook B, pages 127-128

- (2) **Homework**
 - **Definitions** – In complete sentences, define the following highlighted vocabulary
 - Section 14-1: karyotype, sex chromosomes, autosomes, pedigree
 - Section 14-2: sex-linked genes, nondisjunction
 - Section 14-3: DNA fingerprinting
 - **Section Assessments** - Answer all questions in complete sentences.
 - Section 14-3: page 321 (1-5)
 - **Workbook** - Adapted Reading and Study B, pages 129-134

- (5) **Labs - pick one** of the following:
 - Active Art – go online www.PHSchool.com. Enter student code to do experiment and answer questions online. Print out and turn in answered questions.
 - *Pedigree*, student code cbp-4141, see text p. 342
 - Real World Lab - PH text, p. 361. Complete and turn in lab.
 - *Modeling DNA Probes*

- (6) **Test** – to be completed in class.
 - **Chapter Assessment**, page 363 (1-7) and **Standards Practice**, page 365 (1-10)

Evaluation

Homework(40%) : ____ Lab(30%) : ____ Test(30%) : ____