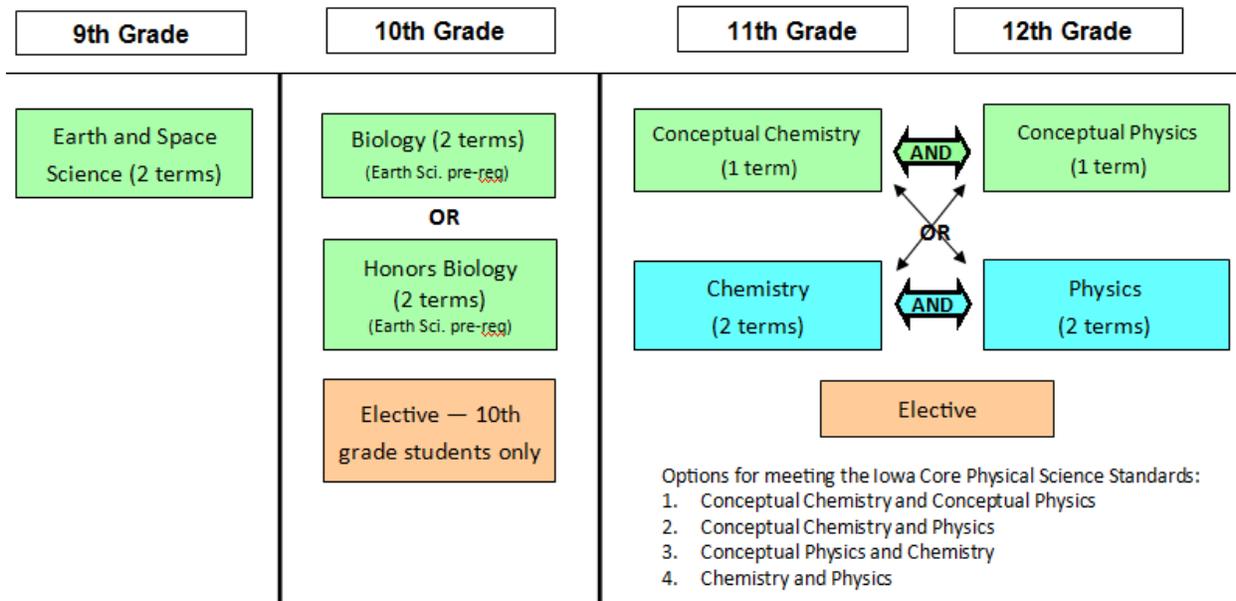


# SCIENCE

## Recommended Science Course Flow

Graduation Requirements: 1 credit Earth Science; 1 credit Life Science (Biology); completion of 1 listed option for Physical Science



Graduation Requirements: 1 credit Life Science; 1 cred Earth Science; completion of 1 option for Physical Science							
Subject	Course#	Credits	Grade Level				Prerequisites and related info
			9	10	11	12	
<b>EARTH SCIENCE</b>							
Earth & Space Science (2 terms)	170141 170142	1	X	X	X	X	None
<b>LIFE SCIENCE</b>							
Biology (2 terms)	171141 171142	1	X	X	X	X	Earth & Space Science, Algebra I or Basic Algebra I
Honors Biology (2 terms)	171153 171154	1	X	X	X	X	Earth & Space Science, Algebra I
<b>PHYSICAL SCIENCE</b>							
Conceptual Chemistry	173120	0.5		X	X	X	Earth & Space Science, Biology, & Algebra I <b>Meets DCSD Graduation requirement but will not be recognized by major four-year colleges or universities.</b>
Conceptual Physics	173121	0.5		X	X	X	Earth & Space Science, Biology, & Algebra I <b>Meets DCSD Graduation requirement but will not be recognized by major four-year colleges or universities.</b>
General Chemistry (2 terms)	172111 172112	1		X	X	X	Biology and Algebra I
Physics (2 terms)	173111 173112	1		X	X	X	Completion of Geometry with a "C" or higher required or teacher approval.

GENERAL ELECTIVES							
Invertebrate Zoology	171411	0.5		X	X	X	Biology
Vertebrate Zoology	171442	0.5		X	X	X	Invertebrate Zoology
Anatomy & Physiology (2 terms)	171311 171312	1		X	X	X	Biology
Forensics Science	174221	0.5		X	X	X	Chemistry or Conceptual Chemistry
Astronomy & Geology	170151	0.5		X	X	X	Earth & Space Science
Meteorology & Oceanography	170152	0.5		X	X	X	Earth & Space Science
Genetics	171431	0.5		X	X	X	Biology required; General Chemistry recommended
AP Biology (3 terms)	171511 171512 171513	1.5		X	X	X	Biology and General Chemistry
Advanced Chemistry	172331	0.5		X	X	X	Successful completion of General Chemistry and Algebra II required. Physics is recommended.
AP Chemistry (3 terms)	172511 172512 172513	1.5		X	X	X	Successful completion of Advanced Chemistry and Algebra II required. Physics is strongly recommended.
AP Physics I (3 terms)	171351 171352 171353	1.5			X	X	Successful completion of Algebra II.
AP Physics II (3 terms)	000043 000044 000045	1.5			X	X	Successful completion of Algebra II and Physics or AP Physics I.
Environmental Science (ENV111)	030001 030002	1			X	X	Completion of graduation requirements or permission from instructor required. <b>4 college credits +</b>
Independent Study Science Laboratory Assistant	179331 179332	0.25			X	X	Successful completion of a 2-term course in biological or physical science. Supervising science teacher recommendation required.

### College Credits and Transfer Key

+	Transfers to some state colleges as equivalent course.
◆	Transfers to some state colleges as elective credit.
◆	Nontransferable at some colleges

## SCIENCE COURSE DESCRIPTIONS

The Science offerings at Davenport high schools provide unique learning experiences dealing with the technology and understandings necessary for survival in a changing society. These course offerings are designed and arranged to allow student movement from a basic general level to one which provides a broader and deeper experience in the sciences. Students will be assessed a fee for goggles as part of the registration process. It will be the student's responsibility to retain these goggles for use in future science classes or purchase new ones.

### EARTH SCIENCE

#### Earth and Space Science

170141, 170142

1 credit

Earth and Space Science offers insight into the environment on earth and the earth's environment in space. While presenting the concepts and principles essential to students' understanding of the dynamics and history of the earth, this course explores topics centered around three major themes: Earth and Human Activity, Earth's Place in the Universe, and Investigating Earth's Systems.

## LIFE SCIENCE

**Biology** 171141, 171142 1 credit

This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, evolution, classification, organisms, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular, cellular, and ecological levels. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

**Honors Biology** 171153, 171154 1 credit

This course uses a systems approach to biology that enhances biological themes through in-depth studies and laboratory experiments. The concepts of study include: scientific method and inquiry, organic molecules, cellular processes, DNA and genetics, evolution and ecology at an honors level. Laboratory activities are designed to be inquiry-based and student-driven. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

## PHYSICAL SCIENCE

**Conceptual Chemistry** 173120 0.5 credits

Conceptual Chemistry is a one-term, practical, non-quantitative course designed for students who desire an understanding of chemical concepts and applications. An inquiry-based, hands-on approach will be used. Concepts covered include the composition, properties, and reactions of substances. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

***Although this course counts as a physical science class for graduation from Davenport Community Schools, it does not count as Chemistry towards admission to the Iowa Regent Universities.*** Students who are not Algebra-ready can take this class as an introductory class and then take General Chemistry; the General Chemistry class counts towards admission to the Iowa Regent Universities.

**Conceptual Physics** 173121 0.5 credits

Conceptual Physics is a one-term course that introduces students to the study of physics and finding the simplest explanation for forces and laws of nature affecting matter. The course emphasizes precise measurements and descriptive analysis of experimental results. An inquiry-based, hands-on approach will be used. Concepts covered will emphasize the basic laws and theories related to mechanics, wave phenomena, electromagnetism, and physical interactions. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office. ***Although this course counts as a physical science class for graduation from Davenport Community Schools, it does not count as Physics towards admission to the Iowa Regent Universities.*** Students who are not Algebra-ready can take this class as an introductory class and then take Physics; the Physics class counts towards admission to the Iowa Regent Universities.

**General Chemistry** 172111, 172112 1 credit

A two term laboratory-oriented approach to the entry-level study of chemistry. Basic laws, theories and relationships of unit analysis; structure of matter and energy; periodic law; chemical nomenclature; chemical reactions; kinetic molecular theory; the mole concept and solutions are topics of study. Completion of this course provides a critical thinking background and a basic understanding of the principles of chemistry. There is an additional fee for materials. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

**Physics** 173111, 173112 1 credit

This two-term course is an investigation of matter and energy with a laboratory centered emphasis on the basic laws and theories related to mechanics, light, sound and electricity. There is an additional fee for materials. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

## SCIENCE ELECTIVES COURSE DESCRIPTIONS

### **Invertebrate Zoology** **171411** **0.5 credits**

Provides students with the detailed study of and laboratory activities involving animals without a backbone. An emphasis is placed on animal development, relationships, structures, behavior and natural history. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

### **Vertebrate Zoology** **171442** **0.5 credits**

Provides students with the detailed study of and laboratory activities involving animals with backbones and more advanced invertebrates. An emphasis is placed on the physical characteristics and adaptations, habitat, nutritional needs, lifestyles and the diversity within each of the five vertebrate groups. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

### **Anatomy & Physiology** **171311, 171312** **1 credit**

A systematic study of the functions and processes of the human body emphasizing the organization of the body; systems that cover, support and move the body; systems that control and regulate the body through communication; systems that transport and protect the body, metabolic processing systems; and the systems of reproduction and development. Laboratory investigations and group activities are used to enhance understanding. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

### **Forensics Science** **174221** **0.5 credits**

Explores the history of forensic science, methods of investigating a crime scene, types of evidence, analysis of fingerprints, hair, fibers, drugs, glass, soil and blood. There is an additional fee for materials. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

### **Astronomy and Geology** **170151** **0.5 credits**

This course will build on the knowledge base from the Earth and Space Science course taken in 9th Grade. Astronomy will offer students the opportunity to study the solar system, stars, galaxies, and interstellar bodies. The introduction and use of astronomic instruments as well as exploration of theories regarding the origin and evolution of the universe, space, and time will be covered. Geology will provide an in-depth study of the forces that formed and continue to affect the Earth's surface. Earthquakes, volcanoes, erosion, and the unique geology of Iowa will be covered. Meteorology and Oceanography can be taken before or concurrently with this class.

### **Meteorology and Oceanography** **170152** **0.5 credits**

This course will build on the knowledge base from the Earth and Space Science course taken in 9th Grade. Meteorology will offer students the opportunity to examine the properties of the Earth's atmosphere, including atmospheric layering, changing pressures, winds, water vapor, air masses, fronts, temperature changes and weather forecasting. Oceanography will provide an in-depth study of the content, features, and possibilities of the Earth's Oceans, exploring marine conditions and ecology. Astronomy and Geology can be taken before or concurrently with this class.

### **Genetics** **171431** **0.5 credits**

Investigates the principles, lab methodology and applications associated with the study of inheritance of traits. This course provides students an opportunity to explore current techniques and research in genetics, including the Human Genome Project, genetic screening, gene therapy and environmental influences. Goggles are required for this course and must meet ANSI Z87.1+-2003 standards. They are available for purchase in the Activities Office.

### **AP Biology** **171511, 171512, 171513** **1.5 credits**

This 3 term course emphasizes in-depth studies and laboratory experiences. Current biological science research and literature about topics such as biotechnology and molecular genetics are studied. Students are provided an opportunity to conduct labs on a regular basis. Students are strongly encouraged to take the National CEEB Advanced Placement Exam. There is an additional fee for materials. Goggles are required for this course and must



This course emphasizes the technical role of an assistant in the biological/physical sciences with preparation of materials and supplies. It is an independent study experience for those students interested in technological opportunities.