HSAED – BIOLOGY / BIOTECHNOLOGY / GENETICS

Cambridge Core Science Series: BioBasics R7 500.00

The Series Includes : Introduction to Life Science | Cells: The Building Blocks of Life | Genetics and Evolution | Organization and Diversity | Life Processes of Animals | Life Processes of Plants | Microorganisms | Interdependence of Life

Description

Use the comprehensive eight-part *BioBasics* series to excite your students about life science as you present the fundamental concepts they'll need for a firm foundation in biology! An engaging blend of computer graphics, interviews with scientists, and animations will hold their attention as they open their minds to a wide range of essential life science topics. Viewable/printable instructor's guides are available online. **Correlates to National Academy of Sciences National Science Education Standards and the American Association for the Advancement of Science Benchmarks for Science Literacy.** A Cambridge Educational Production. 8-part series, 16-24 minutes each. **Item#:** HSBIO001, **Copyright date:** ©2005

The Gene R2 000.00

This DVD features dramatizations of landmark experiments in genetics, including the work of Mendel and the studies of Watson and Crick. It illustrates the structure of a gene and covers such topics as the genetic code, mutations, and DNA.

DVD / 2004 / 40 min / HSBIO002

Understanding Genetics: DNA, Genes, R6 500.00

and Their Real-World Applications

In this lecture series, David Sadava traces scientific discoveries surrounding DNA and genetics. Sadava covers such topics as human inheritance, Mendel, genes, chromosomes, DNA's role in human disease, DNA structure and replication, metabolism, enzymes, genomes, recombinant DNA, isolating genes, biotechnology, manipulating DNA, evolution, molecular medicine, and genetic engineering.

DVD / 2008 / 30 min each / HSBIO003

Chromosomes and Genes R2 000.00

This program shows how genetics influence physical appearance, behavior, and personality. It offers unique lessons on x and y chromosomes, dominant and recessive genes, DNA, Mendel, and genetic engineering.

DVD / 2002 / 42 min / HSBIO004

Genetics and Evolution R2 000.00

This DVD discusses the relationship between genetic diversity and evolution, the theory of natural selection, and trait inheritance. It considers applications of genomics to agriculture and environmental studies.

DVD / 2005 / 25 min / HSBIO005

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Basic Cell Growth, Division, and Genetics R2 000.00

Tracing the history and outlining the basic rules of genetic studies, this program discusses genetics and examines the biochemical process responsible for the differences and similarities among the same species. It covers such topics as chromosomes, mitosis, meiosis, sex determination, genes, DNA, and RNA.

DVD / 2004 / 44 min / HSBIO006

The Human Body: How We Fail, How We Heal R2 000.00

In this lecture series, Anthony Goodman examines the ways in which the human body defends itself against disease and injury. He covers such topics as cell biology, inflammation, the immune response, allergies, bacteria, viruses, and wound healing. *DVD / 2007 / 30 min each / HSBIO007*

Genetics and Heredity: The Blueprint of Life R2 000.00

This program illustrates the structure of DNA and explores mitosis and meiosis. It explains heredity, differentiates between pure and hybrid traits, discusses recessive and dominant genes, and shows how the Punnett square is used. The program also looks at genetic disorders and biotechnology.

DVD / 2005 / 22 min / HSBIO008

Biotechnology: Gene Guns and Genetic Engineering R2 000.00

Examining advances in the field of biotechnology, this program covers such topics as cloning, gene splicing, in vitro fertilization, embryo adoption, and bovine growth hormones. The DVD explains the concept of the gene gun.

DVD / 2002 / 66 min / HSBIO010

DNA Biotechnology R2 000.00

This set examines cell division; the structures of chromosomes; and DNA replication, transcription, and translation. It demonstrates plasmid preparation and DNA hybridization and shows bacterial screening and DNA sequencing.

2 DVDs / 1996 / 84 min total / HSBIO011

Biotechnology on the Farm and in the Factory: R2 000.00

Agricultural and Industrial Applications

As the world's population and overall standard of living continue to increase, the growing demand for food, fuel, and consumer products has reached unprecedented levels. This program examines how biotechnology is helping to meet those needs through genetic engineering to increase crop yields and improve the nutritional value of key staple foods; animal agriculture, founded on selective breeding and edging toward lab-based genetic engineering; and industrial applications of biotech in the manufacturing of chemicals, textiles, beverages, and fuel. Commentary is provided by Steve Pueppke and Len Fleck, of Michigan State University; Farzaneh Teymouri and Susanne Kleff, of MBI International; Jeanne Orhnberger, of Genetics Squared; and Bob Forgey, of ProNAi Therapeutics. A Films for the Humanities & Sciences Production. (28 minutes)

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Artificial Insemination (AI): The First Great Animal Biotechnology R2 000.00

This video traces the history of artificial insemination and examines the process from semen collection to insemination. It considers the genetic improvements that result from the technique.

DVD) / 2000 / 10 min / HSBIO013

Fundamental Animal Microgenetics R2 000.00

This DVD looks at the genetic, biochemical, and environmental processes that result in the similarities and differences among animals of the same species. It traces the history of genetic studies and discusses chromosomes, mitosis, meiosis, sex determination, genes, DNA, and RNA. *DVD / 1996 / 44 min / HSBIO014*

Core Biology: Animal Sciences R2 000.00

This program examines important scientific discoveries that have advanced our knowledge of human physiology, nutrition, genetics, animal breeding, and wildlife ecology. It covers such topics as animal classification, physiology, and animal behavior. *DVD / 2007 / 30 min / HSBIO015*

Insect Identification R2 000.00

This set outlines the characteristics of the orders of insects, showing such identifying features as mouth parts and antennae. It covers such orders as Ephemeroptera, Neuroptera, Siphonoptera, Hemiptera, Homoptera, Coleoptera, Lepidoptera, Diptera, and Hymenoptera.

DVD / 1992 / 64 min total / HSAGRI124

HSAGRI125 COLLECTION AND PRESERVATION OF INSECTS, DVD R2 000.00

Learn why, how, where and when to collect insects. The featured expert identifies necessary equipment and demonstrates techniques for using it to obtain insects. Viewers also learn humane killing techniques; how to preserve specimens in alcohol, on slides and on pins; how to use spreading boards; to enter data; and recommended storage containers. A supplement is included. Duration: 23 minutes

HSAGRI126 INSECT METAMORPHOSIS AND STRUCTURE, DVD R2 000.00

The program focuses on the structure of insects: body, head, thorax, abdomen, leg and wing. Aspects of four types of metamorphosis (none, gradual, incomplete and complete) are shown, noting differences in the insect's size and form after each molt. Microscopic views of important mouthparts, antennae and wings help illustrate concepts. Specific insects are used to help illustrate identification of concepts and structures: exoskeleton (carpet beetle), metamorphosis (silverfish, grasshopper, dragonfly, butterfly), body (cockroach, flea, walkingstick, lady beetle), head (sphinx moth) and wing (green stink bug). A supplement is included. Duration: 22 minutes

HSAGRI127 ID AND CLASSIFICATION OF INSECTS, DVD R2 000.00

Focusing on the scope and role of insects in the animal kingdom, the educational videotape provides viewers with the knowledge to enable them to identify and classify hundreds of insects. The instructor explains the purpose and work of entomologists and the importance- both beneficial and destructive- of insects within the environment. The expert demonstrates how to use characteristics and structures to identify insects for up to four classification levels. He uses both the pictorial and dichotomous taxonomic keys to identify insects. A supplement is included. Duration: 25 minutes

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HSAGRI128 **ANTHROPOD IDENTIFICATION, DVD** **R2 000.00**

Students learn identification characteristics for ticks, mites, spiders, and scorpions. The featured expert illustrates members of five classes and eight orders to help viewers identify such familiar arthropods as the Brown recluse spider, black widows, Lone Star tick, scorpions, daddy-longlegs and pillbugs. Size, color and unique characteristics (mouthparts, antennae, legs and body parts) are provided. A 5-question pre-test and a 25-question final quiz are included on the video. Specific arthropods shown include: Lone star tick, fowl tick, spider mite, black widow, brown recluse, crab spider, black and yellow argiope, wold spider, jumping spider, scorpion, whipscorpion, windscorpion, sunscorpion, sunspider, harvestmen, daddy-longlegs, pseudoscorpion, pillbug, sowbug, millipede and centipede. A supplement is included.
Duration: 20 minutes

HSAGRI129 **INSECT ID, DVD** **R2 000.00**

Live-action video of two dozen orders of insects and their corresponding common species is provided. Identifying characteristics (mouth parts, antennae, and other unique features) are outlined. The following orders are just a few discussed: Collembola, Blattaria, Neuroptera, Homoptera and Diptera. Learn why all insects are bugs, but not all bugs are insects. View footage of some of the most well known insects combined with some of the most specialized species in the world. A supplement is included. Duration: 65 minutes

Protein Synthesis: Transcription and Translation R2 000.00

This program compares the structure and functions of and the relationships between DNA and RNA. It looks at types of RNA and illustrates the processes of transcription and translation.

DVD / 2008 / 30 min / HSBIO016

Plasma Membranes and Solutions R2 000.00

This program investigates the characteristics and structures of plasma membranes and examines related processes, including diffusion, osmosis, osmotic pressure, facilitated and active transport, endocytosis, and exocytosis. It contrasts active and passive processes; considers environmental factors that affect the speed of diffusion; and discusses characteristics of hypertonic, hypotonic, and isotonic solutions.

DVD / 2008 / 30 min / HSBIO017

Meiosis, Sexual Reproduction, and Genetic Variability R2 000.00

This DVD compares asexual and sexual reproduction and describes chromosomes and homologous pairs. It discusses the difference between haploid and diploid cells and explains the three major eukaryotic life cycles. The program also shows how meiosis creates genetic variability in a species.

DVD / 2005 / 26 min / HSBIO018

Energetics: An Overview R2 000.00

This DVD explores topics in energetics. It discusses the first and second laws of energy, ATP, exergonic and endergonic reactions, fusion, photosynthesis, cellular oxidation of glucose, food chains and webs, and energy flow in ecosystems.

DVD / 2008 / 30 min / HSBIO019

Cells and Their Structures R2 000.00

This DVD discusses the relationship between surface area and volume, prokaryotic cells and their structures, and eukaryotic cells and their organelles. It also explores microscopy and distinguishes between magnification and resolving power.

DVD / 2008 / 30 min / HSBIO020

The Relationship of Viruses and Bacteria to Disease — R2 000.00

This DVD compares the structures and functions of viruses and cells, describes the role that viruses play in causing disease, and identifies bacteria's role in maintaining digestive health and in causing illness. It also covers such topics as viral reproduction, similarities and differences between bacteria and eukaryotes, and types of bacteria.

DVD / 32 min / 2011 – HSBIO022

Microscopes — R2 000.00

Exploring microscopes, this DVD discusses lenses, refraction points, crown and flint glasses, eyepieces, and lamps. It covers magnification and emphasizes the importance of correct lighting.

DVD / 21 min / 1992 –HSBIO023

Humans and Bacteria — R2 000.00

This program describes the complex ecosystem of bacteria living in the human body. It examines the three major shapes of bacteria (cocci, bacilli, and spirilla) and explains the range of respiratory adaptations that further classify bacteria into obligate aerobes, facultative anaerobes, and obligate anaerobes.

DVD / 41 min / 1994 – HSBIO024

Protists: Protozoa — R2 000.00

This DVD identifies the characteristics of Kingdom Protista and explains what organisms fall into this classification. It looks at such phyla as Ciliophora, Sarcodina, Sporozoa, and Mastigophora.

DVD / 25 min / 2011 – HSBIO025

Fungi: Decomposers and Parasites — R2 000.00

This DVD examines mycelia and shows how fungi obtain nutrients through either parasitic or symbiotic relationships or by feeding on decaying matter. It covers the major divisions of fungi and discusses unique fungal adaptations.

DVD / 28 min / 2005 – HSBIO026

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Biochemistry I: Atoms, Ions, and Molecules R2 000.00

This program describes the basic structures of atoms and shows how ions are formed. It discusses organic and inorganic molecules, polar and nonpolar molecules, and hydrogen bonds.

DVD / 2005 / 28 min / HSBIO027

Biochemistry: Proteins and Lipids R2 000.00

This DVD identifies protein functions and describes lipids. It covers enzymes, transport and carrier proteins, fatty acids, triglycerides, phospholipids, glycolipids, and energy values of organics.

DVD / 2008 / 30 min / HSBIO028

Biochemistry: General Concepts and Important Inorganics R2 000.00

This DVD compares organic and inorganic molecules and explores such topics as monomers and polymers; dehydration synthesis; important organic groups; characteristics of water; acids, bases, and pH; and buffers.

DVD / 2008 / 30 min / HSBIO029

Biochemistry: Carbohydrates and Proteins R2 000.00

This program describes the characteristics and functions of carbohydrates. It identifies structural formulas and common mono-, di-, and polysaccharides and details the process of disaccharide synthesis. The program also discusses amino acid structure, peptide bonds, complete and incomplete proteins, three-dimensional protein structures, and protein shape and function.

DVD / 2008 / 30 min / HSBIO030

Basic Chemistry: Chemical Bonding and Reactions R2 000.00

This program covers such topics in basic chemistry as compounds, ionic bonds, polar and nonpolar covalent bonds, chemical equations, chemical reactions, moles, electronegativity, valence shells, and bonding.

DVD / 2008 / 30 min / HSBIO021

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The Botany Series R6 000.00

This DVD set includes three titles: **Plant Reproduction, Photosysthesis, and Introduction To Botany** (this program is actually two separate parts). These programs provide a very good introductin to botany.
The Botany Series HSAGRI053

Introduction To Botany R2 000.00

Introduce students to the science of botany. This subject is examined from adaptation to life on land, through modern plants and human dependency and interaction ith the plant kingdom. Lab experiments that can easily be duplicated in the classroom illustrate plant structure and transport. Learn the plant kingdom via the organizing principles of plant classification and the development of modern land plants. Plant families, growth and development, soil and nutrition, tranport and movement, and natural cycles relating to plant life are all examined.

Chapters include Adaptations to Land, Non-Vascular Plants, Gymnosperms, Angiosperms, Structure and Growth of Vascular Plants, Movement and Response, Nutrition, and Plants and the Future. 2 DVDs, 50 minutes total. HSAGRI054

Photosynthesis R2 000.00

This very popular video carefully and logically examines each element in the complex interaction that is photosynthesis. Subjects covered include the nature of energy, atoms, molecules and cells; glucose and ATP; the requirements for photosynthesis; the mechanics of photosynthesis; and respiration. The role and importance of photosynthesis in the food chain and in the production of oxygen is outlined. HSAGRI055

Plant Reproduction R2 000.00

This very popular video carefully and logically examines each element in the complex interaction that is photosynthesis. Subjects covered include the nature of energy, atoms, molecules and cells; glucose and ATP; the requirements for photosynthesis; the mechanics of photosynthesis; and respiration. The role and importance of photosynthesis in the food chain and in the production of oxygen is outlined. HSAGRI056

Plant Biology: Core Concepts Video Clip Library R2 000.00

Description

Making plentiful use of animation, this comprehensive video clip library of 32 two- to three-minute segments brings plant biology to life! Visual learners will particularly benefit from the intricate processes and key botanical concepts illustrated in each self-contained video. A versatile teaching tool, *Plant Biology* is also an excellent student research resource.

Video segments include:

• Classification of Plants

• Plant Cells

• Plant Tissues

• Stems

- Roots
- Leaves and Transpiration
- Photosynthesis
- Cellular Respiration
- Transport of Water/Nutrients
- Seeds and Germination
- Early Seedling Development
- Seedless Nonvascular Plants: The Bryophytes
- Seedless Vascular Plants
- Nonflowering Seed Plants: The Gymnosperms
- Flowering Plants: The Angiosperms
- Life Cycles and Life History of Plants
- Plant Reproduction
- Plant and Seed Dispersal
- Plant Hormones
- Photomorphogenesis and Tropisms
- Photoperiodism and Biological Clocks
- Genetically Modified Plants
- Polyploid Plants
- Plant Nutrients
- The Rhizosphere
- Medicinal Plants
- Fungi/Mycorrhizae
- Fixing Carbon and Carbon Exchange Rate
- Defenses of Plants
- Fermentation and Plant Biotechnology

• Forestry

• Ethnobotany

A viewable/printable instructor's guide is available online.. (87 minutes)

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