definition of claim in science

definition of claim in science is a fundamental concept that plays a crucial role in scientific inquiry and communication. In the realm of science, a claim represents a statement or assertion that scientists put forward, which must be supported by evidence and logical reasoning. Understanding the definition of a claim in science is essential for students, educators, and anyone interested in scientific literacy. This article delves into what a scientific claim is, how it differs from hypotheses and theories, and why it is vital to the scientific process. Readers will also explore the components of a valid scientific claim, see real-world examples, and learn about the importance of evidence in supporting claims. Whether you are preparing for exams, teaching science, or simply curious, this comprehensive guide will enhance your understanding of claims in the scientific context and their significance in advancing knowledge.

Understanding the Definition of Claim in Science

A claim in science refers to a statement that asserts a fact, explanation, or relationship about the natural world. It is a declaration that something is true based on observable phenomena, data, or experimental results. Scientific claims are not random opinions; they are grounded in empirical evidence and require logical reasoning. When scientists make a claim, they are essentially saying, "Based on the evidence, we assert that this is the case." This definition of claim in science is central to all scientific disciplines, from biology to physics, as it enables researchers to communicate findings clearly and test ideas systematically.

The process of making and evaluating claims is foundational to the scientific method. Claims guide research questions, shape experiments, and drive scientific debates. By understanding what constitutes a claim in science, individuals can better assess the credibility of scientific information, differentiate between fact and opinion, and participate in informed discussions about scientific issues.

Key Components of a Scientific Claim

A robust scientific claim is not merely a statement of belief or speculation. It is formed through careful observation, analysis, and critical thinking. The definition of claim in science encompasses several essential components that distinguish it from unsubstantiated assertions.

The Statement or Assertion

At its core, a claim is a clear and concise statement about a phenomenon, relationship, or outcome. This statement must be specific and testable. For example, "Plants grow faster in sunlight than in shade" is a claim that asserts a relationship between light exposure and plant growth.

Supporting Evidence

No scientific claim stands alone; it must be backed by evidence. This evidence may include experimental data, observations, or results from previous studies. The connection between the claim and the evidence should be logical and demonstrable.

Reasoning and Justification

Reasoning explains how the evidence supports the claim. It involves connecting the dots between what has been observed and why it justifies the assertion. This step is essential for ensuring that the claim is not just a coincidence but is grounded in scientific principles.

- Clear statement of the claim
- Relevant and credible evidence
- Logical reasoning tying evidence to the claim

How Claims Differ from Hypotheses and Theories

It is common to confuse claims with hypotheses or scientific theories, but each serves a distinct purpose within science. Understanding these differences helps clarify the definition of claim in science and its unique role.

Claim vs. Hypothesis

A hypothesis is a testable prediction or educated guess about how things work. It is proposed before an experiment and guides the investigation. A claim, on the other hand, is made after gathering data and is supported by the results. While a hypothesis asks, "What might happen?" a claim answers, "This is what the evidence shows."

Claim vs. Theory

A scientific theory is a well-substantiated explanation of some aspect of the natural world, based on a body of evidence and repeated testing. Theories are broader in scope than claims and integrate many claims and observations. Thus, a claim is a building block in the formation of scientific theories, but not synonymous with them.

The Role of Claims in the Scientific Method

The scientific method is an organized approach to investigating questions and solving problems. Claims play a central role in this process, serving as the foundation for scientific communication and advancement.

Formulating Claims from Data

After conducting experiments and collecting data, scientists analyze their results. From this analysis, they derive claims that summarize their findings. These claims must accurately reflect the data and be open to further testing and scrutiny.

Testing and Revising Claims

Scientific claims are not static. They are continually tested through

replication, peer review, and new experiments. If new evidence contradicts a claim, scientists must revise or reject it. This ongoing process ensures that scientific knowledge remains reliable and up-to-date.

Examples of Scientific Claims

Examining real-world examples helps solidify the definition of claim in science and demonstrates how claims are used in practice.

- "Smoking increases the risk of lung cancer."
- "Water boils at 100°C at sea level."
- "Vaccines are effective in preventing specific diseases."
- "Global temperatures are rising due to increased greenhouse gas emissions."

Each of these claims is backed by extensive scientific evidence and reasoning. They are stated clearly, can be tested, and have been evaluated through rigorous scientific processes.

Importance of Evidence in Supporting Scientific Claims

The credibility of any claim in science depends on the quality and quantity of supporting evidence. Without evidence, a claim remains unsubstantiated and lacks scientific value.

Types of Evidence

Evidence supporting scientific claims may include:

- Experimental results
- Observational data
- Statistical analysis
- Peer-reviewed studies

- Replicated findings

Strong evidence increases the reliability of a claim, while weak or anecdotal evidence can lead to skepticism and further investigation.

Evaluating Evidence

Scientists critically evaluate the sources and validity of evidence. Reliable evidence is replicable, unbiased, and collected using appropriate methods. This rigorous evaluation ensures that only well-supported claims become part of the scientific consensus.

Common Misconceptions about Scientific Claims

Despite their importance, scientific claims are often misunderstood by the general public. Clarifying these misconceptions is essential for scientific literacy.

- Assuming all claims are equally valid: Only claims with strong evidence and reasoning are credible.
- Confusing claims with opinions: Scientific claims are data-driven, not based on personal beliefs.
- Believing claims are permanent: Scientific claims can change or be rejected as new evidence emerges.
- Thinking a single study proves a claim: Scientific consensus is built through multiple, independent investigations.

Conclusion

Understanding the definition of claim in science is essential for interpreting scientific information, engaging in meaningful discussions, and making informed decisions. Scientific claims are clear, evidence-based statements that are open to testing and revision. By distinguishing claims from hypotheses and theories, evaluating the quality of supporting evidence, and recognizing common misconceptions, individuals can better appreciate the dynamic and rigorous nature of scientific inquiry.

Q: What is the definition of claim in science?

A: In science, a claim is a statement or assertion about a phenomenon, relationship, or outcome that is supported by evidence and logical reasoning.

Q: How does a scientific claim differ from a hypothesis?

A: A hypothesis is a testable prediction made before an experiment, while a scientific claim is a conclusion drawn from evidence after analyzing experimental results.

Q: Why is evidence important for a scientific claim?

A: Evidence is crucial because it validates the claim, ensuring that it is based on observable, reliable data rather than opinion or speculation.

Q: Can scientific claims change over time?

A: Yes, scientific claims can be revised or rejected if new evidence emerges that contradicts the original claim.

Q: What are examples of scientific claims?

A: Examples include: "Smoking increases the risk of lung cancer," "Water boils at 100°C at sea level," and "Vaccines are effective in preventing specific diseases."

Q: What makes a scientific claim credible?

A: A credible scientific claim is clearly stated, based on strong evidence, logically reasoned, and supported by repeated testing and peer review.

Q: How are scientific claims tested?

A: Scientific claims are tested through experiments, observations, replication by other scientists, and critical peer review.

Q: Are all scientific claims proven facts?

A: Not all claims are absolute facts; they are best explanations based on current evidence and may be updated as new information becomes available.

Q: What is the role of reasoning in a scientific claim?

A: Reasoning connects the evidence to the claim, explaining why the evidence supports the assertion and ensuring the claim is logically sound.

Q: Why is it important to understand scientific claims?

A: Understanding scientific claims helps individuals critically assess scientific information, differentiate between evidence-based statements and opinions, and make informed decisions.

Definition Of Claim In Science

The Definition of Claim in Science: A Comprehensive Guide

Introduction:

In the realm of scientific inquiry, a claim isn't just a statement; it's the cornerstone of the entire process. It's the hypothesis, the proposed explanation, the bold assertion that demands evidence and rigorous testing. Understanding the precise definition of a claim in science is crucial for anyone involved in scientific research, from budding students to seasoned professionals. This comprehensive guide will dissect the meaning of a scientific claim, explore its various types, and illuminate its importance in advancing scientific knowledge. We'll delve into what makes a strong claim, how it differs from an opinion, and the essential role it plays in the scientific method. Get ready to unravel the power of the scientific claim!

What is a Claim in Science?

The definition of claim in science is a statement that asserts a fact or an interpretation about the

natural world. It goes beyond a simple observation; it proposes an explanation, a relationship, or a prediction based on evidence or a proposed theory. A scientific claim is not just a guess; it's a carefully considered assertion that can be tested and potentially falsified. It's the bridge between observation and understanding, driving the entire scientific process forward. Think of it as a testable hypothesis, a statement put forth to be investigated and either supported or refuted through experimentation and analysis.

Characteristics of a Strong Scientific Claim

A robust scientific claim possesses several key characteristics:

Testability: A crucial aspect is its testability. Can the claim be verified or refuted through experimentation, observation, or analysis of data? If not, it's not a scientific claim.
Specificity: Vague statements don't cut it in science. A strong claim is precise and clearly defines the variables involved and the relationship between them.
Falsifiability: The claim must be potentially proven wrong. If there's no way to disprove it, it falls outside the realm of science. This principle, championed by Karl Popper, is fundamental to the scientific method.
Evidence-Based: A scientific claim is not based on opinion or belief, but on empirical evidence collected through rigorous methodology. The stronger the evidence, the more credible the claim becomes.

Types of Scientific Claims

Scientific claims aren't monolithic. They can take various forms, depending on the nature of the investigation and the type of evidence being presented:

Descriptive Claims: These claims describe observations or phenomena without necessarily proposing causal relationships. For example, "The average temperature in this region has increased by 1 degree Celsius over the past decade."

Causal Claims: These claims assert a cause-and-effect

relationship between two or more variables. For instance, "Increased carbon dioxide emissions contribute to global warming." This type of claim often requires more rigorous testing to establish causality.

Predictive Claims: These claims forecast future events based on existing evidence and scientific understanding. An example would be, "Based on current trends, the sea level is projected to rise by X meters by the year 2050."

The Importance of Claims in the Scientific Method

The scientific method hinges on the formulation, testing, and refinement of claims. The process generally unfolds as follows:

1. Observation: Scientists observe a phenomenon or gather data.
2. Question: A question arises from the observation.
3. Hypothesis (Claim): A testable claim is formulated to answer the question.
4. Experimentation/Data Collection: Experiments are designed and conducted to test the hypothesis. Data is collected and analyzed.
5. Analysis and Conclusion: The results are analyzed to determine if the data supports or refutes the claim. The claim may be revised, refined, or discarded based on the evidence.
6. Communication: The findings are communicated to the scientific community through publications and presentations.

Distinguishing Claims from Opinions

It's crucial to differentiate between a scientific claim and a mere opinion. A scientific claim is grounded in evidence and can be tested, whereas an opinion is a personal belief or judgment that lacks empirical support. While opinions can be valuable in sparking discussions and generating hypotheses, they do not constitute scientific claims until they are backed by evidence.

Conclusion

The definition of claim in science is far more nuanced than a simple statement. It represents a rigorous assertion, subject to testing and potentially falsification, forming the bedrock of scientific progress. Understanding its characteristics, types, and its critical role within the scientific method is essential for anyone seeking to engage with or understand scientific inquiry. By recognizing the hallmarks of a strong scientific claim, we can better evaluate the validity of scientific information and contribute to a more informed understanding of the natural world.

FAQs

1. Can a scientific claim ever be definitively proven true? No, scientific claims are supported by evidence, but never definitively proven true. Future research might uncover evidence that refutes or modifies existing claims.

2. What happens if a scientific claim is refuted? Refuting a claim is a vital part of the scientific process. It leads to revised hypotheses, new research directions, and a deeper understanding of the subject matter.

3. How can I evaluate the validity of a scientific claim? Consider the source of the claim, the methodology used to obtain evidence, the strength of the evidence presented, and whether the claim is testable and falsifiable.

4. Are all hypotheses considered scientific claims? While all scientific claims start as hypotheses, not all hypotheses meet the criteria for a strong scientific claim (testability, falsifiability, specificity).

5. What is the role of peer review in evaluating scientific claims? Peer review by experts in the field is a crucial step in ensuring the rigor and validity of scientific claims before they are published and widely disseminated.

definition of claim in science: Science Literacy National Academies of Sciences, Engineering, and Medicine, Division of Behavioral and Social Sciences and Education, Board on Science Education, Committee on Science Literacy and Public Perception of Science, 2016-11-14 Science is a way of knowing about the world. At once a process, a product, and an institution, science enables people to both engage in the construction of new knowledge as well as use information to achieve desired ends. Access to scienceâ€whether using knowledge or creating itâ€necessitates some level of familiarity with the enterprise and practice of science: we refer to this as science literacy. Science literacy is desirable not only for individuals, but also for the health and well- being of communities and society. More than just basic knowledge of science facts, contemporary definitions of science literacy have expanded to include understandings of scientific processes and practices, familiarity with how science and scientists work, a capacity to weigh and evaluate the products of science, and an ability to engage in civic decisions about the value of science. Although science literacy has traditionally been seen as the responsibility of individuals, individuals are nested within communities that are nested within societiesâ€and, as a result,

individual science literacy is limited or enhanced by the circumstances of that nesting. Science Literacy studies the role of science literacy in public support of science. This report synthesizes the available research literature on science literacy, makes recommendations on the need to improve the understanding of science and scientific research in the United States, and considers the relationship between scientific literacy and support for and use of science and research.

definition of claim in science: Reproducibility and Replicability in Science National Academies of Sciences, Engineering, and Medicine, Policy and Global Affairs, Committee on Science, Engineering, Medicine, and Public Policy, Board on Research Data and Information, Division on Engineering and Physical Sciences, Committee on Applied and Theoretical Statistics, Board on Mathematical Sciences and Analytics, Division on Earth and Life Studies, Nuclear and Radiation Studies Board, Division of Behavioral and Social Sciences and Education, Committee on National Statistics, Board on Behavioral, Cognitive, and Sensory Sciences, Committee on Reproducibility and Replicability in Science, 2019-10-20 One of the pathways by which the scientific community confirms the validity of a new scientific discovery is by repeating the research that produced it. When a scientific effort fails to independently confirm the computations or results of a previous study, some fear that it may be a symptom of a lack of rigor in science, while others argue that such an observed inconsistency can be an important precursor to new discovery. Concerns about reproducibility and replicability have been expressed in both scientific and popular media. As these concerns came to light, Congress requested that the National Academies of Sciences, Engineering, and Medicine conduct a study to assess the extent of issues related to reproducibility and replicability and to offer recommendations for improving rigor and transparency in scientific research. Reproducibility and Replicability in Science defines reproducibility and replicability and examines the factors that may lead to non-reproducibility and non-replicability in research. Unlike the typical expectation of reproducibility between two computations, expectations about replicability are more nuanced, and in some cases a lack of replicability can aid the process of scientific discovery. This report provides recommendations to researchers, academic institutions, journals, and funders on steps they can take to improve reproducibility and replicability in science.

definition of claim in science: *Research Design* Stephen Gorard, 2013-02-01 Research design is of critical importance in social research, despite its relative neglect in many methods resources. Early consideration of design in relation to research questions leads to the elimination or diminution of threats to eventual research claims, by encouraging internal validity and substantially reducing the number of alternative explanations for any finite number of research ′observations′. This new book: discusses the nature of design; gives an introduction to design notation; offers a flexible approach to new designs; looks at a range of standard design models; and presents craft tips for real-life problems and compromises. Most importantly, it provides the rationale for preferring one design over another within any given context. Each section is illustrated with case studies of real work and concludes with suggested readings and topics for discussion in seminars and workshops, making it an ideal textbook for postgraduate research methods courses. Based on the author′s teaching on the ESRC Doctoral Training Centre Masters in Research Methods at the University of Birmingham, and his ongoing work for the ESRC Researcher Development Initiative, this is an essential text for postgraduate researchers and academics. There is no book like Research Design on the market that addresses all of these issues in an easy to comprehend style, for those who want to design research and make critical judgements about the designs of others.

definition of claim in science: The Knowledge Gap Natalie Wexler, 2020-08-04 The untold story of the root cause of America's education crisis--and the seemingly endless cycle of multigenerational poverty. It was only after years within the education reform movement that Natalie Wexler stumbled across a hidden explanation for our country's frustrating lack of progress when it comes to providing every child with a quality education. The problem wasn't one of the usual scapegoats: lazy teachers, shoddy facilities, lack of accountability. It was something no one was talking about: the elementary school curriculum's intense focus on decontextualized reading comprehension skills at the expense of actual knowledge. In the tradition of Dale Russakoff's The

Prize and Dana Goldstein's The Teacher Wars, Wexler brings together history, research, and compelling characters to pull back the curtain on this fundamental flaw in our education system--one that fellow reformers, journalists, and policymakers have long overlooked, and of which the general public, including many parents, remains unaware. But The Knowledge Gap isn't just a story of what schools have gotten so wrong--it also follows innovative educators who are in the process of shedding their deeply ingrained habits, and describes the rewards that have come along: students who are not only excited to learn but are also acquiring the knowledge and vocabulary that will enable them to succeed. If we truly want to fix our education system and unlock the potential of our neediest children, we have no choice but to pay attention.

definition of claim in science: Philosophy of Science Alexander Rosenberg, 2005 This text identifies the profound philosophical problems that science raises through an examination of enduring questions about its nature, methods and justification.

definition of claim in science: An Introduction to Scientific Research Methods in Geography and Environmental Studies Daniel Montello, Paul Sutton, 2012-12-10 Covers a broad range of subjects that undergraduates in the discipline should be familiar and comfortable with upon graduation. From chapters on the scientific method and fundamental research concepts, to experimental design, sampling and statistical analysis, the text offers an excellent introduction to the key concepts of geographical research. The content is applicable for students at the beginning of their studies right through to planning and conducting dissertations. The book has also been of particular support in designing my level 1 and 2 tutorials which cover similar ground to several of the chapters. - Joseph Mallalieu, School of Geography, Leeds University Montello and Sutton is one of the best texts I've used in seminars on research methodology. The text offers a clear balance of quantitative vs. qualitative and physical vs. human which I've found particularly valuable. The chapters on research ethics, scientific communication, information technologies and data visualization are excellent. - Kenneth E. Foote, Department of Geography, University of Colorado at Boulder This is a broad and integrative introduction to the conduct and interpretation of scientific research, covering both geography and environmental studies. Written for undergraduate and postgraduate students, it: Explains both the conceptual and the technical aspects of research, as well as all phases of the research process Combines approaches in physical geography and environmental science, human geography and human-environment relations, and geographic and environmental information techniques (such as GIS, cartography, and remote sensing) Combines natural and social scientific approaches common to subjects in geography and environmental studies Includes case studies of actual research projects to demonstrate the breadth of approaches taken It will be core reading for students studying scientific research methods in geography, environmental studies and related disciplines such as planning and earth science.

definition of claim in science: *Philosophy of Science* William Bechtel, 2013-12-16 This text focuses on two major issues: the nature of scientific inquiry and the relations between scientific disciplines. Designed to introduce the basic issues and concepts in the philosophy of science, Bechtel writes for an audience with little or no philosophical background. The first part of the book explores the legacy of Logical Positivism and the subsequent post-Positivistic developments in the philosophy of science. The second section examines arguments for and against using a model of theory reduction to integrate scientific disciplines. The book concludes with a chapter describing non-reductionist approaches for relating scientific disciplines using psycholinguistic and cognitive neuroscience models.

definition of claim in science: *Avicenna's Theory of Science* Riccardo Strobino, 2021-11-09 Avicenna is the most influential figure in the intellectual history of the Islamic world. This book is the first comprehensive study of his theory of science, which profoundly shaped his philosophical method and indirectly influenced philosophers and theologians not only in the Islamic world but also throughout Christian Europe and the medieval Jewish tradition. A sophisticated interpreter of Aristotle's Posterior Analytics, Avicenna took on the ambitious task of reorganizing Aristotelian philosophy of science into an applicable model of scientific reasoning, striving to identify conditions

of certainty for scientific assertions and conditions of adequacy for real definitions. Riccardo Strobino combines philosophical and textual analysis to explore the scope and nature of Avicenna's contributions to the logic of scientific reasoning in his effort to recalibrate Aristotle's model and overcome some of its internal limitations. Focusing on a broad array of philosophical innovations at the intersection of logic, metaphysics, and epistemology, this book casts light on an essential aspect of the thought of the preeminent philosopher and physician of the Islamic world.

definition of claim in science: *Dictionary of Christianity and Science* Zondervan,, 2017-04-25 The definitive reference work on science and Christian belief How does Christian theology relate to scientific inquiry? What are the competing philosophies of science, and do they work with a Christian faith based on the Bible? No reference work has covered this terrain sufficiently--until now. Featuring entries from over 140 international contributors, the Dictionary of Christianity and Science is a deeply-researched, peer-reviewed, fair-minded work that illuminates the intersection of science and Christian belief. In one volume, you get reliable summaries and critical analyses of over 450 relevant concepts, theories, terms, movements, individuals, and debates. You will find answers to your toughest questions about faith and science, from the existence of Adam and Eve to the age of the earth, evolution and string theory. FEATURES INCLUDE: Over 450 entries that will help you think through some of today's most challenging scientific topics, including climate change, evolution, bioethics, and much more Essays from over 140 leading international scholars, including Francis Beckwith, Michael Behe, Darrell Bock, William Lane Craig, Hugh Ross, Craig Keener, Davis Young, John Walton, and many more Multiple-view essays on controversial topics allow you to understand and compare differing Christian viewpoints Learn about flesh-and-blood figures who have shaped the interaction of science and religion: Augustine, Aquinas, Bacon, Darwin, and Stephen Hawking are just the beginning Fully cross-referenced, entries include references and recommendations for further reading Advance Praise: Every Christian studying science will want a copy within arm's reach. --Scot McKnight, Northern Seminary This is an invaluable resource that belongs in every Christian's library. I will be keeping my copy close by when I'm writing. --Lee Strobel, Elizabeth and John Gibson chair of apologetics, Houston Baptist University Sparkles with passion, controversy, and diverse perspectives.--Karl Giberson, professor of science and religion, Stonehill College An impressive resource that presents a broad range of topics from a broad tent of evangelical scholars.--Michael R. Licona, Houston Baptist University I am certain that this dictionary will serve the church for many years in leading many to demonstrate that modern science can glorify our Creator and honor his creation. --Denis O. Lamoureux, University of Alberta 'Dictionary' is too humble a label for what this is! I anticipate that this will offer valuable guidance for Christian faithfulness. --C. John Collins, Covenant Theological Seminary Get answers to the difficult questions surround faith and science! Adam and Eve | the Age of the Earth | Climate Change | Evolution | Fossil Record | Genesis Flood | Miracles | Cosmology | Big Bang theory | Bioethics | Darwinism Death | Extraterrestrial Life | Multiverse | String theory | and much, much more

definition of claim in science: Organon of Science John Harrison Stinson, 1879

definition of claim in science: Deviant Science James McClenon, 2016-11-11 This book is a volume in the Penn Press Anniversary Collection. To mark its 125th anniversary in 2015, the University of Pennsylvania Press rereleased more than 1,100 titles from Penn Press's distinguished backlist from 1899-1999 that had fallen out of print. Spanning an entire century, the Anniversary Collection offers peer-reviewed scholarship in a wide range of subject areas.

definition of claim in science: Critical Reasoning and Science Mark Holowchak, 2007 Critical Reasoning and Science is an attempt to eliminate or at least diminish the feeling of estrangement that students may feel toward science. It is divided into three parts--a brief introduction to critical reasoning and science, a critical look at philosophical issues related to science, and a critical look at the practice of science. Overall, this work is unique in aim and functionality, as it is the first book to offer students a critical approach both to the philosophy and to the practice of science. Moreover, it aims to do so in a user-friendly manner by introducing material in short, digestible units (called modules). Each module has several history-of-science text boxes

throughout as well as key terms, text questions, and text-box questions at its end. There are also ample practice exercises to test students on the material.

definition of claim in science: Making Sense of Science: Energy Kirsten R. Daehler, Jennifer Folsom, Mayumi Shinohara, 2011 This comprehensive professional development course for grades 6–8 science teachers provides all the necessary ingredients for building a scientific way of thinking in teachers and students, focusing on science content, inquiry, and literacy. Teachers who participate in this course learn to facilitate hands-on science lessons, support evidence-based discussions, and develop students' academic language and reading and writing skills in science, along with the habits of mind necessary for sense making and scientific reasoning. Energy for Teachers of Grades 6–8 consists of five core sessions: Session 1: What is Energy? Session 2: Potential Energy Session 3: Heat Energy Session 4: Conservation of Energy Session 5: Energy in Ecosystems The materials include everything needed to effectively lead this course with ease: Facilitator Guide with extensive support materials and detailed procedures that allow staff developers to successfully lead a course Teacher Book with teaching, science, and literacy investigations, along with a follow-up component, Looking at Student Work™, designed to support ongoing professional learning communities CD with black line masters of all handouts and charts to support group discussion and sense making, course participation certificates, student work samples, and other materials that can be reproduced for use with teachers

definition of claim in science: Dialogue, Science and Academic Writing Zohar Livnat, 2012-01-11 This book investigates the dialogic nature of research articles from the perspective of discourse analysis, based on theories of dialogicity. It proposes a theoretical and applied framework for the understanding and exploration of scientific dialogicity. Focusing on some dialogic components, among them citations, concession, inclusive we and interrogatives, a combined model of scientific dialogicity is proposed, that reflects the place and role of various linguistic structures against the background of various theoretical approaches to dialogicity. Taking this combined model as a basis, the analysis demonstrates how scientific dialogicity is realized in an actual scientific dispute and how a scientific project is constructed step by step by means of a dialogue with its readers and discourse community. A number of different patterns of scientific dialogicity are offered, characterized by the different levels of the polemic held with the research world and other specific researchers – from the “classic”, moderate and polite dialogicity to a direct and personal confrontation between scientists.

definition of claim in science: What Is Science? A Guide For Those Who Love It, Hate It, Or Fear It Elof Axel Carlson, 2021-03-24 What is Science? A Guide for Those Who Love It, Hate It, or Fear It, provides the reader with ways science has been done through discovery, exploration, experimentation and other reason-based approaches. It discusses the basic and applied sciences, the reasons why some people hate science, especially its rejection of the supernatural, and others who fear it for human applications leading to environmental degradation, climate change, nuclear war, and other outcomes of sciences applied to society.The author uses anecdotes from interviews and associations with many scientists he has encountered in his career to illustrate these features of science and their personalities and habits of thinking or work. He also explores the culture wars of science and the humanities, values involved in doing science and applying science, the need for preventing unexpected outcomes of applied science, and the ways our world view changes through the insights of science. This book will provide teachers lots of material for discussion about science and its significance in our lives. It will also be helpful for those starting out their interest in science to know the worst and best features of science as they develop their careers.

definition of claim in science: *Principles of Scientific Sociology* Walter L. Wallace, 2009-12-01 Principles of Scientific Sociology represents a major attempt to redirect the course of contemporary sociological thought. It is clear, well-organized, innovative, and original in its discussion of the context and methods of sociology conceived as a natural science. Wallace delineates the subject matter of sociology, classifies its variables, presents a logic of inquiry, and advocates the use of this logic for the acceptance or rejection of hypotheses or theories and for the solving of human

problems. Social scientists, including political scientists, sociologists, anthropologists, historians, economists, social psychologists, and students of social phenomena among nonhumans, will find this work indispensable reading. Principles of Scientifc Sociology emphasizes the relationship between pure and applied sociological analysis. The essential contributions of each to the other are specified. Relationships between the substantive concepts of the sociology of humans, on the one hand, and the sociology of nonhumans, on the other, are systematized. In an attempt to put sociological analysis on a firm scientific basis, the book contains a concluding chapter focusing on central premises of natural science and their applicability to sociology. Wallace identifies the simple elements and relationships that sociological analysis requires if it is to lead to an understanding of complex social phenomena. On this basis, he considers the substantive elements and relations that comprise structural functionalism, historical materialism, symbolic interactionism, and other approaches to social data. He develops groundwork for standardizing these elements so that the contexts of different analyses may become rigorously comparable. The result is a fine, one-volume synthesis of sociological theory.

definition of claim in science: Science as Inquiry in the Secondary Setting Julie Luft, Randy L. Bell, Julie Gess-Newsome, 2008 It can be a tough thing to admit: Despite hearing so much about the importance of inquiry-based science education, you may not be exactly sure what it is, not to mention how to do it. But now this engaging new book takes the intimidation out of inquiry. Science as Inquiry in the Secondary Setting gives you an overview of what inquiry can be like in middle and high school and explores how to incorporate more inquiry-centered practices into your own teaching. In 11 concise chapters, leading researchers raise and resolve such key questions as: What is Inquiry? What does inquiry look like in speccific classes, such as the Earth science lab or the chemitry lab? What are the basic features of inquiry instruction? How do you assess science as inquiry? Science as Inquiry was created to fill a vacuum. No other book serves as such a compact, easy-to-understand orientation to inquiry. It's ideal for guiding discussion, fostering reflection, and helping you enhance your own classroom practices. As chapter author Mark Windschitl writes, The aim of doing more authrntic science in schools is not to mimic scientists, but to develop the depth of content knowledge, the habits of mind, and the critical reasoning skills that are so crucial to basic science literacy. This volume guides you to find new ways of helping students further along the path to science literacy.

definition of claim in science: Essentials of Essay Writing Jamie Q Roberts, Robert Buch, 2017-04-24 This engaging text shows students what markers look for in their work and helps them to develop the skills they need to produce a first-class essay. It focuses on all the core elements of effective essay writing, including devising a question, critical thinking, engaging with the literature and structuring an essay. Chapters include clear and concise guidance on meeting marking criteria, illustrated with real students' essays from a range of disciplines, and activities which encourage students to put their new skills into practice. This is an essential resource for all university students for whom essays and coursework form part of their assessment. It is also ideal for further education students and those preparing for university-level study.

definition of claim in science: Scientific Method in Practice Hugh G. Gauch, 2003 As the gateway to scientific thinking, an understanding of the scientific method is essential for success and productivity in science. This book is the first synthesis of the practice and the philosophy of the scientific method. It will enable scientists to be better scientists by offering them a deeper understanding of the underpinnings of the scientific method, thereby leading to more productive research and experimentation. It will also give scientists a more accurate perspective on the rationality of the scientific approach and its role in society. Beginning with a discussion of today's 'science wars' and science's presuppositions, the book then explores deductive and inductive logic, probability, statistics, and parsimony, and concludes with an examination of science's powers and limits, and a look at science education. Topics relevant to a variety of disciplines are treated, and clarifying figures, case studies, and chapter summaries enhance the pedagogy. This adeptly executed, comprehensive, yet pragmatic work yields a new synergy suitable for scientists and

instructors, and graduate students and advanced undergraduates.

definition of claim in science: The Nature of Nature Bruce Gordon, William Dembski, 2014-04-29 The intellectual and cultural battles now raging over theism and atheism, conservatism and secular progressivism, dualism and monism, realism and antirealism, and transcendent reality versus material reality extend even into the scientific disciplines. This stunning new volume captures this titanic clash of worldviews among those who have thought most deeply about the nature of science and of the universe itself. Unmatched in its breadth and scope, The Nature of Nature brings together some of the most influential scientists, scholars, and public intellectuals—including three Nobel laureates—across a wide spectrum of disciplines and schools of thought. Here they grapple with a perennial question that has been made all the more pressing by recent advances in the natural sciences: Is the fundamental explanatory principle of the universe, life, and self-conscious awareness to be found in inanimate matter or immaterial mind? The answers found in this book have profound implications for what it means to do science, what it means to be human, and what the future holds for all of us.

definition of claim in science: Kneeling at the Altar of Science Robert Bolger, 2012-08-22 Does religion need to look more like a science? If much of the contemporary work published in science and religion is any indication, the answer appears to be a resounding yes. Yet the current tendency to dress religion up in the language and methods of science does more harm than good. In Kneeling at the Altar of Science, Robert Bolger argues that much of the recent writing in science and religion falls prey to the practice of what he calls religious scientism, or the attempt to use science to explain and clarify certain religious concepts. Bolger then shows, with clarity and humor, how religious scientism harms rather than helps, arguing in the end that religious concepts do better when their meaning is found in the context of their religious use. This book promises to be a fresh approach to the ever-popular dialogue between science and religion.

definition of claim in science: *The Believing Primate* Jeffrey Schloss, Michael Murray, 2010-10-07 Over the last two decades, scientific accounts of religion have received a great deal of scholarly and popular attention both because of their intrinsic interest and because they are widely seen as potentially constituting a threat to the religion they analyse. The Believing Primate aims to describe and discuss these scientific accounts as well as to assess their implications. The volume begins with essays by leading scientists in the field, describing these accounts and discussing evidence in their favour. Philosophical and theological reflections on these accounts follow, offered by leading philosophers, theologians, and scientists. This diverse group of scholars address some fascinating underlying questions: Do scientific accounts of religion undermine the justification of religious belief? Do such accounts show religion to be an accidental by-product of our evolutionary development? And, whilst we seem naturally disposed toward religion, would we fare better or worse without it? Bringing together dissenting perspectives, this provocative collection will serve to freshly illuminate ongoing debate on these perennial questions.

definition of claim in science: The Conduct of Inquiry in International Relations ,

definition of claim in science: Intellectual Property Law for Engineers, Scientists, and Entrepreneurs Howard B. Rockman, 2020-01-22 Fully revised new edition that completely covers intellectual property law—and many related issues—for engineers, scientists, and entrepreneurs This book informs engineering and science students, technology professionals, and entrepreneurs about the intellectual property laws that are important in their careers. It covers all of the major areas of intellectual property development and protection in non-legalistic terms that are understandable to technology and science professionals. New material includes a comprehensive discussion on the American Invents Act (AIA), coverage of many new high-profile topics, such as patent protection the mobile communications industry, and a new chapter on The Future of Technology, Engineering, and Intellectual Property. Now in its second edition, Intellectual Property Law for Engineers, Scientists, and Entrepreneurs enables inventors and creators to efficiently interface with an intellectual property attorney in order to obtain the maximum protection for their invention or creation, and to take steps to ensure that that invention or creation does not infringe

upon the intellectual property rights of others. It includes patent, trade secret, mask work, and cybersquatting legal and procedural principles. The book also shows readers how to properly use new vehicles of intellectual property protection for novel software, biotech, and business method inventions. Additionally, it examines trademark protection for domain names, and other ancillary matters that fall within the genre of intellectual property protection. This informative text: Covers all of the major areas of intellectual property development and protection in clear, layman's terms so as to be easily understood by technology and science professionals Provides detailed outlines of patent, trademark, copyright, and unfair competition laws Offers essays on famous and noteworthy inventors and their inventions—and features a copy of the first page of patents resulting from these inventors' efforts Covers many new high-profile cases covering patent protection within the mobile communications industry Intellectual Property Law for Engineers, Scientists, and Entrepreneurs, Second Edition is an excellent text for graduate and undergraduate engineering students, as well as professionals and those starting a new technology business who need to know all the laws concerning their inventions and creations.

definition of claim in science: The 'BrainCanDo' Handbook of Teaching and Learning Julia Harrington, Jonathan Beale, Amy Fancourt, Catherine Lutz, 2020-07-12 The 'BrainCanDo' Handbook of Teaching and Learning provides teachers and school leaders with a concise summary of how some of the latest research in educational neuroscience and psychology can improve learning outcomes. It aims to create a mechanism through which our growing understanding of the brain can be applied in the world of education. Subjects covered include memory, social development, mindsets and character. Written by practising teachers working in collaboration with researchers, the chapters provide a toolkit of practical ideas which incorporate evidence from psychology and neuroscience into teaching practice with the aim of improving educational outcomes for all. By increasing both teachers' and pupils' understanding of the developing brain, 'BrainCanDo' aims to improve cognitive performance and attainment, foster a love of learning and enable a healthy and productive approach to personal development. This book will appeal to educators, primarily those working in secondary schools, but also those within higher and primary school education. It will also be of interest to students of education, professionals looking to enhance their teaching and researchers working in the fields of education, psychology and neuroscience.

definition of claim in science: *A Philosophy for the Science of Well-Being* Anna Alexandrova, 2017-07-07 Well-being, happiness and quality of life are now established objects of social and medical research. Does this science produce knowledge that is properly about well-being? What sort of well-being? The definition and measurement of these objects rest on assumptions that are partly normative, partly empirical and partly pragmatic, producing a great diversity of definitions depending on the project and the discipline. This book, written from the perspective of philosophy of science, formulates principles for the responsible production and interpretation of this diverse knowledge. Traditionally, philosophers' goal has been a single concept of well-being and a single theory about what it consists in. But for science this goal is both unlikely and unnecessary. Instead the promise and authority of the science depends on it focusing on the well-being of specific kinds of people in specific contexts. Skeptical arguments notwithstanding, this contextual well-being can be measured in a valid and credible way - but only if scientists broaden their methods to make room for normative considerations and address publicly and inclusively the value-based conflicts that inevitably arise when a measure of well-being is adopted. The science of well-being can be normative, empirical and objective all at once, provided that we line up values to science and science to values.

definition of claim in science: Making a Difference: Volume I and II Sasha A. Barab, Kenneth E. Hay, Nancy Butler Songer, Daniel T. Hickey, 2017-09-05 William Wordsworth (1770-1850) needs little introduction as the central figure in Romantic poetry and a crucial influence in the development of poetry generally. This broad-ranging survey redefines the variety of his writing by showing how it incorporates contemporary concepts of language difference and the ways in which popular and serious literature were compared and distinguished during this period. It

discusses many of Wordsworth's later poems, comparing his work with that of his regional contemporaries as well as major writers such as Scott. The key theme of relationship, both between characters within poems and between poet and reader, is explored through Wordsworth's construction of community and his use of power relationships. A serious discussion of the place of sexual feeling in his writing is also included.

definition of claim in science: *Christianity and the Nature of Science* J. P. Moreland, 1989-06-01 A defense of the scientific view of creationism.

definition of claim in science: *Scientific Objectivity and Its Contexts* Evandro Agazzi, 2014-03-11 The first part of this book is of an epistemological nature and develops an original theory of scientific objectivity, understood in a weak sense (as intersubjective agreement among the specialists) and a strong sense (as having precise concrete referents). In both cases it relies upon the adoption of operational criteria designed within the particular perspective under which any single science considers reality. The “object” so attained has a proper ontological status, dependent on the specific character of the criteria of reference (regional ontologies). This justifies a form of scientific realism. Such perspectives are also the result of a complex cultural-historical situation. The awareness of such a “historical determinacy” of science justifies including in the philosophy of science the problems of ethics of science, relations of science with metaphysics and social dimensions of science that overstep the traditional restriction of the philosophy of science to an epistemology of science. It is to this “context” that the second part of the book is devoted.

definition of claim in science: Philosophy of Technology and Engineering Sciences , 2009-11-27 The Handbook Philosophy of Technology and Engineering Sciences addresses numerous issues in the emerging field of the philosophy of those sciences that are involved in the technological process of designing, developing and making of new technical artifacts and systems. These issues include the nature of design, of technological knowledge, and of technical artifacts, as well as the toolbox of engineers. Most of these have thus far not been analyzed in general philosophy of science, which has traditionally but inadequately regarded technology as mere applied science and focused on physics, biology, mathematics and the social sciences. - First comprehensive philosophical handbook on technology and the engineering sciences - Unparalleled in scope including explorative articles - In depth discussion of technical artifacts and their ontology - Provides extensive analysis of the nature of engineering design - Focuses in detail on the role of models in technology

definition of claim in science: The Popular Science Monthly , 1876

definition of claim in science: Where the Conflict Really Lies Alvin Plantinga, 2011-08-01 In this long-awaited book, pre-eminent analytical philosopher Alvin Plantinga argues that the conflict between science and theistic religion is actually superficial, and that at a deeper level they are in concord.

definition of claim in science: Explaining Science's Success John Wright, 2014-09-11 Paul Feyeraband famously asked, what's so great about science? One answer is that it has been surprisingly successful in getting things right about the natural world, more successful than non-scientific or pre-scientific systems, religion or philosophy. Science has been able to formulate theories that have successfully predicted novel observations. It has produced theories about parts of reality that were not observable or accessible at the time those theories were first advanced, but the claims about those inaccessible areas have since turned out to be true. And science has, on occasion, advanced on more or less a priori grounds theories that subsequently turned out to be highly empirically successful. In this book the philosopher of science, John Wright delves deep into science's methodology to offer an explanation for this remarkable success story.

definition of claim in science: Harmony Between Science and Revelation Januarius De Concilio, 1889

definition of claim in science: *Philosophy of Science for Nursing Practice* Michael D. Dahnke, Heyward Michael Dreher, 2011 Print+CourseSmart

definition of claim in science: Scientific Models for Religious Knowledge Andrew Ralls Woodward, 2018-08-14 Most comparisons of science and religion are really comparisons of science

and Christianity, or science and Islam, and so forth. In Scientific Models for Religious Knowledge, the author aims to get outside typical polarized debates between traditional, a priori theism and radical, scientistic naturalism. Instead, a new science and religion compatibility system--between a scientific study of religion and a religious epistemology--is our new, elusive problem. Moreover, we shall look at a comparison and contrast of modern science with the simple deference of the human mind to the actions of culturally postulated superhuman agents. This book pays critical attention to the contributions of scholars in the philosophy of religion, the philosophy of science, and the scientific study of religion. Scientific Models for Religious Knowledge is useful for readers looking to expand their learning in the philosophies of science and religion as these subjects are taught and analyzed in modern research universities.

definition of claim in science: Rethinking Scientific Change and Theory Comparison: Léna Soler, H. Sankey, Paul Hoyningen-Huene, 2008-05-29 This volume presents a collection of essays devoted to the analysis of scientific change and stability. It explores the balance and tension that exist between commensurability and continuity on the one hand and incommensurability and discontinuity on the other. The book constitutes fully revised versions of papers that were originally presented at an international colloquium held at the University of Nancy, France, in June 2004.

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definition of claim in science: Concept Formation in Social Science (Routledge Revivals) ,

definition of claim in science: Handbook of Research on Science Education, Volume II Norman G. Lederman, Sandra K. Abell, 2014-07-11 Building on the foundation set in Volume I—a landmark synthesis of research in the field—Volume II is a comprehensive, state-of-the-art new volume highlighting new and emerging research perspectives. The contributors, all experts in their research areas, represent the international and gender diversity in the science education research community. The volume is organized around six themes: theory and methods of science education research; science learning; culture, gender, and society and science learning; science teaching; curriculum and assessment in science; science teacher education. Each chapter presents an integrative review of the research on the topic it addresses—pulling together the existing research, working to understand the historical trends and patterns in that body of scholarship, describing how the issue is conceptualized within the literature, how methods and theories have shaped the outcomes of the research, and where the strengths, weaknesses, and gaps are in the literature. Providing guidance to science education faculty and graduate students and leading to new insights and directions for future research, the Handbook of Research on Science Education, Volume II is an essential resource for the entire science education community.