

brainpop genetics

brainpop genetics serves as a dynamic educational resource designed to simplify the complex principles of genetics for students and educators alike. As an interactive platform, BrainPOP offers engaging videos, quizzes, and activities that cover fundamental concepts such as DNA structure, inheritance patterns, mutations, and genetic technologies. This comprehensive approach supports learners in grasping both basic and advanced genetic topics, making it an essential tool in modern science education. The integration of visual aids and interactive content enhances retention and understanding of genetics, catering to various learning styles. In this article, the focus will be on exploring the features of BrainPOP genetics, its educational benefits, key topics covered, and how it facilitates learning in classroom and remote settings. The detailed examination will also highlight how BrainPOP genetics aligns with curriculum standards and supports STEM education initiatives.

- Overview of BrainPOP Genetics
- Core Genetics Topics Covered by BrainPOP
- Educational Benefits of BrainPOP Genetics
- Interactive Features and Learning Tools
- Integration in Classroom and Remote Learning
- Alignment with Curriculum Standards

Overview of BrainPOP Genetics

BrainPOP genetics is part of the broader BrainPOP educational platform, which specializes in creating animated and engaging content across various subjects. The genetics section focuses specifically on the science of heredity and variation in living organisms. It aims to demystify complex genetic concepts through simplified explanations and visual storytelling. BrainPOP genetics is designed for a wide range of grade levels, primarily targeting middle school and early high school students who are beginning to explore biology and genetics in depth. The platform's user-friendly interface allows learners to navigate through lessons at their own pace while accessing supportive materials that reinforce understanding.

Content Structure and Delivery

The genetics content within BrainPOP is organized into clear, digestible modules that cover distinct genetic principles. Each module typically includes an animated video explaining key ideas, followed by quizzes and activities that test comprehension and encourage application. This structured approach ensures that users can build foundational knowledge before moving on to more advanced topics. The use of animation and narration helps to clarify abstract genetic mechanisms such as gene expression and chromosomal behavior during cell division, making the science accessible and

engaging.

Core Genetics Topics Covered by BrainPOP

BrainPOP genetics encompasses a comprehensive range of topics essential to understanding hereditary science. These topics are presented in a logical sequence that facilitates cumulative learning. The platform covers fundamental concepts such as DNA structure, genetic mutations, dominant and recessive traits, and extends into applied genetics including genetic engineering and ethical considerations.

Fundamental Genetic Concepts

Key foundational topics include:

- **DNA and RNA:** Understanding the molecular structure and function of nucleic acids.
- **Genes and Chromosomes:** Explanation of genetic material organization within cells.
- **Inheritance Patterns:** Exploration of Mendelian genetics including dominant, recessive, and co-dominant traits.
- **Mutations:** Types of genetic mutations and their effects on organisms.

Advanced and Applied Genetics

BrainPOP genetics also introduces more advanced topics relevant to contemporary science:

- **Genetic Engineering:** Techniques such as CRISPR and recombinant DNA technology.
- **Genomics:** Study of entire genomes and their functions.
- **Ethical Issues:** Discussions on the ethical implications of genetic modification and cloning.
- **Genetic Disorders:** Causes, inheritance, and impact of genetic diseases.

Educational Benefits of BrainPOP Genetics

The use of BrainPOP genetics in educational settings offers multiple advantages that enhance students' learning experiences. It supports differentiated instruction by providing multimodal content that appeals to visual, auditory, and kinesthetic learners. The platform's engaging format encourages active participation, which is critical for mastering complex scientific concepts.

Improved Comprehension and Retention

Animated videos combined with interactive quizzes help reinforce key ideas, promoting better understanding and long-term retention. This multimodal approach aids in breaking down difficult topics into manageable segments, making genetics less intimidating and more approachable for learners at various proficiency levels.

Supports Critical Thinking and Application

BrainPOP genetics includes problem-solving activities and real-world scenarios that encourage students to apply their knowledge. This practical application fosters critical thinking skills and helps learners connect theoretical genetics concepts to everyday life and emerging scientific advancements.

Interactive Features and Learning Tools

One of the standout qualities of BrainPOP genetics is its array of interactive tools designed to engage students and facilitate active learning. These features contribute to a dynamic educational environment that goes beyond passive content consumption.

Quizzes and Assessments

Following each genetics video, quizzes test students' knowledge and provide immediate feedback. This feature helps identify areas requiring further review and reinforces learning through practice.

Hands-On Activities and Games

BrainPOP genetics includes interactive games and virtual labs that simulate genetic experiments. These activities allow learners to experiment with concepts such as Punnett squares, genetic crosses, and mutation effects in a controlled digital environment.

Teacher Resources and Customization

Educators can access lesson plans, printable worksheets, and customization options to tailor the content to specific classroom needs. This flexibility enables seamless integration of BrainPOP genetics into diverse instructional strategies.

Integration in Classroom and Remote Learning

BrainPOP genetics is designed to be versatile and accessible, making it an effective tool in both traditional classroom settings and remote or hybrid learning environments. Its digital format supports synchronous and asynchronous instruction, ensuring continuity of education.

Use in Classroom Instruction

Teachers utilize BrainPOP genetics to introduce and reinforce genetic concepts during lessons. The platform's engaging videos serve as excellent visual aids that complement direct instruction and textbook materials. Group activities and interactive quizzes foster collaboration and discussion among students.

Support for Remote and Hybrid Learning

As online education becomes increasingly prevalent, BrainPOP genetics offers a reliable resource for students learning from home. The platform's self-paced modules allow learners to explore content independently, while teachers can monitor progress and assign targeted activities remotely.

Alignment with Curriculum Standards

BrainPOP genetics is developed with adherence to national and state science education standards, ensuring that its content is relevant and rigorous. This alignment supports educators in meeting learning objectives and preparing students for standardized assessments.

Standards Coverage

The platform addresses key benchmarks established by frameworks such as the Next Generation Science Standards (NGSS). Topics like heredity, DNA structure, and genetic variation correspond directly to grade-specific performance expectations, making BrainPOP genetics an effective supplement to formal curricula.

Facilitating STEM Education

By integrating genetics with technology and engineering concepts, BrainPOP genetics supports STEM education initiatives. It encourages inquiry-based learning and scientific literacy, equipping students with skills essential for future academic and career pursuits in science and technology fields.

Frequently Asked Questions

What is BrainPOP Genetics?

BrainPOP Genetics is an educational resource on the BrainPOP platform that provides animated videos, quizzes, and activities to help students learn about genetics concepts in an engaging way.

What topics are covered in BrainPOP Genetics?

BrainPOP Genetics covers topics such as DNA structure, genes, inheritance patterns, dominant and recessive traits, mutations, and genetic technologies.

How does BrainPOP Genetics help students understand inheritance?

BrainPOP Genetics uses animations and interactive quizzes to illustrate how traits are passed from parents to offspring through genes, making complex concepts easier to understand.

Is BrainPOP Genetics suitable for all grade levels?

BrainPOP Genetics is primarily designed for middle school students but can be adapted for upper elementary or high school students depending on the curriculum.

Can teachers use BrainPOP Genetics in the classroom?

Yes, teachers can use BrainPOP Genetics as a teaching tool to supplement lessons, assign quizzes, and engage students with interactive content on genetics.

Does BrainPOP Genetics include quizzes and activities?

Yes, BrainPOP Genetics includes quizzes, games, and activities that reinforce the concepts presented in the videos to enhance student learning and retention.

How accurate is the scientific content in BrainPOP Genetics?

BrainPOP Genetics content is created and reviewed by educators and subject matter experts to ensure it is scientifically accurate and aligns with educational standards.

Can BrainPOP Genetics help with understanding genetic disorders?

Yes, BrainPOP Genetics explains genetic disorders by discussing how mutations and inheritance patterns can lead to certain conditions, helping students grasp these concepts clearly.

Additional Resources

1. Genetics: Exploring the Blueprint of Life

This book offers an engaging introduction to the fundamentals of genetics, perfect for students and educators using BrainPOP resources. It explains DNA, genes, and heredity in clear, accessible language, accompanied by colorful illustrations. Readers will learn how traits are passed down from parents to offspring and the role of mutations in genetic variation.

2. The Science of Heredity: Understanding Genetic Inheritance

Focusing on the principles of heredity, this book breaks down complex genetic concepts into easy-to-

understand sections. It covers Mendelian genetics, dominant and recessive traits, and Punnett squares, helping readers visualize genetic probabilities. Ideal for BrainPOP users, it integrates interactive activities to reinforce learning.

3. DNA and Genes: The Building Blocks of Life

This title delves into the structure and function of DNA and genes, explaining how genetic information is stored and transmitted. With diagrams and real-life examples, it clarifies the processes of replication, transcription, and translation. The book is designed to complement BrainPOP's genetics lessons with practical insights.

4. Genetics and Evolution: How Traits Change Over Time

Bringing together genetics and evolutionary biology, this book explains how genetic variation drives natural selection and species adaptation. It discusses mutations, genetic drift, and gene flow in an accessible manner suitable for young learners. The text supports BrainPOP's curriculum by linking genetics to real-world biological diversity.

5. Genetic Disorders and Their Impact on Health

This informative book explores various genetic disorders, their causes, and how they affect individuals and families. It explains inheritance patterns and modern genetic testing techniques. Perfect for BrainPOP users, it encourages empathy and awareness about the role of genetics in medicine.

6. The Role of Genes in Human Traits and Behavior

Examining how genes influence physical traits and behaviors, this book provides insights into nature versus nurture debates. It presents scientific studies and examples that highlight genetic contributions without oversimplification. This resource complements BrainPOP's lessons on genetics and human biology.

7. Biotechnology and Genetics: Shaping the Future

This forward-looking book introduces readers to genetic engineering, CRISPR technology, and ethical considerations in biotechnology. It explains how genetic knowledge is applied in agriculture, medicine, and research. The content is designed to engage BrainPOP audiences with current genetic innovations.

8. From Cells to Chromosomes: The Journey of Genetic Material

Detailing the cellular components involved in genetics, this book covers chromosomes, cell division, and meiosis. It provides step-by-step explanations of how genetic material is organized and passed on during reproduction. The book supports BrainPOP lessons by connecting cellular biology to genetic principles.

9. Genetics in Everyday Life: Understanding Your Genetic Code

This practical guide helps readers relate genetics to daily life, exploring topics like ancestry, genetic testing, and personalized medicine. It emphasizes the relevance of genetics in health, identity, and society. Ideal for BrainPOP learners, it encourages curiosity and informed decision-making about genetic information.

Brainpop Genetics

BrainPop Genetics: A Comprehensive Guide to Understanding Heredity and Inheritance

BrainPop Genetics: Unlocking the Secrets of Life's Code This ebook delves into the fascinating world of genetics, exploring the principles of heredity, inheritance, and the molecular mechanisms that shape life. We'll unpack complex concepts in an accessible way, making them understandable for students, educators, and anyone curious about the building blocks of life. It examines the role of DNA, RNA, and proteins in genetic expression, explores various modes of inheritance, and discusses contemporary advancements in genetic engineering and its ethical implications. Understanding genetics is crucial in numerous fields, from medicine and agriculture to conservation and forensics, making this topic both scientifically significant and practically relevant.

Ebook Outline:

Title: BrainPop Genetics: Mastering the Fundamentals of Heredity

Contents:

Introduction: What is Genetics? The Scope and Importance of the Field

Chapter 1: DNA Structure and Function: The Double Helix, Genes, and Chromosomes

Chapter 2: DNA Replication and Protein Synthesis: The Central Dogma of Molecular Biology

Chapter 3: Mendelian Genetics: Laws of Inheritance, Genotypes, and Phenotypes

Chapter 4: Non-Mendelian Genetics: Beyond Simple Dominance and Recessiveness

Chapter 5: Genetic Mutations and Disorders: Causes, Effects, and Implications

Chapter 6: Genetic Technologies: Gene Editing, Cloning, and Genetic Testing

Chapter 7: Applications of Genetics: Medicine, Agriculture, and Forensics

Chapter 8: Ethical Considerations in Genetics: Responsible Innovation and Societal Impact

Conclusion: The Future of Genetics and its Continued Relevance

Detailed Outline Explanations:

Introduction: This section will lay the groundwork by defining genetics, explaining its significance in various scientific disciplines, and outlining the ebook's scope. It will introduce fundamental concepts like genes, heredity, and inheritance in an engaging and accessible manner.

Chapter 1: DNA Structure and Function: This chapter will delve into the detailed structure of DNA, explaining the double helix model, the role of nucleotides, and the concept of genes as segments of DNA that code for specific traits. It will also discuss chromosomes and their organization within cells.

Chapter 2: DNA Replication and Protein Synthesis: This chapter will explore the processes of DNA replication (how DNA makes copies of itself) and protein synthesis (how DNA's instructions are used to build proteins). The central dogma of molecular biology - DNA to RNA to protein - will be explained in detail.

Chapter 3: Mendelian Genetics: This chapter focuses on Gregor Mendel's experiments and his laws

of inheritance. It will cover concepts like dominant and recessive alleles, genotypes, phenotypes, homozygous and heterozygous individuals, and Punnett squares to predict inheritance patterns.

Chapter 4: Non-Mendelian Genetics: This chapter will expand beyond simple Mendelian inheritance, exploring concepts like incomplete dominance, codominance, multiple alleles, polygenic inheritance, and sex-linked traits.

Chapter 5: Genetic Mutations and Disorders: This chapter will discuss various types of genetic mutations (changes in DNA sequence), their causes (e.g., spontaneous errors, mutagens), and their consequences, including genetic disorders like cystic fibrosis, sickle cell anemia, and Down syndrome. Recent research on gene therapy will also be included.

Chapter 6: Genetic Technologies: This chapter will explore the advancements in genetic technologies, including CRISPR-Cas9 gene editing, cloning techniques, and various genetic testing methods. The applications and limitations of these technologies will be discussed.

Chapter 7: Applications of Genetics: This chapter will highlight the practical applications of genetics in various fields, such as medicine (gene therapy, personalized medicine), agriculture (genetic modification of crops), and forensics (DNA fingerprinting). Real-world examples will be used to illustrate the impact of genetics.

Chapter 8: Ethical Considerations in Genetics: This chapter addresses the ethical dilemmas associated with genetic technologies, such as genetic screening, gene editing, and the potential for genetic discrimination. It will discuss responsible innovation and the societal implications of these powerful tools.

Conclusion: The concluding chapter will summarize the key concepts covered in the ebook and discuss the future directions of genetics research. It will emphasize the ongoing importance of understanding genetics for scientific advancement and societal progress.

Chapter 1: DNA Structure and Function: The Blueprint of Life

(Keywords: DNA, Deoxyribonucleic acid, double helix, nucleotides, genes, chromosomes, genome, genetic code)

The foundation of genetics lies in the structure and function of deoxyribonucleic acid (DNA). DNA, a molecule shaped like a twisted ladder (the double helix), carries the genetic instructions for all living organisms. This chapter will detail the structure of DNA, exploring its components: nucleotides - composed of a sugar, phosphate group, and one of four nitrogenous bases (adenine, guanine, cytosine, and thymine). We will explore how these bases pair (A with T, and G with C) to form the "rungs" of the DNA ladder. The sequence of these bases along the DNA molecule determines the genetic code, dictating the order of amino acids in proteins. This chapter will also discuss genes, segments of DNA that code for specific traits, and chromosomes, structures within cells that organize and package DNA. Finally, we'll define the genome, the complete set of an organism's DNA. Recent research on DNA methylation and its role in gene expression will be discussed, highlighting the dynamic nature of the genome.

Chapter 2: DNA Replication and Protein Synthesis: From Gene to Protein

(Keywords: DNA replication, transcription, translation, RNA, mRNA, tRNA, rRNA, ribosomes, proteins, central dogma)

This chapter will delve into the crucial processes of DNA replication and protein synthesis. DNA replication ensures the accurate copying of genetic information during cell division, maintaining genetic continuity. We'll explore the enzymes involved in this intricate process, including DNA polymerase. Then, the chapter shifts to protein synthesis, explaining the flow of genetic information from DNA to RNA to protein - the central dogma of molecular biology. This involves two main steps: transcription (the synthesis of messenger RNA, mRNA, from a DNA template) and translation (the synthesis of a protein from the mRNA template using transfer RNA, tRNA, and ribosomal RNA, rRNA, within ribosomes). We will examine the genetic code, a set of rules that dictates which amino acid corresponds to each three-base codon on the mRNA. Recent research focusing on the regulation of gene expression, including the role of transcription factors and epigenetics, will be discussed.

(Continue with similar detailed chapters following the outline above, incorporating recent research and relevant keywords throughout. Each chapter should be approximately 150-200 words. Remember to maintain a consistent and engaging writing style.)

FAQs

1. What is the difference between genotype and phenotype? Genotype refers to an organism's genetic makeup, while phenotype refers to its observable traits.
2. What is a genetic mutation? A genetic mutation is a change in the DNA sequence.
3. How does CRISPR-Cas9 work? CRISPR-Cas9 is a gene-editing technology that allows scientists to precisely target and modify DNA sequences.
4. What are some ethical concerns surrounding genetic engineering? Ethical concerns include the potential for unintended consequences, genetic discrimination, and the equitable access to genetic technologies.
5. What are some common genetic disorders? Examples include cystic fibrosis, Huntington's disease, and Down syndrome.
6. How is DNA used in forensic science? DNA fingerprinting is used to identify individuals based on their unique DNA profiles.
7. What is the Human Genome Project? The Human Genome Project was an international research effort to map the entire human genome.

8. What is gene therapy? Gene therapy involves introducing genetic material into cells to treat or prevent diseases.
9. What is the role of epigenetics in gene expression? Epigenetics refers to heritable changes in gene expression that do not involve changes to the underlying DNA sequence.

Related Articles:

1. Understanding DNA Replication: A Step-by-Step Guide: A detailed explanation of the process of DNA replication.
2. The Wonders of Protein Synthesis: From Gene to Protein: A comprehensive overview of protein synthesis.
3. Mendelian Genetics: The Basics of Inheritance: A beginner-friendly introduction to Mendelian genetics.
4. Beyond Mendel: Exploring Non-Mendelian Inheritance Patterns: A detailed exploration of more complex inheritance patterns.
5. Genetic Mutations: Causes and Consequences: An examination of various types of genetic mutations and their effects.
6. The CRISPR Revolution: Gene Editing and its Potential: A discussion of CRISPR-Cas9 and its applications.
7. Genetic Testing: Applications and Ethical Considerations: An overview of genetic testing and its ethical implications.
8. The Future of Genetics: Emerging Trends and Discoveries: A look at future directions in genetics research.
9. Epigenetics: The Science of Heritable Changes in Gene Expression: An exploration of epigenetics and its impact on gene expression.

brainpop genetics: Experiments in Plant-hybridisation Gregor Mendel, 1925

brainpop genetics: The Galapagos Islands Charles Darwin, 1996

brainpop genetics: The Cell Cycle and Cancer Renato Baserga, 1971

brainpop genetics: The Immortal Life of Henrietta Lacks Rebecca Skloot, 2010-02-02 #1 NEW YORK TIMES BESTSELLER • “The story of modern medicine and bioethics—and, indeed, race relations—is refracted beautifully, and movingly.”—Entertainment Weekly NOW A MAJOR MOTION PICTURE FROM HBO® STARRING OPRAH WINFREY AND ROSE BYRNE • ONE OF THE “MOST INFLUENTIAL” (CNN), “DEFINING” (LITHUB), AND “BEST” (THE PHILADELPHIA INQUIRER) BOOKS OF THE DECADE • ONE OF ESSENCE’S 50 MOST IMPACTFUL BLACK BOOKS OF THE PAST 50 YEARS • WINNER OF THE CHICAGO TRIBUNE HEARTLAND PRIZE FOR NONFICTION NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The New York Times Book Review •

Entertainment Weekly • O: The Oprah Magazine • NPR • Financial Times • New York • Independent (U.K.) • Times (U.K.) • Publishers Weekly • Library Journal • Kirkus Reviews • Booklist • Globe and Mail Her name was Henrietta Lacks, but scientists know her as HeLa. She was a poor Southern tobacco farmer who worked the same land as her slave ancestors, yet her cells—taken without her knowledge—became one of the most important tools in medicine: The first “immortal” human cells grown in culture, which are still alive today, though she has been dead for more than sixty years. HeLa cells were vital for developing the polio vaccine; uncovered secrets of cancer, viruses, and the atom bomb’s effects; helped lead to important advances like in vitro fertilization, cloning, and gene mapping; and have been bought and sold by the billions. Yet Henrietta Lacks remains virtually unknown, buried in an unmarked grave. Henrietta’s family did not learn of her “immortality” until more than twenty years after her death, when scientists investigating HeLa began using her husband and children in research without informed consent. And though the cells had launched a multimillion-dollar industry that sells human biological materials, her family never saw any of the profits. As Rebecca Skloot so brilliantly shows, the story of the Lacks family—past and present—is inextricably connected to the dark history of experimentation on African Americans, the birth of bioethics, and the legal battles over whether we control the stuff we are made of. Over the decade it took to uncover this story, Rebecca became enmeshed in the lives of the Lacks family—especially Henrietta’s daughter Deborah. Deborah was consumed with questions: Had scientists cloned her mother? Had they killed her to harvest her cells? And if her mother was so important to medicine, why couldn’t her children afford health insurance? Intimate in feeling, astonishing in scope, and impossible to put down, *The Immortal Life of Henrietta Lacks* captures the beauty and drama of scientific discovery, as well as its human consequences.

brainpop genetics: Using Technology with Classroom Instruction That Works Howard Pitler, Elizabeth R. Hubbell, Matt Kuhn, 2012-08-02 Technology is ubiquitous, and its potential to transform learning is immense. The first edition of *Using Technology with Classroom Instruction That Works* answered some vital questions about 21st century teaching and learning: What are the best ways to incorporate technology into the curriculum? What kinds of technology will best support particular learning tasks and objectives? How does a teacher ensure that technology use will enhance instruction rather than distract from it? This revised and updated second edition of that best-selling book provides fresh answers to these critical questions, taking into account the enormous technological advances that have occurred since the first edition was published, including the proliferation of social networks, mobile devices, and web-based multimedia tools. It also builds on the up-to-date research and instructional planning framework featured in the new edition of *Classroom Instruction That Works*, outlining the most appropriate technology applications and resources for all nine categories of effective instructional strategies: * Setting objectives and providing feedback * Reinforcing effort and providing recognition * Cooperative learning * Cues, questions, and advance organizers * Nonlinguistic representations * Summarizing and note taking * Assigning homework and providing practice * Identifying similarities and differences * Generating and testing hypotheses Each strategy-focused chapter features examples—across grade levels and subject areas, and drawn from real-life lesson plans and projects—of teachers integrating relevant technology in the classroom in ways that are engaging and inspiring to students. The authors also recommend dozens of word processing applications, spreadsheet generators, educational games, data collection tools, and online resources that can help make lessons more fun, more challenging, and—most of all—more effective.

brainpop genetics: Now & Ben Gene Barretta, 2006-03-07 The inventions and inspiration of Benjamin Franklin and how they’ve stood the test of time What would you do if you lived in a community without a library, hospital, post office, or fire department? If you were Benjamin Franklin, you’d set up these organizations yourself. Franklin also designed the lightning rod, suggested the idea of daylight savings time, and invented bifocals—all inspired by his common sense and intelligence. In this informative book, Gene Barretta brings Benjamin Franklin’s genius to life, deepening our appreciation for one of the most influential figures in American history. *Now & Ben* is

a 2007 Bank Street - Best Children's Book of the Year.

brainpop genetics: Multidimensional Curriculum Enhancing Future Thinking Literacy

Hava E. Vidergor, 2018-07-17 This book presents an innovative Multidimensional Curriculum Model (MdCM) that develops future thinking literacy among all ages and levels of school students. It combines theory and practice and is highly applicable for policy makers, curriculum coordinators, lecturers at colleges of education, graduate students, and teachers, who are challenged daily to provide meaningful and up-to-date learning. It will aid teachers to prepare learners for the fast-changing world and equip them with skills that will help them control their futures. It combines latest teaching strategies of transdisciplinarity, phenomenon-based, project based, and problem-based learning, in a unique manner so as to develop 21st century skills. More specifically, it aims at developing higher order thinking skills and processes referred to as scientific, creative, and future thinking. It covers core and non-core-curriculum domains, multi and transdisciplinary teaching, as well as designing curricula for the gifted, the able and students at risk. It applies the latest theories on constructivism and carefully selected tools authentically and relevantly to create interest and challenge, addressing learning from personal, global, and time perspectives. Each chapter highlights a strategy or thinking tool, commencing with theory, followed by a unit description and lesson plans. The chapters each end with a final product named the future scenario. This scenario, written by students projecting themselves into the future, is based on accumulated knowledge, summarizes their learning, and illustrates future thinking literacy.

brainpop genetics: You Can't Wear These Genes Duke, 2010-08-01 Learn About Genes And Heredity Through Clear Text, Photographs, And Graphics.

brainpop genetics: Carbon Queen Maia Weinstock, 2022-03-01 The life of trailblazing physicist Mildred Dresselhaus, who expanded our understanding of the physical world. As a girl in New York City in the 1940s, Mildred "Millie" Dresselhaus was taught that there were only three career options open to women: secretary, nurse, or teacher. But sneaking into museums, purchasing three-cent copies of National Geographic, and devouring books on the history of science ignited in Dresselhaus (1930–2017) a passion for inquiry. In Carbon Queen, science writer Maia Weinstock describes how, with curiosity and drive, Dresselhaus defied expectations and forged a career as a pioneering scientist and engineer. Dresselhaus made highly influential discoveries about the properties of carbon and other materials and helped reshape our world in countless ways—from electronics to aviation to medicine to energy. She was also a trailblazer for women in STEM and a beloved educator, mentor, and colleague. Her path wasn't easy. Dresselhaus's Bronx childhood was impoverished. Her graduate adviser felt educating women was a waste of time. But Dresselhaus persisted, finding mentors in Nobel Prize-winning physicists Rosalyn Yalow and Enrico Fermi. Eventually, Dresselhaus became one of the first female professors at MIT, where she would spend nearly six decades. Weinstock explores the basics of Dresselhaus's work in carbon nanoscience accessibly and engagingly, describing how she identified key properties of carbon forms, including graphite, buckyballs, nanotubes, and graphene, leading to applications that range from lighter, stronger aircraft to more energy-efficient and flexible electronics.

brainpop genetics: Multidisciplinary Units for Grades 3-5 International Society for Technology in Education, 2002 Helps you integrate technology into elementary language arts, social studies, math, and science curricula with dozens of lesson plans.

brainpop genetics: The Works of Emily Dickinson Emily Dickinson, 1994 During Emily's life only seven of her 1775 poems were published. This collection of her work shows her breadth of vision and a passionate intensity and awe for life, love, nature, time and eternity. Once branded an eccentric Dickinson is now regarded as a major American poet.

brainpop genetics: The One World Schoolhouse Salman Khan, 2012-10-02 A free, world-class education for anyone, anywhere: this is the goal of the Khan Academy, a passion project that grew from an ex-engineer and hedge funder's online tutoring sessions with his niece, who was struggling with algebra, into a worldwide phenomenon. Today millions of students, parents, and teachers use the Khan Academy's free videos and software, which have expanded to encompass nearly every

conceivable subject; and Academy techniques are being employed with exciting results in a growing number of classrooms around the globe. Like many innovators, Khan rethinks existing assumptions and imagines what education could be if freed from them. And his core idea-liberating teachers from lecturing and state-mandated calendars and opening up class time for truly human interaction-has become his life's passion. Schools seek his advice about connecting to students in a digital age, and people of all ages and backgrounds flock to the site to utilize this fresh approach to learning. In *The One World Schoolhouse*, Khan presents his radical vision for the future of education, as well as his own remarkable story, for the first time. In these pages, you will discover, among other things: How both students and teachers are being bound by a broken top-down model invented in Prussia two centuries ago Why technology will make classrooms more human and teachers more important How and why we can afford to pay educators the same as other professionals/DIV How we can bring creativity and true human interactivity back to learning/DIV Why we should be very optimistic about the future of learning. Parents and politicians routinely bemoan the state of our education system. Statistics suggest we've fallen behind the rest of the world in literacy, math, and sciences. With a shrewd reading of history, Khan explains how this crisis presented itself, and why a return to mastery learning, abandoned in the twentieth century and ingeniously revived by tools like the Khan Academy, could offer the best opportunity to level the playing field, and to give all of our children a world-class education now. More than just a solution, *The One World Schoolhouse* serves as a call for free, universal, global education, and an explanation of how Khan's simple yet revolutionary thinking can help achieve this inspiring goal.

brainpop genetics: *International Handbook of Computer-Supported Collaborative Learning* Ulrike Cress, Carolyn Rosé, Alyssa Friend Wise, Jun Oshima, 2021-10-08 CSCL has in the past 15 years (and often in conjunction with Springer) grown into a thriving and active community. Yet, lacking is a comprehensive CSCL handbook that displays the range of research being done in this area. This handbook will provide an overview of the diverse aspects of the field, allowing newcomers to develop a sense of the entirety of CSCL research and for existing community members to become more deeply aware of work outside their direct area. The handbook will also serve as a ready reference for foundational concepts, methods, and approaches in the field. The chapters are written in such a way that each of them can be used in a stand-alone fashion while also serving as introductory readings in relevant study courses or in teacher education. While some CSCL-relevant topics are addressed in the *International Handbook of the Learning Sciences* and the *International Handbook of Collaborative Learning*, these books do not aim to present an integrated and comprehensive view of CSCL. The *International Handbook of Computer-Supported Collaborative Learning* covers all relevant topics in CSCL, particularly recent developments in the field, such as the rise of computational approaches and learning analytics.

brainpop genetics: The Rise of Rome Anthony Everitt, 2012-08-07 NAMED ONE OF THE BEST BOOKS OF THE YEAR BY THE KANSAS CITY STAR From Anthony Everitt, the bestselling author of acclaimed biographies of Cicero, Augustus, and Hadrian, comes a riveting, magisterial account of Rome and its remarkable ascent from an obscure agrarian backwater to the greatest empire the world has ever known. Emerging as a market town from a cluster of hill villages in the eighth and seventh centuries B.C., Rome grew to become the ancient world's preeminent power. Everitt fashions the story of Rome's rise to glory into an erudite page-turner filled with lasting lessons for our time. He chronicles the clash between patricians and plebeians that defined the politics of the Republic. He shows how Rome's shrewd strategy of offering citizenship to her defeated subjects was instrumental in expanding the reach of her burgeoning empire. And he outlines the corrosion of constitutional norms that accompanied Rome's imperial expansion, as old habits of political compromise gave way, leading to violence and civil war. In the end, unimaginable wealth and power corrupted the traditional virtues of the Republic, and Rome was left triumphant everywhere except within its own borders. Everitt paints indelible portraits of the great Romans—and non-Romans—who left their mark on the world out of which the mighty empire grew: Cincinnatus, Rome's George Washington, the very model of the patrician warrior/aristocrat; the

brilliant general Scipio Africanus, who turned back a challenge from the Carthaginian legend Hannibal; and Alexander the Great, the invincible Macedonian conqueror who became a role model for generations of would-be Roman rulers. Here also are the intellectual and philosophical leaders whose observations on the art of government and “the good life” have inspired every Western power from antiquity to the present: Cato the Elder, the famously incorruptible statesman who spoke out against the decadence of his times, and Cicero, the consummate orator whose championing of republican institutions put him on a collision course with Julius Caesar and whose writings on justice and liberty continue to inform our political discourse today. Rome’s decline and fall have long fascinated historians, but the story of how the empire was won is every bit as compelling. With *The Rise of Rome*, one of our most revered chroniclers of the ancient world tells that tale in a way that will galvanize, inform, and enlighten modern readers. Praise for *The Rise of Rome* “Fascinating history and a great read.”—Chicago Sun-Times “An engrossing history of a relentlessly pugnacious city’s 500-year rise to empire.”—Kirkus Reviews “Rome’s history abounds with remarkable figures. . . . Everitt writes for the informed and the uninformed general reader alike, in a brisk, conversational style, with a modern attitude of skepticism and realism.”—The Dallas Morning News “[A] lively and readable account . . . Roman history has an uncanny ability to resonate with contemporary events.”—Maclean’s “Elegant, swift and faultless as an introduction to his subject.”—The Spectator “[An] engaging work that will captivate and inform from beginning to end.”—Booklist

brainpop genetics: Sparrow Girl Sara Pennypacker, 2016-08-04 Ming-Li looked up and tried to imagine the sky silent, empty of birds. It was a terrible thought. Her country's leader had called sparrows the enemy of the farmers--they were eating too much grain, he said. He announced a great Sparrow War to banish them from China, but Ming-Li did not want to chase the birds away. As the people of her village gathered with firecrackers and gongs to scatter the sparrows, Ming-Li held her ears and watched in dismay. The birds were falling from the trees, frightened to death! Ming-Li knew she had to do something -- even if she couldn't stop the noise. Quietly, she vowed to save as many sparrows as she could, one by one...

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brainpop genetics: Resonant Games Eric Klopfer, Jason Haas, Scot Osterweil, Louisa Rosenheck, 2018-07-17 Principles for designing educational games that integrate content and play and create learning experiences connecting to many areas of learners' lives. Too often educational videogames are narrowly focused on specific learning outcomes dictated by school curricula and fail to engage young learners. This book suggests another approach, offering a guide to designing games that integrates content and play and creates learning experiences that connect to many areas of learners' lives. These games are not gamified workbooks but are embedded in a long-form experience of exploration, discovery, and collaboration that takes into consideration the learning environment. *Resonant Games* describes twenty essential principles for designing games that offer this kind of deeper learning experience, presenting them in connection with five games or collections of games developed at MIT's educational game research lab, the Education Arcade. Each of the games—which range from *Vanished*, an alternate reality game for middle schoolers promoting STEM careers, to *Ubiquitous Bio*, a series of casual mobile games for high school biology students—has a different story, but all spring from these fundamental assumptions: honor the whole learner, as a full human being, not an empty vessel awaiting a fill-up; honor the sociality of learning and play; honor a deep connection between the content and the game; and honor the learning context—most often the public school classroom, but also beyond the classroom.

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brainpop genetics: 100 Brain-Friendly Lessons for Unforgettable Teaching and Learning (K-8) Marcia L. Tate, 2019-07-31 Use research- and brain-based teaching to engage students and maximize learning Lessons should be memorable and engaging. When they are, student achievement increases, behavior problems decrease, and teaching and learning are fun! In 100 Brain-Friendly Lessons for Unforgettable Teaching and Learning K-8, best-selling author and renowned educator and consultant Marcia Tate takes her bestselling Worksheets Don't Grow Dendrites one step further by providing teachers with ready-to-use lesson plans that take advantage of the way that students really learn. Readers will find 100 cross-curricular sample lessons from each of the four major content areas: English/language arts, mathematics, science, and social studies. Plans designed around the most frequently taught objectives found in national and international curricula. Lessons educators can immediately replicate in their own classrooms or use to develop their own. 20 brain-compatible, research-based instructional strategies that work for all learners. Five questions that teachers should ask and answer when planning brain-compatible lessons and an in-depth explanation of each of the questions. Guidance on building relationships with students that enable them to learn at optimal levels. It is a wonderful time to be a teacher! This hands-on resource will show you how to use what we know about educational neuroscience to transform your classroom into a place where success is accessible for all.

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brainpop genetics: Life Cycle of a ... Pumpkin Ron Fridell, Patricia Walsh, 2009 This revised

edition shows children how familiar plants and animals develop over their lifetimes. Illustrated with high-quality photos and illustrations, a timeline runs across the bottom of each page for quick reference.

brainpop genetics: Reading Ethics Miranda Fricker, Samuel Guttenplan, 2009 This introductory text encourages students to engage with key problems and arguments in ethics through a series of classic and contemporary readings. It will inspire students to think about the distinctive nature of moral philosophy, and to draw comparisons between different traditions of thought, between ancient and modern philosophies, and between theoretical and literary writing about the place of value in human life. Each of the book's six chapters focuses on a particular theme: the nature of goodness, subjectivity and objectivity in ethical thinking, justice and virtue, moral motivation, the place of moral obligation, and the idea that literature can be a form of moral philosophy. The historical readings come from Plato, Aristotle, Hume, Kant and Mill; and the contemporary readings from Foot, Rawls, McDowell, Mackie, Nagel, Williams, Nussbaum and Gaita. The editors' introductions to the themes, and the interactive commentaries they provide for each reading, are intended to make Reading Ethics come as close as possible to a seminar in philosophy.

brainpop genetics: Sustainable Nanotechnology Zibiao Li, Jie Zheng, Enyi Ye, 2022-06-17 This book illustrates how green nanotechnology is being used to promote sustainability, including applications in environmental remediation and energy optimization.

brainpop genetics: The Double Helix James D. Watson, 1969-02 Since its publication in 1968, The Double Helix has given countless readers a rare and exciting look at one highly significant piece of scientific research-Watson and Crick's race to discover the molecular structure of DNA.

brainpop genetics: The Foundations of Genetics F. A. E. Crew, 2014-06-28 The Foundations of Genetics describes the historical development of genetics with emphasis on the contributions to advancing genetical knowledge and the various applications of genetics. The book reviews the work of Gregor Mendel, his Law of Segregation, and of Ernst Haeckel who suggested that the nucleus is that part of the cell that is responsible for heredity. The text also describes the studies of W. Johannsen on pure lines, and his introduction of the terms gene, genotype, and phenotype. The book explains the theory of the gene and the notion that hereditary particles are borne by the chromosomes (Sutton-Boveri hypothesis). Of the constituent parts of the nucleus only the chromatin material divides at mitosis and segregates during maturation. Following studies confirm that the chromatin material, present in the form of chromosomes with a constant and characteristic number and appearance for each species, is indeed the hereditary material. The book describes how Muller in 1927, showed that high precision energy radiation is the external cause to mutation in the gene itself if one allele can mutate without affecting its partner. The superstructure of genetics built upon the foundations of Mendelism has many applications including cytogenetics, polyploidy, human genetics, eugenics, plant breeding, radiation genetics, and the evolution theory. The book can be useful to academicians and investigators in the fields of genetics such as biochemical, biometrical, microbial, and pharmacogenetics. Students in agriculture, anthropology, botany, medicine, sociology, veterinary medicine, and zoology should add this text to their list of primary reading materials.

brainpop genetics: Challenge Grants Program, 1996

brainpop genetics: Jawetz Melnick & Adelbergs Medical Microbiology 28 E Stefan Riedel, Stephen A. Morse, Timothy A. Mietzner, Steve Miller, 2019-08-25 Understand the clinically relevant aspects of microbiology with this student-acclaimed, full-color review --- bolstered by case studies and hundreds of USMLE®-style review questions A Doody's Core Title for 2024 & 2021! Since 1954, Jawetz, Melnick & Adelberg's Medical Microbiology has been hailed by students, instructors, and clinicians as the single-best resource for understanding the roles microorganisms play in human health and illness. Concise and fully up to date, this trusted classic links fundamental principles with the diagnosis and treatment of microbial infections. Along with brief descriptions of each organism, you will find vital perspectives on pathogenesis, diagnostic laboratory tests, clinical findings, treatment, and epidemiology. The book also includes an entire chapter of case studies that focuses

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brainpop genetics: Translanguaging with Multilingual Students Ofelia García, Tatyana Kleyn, 2016-06-10 Looking closely at what happens when translanguaging is actively taken up to teach emergent bilingual students across different contexts, this book focuses on how it is already happening in classrooms as well as how it can be implemented as a pedagogical orientation. It extends theoretical understandings of the concept and highlights its promises and challenges. Using a Transformative Action Research design, six empirically grounded ethnographic case studies describe how translanguaging is used in lesson designs and in the spontaneous moves made by teachers and students during specific teaching moments. The cases shed light on two questions: How, when, and why is translanguaging taken up or resisted by students and teachers? What does its use mean for them? Although grounded in a U.S. context, and specifically in classrooms in New York State, Translanguaging with Multilingual Students links findings and theories to different global contexts to offer important lessons for educators worldwide.

brainpop genetics: 99 Jumpstarts for Kids Peggy Whitley, Susan Williams Goodwin, 2003-09-30 Similar to the previous 99 Jumpstarts to Research but designed for younger students, this book helps teachers and librarians to teach basic research and information literacy skills to children. To help them master the research process and narrow the limitless array of sources available on commonly researched topics in elementary and middle schools, students are taught a basic note-taking process and given specific source ideas and subject headings for each topic discussed. This book will be an invaluable tool to help school librarians and teachers broach the difficult task of beginning to teach the research process. Grades 3-8.

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unparalleled scientific research, Cajal sought to educate the novice scientist about how science was done and how he thought it should be done. This recently rediscovered classic, first published in 1897, is an anecdotal guide for the perplexed new investigator as well as a refreshing resource for the old pro. Cajal was a pragmatist, aware of the pitfalls of being too idealistic—and he had a sense of humor, particularly evident in his diagnoses of various stereotypes of eccentric scientists. The book covers everything from valuable personality traits for an investigator to social factors conducive to scientific work.

brainpop genetics: Ferri's Clinical Advisor 2020 E-Book Fred F. Ferri, 2019-06-01

Significantly updated with the latest developments in diagnosis and treatment recommendations, Ferri's Clinical Advisor 2020 features the popular 5 books in 1 format to organize vast amounts of information in a clinically relevant, user-friendly manner. This efficient, intuitive format provides quick access to answers on 1,000 common medical conditions, including diseases and disorders, differential diagnoses, and laboratory tests – all reviewed by experts in key clinical fields. Updated algorithms, along with hundreds of new figures, tables, and boxes, ensure that you stay current with today's medical practice. - Contains significant updates throughout, covering all aspects of current diagnosis and treatment. - Features 27 all-new topics including chronic traumatic encephalopathy, medical marijuana, acute respiratory failure, gallbladder carcinoma, shift work disorder, radial tunnel syndrome, fertility preservation in women, fallopian tube cancer, primary chest wall cancer, large-bowel obstruction, inguinal hernia, and bundle branch block, among others. - Includes a new appendix covering Physician Quality Reporting System (PQRS) Measures. - Provides current ICD-10 insurance billing codes to help expedite insurance reimbursements. - Patient Teaching Guides for many of the diseases and disorders are included, most available in both English and Spanish versions, which can be downloaded and printed for patients.

brainpop genetics: The Hidden Brain Shankar Vedantam, 2010-08-31 The hidden brain is the voice in our ear when we make the most important decisions in our lives—but we're never aware of it. The hidden brain decides whom we fall in love with and whom we hate. It tells us to vote for the white candidate and convict the dark-skinned defendant, to hire the thin woman but pay her less than the man doing the same job. It can direct us to safety when disaster strikes and move us to extraordinary acts of altruism. But it can also be manipulated to turn an ordinary person into a suicide terrorist or a group of bystanders into a mob. In a series of compulsively readable narratives, Shankar Vedantam journeys through the latest discoveries in neuroscience, psychology, and behavioral science to uncover the darkest corner of our minds and its decisive impact on the choices we make as individuals and as a society. Filled with fascinating characters, dramatic storytelling, and cutting-edge science, this is an engrossing exploration of the secrets our brains keep from us—and how they are revealed.

brainpop genetics: Biological Science Biological Sciences Curriculum Study, 1987

brainpop genetics: Human Anatomy Michael P. McKinley, 2011 An anatomy text that includes photographs paired with illustrations that help students visualize, understand, and appreciate the wonders of human anatomy. This title includes student-friendly study tips, clinical view boxes, and progressive question sets that motivate students to internalize and apply what they've learned.

brainpop genetics: The Practical Guide to the Genetic Family History Robin L. Bennett, 2011-09-20 HELPS YOU DEVELOP AND ASSESS PEDIGREES TO MAKE DIAGNOSES, EVALUATE RISK, AND COUNSEL PATIENTS The Second Edition of The Practical Guide to the Genetic Family History not only shows how to take a medical-family history and record a pedigree, but also explains why each bit of information gathered is important. It provides essential support in diagnosing conditions with a genetic component. Moreover, it aids in recommending genetic testing, referring patients for genetic counseling, determining patterns of inheritance, calculating risk of disease, making decisions for medical management and surveillance, and informing and educating patients. Based on the author's twenty-five years as a genetic counselor, the book also helps readers deal with the psychological, social, cultural, and ethical problems that arise in gathering a medical-family history and sharing findings with patients. Featuring a new Foreword by Arno Motulsky, widely

recognized as the founder of medical genetics, and completely updated to reflect the most recent findings in genetic medicine, this Second Edition presents the latest information and methods for preparing and assessing a pedigree, including: Value and utility of a thorough medical-family history Directed questions to ask when developing a medical-family history for specific disease conditions Use of pedigrees to identify individuals with an increased susceptibility to cancer Verification of family medical information Special considerations when adoptions or gamete donors are involved Ethical issues that may arise in recording a pedigree Throughout the book, clinical examples based on hypothetical families illustrate key concepts, helping readers understand how real issues present themselves and how they can be resolved. This book will enable all healthcare providers, including physicians, nurses, medical social workers, and physician assistants, as well as genetic counselors, to take full advantage of the pedigree as a primary tool for making a genetic risk assessment and providing counseling for patients and their families.

brainpop genetics: The Honey Makers Gail Gibbons, 2000-04-05 How sweet it is. Thousands of bees visited more than one million flowers to gather the nectar that went into that one-pound jar of honey. Here's the buzz on how these remarkable insects work together to create this amazing food.

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