Crosslake Community School
ONLINE PROGRAM

Science 7B

Crosslake Community High School
2025-2026

INSTRUCTOR

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Office Hours: Wednesday 1:00pm-3:00pm

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COURSE DESCRIPTION

This is the second half of a year long course in 7th grade life sciences.

PREREQUISITES

Science 7A

COURSE GOALS & OBJECTIVES

Cell Structure and Function

Cell Theory
Analyze the contributions of different scientists to the development of the cell theory.
Identify the three components of the cell theory.
Cell Structure
Examine the functions of cell organelles.
Identify the organelles of a cell.
Cellular Interactions with the Environment
Analyze the effects of osmosis on cells.
Compare and contrast active and passive transport.
Examine the process of diffusion.

Lab: Exploring Cells
Compare and contrast the structures of plant and animal cells.
Distinguish between unicellular and multicellular organisms.
Identify prokaryotic cells and eukaryotic cells.
Animal and Plant Cells
Compare and contrast animal and plant cells.
Differentiate prokaryotic and eukaryotic cells.
Identify the levels of organization in animals and plants.
Photosynthesis
Explain the steps in the process of photosynthesis.
Identify the products and reactants of photosynthesis.
Cellular Respiration
Explain the steps in the process of cellular respiration.
Identify the products and reactants of cellular respiration.
Cell Cycle
Distinguish the steps of mitosis.
Identify the three stages of the cell cycle.
Meiosis
Asexual and Sexual Reproduction
Analyze the process of sexual reproduction.
Compare and contrast asexual and sexual reproduction.
Examine the different types of asexual reproduction.
Identify the advantages and disadvantages of both asexual and sexual reproduction.

Genetics and Heredity

Genetic Code
Analyze the contributions of different scientists to the discovery of the genetic code. Examine how cells make proteins.
Identify the components and structure of DNA.
Relate DNA, genes, and chromosomes.
DNA Mutations
Analyze the effects of DNA mutations on the traits of an organism. Distinguish common types of DNA mutations.
Differentiate meiosis from mitosis.
Explain why meiosis is necessary for sexual reproduction.
Identify and describe the steps of meiosis.
Introduction to Heredity
Differentiate between genotype and phenotype.
Distinguish dominant and recessive alleles.
Examine the contributions made by Gregor Mendel to the field of genetics.
Explain how traits are inherited.
Predicting Heredity
Define probability and use it to explain the results of a genetic cross.
Determine the probability of genotype combinations using a Punnett square.
Identify the phenotype of an organism based on its genotype.
Inheritance Patterns
Differentiate between codominance and incomplete dominance.
Examine multiple alleles and polygenic inheritance, and give examples of each.
Lab: Heredity and Punnett Squares
Construct a Punnett square given the genotypes of the parents.
Determine the possible genotypes of the offspring using a Punnett square.

Relate the genotypes of the offspring to their phenotypes.
Advances in Genetics
Compare the processes of selective breeding, cloning, and genetic engineering.
Describe the impact of genetic technologies on society and the environment.
Examine the use of gene therapy to treat disease.

Natural Selection and Evolution

The Theory of Evolution
Analyze the historical development of the theory of evolution.
Examine the evidence Darwin used to support his theory of evolution.
Summarize Darwin's theory of evolution.
Natural Selection
Describe factors that contribute to the extinction of a species
Examine how natural selection leads to evolution.
Identify the conditions required for natural selection.
Identify ways in which genetic variation and environmental factors contribute to natural selection.
Lab: Natural Selection
Analyze data to determine phenotype changes through generations.
Examine natural selection within a population.
The Fossil Record
Examine how the fossil record indicates a long history of changing life-forms.
Explain how scientists determine the age of a fossil.
Identify how a fossil forms.
Evidence for Evolution
Compare patterns of embryological development in different organisms.
Determine how comparative anatomy supports the theory of evolution.
Evolutionary Relationships
Analyze the relationships among organisms based on a variety of shared characteristics.
Interpret evolutionary relationships among organisms on a cladogram.

Virtual Dissection

Students will be able to label the parts of an earthworm and a frog.

The Human Body

Body Organization and Homeostasis
Analyze how organ systems function together to maintain homeostasis.
Identify and order the levels of organization in the body.
The Nervous and Endocrine System
Analyze how negative feedback works in the endocrine system.
Analyze how sensory receptors communicate with the brain in response to stimuli.
Examine the major structures and functions of the endocrine system.
Identify the major structures and functions of the nervous system.
The Musculoskeletal and Integumentary Systems
Compare and contrast the three types of muscle.
Describe how bones and muscles work together to allow movement.
Examine the major structures and functions of the integumentary system.
Identify the major structures and functions of the musculoskeletal system.
The Circulatory and Respiratory Systems
Analyze the components of blood.
Describe how breathing and gas exchange occur.
Examine the major structures and functions of the respiratory system.

Identify the major structures and functions of the circulatory system.
The Digestive and Excretory Systems
Analyze how the kidneys work.
Examine how food is physically and chemically broken down by the digestive system.
Identify the major structures and functions of the digestive system.
Identify the major structures and functions of the excretory system.
Diseases
The Immune System
Distinguish between passive and active immunity.
Examine how the immune system protects the body from disease.
Identify the major structures and functions of the immune system.
Analyze the effects of different diseases on major organs and body systems.
Compare and contrast types of infectious agents.
Differentiate between an epidemic and a pandemic.
Distinguish between infectious and noninfectious diseases.
Human Health
Analyze how environmental factors can affect an individual's health.
Assess how heredity can affect an individual's health.
Examine how life choices can affect an individual's health.
Medicine and the Immune System
Analyze the body's response to vaccinations.
Discuss the body's response to transplants.
Explain how the body reacts to medicine.
Science Practice: Use scientific evidence to support an argument.

REQUIRED MATERIALS

Students need internet access, ability to navigate Edgenuity, Google applications.

TECHNICAL REQUIREMENTS

Basic computer literacy, access to internet, computer, and printer.

TEACHER CONTACT & COMMUNICATION

Regular communication is critical to your success in this class. It is important that as soon as you have a question you cannot answer, that you reach out to me or your Learning Coach. Or, if I contact you, that you respond quickly so you can get the most out of this course..

Feedback

I will grade assignments regularly, usually within 2 school days, and provide feedback to you on these assignments. Read through the feedback and ask clarifying questions, since I write these comments to help you improve your learning in this course.

Office hours

I will be available to answer questions and help work through assignments during the common hours posted at the top of this syllabus. This is a great time to contact me since I will usually be able to get back to you very quickly. I also schedule a regular weekly meeting with each student.

Additional support

If you need additional academic support beyond regular feedback and communication with me, please let me or your Learning Coach know so that we can connect you with appropriate help.

COURSE POLICIES

Attendance/Participation Policy

Attendance and participation are based on daily logins to the course and regular completion of assignments. To stay on track, you should follow the due dates for activities and assignments listed in the syllabus or learning management system. For more specific information about attendance, including excused/unexcused absences, see the Crosslake Community High School Parent/Student Course Handbook

Missing or Late Work

All work is due at the end of the semester. However, if a student waits until the last week or two to complete the coursework, it is unlikely that he or she will earn a passing grade. To help you plan and manage time, I have created a course schedule included in the syllabus. Missing work at the end of the semester will be counted as 0 points.

Questions

Please ask questions as soon as you have them; if you aren't clear on a concept, it is likely that others have the same question. The sooner you ask a question, the sooner I can help you!

Academic integrity

Learning involves your engagement with life. Even a small effort on your part is better than copying someone else. Plagiarism and copying will result in an automatic zero for the assignment, test, or quiz.

This is a safe place to be yourself and express yourself. There are no stupid questions. Everyone has dignity and is respected. Everyone participates to the best of their ability.

Most importantly, communication with me, your teacher, is essential. If you have any questions, need more time, or have any other issues, please get in touch with me as soon as possible.

COURSE ACTIVITIES

Activity type	# in course	Points each	Total points	% of final grade
Assignments				35%

Quizzes				20%
Tests				15%
Labs/projects				15%
Class Participation				10%
Projects				5%
TOTAL				**100%**

COURSE OUTLINE & SCHEDULE

(This is a guideline based on students starting at the beginning of the semester. Students starting later in the term will have a different schedule. Look at your course management system for the current due dates.)

Week	Start Day	Unit	Assignments Due
1		**Cell Structure and Function**	
2		"	
3		"	
4		"	
5		**Genetics and Heredity**	
6		"	
7		"	
8		"	
9		**Natural Selection and Evolution**	
10		"	
11		"	
12		**Virtual Dissection**	
13		**The Human Body**	

14		“	
15		“	
16		“	

Supplemental Student Communication

Progress Reporting

CCHS staff will submit progress reports to the local school contact person upon completion of the student's academic term. The student and family may access regular progress reports in the online learning platform through the student gradebook anytime.

Final Grades and Submissions

Semester and final grades are submitted to the school counselor within 10 days of the end of the semester. Successfully completed CCHS courses are worth .5 semester credits; credit conversions and graduation requirements do differ between school districts. Contact your school counselor for your local district's graduation requirements and credit conversion.