

I. Write a definition for each of the following words in YOUR own words. Yes look them up but don't copy!

- Control – Variables that are kept the same throughout experiment; part of experiment used to compare to
- Variable – Factors that can or do change during an experiment
- Independent variable – Factor changed by the experimenter to test the hypothesis (I change)
- Dependent variable – Factor that changes because of the independent variable; measurable (data)

II. SpongeBob and his Bikini Bottom pals have been busy doing a little research. Read the following description for each of their experiments and answer the questions provided.



#### Krusty Krabs Breath Mints

Mr. Krabs created a secret ingredient for a breath mint that he thinks will "cure" the bad breath people get from eating crabby patties at the Krusty Krab. He asked 100 customers with a history of bad breath to try his new breath mint. He had 50 customers (Group A) eat a breath mint after they finished eating a crabby patty. The other 50 customers (Group B) also received a breath mint after they finished the sandwich, however, it was just a regular breath mint and did not have the secret ingredient. Both groups were told that they were getting the breath mint that would cure their bad breath. Two hours after eating the crabby patties, 30 customers in Group A and 10 customers in Group B reported having better breath than they normally had after eating crabby patties.

1. Which group of people were in the control group? **Group without the secret ingredient, group B**
2. What is the independent variable? **The secret ingredient**
3. What is the dependent variable? **Fresh breath**
4. What do you think Mr. Krabs' conclusion should be? **The secret ingredient helps people to have fresh breath**
5. Give examples/details that support why you think in #4 what Mr. Krabs' conclusion should be. **30 out 50 people from group A had fresh breath but only 10 out 50 people from group B did**



# Scientific Method Spongebob Experiments

**Katerina Plakitsi**

A decorative graphic element consisting of a light blue horizontal bar with a rounded right end, and a red-to-white gradient semi-circle overlapping the right side of the bar.

## **Scientific Method Spongebob Experiments:**

**Activity Theory in Formal and Informal Science Education** Katerina Plakitsi, 2013-09-04 The purpose of this book is to establish a broader context for rethinking science learning and teaching by using cultural historical activity theoretic approach Activity theory already steps in its third generation and only a few works have been done on its applications to science education especially in Europe The context takes into account more recent developments in activity theory applications in US Canada Australia and Europe The chapters articulate new ways of thinking about learning and teaching science i e new theoretical perspectives and some case studies of teaching important scientific topics in for compulsory education The ultimate purpose of each chapter and the collective book as a whole is to prepare the ground upon which a new pedagogy in science education can be emerged to provide more encompassing theoretical frameworks that allow us to capture the complexity of science learning and teaching as it occurs in and out of schools The book captures the dialogic and interactive nature of the transferring the activity theory to both formal and informal science education It also contributes to the development of innovative curricula school science textbooks educational programs and ICT s materials As a whole the book moves theorizing and practicing of science education into new face and uncharted terrain It is recommended to new scholars and researchers as well as teachers researchers

**Scientific American: Presenting Psychology** Deborah Licht, Misty Hull, Coco Ballantyne, 2016-01-11 Presenting Psychology is a fresh concise variation of the breakout bestseller Scientific American Psychology combining the communicative style of the world s most respected science magazine with thoughtful immersive learning to help you reach all kinds of students Authored by longtime community college instructors Deborah Licht and Misty Hull alongside science journalist Coco Ballantyne the text centers on profiles and video interviews of 25 real people to help students better understand remember and relate to psychology s defining concepts Chapters also feature full page Scientific American style infographics which guide students through essential often complex concepts step by step

**Understanding and Applying Research Design** Martin Lee Abbott, Jennifer McKinney, 2013-01-07 A fresh approach to bridging research design with statistical analysis While good social science requires both research design and statistical analysis most books treat these two areas separately Understanding and Applying Research Design introduces an accessible approach to integrating design and statistics focusing on the processes of posing testing and interpreting research questions in the social sciences The authors analyze real world data using SPSS software guiding readers on the overall process of science focusing on premises procedures and designs of social scientific research Three clearly organized sections move seamlessly from theoretical topics to statistical techniques at the heart of research procedures and finally to practical application of research design Premises of Research introduces the research process and the capabilities of SPSS with coverage of ethics Empirical Generalization and Chi Square and Contingency Table Analysis Procedures of Research explores key quantitative methods in research design including measurement correlation regression and causation Designs of

Research outlines various design frameworks with discussion of survey research aggregate research and experiments Throughout the book SPSS software is used to showcase the discussed techniques and detailed appendices provide guidance on key statistical procedures and tips for data management Numerous exercises allow readers to test their comprehension of the presented material and a related website features additional data sets and SPSS code Understanding and Applying Research Design is an excellent book for social sciences and education courses on research methods at the upper undergraduate level The book is also an insightful reference for professionals who would like to learn how to pose test and interpret research questions with confidence

**Sociocultural Approaches to STEM Education** Katerina Plakitsi, Sylvie Barma, 2024-01-01 This book is a contribution to the sociocultural approaches to Science Technology Engineering and Mathematics STEM Education It offers a new interpreting theoretical framework coming from the Cultural Historical Psychology The authors highlight some serious elements of the sociocultural context that mediates learning on STEM or with STEM adds The book brings together the work of researchers interested in developmental psychology and childhood with a special focus on using Activity theory and Cultural historical research approach to unite these two opposing approaches to the study of children The authors reconsider our relationship and experiencing with technology It moves the attention from the pure instrumental aspect of technology to a deep human and societal approach Moreover the book focuses on the issue of teachers continuing education in both formal and informal settings is being seen under a sequential system of expansive cycles and the key role of contradictions in transformative educational settings Overall this book encourages the academic society to open dialogue with other societies and enhance interdisciplinary research in times of crisis [Loose-leaf Version for Scientific American: Psychology](#)

Deborah Licht, Misty Hull, Coco Ballantyne, 2014-01-09 In this breakthrough introduction to psychology two committed tech savvy professors Deborah Licht and Misty Hull combine years of research and teaching insights with the journalistic skill of science writer Coco Ballantyne who came to this project directly from Scientific American Together they have created a an introductory textbook and online system that draws on written profiles and video interviews of 27 real people to help students better understand remember and relate to psychology s basic ideas Beautifully designed the printed text is filled with high interest examples and features including full page infographics that help students understand and retain key concepts Online additional author created resources including scaffolded activities and adaptive quizzes provide a seamless learning experience for students and a reliable assessment mechanism for instructors and programs This innovative collaboration between Worth Publishers and Scientific American reflects a commitment to engaging and educating all students including those who sometimes seem difficult to engage in the contemporary style of the world s most respected science magazine

**Science Education during Early Childhood** Wolff-Michael Roth, Maria Ines Mafra Goulart, Katerina Plakitsi, 2012-10-12 Children s learning and understanding of science during their pre school years has been a neglected topic in the education literature something this volume aims to redress Paradigmatic notions of science

education with their focus on biologically governed development and age specific accession to scientific concepts have perpetuated this state of affairs This book offers a very different perspective however It has its roots in the work of cultural historical activity theorists who since Vygotsky have assumed that any higher cognitive function existed in and as a social relation first Accepting this precept removes any lower limit we may deem appropriate on children s cognitive engagement with science related concepts The authors describe and analyze the ways in which children aged from one to five grapple with scientific concepts and also suggest ways in which pre service and in service teachers can be prepared to teach in ways that support children s development in cultural and historical contexts In doing so the book affirms the value of cultural historical activity theory as an appropriate framework for analyzing preschool children s participation in science learning experiences and shows that that the theory provides an appropriate framework for understanding learning as well as for planning and conducting training for pre school teachers

Scientific American ,1887 Studies in the Age of Chaucer David Matthews,2012-01-15 Studies in the Age of Chaucer is the annual yearbook of the New Chaucer Society publishing articles on the writing of Chaucer and his contemporaries their antecedents and successors and their intellectual and social contexts More generally articles explore the culture and writing of later medieval Britain 1200 1500 Each SAC volume also includes an annotated bibliography and reviews of Chaucer related publications

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**Junk Lab** Michael Elsohn Ross,2003-01-01 Explains how to do experiments which explore various scientific principles using all kinds of items easily found around the house

**Super Steam: 10 Fun Experiments about Art and Music** Scientific American Editors,2023-07-30 Art and music are often seen as separate from science but there is a lot to learn when they are considered together STEAM Young scientists investigate chromatography photography tone and how music is made with different objects in this super fun book of experiments presented by Scientific American Each project is preceded by a Background section that explains the scientific concept that the experiment or activity is exploring The clear instructions guide readers through the rest of the scientific method through gathering materials setting up performing the experiment and examining the results

Atoms and Molecules Experiments Using Ice, Salt, Marbles, and More Robert Gardner,2012-07-01 Offers instructions for conducting science experiments about the atom and molecules using the scientific method

Marine Science Experiments Pam Walker,Elaine Wood,2010 this volume presents twenty science experiments that introduce students to marine biology and explain key concepts and scientific methodology

**The Scientific Method in Action** Rosen Publishing Group,

Incorporated, The,2014-07-15 The thought of conducting a science experiment can be intimidating especially for young students But science doesn't have to be scary not when it's so much fun This series integrates clear detailed breakdowns of each step of the scientific method with **What is the Scientific Method? Science Book for Kids | Children's Science Books** Baby Professor,2017-07-15 The scientific method is used to solve many great mysteries in natural science It is long process that includes systematic observation measurement and experiment It is then followed by formulation testing and modification of hypotheses At fourth grade your child will begin to use the scientific method in laboratory classes This book will become very useful in this stage Grab a copy today **Pop, Sizzle, Boom!** Amy Oyler,2017-06-13 Contains all sorts of science projects such as making slime with Elmer's glue color changing milk a Mentos diet coke geyser and even a PVC rocket launcher Easy Science Experiments Diane Molleson,Sarah Savage,1993-01-01 Instructions for science experiments to do at home using water salt pepper baking soda vinegar raisins celery and balloons Human Body Experiments Using Fingerprints, Hair, Muscles, and More Robert Gardner,2012-07-16 Quick science experiments using the human body

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