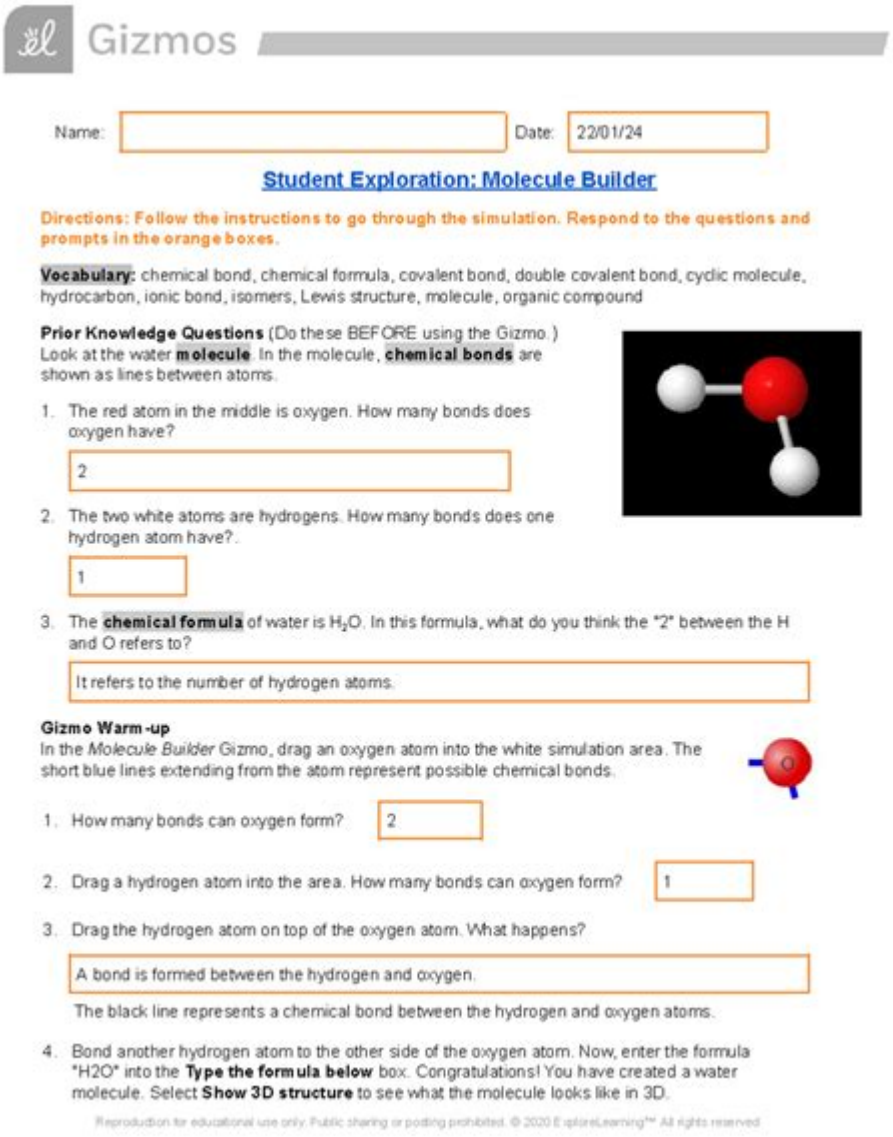
Molecule Builder Gizmo Answer Key



Gizmos

Name: Date: 22/01/24

Student Exploration: Molecule Builder

Directions: Follow the instructions to go through the simulation. Respond to the questions and prompts in the orange boxes.

Vocabulary: chemical bond, chemical formula, covalent bond, double covalent bond, cyclic molecule, hydrocarbon, ionic bond, isomers, Lewis structure, molecule, organic compound

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)
Look at the water **molecule**. In the molecule, **chemical bonds** are shown as lines between atoms.

1. The red atom in the middle is oxygen. How many bonds does oxygen have?
   2
2. The two white atoms are hydrogens. How many bonds does one hydrogen atom have?
   1
3. The **chemical formula** of water is H_2O. In this formula, what do you think the "2" between the H and O refers to?
   It refers to the number of hydrogen atoms.

Gizmo Warm-up
In the *Molecule Builder* Gizmo, drag an oxygen atom into the white simulation area. The short blue lines extending from the atom represent possible chemical bonds.

1. How many bonds can oxygen form? 2
2. Drag a hydrogen atom into the area. How many bonds can oxygen form? 1
3. Drag the hydrogen atom on top of the oxygen atom. What happens?
   A bond is formed between the hydrogen and oxygen.
   The black line represents a chemical bond between the hydrogen and oxygen atoms.
4. Bond another hydrogen atom to the other side of the oxygen atom. Now, enter the formula "H2O" into the **Type the formula below** box. Congratulations! You have created a water molecule. Select **Show 3D structure** to see what the molecule looks like in 3D.

Molecule Builder Gizmo Answer Key: A Comprehensive Guide for Students

Are you struggling with the Molecule Builder Gizmo? Feeling frustrated trying to decipher the correct atom arrangements and molecular structures? You're not alone! This comprehensive guide provides a detailed walkthrough, offering explanations and strategies to help you confidently navigate the Molecule Builder Gizmo and master the concepts of molecular structure. Forget searching endlessly for just the answers – this post empowers you to understand the process, boosting your learning and preparing you for future challenges. We'll explore various molecule types, provide step-by-step instructions, and offer troubleshooting tips, ensuring you successfully

complete the Gizmo activity.

Understanding the Molecule Builder Gizmo

The Molecule Builder Gizmo is a valuable educational tool designed to help students visualize and manipulate molecular structures. It allows you to build molecules by selecting and connecting different atoms. While the Gizmo doesn't offer a single, universally applicable “answer key” in the traditional sense (because the activities often involve building specific molecules based on given formulas), this guide will equip you with the knowledge to build any molecule the Gizmo presents. The key lies in understanding the fundamental concepts of chemical bonding and molecular geometry.

Key Concepts: Atoms, Bonds, and Molecular Geometry

Before diving into specific Gizmo activities, it's crucial to grasp some core chemical concepts:

Atoms: The fundamental building blocks of matter. Each atom has a specific number of protons, neutrons, and electrons, determining its properties and how it interacts with other atoms. The Gizmo will typically provide you with a list of atoms to choose from.

Chemical Bonds: The forces that hold atoms together in molecules. The most common types are:

Covalent Bonds: Atoms share electrons to achieve a stable electron configuration. The Gizmo will often represent these as lines connecting atoms.
Ionic Bonds: One atom donates an electron to another, resulting in oppositely charged ions that attract each other. These are less common in simple Molecule Builder Gizmo activities.

Molecular Geometry: The three-dimensional arrangement of atoms within a molecule. This arrangement significantly impacts the molecule's properties. The Gizmo helps visualize this geometry.

Step-by-Step Guide to Using the Molecule Builder Gizmo

1. Identify the Target Molecule: The Gizmo will usually provide a chemical formula (e.g., H_2O, CO_2, CH_4) or a name (e.g., water, carbon dioxide, methane). This is your blueprint.

2. Select the Correct Atoms: Choose the necessary atoms from the Gizmo's atom palette based on the chemical formula. For H_2O, you'll need two hydrogen (H) atoms and one oxygen (O) atom.

3. Form the Bonds: Click and drag atoms to connect them, forming the bonds. Remember the

number of bonds each atom typically forms (e.g., hydrogen usually forms one bond, oxygen usually forms two).

4. Check the Molecular Geometry: The Gizmo often allows you to rotate the molecule to view it from different angles. Ensure the arrangement of atoms matches the expected geometry for the molecule.

5. Analyze the Results: Once you've built the molecule, the Gizmo might offer feedback on its correctness, providing clues if your structure is incorrect.

Troubleshooting Common Issues

Incorrect Number of Bonds: Double-check the number of bonds each atom forms.
Incorrect Atom Selection: Ensure you've selected the correct types and numbers of atoms.
Unexpected Geometry: Experiment with rotating the molecule to see if the geometry is correct, even if it initially appears different.

Examples of Molecule Building within the Gizmo

Let's walk through a couple of examples:

Water (H_2O): You'll need one oxygen atom and two hydrogen atoms. The oxygen atom will be in the center, with each hydrogen atom forming a single bond with the oxygen. The resulting molecule will have a bent shape (bent geometry).

Methane (CH_4): You'll need one carbon atom and four hydrogen atoms. The carbon atom is central, with each hydrogen atom forming a single bond with the carbon. This results in a tetrahedral geometry.

Conclusion

Mastering the Molecule Builder Gizmo isn't about finding a pre-made “answer key,” but rather about understanding the underlying principles of chemical bonding and molecular structure. By following the steps outlined in this guide and applying the key concepts, you’ll confidently navigate the Gizmo and build diverse molecules, solidifying your understanding of chemistry. Remember to focus on understanding the process, not just achieving the correct final structure. This approach will greatly benefit your learning in the long run.

FAQs

1. What if the Gizmo doesn't accept my molecule even though I think it's correct? Double-check the number and type of atoms used, the number of bonds formed by each atom, and the molecular geometry. The Gizmo's feedback might provide clues to the mistake. Try rotating the molecule to ensure you're viewing the correct 3D arrangement.

2. Can I use this guide for all Molecule Builder Gizmo activities? While specific molecules will differ, the underlying principles and steps remain consistent. This guide provides the foundational knowledge to tackle any molecule-building challenge.

3. My Gizmo is showing an error message. What should I do? Check your internet connection. If the problem persists, try clearing your browser's cache and cookies, or restarting your computer. You might also need to contact your teacher or instructor for technical support.

4. Are there any other resources available to help me understand molecular structure? Yes, many online resources, including interactive simulations, videos, and textbooks, can supplement your Gizmo experience. Search for terms like "molecular geometry," "chemical bonding," and "VSEPR theory" for further learning.

5. What if I get stuck on a particularly challenging molecule? Break down the problem into smaller steps. Start by identifying the central atom, then add atoms one by one, ensuring you're following the rules of bonding and considering the expected geometry. If still stuck, seek help from a classmate, teacher, or online resources.

molecule builder gizmo answer key: Freak the Mighty Rodman Philbrick, 2015-04-01 Max is used to being called Stupid. And he is used to everyone being scared of him. On account of his size and looking like his dad. Kevin is used to being called Dwarf. And he is used to everyone laughing at him. On account of his size and being some cripple kid. But greatness comes in all sizes, and together Max and Kevin become Freak The Mighty and walk high above the world. An inspiring, heartbreaking, multi-award winning international bestseller.

molecule builder gizmo answer key: *Bourbon for Breakfast* Jeffrey Albert Tucker, 2010 A compilation of many ... shorter writings ... of his twin loves, libertarian political philosophy and Austrian economics.--Page 4 of cover.

molecule builder gizmo answer key: Patent Failure James Bessen, Michael J. Meurer, 2009-08-03 In recent years, business leaders, policymakers, and inventors have complained to the media and to Congress that today's patent system stifles innovation instead of fostering it. But like the infamous patent on the peanut butter and jelly sandwich, much of the cited evidence about the patent system is pure anecdote--making realistic policy formation difficult. Is the patent system fundamentally broken, or can it be fixed with a few modest reforms? Moving beyond rhetoric, Patent Failure provides the first authoritative and comprehensive look at the economic performance of patents in forty years. James Bessen and Michael Meurer ask whether patents work well as property rights, and, if not, what institutional and legal reforms are necessary to make the patent system more effective. Patent Failure presents a wide range of empirical evidence from history, law, and economics. The book's findings are stark and conclusive. While patents do provide incentives to invest in research, development, and commercialization, for most businesses today, patents fail to provide predictable property rights. Instead, they produce costly disputes and excessive litigation that outweigh positive incentives. Only in some sectors, such as the pharmaceutical industry, do

patents act as advertised, with their benefits outweighing the related costs. By showing how the patent system has fallen short in providing predictable legal boundaries, Patent Failure serves as a call for change in institutions and laws. There are no simple solutions, but Bessen and Meurer's reform proposals need to be heard. The health and competitiveness of the nation's economy depend on it.

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molecule builder gizmo answer key: Why Zebras Don't Get Ulcers Robert M. Sapolsky, 2004-09-15 Renowned primatologist Robert Sapolsky offers a completely revised and updated edition of his most popular work, with over 225,000 copies in print Now in a third edition, Robert M. Sapolsky's acclaimed and successful Why Zebras Don't Get Ulcers features new chapters on how stress affects sleep and addiction, as well as new insights into anxiety and personality disorder and the impact of spirituality on managing stress. As Sapolsky explains, most of us do not lie awake at night worrying about whether we have leprosy or malaria. Instead, the diseases we fear-and the ones that plague us now-are illnesses brought on by the slow accumulation of damage, such as heart disease and cancer. When we worry or experience stress, our body turns on the same physiological responses that an animal's does, but we do not resolve conflict in the same way-through fighting or fleeing. Over time, this activation of a stress response makes us literally sick. Combining cutting-edge research with a healthy dose of good humor and practical advice, Why Zebras Don't Get Ulcers explains how prolonged stress causes or intensifies a range of physical and mental afflictions, including depression, ulcers, colitis, heart disease, and more. It also provides essential guidance to controlling our stress responses. This new edition promises to be the most comprehensive and engaging one yet.

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molecule builder gizmo answer key: Electricity and Magnetism Benjamin Crowell, 2000

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molecule builder gizmo answer key: Vibrations and Waves Benjamin Crowell, 2000

molecule builder gizmo answer key: *Inventing the Medium* Janet H. Murray, 2011-11-23 A foundational text offering a unified design vocabulary and a common methodology for maximizing the expressive power of digital artifacts. Digital artifacts from iPads to databases pervade our lives, and the design decisions that shape them affect how we think, act, communicate, and understand the world. But the pace of change has been so rapid that technical innovation is outstripping design. Interactors are often mystified and frustrated by their enticing but confusing new devices; meanwhile, product design teams struggle to articulate shared and enduring design goals. With Inventing the Medium, Janet Murray provides a unified vocabulary and a common methodology for the design of digital objects and environments. It will be an essential guide for both students and practitioners in this evolving field. Murray explains that innovative interaction designers should think of all objects made with bits—whether games or Web pages, robots or the latest killer apps—as belonging to a single new medium: the digital medium. Designers can speed the process of useful and lasting innovation by focusing on the collective cultural task of inventing this new medium. Exploring strategies for maximizing the expressive power of digital artifacts, Murray identifies and examines four representational affordances of digital environments that provide the core palette for designers across applications: computational procedures, user participation, navigable space, and encyclopedic capacity. Each chapter includes a set of Design Explorations—creative exercises for students and thought experiments for practitioners—that allow readers to apply the ideas in the chapter to particular design problems. Inventing the Medium also provides more than 200 illustrations of specific design strategies drawn from multiple genres and platforms and a glossary of design concepts.

molecule builder gizmo answer key: *Roget's 21st Century Thesaurus in Dictionary Form* Barbara Ann Kipfer, Princeton Language Institute, 1993 Combining scholarly authority with a new awareness of today's communication demands, Roget's 21st Century Thesaurus is the simple, reliable way to find the perfect word for your needs. It features as easy-to-use dictionary format plus a revolutionary concept index that arranges words by idea, thus enhancing the user's process of association, and leading scores of additional selections. The inclusion of a wide spectrum of words and phrases with each entry -- from sophisticated choices to completely new vocabulary in the language -- brings the user an exceptional number of alternatives to fit any variation of style and tone. Created by a leading expert in linguists and lexicography with today's communication needs in mind. More word choices than any other thesaurus -- Over 1 million words! Concise definitions for each main entry. A revolutionary concept index -- arranged by idea, it mirrors the way we actually think! No obsolete terms -- all synonyms reflect modern usage.

molecule builder gizmo answer key: Complete Stories Rudy Rucker, 2018-07-06 Collected together in one ebook: every single one of Rudy Rucker's science-fiction stories, a trove of gnarl and wonder, dating over more than forty years. This, the updated 2021 edition of Complete Stories, includes stories from 1976 through 2021 Along with Rucker's solo stories, we have collaborations with Bruce Sterling, Marc Laidlaw, Paul Di Filippo, John Shirley, Terry Bisson, and Eileen Gunn.

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molecule builder gizmo answer key: Microserfs Douglas Coupland, 2011-06-21 From the

era-defining author of Generation X comes a novel of overworked coders who escape the serfdom of Bill Gates to forge their own path. They are Microserfs—six code-crunching computer whizzes who spend upward of sixteen hours a day “coding” and eating “flat” foods (food which, like Kraft singles, can be passed underneath closed doors) as they fearfully scan company e-mail to learn whether the great Bill is going to “flame” one of them. But now there’s a chance to become innovators instead of cogs in the gargantuan Microsoft machine. The intrepid Microserfs are striking out on their own—living together in a shared digital flophouse as they desperately try to cultivate well-rounded lives and find love amid the dislocated, subhuman whir and buzz of their computer-driven world.

molecule builder gizmo answer key: *Max the Mighty* Rodman Philbrick, 2013-06-25 A companion to Newbery Honor winning author Rodman Philbrick's Freak the Mighty. This is the dramatic, heart-wrenching tale of Max and Worm, two outsiders who turn to each other for survival. Meet Maxwell Kane, the brooding giant-of-a-boy who escaped from his basement hiding place and faced the real world in FREAK THE MIGHTY.Still grieving over the loss of his best friend, Kevin, Max finds himself defending a young, solitary girl cruelly nicknamed Worm because she loves to read so much.When Max gets blamed for a horrific crime, he and Worm are forced to run for their lives. They flee across America -- hunted by the police, and pursued by the mysterious man known as the Undertaker. The only way they can survive is to confront Worm's darkest and most revealing secret. And that means facing something more frightening than death itself.

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molecule builder gizmo answer key: Medical Microbiology Illustrated S. H. Gillespie, 2014-06-28 Medical Microbiology Illustrated presents a detailed description of epidemiology, and the biology of micro-organisms. It discusses the pathogenicity and virulence of microbial agents. It addresses the intrinsic susceptibility or immunity to antimicrobial agents. Some of the topics covered in the book are the types of gram-positive cocci; diverse group of aerobic gram-positive bacilli; classification and clinical importance of erysipelothrix rhusiopathiae; pathogenesis of mycobacterial infection; classification of parasitic infections which manifest with fever; collection of blood for culture and control of substances hazardous to health. The classification and clinical importance of neisseriaceae is fully covered. The definition and pathogenicity of haemophilus are discussed in detail. The text describes in depth the classification and clinical importance of spiral bacteria. The isolation and identification of fungi are completely presented. A chapter is devoted to the laboratory and serological diagnosis of systemic fungal infections. The book can provide useful information to microbiologists, physicians, laboratory scientists, students, and researchers.

molecule builder gizmo answer key: *Delius as I Knew Him* Eric Fenby, 1994-01-01 An intimate portrait of Delius by the man who notated many of the disabled composer's last works. Includes 33 musical examples.

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technology Collaborate with data scientists as a subject matter expert to help develop focused-use applications Help your company gain a competitive advantage by leveraging leading-edge technology in marketing Marketing and data science are two fast-moving, turbulent spheres that often intersect; that intersection is where marketing professionals pick up the tools and methods to move their company forward. Artificial Intelligence and Machine Learning provide a data-driven basis for more robust and intensely-targeted marketing strategies—and companies that effectively utilize these latest tools will reap the benefit in the marketplace. Artificial Intelligence for Marketing provides a nontechnical crash course to help you stay ahead of the curve.

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molecule builder gizmo answer key: Webster's New World Essential Vocabulary David Alan Herzog, 2004-12-01 A must-have vocabulary builder for test takers and lifelong learners For the more than 3 million SAT and GRE test takers every year, as well as the millions of non-native English speakers who want to enhance their English vocabulary, Websters New World Essential Vocabulary will be an invaluable resource.

molecule builder gizmo answer key: *What Doctors Don't Tell You* Lynne Mctaggart, 1998-05-01 Discusses the potential dangers of cholesterol-lowering medications, steroids, antibiotics, and Ritalin, and reveals the potentially life-threatening risks of certain medical procedures and tests

molecule builder gizmo answer key: General Ecology Erich Hörl, James Edward Burton, 2017-05-04 Ecology has become one of the most urgent and lively fields in both the humanities and sciences. In a dramatic widening of scope beyond its original concern with the coexistence of living organisms within a natural environment, it is now recognized that there are ecologies of mind, information, sensation, perception, power, participation, media, behavior, belonging, values, the social, the political... a thousand ecologies. This proliferation is not simply a metaphorical extension of the figurative potential of natural ecology: rather, it reflects the thoroughgoing imbrication of natural and technological elements in the constitution of the contemporary environments we inhabit, the rise of a cybernetic natural state, with its corresponding mode of power. Hence this ecology of ecologies initiates and demands that we go beyond the specificity of any particular ecology: a general thinking of ecology which may also constitute an ecological transformation of thought itself is required. In this ambitious and radical new volume of writings, some of the most exciting contemporary thinkers in the field take on the task of revealing and theorizing the extent of the ecologization of existence as the effect of our contemporary sociotechnological condition: together, they bring out the complexity and urgency of the challenge of ecological thought-one we cannot avoid if we want to ask and indeed have a chance of affecting what forms of life, agency, modes of

existence, human or otherwise, will participate-and how-in this planet's future.

molecule builder gizmo answer key: *The Public Relations Handbook* Alison Theaker, 2004-08-02 In this updated edition of the successful Public Relations Handbook, a detailed introduction to the theories and practices of the public relations industry is given. Broad in scope, it; traces the history and development of public relations, explores ethical issues which affect the industry, examines its relationships with politics, lobbying organisations and journalism, assesses its professionalism and regulation, and advises on training and entry into the profession. It includes: interviews with press officers and PR agents about their working practices case studies, examples, press releases and illustrations from a range of campaigns including Railtrack, Marks and Spencer, Guinness and the Metropolitan Police specialist chapters on financial public relations, global PR, business ethics, on-line promotion and the challenges of new technology over twenty illustrations from recent PR campaigns. In this revised and updated practical text, Alison Theaker successfully combines theoretical and organisational frameworks for studying public relations with examples of how the industry works in practice.

molecule builder gizmo answer key: Anagram Solver Bloomsbury Publishing, 2009-01-01 Anagram Solver is the essential guide to cracking all types of quiz and crossword featuring anagrams. Containing over 200,000 words and phrases, Anagram Solver includes plural noun forms, palindromes, idioms, first names and all parts of speech. Anagrams are grouped by the number of letters they contain with the letters set out in alphabetical order so that once the letters of an anagram are arranged alphabetically, finding the solution is as easy as locating the word in a dictionary.

molecule builder gizmo answer key: The Digital Turn in Architecture 1992 - 2012 Mario Carpo, 2012-12-26 Now almost 20 years old, the digital turn in architecture has already gone through several stages and phases. Architectural Design (AD) has captured them all – from folding to cyberspace, nonlinearity and hypersurfaces, from versioning to scripting, emergence, information modelling and parametricism. It has recorded and interpreted the spirit of the times with vivid documentary precision, fostering and often anticipating crucial architectural and theoretical developments. This anthology of AD’s most salient articles is chronologically and thematically arranged to provide a complete historical timeline of the recent rise to pre-eminence of computer-based design and production. Mario Carpo provides an astute overview of the recent history of digital design in his comprehensive introductory essay and in his leaders to each original text. A much needed pedagogical and research tool for students and scholars, this synopsis also relates the present state of digitality in architecture to the history and theory of its recent development and trends, and raises issues of crucial importance for the contemporary practice of the design professions. A comprehensive anthology on digital architecture edited by one of its most eminent scholars in this field, Mario Carpo. Includes seminal texts by Bernard Cache, Peter Eisenman, John Frazer, Charles Jencks, Greg Lynn, Achim Menges and Patrik Schumacher. Features key works by FOA, Frank Gehry, Zaha Hadid, Ali Rahim, Lars Spuybroek/NOX, Kas Oosterhuis and SHoP.

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information for physicists.

molecule builder gizmo answer key: *Computer Lib* Theodor H. Nelson, 1980

molecule builder gizmo answer key: *Brotherhood of the Screaming Abyss* Dennis McKenna, 2023-02-21 Brotherhood of the Screaming Abyss: My Life with Terence McKenna, is an autobiographical account of renowned ethnobotanist Dennis McKenna's childhood, his relationship with his brother, and the author's experiences with and reflections on psychedelics, philosophy, and scientific innovation. Chronicling the McKenna brothers' childhood in western Colorado during the 1950s and 1960s, Dennis writes of his adolescent adventures including his first encounters with alcohol and drugs (many of which were facilitated by Terence), and the people and ideas that shaped them both. Brotherhood of the Screaming Abyss weaves personal narrative through philosophical ideas and tales of psychedelic experimentation. In this book, Dennis describes these inquiries with the wisdom of perspective. In his account of what has become known as The Experiment at La Chorrera-- which Terence documented in his own 1989 book, True Hallucinations -- Dennis describes how he had visions of merging mushroom and human DNA, the brothers' predictions for the future, and their evolving ideas about society and consciousness. He also offers an intellectual understanding of the hallucinogenic effects of high-dose psychedelic mushrooms and other psychedelic substances. Dennis, now world-renowned for this ethnobotanical work, describes in Brotherhood his early interests in cosmology and astrology, his sometimes rocky relationship with his older brother and how their paths diverged later in their lives. Dennis describes his academic career in between touching accounts of both his mother's and Terence's battles with cancer. In the 10th Anniversary edition of Brotherhood, Dennis reflects on scientific revelations, climate change, and the social and political crises of our time. The new edition also features both the original foreword by Luis Eduardo Luna and a new foreword by Dr. Bruce Damer. Brotherhood of the Screaming Abyss is a story about brotherhood, psychedelic experimentation, and the intertwining nature of science and myth.

molecule builder gizmo answer key: *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.

molecule builder gizmo answer key: *The Principles of Learning & Behavior* Michael Domjan, Barbara Burkhard, 1986 This popular text gives students a comprehensive and readable introduction to contemporary issues in learning and behaviour, while providing balanced coverage of classical and instrumental conditioning.

molecule builder gizmo answer key: *The Hubble Space Telescope* David H. DeVorkin, Robert William Smith, 2004 Describes the Hubble Space Telescope and how it works, who uses it, and why it has forever changed the world's appreciation of the cosmos.

molecule builder gizmo answer key: Human Embryonic Stem Cells Arlene Chiu, Mahendra S. Rao, 2003-08 A discussion of all the key issues in the use of human pluripotent stem cells for treating degenerative diseases or for replacing tissues lost from trauma. On the practical side, the topics range from the problems of deriving human embryonic stem cells and driving their differentiation along specific lineages, regulating their development into mature cells, and bringing stem cell therapy to clinical trials. Regulatory issues are addressed in discussions of the ethical debate surrounding the derivation of human embryonic stem cells and the current policies governing their use in the United States and abroad, including the rules and conditions regulating federal funding and questions of intellectual property.

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Molecule - Wikipedia
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