

Biology Re-test Review Information

Chapter 1 *Intro to Biology*

Key Ideas: 1.1 The study of life

1.2 Themes of Biology

1.3 Scientific Method

1.4 Technology in Biology (microscopes)

Video Reviews:

- **The Scientific Method:** <https://www.youtube.com/watch?v=GKGtkzgKfkc>
- **Themes of Biology:** <https://www.youtube.com/watch?v=ibhnP5suqK8>
- **The Study of Life:** <https://www.youtube.com/watch?v=-EjgEnTUTnQ>

Review Work:

- The Scientific Method: chrome-extension://mloajfnmjckfjbeeofcdaecbelnbliden/http://sciencespot.net/Media/scimethodconvar.pdf
- Themes of Biology: <http://www.easynotecards.com/quiz/28185>
- Microscope quiz: http://www.biologycorner.com/quiz/qz_microscope.html
- The Scientific Method Animation: <http://www.sumanasinc.com/webcontent/animations/content/scientificmethod.html>

Chapter 2 *Chemistry of Life*

Georgia Standard:

- **SB1.d Explain the impact of water on life processes.** Be sure to be able to explain why water is necessary for life as well as its effect on osmosis and diffusion.

- **SB1.c Identify the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, and nucleic acids.)**
- **SB1.b Explain how enzymes function as catalysts.**

Key Ideas: 2.1 Atoms, Ions, and Molecules

2.2 Properties of Water

2.3 Carbon-based molecules

2.4 Chemical Reactions

2.5 Enzymes

Video Reviews:

- **Why Carbon is important to life:**
https://www.youtube.com/watch?v=QnQe0xW_JY4&index=1&list=PL3EED4C1D684D3ADF
- **Why Water is important to life:**
https://www.youtube.com/watch?v=HVT3Y3_gHGg&list=PL3EED4C1D684D3ADF&index=2
- **Carbon-based molecules:**
<https://www.youtube.com/watch?v=H8WJ2KENIK0&list=PL3EED4C1D684D3ADF&index=3>
- **Enzymes:** <https://www.youtube.com/watch?v=ok9esggzN18>

Review Work:

- Atoms, Ions, and Molecules: <http://www.proprofs.com/quiz-school/story.php?title=atoms-elements-moleculespretest>
- Properties of Water: http://www.softschools.com/quizzes/chemistry/properties_of_water/quiz5928.html
- Carbon: <http://www.biomanbio.com/Quizzes/LifeChemQuizzes/BioMoleculeQuiz1.html>
- Enzymes: <http://www.proprofs.com/quiz-school/story.php?title=biology-section-14-enzymes-quiz>

Chapter 3 *Cell structure and function*

Georgia Standard:

- ***SB1.a Explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction.***
- ***SB1.d Explain the impact of water on life processes (osmosis, diffusion, passive and active transport.)***

Key Ideas: 3.1 Cell Theory

3.2 Cell Organelles

3.3 Cell Membrane

3.4 Diffusion and Osmosis

3.5 Active Transport, Endocytosis, and Exocytosis

Video Reviews:

- **Animal Cell and Organelles:**
<https://www.youtube.com/watch?v=cj8dDTHGJBY&list=PL3EED4C1D684D3ADF&index=4>
- **Plant Cells:**
<https://www.youtube.com/watch?v=9UvlqAVCoqY&list=PL3EED4C1D684D3ADF&index=6>
- **Cell Membranes:**
<https://www.youtube.com/watch?v=dPKvHrD1eS4&list=PL3EED4C1D684D3ADF&index=5>
- **Diffusion and Osmosis:**
<https://www.youtube.com/watch?v=RPAZvs4hvGA>
- **Cell Theory:** <https://www.youtube.com/watch?v=4OpBylwH9DU>

Review Work:

- Organelles: http://www.proprofs.com/quiz-school/story.php?title=cell-organelles_4
- Plant vs. Animal Cells: <http://www.proprofs.com/quiz-school/story.php?title=animal-vs-plant-cells>
- Cell Membrane and Cell Wall: <http://www.proprofs.com/quiz-school/story.php?title=cell-membrane-cell-wall>
- Osmosis: http://www.proprofs.com/quiz-school/story.php?title=osmosis_8
- Diffusion and Osmosis worksheet: http://www.biologycorner.com/worksheets/diffusion_osmosis_review_key.html
- Organelle worksheet and help: http://www.biologyjunction.com/unit3_cells.htm
- Passive and Active Transport worksheet (scroll down): <https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>
- Organelles and evolution: <http://www.sumanasinc.com/webcontent/animations/content/organelles.html>

Chapter4 *Cells and Energy (photosynthesis and respiration)*

Georgia Standard:

- **SB3.a Explain the cycling of energy through the processes of photosynthesis and respiration.** Be sure to be able to explain how they are connected and that plants do both photosynthesis and respiration.

Key Ideas: 4.1 Chemical Energy and ATP

4.2 Overview of Photosynthesis

- 4.3 Photosynthesis in Detail
- 4.4 Overview of Cellular Respiration
- 4.5 Cellular Respiration in Detail
- 4.6 Fermentation

Video Reviews:

- **ATP and Respiration:**
https://www.youtube.com/watch?v=00jbG_cfGuQ&list=PL3EED4C1D684D3ADF&index=7
- **Photosynthesis:**
https://www.youtube.com/watch?v=sQK3Yr4Sc_k&list=PL3EED4C1D684D3ADF&index=8
- **Anaerobic Respiration and Fermentation:**
<https://www.youtube.com/watch?v=cDC29iBxb3w>

Review work:

- ATP Quiz: <http://www.proprofs.com/quiz-school/story.php?title=odu2mta2mt08>
- Photosynthesis quiz: http://www.proprofs.com/quiz-school/story.php?title=photosynthesis_18
- Photosynthesis and Respiration quiz: <http://www.proprofs.com/quiz-school/story.php?title=biology-unit-2-cells-photosynthesis-respiration>
- Photosynthesis and Respiration help:
http://www.biologyjunction.com/unit5_photosynresp.htm
- Cellular Energy Worksheet (scroll down) :
<https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>
- Cellular Respiration Animation:
<http://www.sumanasinc.com/webcontent/animations/content/cellularrespiration.html>
- Electron Transport Chain Animation:
<http://www.sumanasinc.com/webcontent/animations/content/electrontransport.html>

Chapter 5 *Cell Growth and Division*

Georgia Standard:

- ***SB1.a Explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction.***
- ***SB2.e Compare the advantages of sexual reproduction and asexual reproduction in different situations.***
- ***SB3 Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.***

Key Ideas: 5.1 The Cell Cycle

5.2 Mitosis and Cytokinesis

5.3 Regulation of the Cell Cycle

5.4 Asexual Reproduction

5.5 Multicellular Life

Video Reviews:

- **Mitosis:** <https://www.youtube.com/watch?v=L0k-enzoeOM&list=PL3EED4C1D684D3ADF&index=12>
- **Cell Cycle and Mitosis:** <https://www.youtube.com/watch?v=1cVZBV9tD-A>
- **Mitosis vs. Meiosis:** https://highered.mheducation.com/sites/9834092339/student_view0/chapter11/comparison_of_meiosis_and_mitosis.html
- **Cell Reproduction worksheet (scroll down) :** <https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>

Review Work:

- Cell Cycle Quiz: http://www.proprofs.com/quiz-school/story.php?title=cell-cycle_2
- Cell Cycle Labeling worksheet: http://www.biologycorner.com/worksheets/cellcycle_labelme.html
- Cell Cycle worksheet: chrome-extension://mloajfnmjckfjbeeofcdaecbelnbliden/https://enlinsscience.wikispaces.com/file/view/CK-12+Biology+Chapter+5+Worksheets.pdf
- Mitosis Quiz: <http://www.proprofs.com/quiz-school/story.php?title=dna-mutation-mitosis>
- Mitosis with Quiz: <http://www.sumanasinc.com/webcontent/animations/content/mitosis.html>

Chapter 6 *Meiosis and Mendel*

Georgia Standard:

- ***SB2 Students will analyze how biological traits are passed on to successive generations.***
- ***SB1.a Explain the role of cell organelles for both prokaryotic and eukaryotic cells, including the cell membrane, in maintaining homeostasis and cell reproduction.***
- ***SB2.c Using Mendel's laws, explain the role of meiosis in reproductive variability.***

Key Ideas: 6.1 Chromosomes and Meiosis

6.2 Process of Meiosis

6.3 Mendel and Heredity

6.4 Traits, Genes, and Alleles

6.5 Traits and Probability

6.6 Meiosis and Genetic Variation

Video Reviews:

- **Meiosis:** <https://www.youtube.com/watch?v=qCLmR9-YY7o&list=PL3EED4C1D684D3ADF&index=13>
- **Heredity:** <https://www.youtube.com/watch?v=CBezq1fUEA&list=PL3EED4C1D684D3ADF&index=9>

Review Work:

- Meiosis Quiz: http://www.proprofs.com/quiz-school/story.php?title=meiosis_7
- Cell Cycle worksheet: chrome-extension://mloajfnmjckfjbeeofcdaecbelnbliden/https://enlinsscience.wikispaces.com/file/view/CK-12+Biology+Chapter+5+Worksheets.pdf
- Heredity Quiz: <http://www.proprofs.com/quiz-school/story.php?title=simple-genetics-quiz>
- The Biology Corner Genetics: <http://www.biologycorner.com/lesson-plans/genetics/>
- Chromosome and Meiosis Reinforcement Worksheet (scroll down): <https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>
- Meiosis Animation with Quiz: <http://www.sumanasinc.com/webcontent/animations/content/mitosis.html>
- Mendel and Heredity Animation: <http://www.sumanasinc.com/webcontent/animations/content/mendeli ndassort.html>

Chapter 7 Extending Mendelian Genetics

Georgia Standard:

- ***SB2.c Using Mendel's laws, explain the role of meiosis in reproductive variability.***

Key Ideas: 7.1 Chromosomes and Phenotype

7.2 Complex Patterns of Inheritance

7.3 Gene Linkage and Mapping

7.4 Human Genetics and Pedigrees

Video Reviews:

- **Complex inheritance:**
<https://www.youtube.com/watch?v=LFkCT1QP9ak>
- **Gene linkage and Mapping:**
<https://www.youtube.com/watch?v=TU44tR0hJ8A>
- **Chromosomes and Phenotype:**
<https://www.youtube.com/watch?v=lal1aaf14PQ>
- **Pedigree charts:** <https://www.youtube.com/watch?v=HbIHjsn5cHo>

Review Work:

- Genetics Quiz: <http://www.proprofs.com/quiz-school/story.php?title=simple-genetics-quiz>
- Pedigree Quiz: <http://www.proprofs.com/quiz-school/story.php?title=pedigree-chart-reading>
- Blood Type and complex inheritance:
<http://www.learner.org/interactives/dna/genetics8.html>
- Complex Inheritance with answers: chrome-extension://mloajfnmjckfjbeeofcdaecbelnbliden/http://lhsblogs.typepad.com/files/codominance-and-incomplete-dominance-key-3.pdf
- Human Genetics Worksheet #1 and #2 (scroll down) :
<https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>

Chapter 8 *From DNA to Proteins*

Georgia Standard:

- ***SB2.b Explain the role of DNA in storing and transmitting cellular information.***
- ***SB2.a Distinguish between DNA and RNA.***
- ***SB2.d Describe the relationships between changes in DNA and potential appearance of new traits including mutagenic factors that can alter DNA.***

Key Ideas: 8.1 Identifying DNA as the Genetic Material

8.2 Structure of DNA

8.3 DNA Replication

8.4 Transcription

8.5 Translation

8.6 Gene Expression and Regulation

8.7 Mutations

Video Reviews:

- **DNA structure and Replication:**
<https://www.youtube.com/watch?v=8kK2zwwjRV0M&list=PL3EED4C1D684D3ADF&index=10>
- **Transcription and Translation:**
<https://www.youtube.com/watch?v=itsb2SqR-R0>
- **Mutations:** <https://www.youtube.com/watch?v=eDbK0cxKKsk>
- **Regulation of Gene Expression:**
<https://www.youtube.com/watch?v=3S3ZOmleAj0>

Review Work:

- Intro to DNA: <http://ghr.nlm.nih.gov/handbook/basics/dna>
- How DNA controls the workings of the Cell Worksheet (scroll down):
<https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>

- Secret Pseudo Protein Code Worksheet (scroll down) :
<https://www.delsearegional.us/academic/classes/highschool/science/mnicastro/worksheetsB.htm>
- DNA quiz: http://www.proprofs.com/quiz-school/story.php?title=dna-quiz_71
- Transcription quiz: <http://www.proprofs.com/quiz-school/story.php?title=transcription-practice>
- Translation Quiz: http://www.proprofs.com/quiz-school/story.php?title=translation_1
- Transcription Worksheet: chrome-extension://mloajfnmjckfjbeeofcdaecbelnbliden/http://infohost.nmt.edu/~klathrop/biology/dna/Transcription%20Worksheet.pdf
- Gene Regulation Animation:
<http://www.sumanasinc.com/webcontent/animations/content/lacoperon.html>

Chapter 9 *Frontiers of Biotechnology*

Georgia Standard:

- ***SB2. F Examine the use of DNA technology in forensics, medicine, and agriculture.***
- ***SB1.b Explain how enzymes function as catalysts.***
- ***SB2.d Describe the relationships between changes in DNA and potential appearance of new traits including insertions.***

Key Ideas: 9.1 Manipulating DNA

9.2 Copying DNA (PCR)

9.3 DNA Fingerprinting

9.4 Genetic Engineering

9.5 Genomics and Bioinformatics

9.6 Genetic Screening and Gene Therapy

Video Reviews:

- PCR Analysis: <https://www.youtube.com/watch?v=iQsu3Kz9NYo>
- DNA Fingerprinting and Electrophoresis: <https://www.youtube.com/watch?v=mN5lvS96wNk>
- Genetic Engineering: <https://www.youtube.com/watch?v=H7FdzpE2GIE>
- Gene Therapy: <https://www.youtube.com/watch?v=bLI1Gfb0ynw>

Review Work:

- PCR Quiz: <http://study.com/academy/practice/quiz-worksheet-steps-in-the-polymerase-chain-reaction.html>
- Gel Electrophoresis Animation and Quiz: <http://www.sumanasinc.com/webcontent/animations/content/gelectrophoresis.html>
- DNA Chip Technology: <http://www.sumanasinc.com/webcontent/animations/content/dnachips.html>
- Practice work: <https://missbennettscience.wikispaces.com/Biology+-+Genetic+Engineering>

Chapter 10 *Principles of Evolution*

Georgia Standard:

- ***SB5.a Trace the history of the theory of evolution.***
- ***SB5.d Relate natural selection to changes in organisms.***
- ***SB5 Explain how fossils and biochemical evidence support the theory of evolution.***

Key Ideas: 10.1 Early ideas about evolution (how the idea developed)

10.2 Darwin's Observations

10.3 Theory of Natural Selection

10.4 Evidence of Evolution

10.5 Evolutionary Biology Today:

Video Reviews:

- **Evolution of Life:** <http://www.evolution-of-life.com/en/home.html>
- **Darwin:** <https://www.youtube.com/watch?v=pQp2IFcDEbw>
- **Natural Selection:** https://www.youtube.com/watch?v=aTftyFboC_M
- **Evidence:** <https://www.youtube.com/watch?v=cC8k2Sb1oQ8>
- **Modern Evolution:** <https://www.youtube.com/watch?v=AYBRbCLI4zU>

Review Work:

- Evolution Animation: <http://www.sumanasinc.com/webcontent/animations/content/evolution/evolution.html>
- Evolution Quiz: http://www.proprofs.com/quiz-school/story.php?title=evolution_28
- Natural Selection Quiz: http://www.proprofs.com/quiz-school/story.php?title=natural-selection_4