A Complete Science Program

A complete and effective science program develops students' understanding of science through a process of inquiry, scientific knowledge and critical thinking skills.

An effective program includes a balance of time and attention to all aspects of science learning including:

- science content knowledge,
- science process skills,
- science inquiry skills,
- communication skills,
- the application of mathematics to solve problems, and
- the application of technology and the tools of science to solve problems.

Inside this issue:

Students in the class of 2010 will be required by state universities to take three years of lab science for admittance.

11-12 Science Curriculum Adoption Process

During the 2004-2005 school year, high school science teachers from across the school district came together to review and recommend quality instructional materials that best met the needs of students in the Edmonds School District.

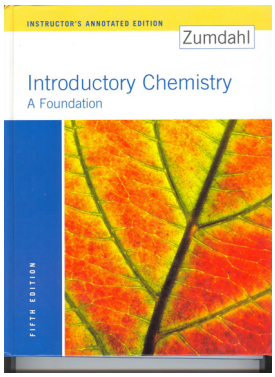
The committee began by reviewing data on current practices and instructional materials for 11th and 12th grades in each of the schools. From this data, the committee was able to determine that the inconsistencies in instructional materials and programs in each school building required the Edmonds School District to adopt new high quality instructional materials that clearly meet the description of a complete science program as determined by the Science Adoption Committee.

Once district needs were identified and standards for a complete science program were set, publishers sent texts to the committee. The committee then identified several texts that met the Edmonds School District requirements.

Identified texts were reviewed and feedback was solicited from teachers, parents, and community members in a variety of venues including parent clubs, the district instructional fair, and after school meetings throughout the year.

Using this feedback, the committee identified texts that align instructional materials to state and national science standards. The result was a common set of science instructional materials for students in 11th and 12th grade courses including: General Physics, Honors Physics, Advanced Placement (AP) Physics, International Baccalaureate (IB) Physics, General Chemistry, Honors Chemistry, AP Chemistry, IB Chemistry, AP Biology and IB Biology.

Introductory Chemistry: 5th Edition



The General Chemistry and Honors Chemistry students will be using Zumdahl's *Introductory Chemistry: A Foundation, 5th Edition* text. This text's focus is to "...make chemistry interesting, accessible and understandable to the beginning student" (Zumdahl).

This text provides not only a firm foundation in factual knowledge but also provides support for active learning with in-class discussion questions found at the end of each chapter. Additionally, this text's intentional connection of real-life experiences to chemistry adds to foster an enthusiasm and understanding of science as it pertains to the student.

Introductory Chemistry also spends a considerable amount of time engaging students in the development of problem solving skills and processes—one of the hallmarks of a complete science program.

Teachers will receive support materials for differentiated instruction for all kinds of learners, guided reading support, as well as CDs, DVDs, videos and internet resources.

Each student will have access to a text to use as well as student internet resources including interactive quizzes,

SMARTHINKING™ (an online tutorial, and other interactive resources.

Chemistry: 6th Edition

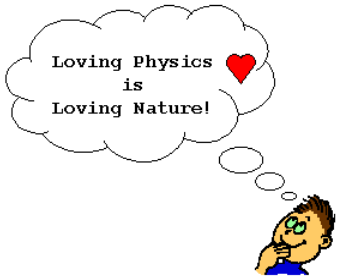
"It's after midnight, you're studying for a final and you need help. Study smarter with SMARTHINKING™...." This service allows you to review material and ask questions from trained instructors.

AP Chemistry and IB Chemistry students will be using a text recommended by our high school teachers and the College Board. This text is entitled *Chemistry: 6th Edition* by Zumdahl. *Chemistry* engages students in recognizing and overcoming common misconceptions in chemistry.

Chemistry identifies ways in which to overcome these misconceptions through a variety of means, including: discussions, illustrations and collaborative exercises aimed at providing a clear and accurate understanding of the material. Additionally, this text incorporates the following techniques for students to gain understanding of chemistry concepts :

- problem-solving
- everyday application of chemistry
- an emphasis on models
- sample exercises to reinforce the metacognition behind the "right" answer
- internet resources.

Conceptual Physics



General Physics and Honors Physics students will be using the *Conceptual Physics* text by Hewitt. *Conceptual Physics* is designed to teach students the conceptual understandings of their everyday world, as well as teaching students how to think using higher-level cognitive skills.

This text features a three-stage learning cycle with the emphasis on "doing physics." The three-stage learning cycle begins with common explorations, moves to concept development and finally to application where a significant emphasis is placed upon on thinking about and explaining the work of physics.

Each teacher will receive support materials including teacher resources, interactive CD-ROMs, concept development activities, and problem-solving exercises.

Students will have access to a text as well as related resources from this title.

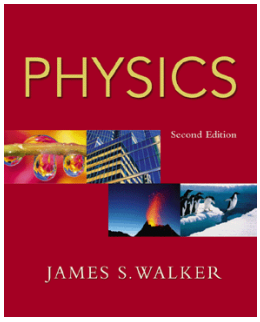
Physics: 2nd Edition

Students in the AP and IB Physics courses will use the *Physics:: 2nd Edition* text by Walker. *Physics*, recommended by the College Board, presents introductory algebra-based physics focused on not only the basic concepts and fundamental laws, but also on connecting these understandings to solve quantitative problems.

Walker uses a variety of techniques and tools to teach physics, including: active examples, conceptual check points and exercises.

Teachers will receive a variety of resource material from the *Physics: 2nd Edition* text, including an instructor's resource manual, solutions manual, test item file, lab manual, student pocket companion, study guides and CD-ROMs.

Students will receive texts to use throughout the course. Additionally, students will have access to an internet-based study guide at http://cm.prenhall.com, and a companion website http://physics.prenhall.com/walker. These internet resources will provide quick, interactive resources that allows students to check their understanding.

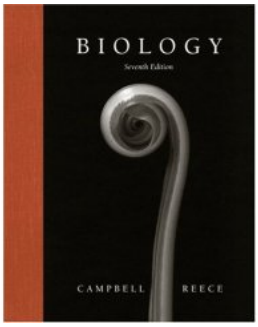


Biology: 7th Edition

Students in the AP and IB Biology courses will receive Campbell and Reece's *Biology: 7th Edition*. *Biology* identifies "Six Secrets to Success" for the biology student. Those six secrets are 1), be an active learner in the classroom, 2), be an active learner out of the classroom, 3), use available resources, 4), do not rely on memorization alone, 5), use time wisely, and 6), make connections from the classroom to the world around you.

Biology structures each chapter around five or six identified key concepts. Additionally, an overview at the beginning of each chapter sets the stage for the rest of the chapter. Throughout each chapter, concept checks encourage students to assess their mastery of the concept.

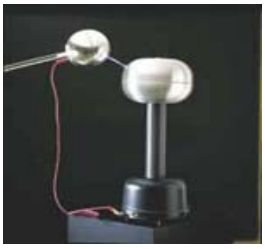
With thorough and complete explanations combined with excellent illustrations, a useful glossary, an index, and many photo-micrographs, this text has received rave reviews from instructors and students alike.



Science Classroom Materials Adoption

In addition to the instructional text adoption, instructional hardware was also identified as a necessary component of creating a complete science program. The hardware support includes the following:

- autoclave (for conducting bacteria labs that require sterilization): one per school building
- spectrophotometer: one per school building
- Van De Graaff Generator: one per school building
- probeware (hand held calculator sensors with computer interface software): ten per school building
- microscopes: 15 per school building
- fume hoods (to protect the classroom from harmful fumes): one per school building.



Van de Graaff Generator

Edmonds School District #15

20420 68th Avenue West

Lynnwood, WA

98036-7400

Phone 425.670.7194

Fax: 425.670.7123

www.edmonds.wednet.edu

Family Reference Points

Students will have access to a variety of materials accessible from home, including internet resources and text resources. Below is a list of resources for national science standards as well as resources for chemistry, physics, and biology courses.

Chemistry

- text identified internet resources:
  - www.hmco.com/college
  - General and Honors Chemistry: User ID: chemical, Password: bonding
  - AP and IB Chemistry: User ID: acid, Password: base
  - www.smarthinking.com (accessed by a unique user name and password)

Physics

- text identified internet resources:
  - cm.prenhall.com and, physics.prenhall.com/walker

Biology

- text identified internet resources:
  - www.campbellbiology.com
  - www.biology.com
  - www.biologylabsonline.com

Science Standards

- national science standards www.nsta.org/standards
- AP standards/information www.collegeboard.com
- IB Standards (contact EWHS)

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