

Dihybrid Crosses Worksheet

Name _____

Period _____

Worksheet: Dihybrid Crosses

UNIT 3 : GENETICS

STEP 1: Determine what kind of problem you are trying to solve.

STEP 2: Determine letters you will use to specify traits.

STEP 3: Determine parent's genotypes.

STEP 4: Make your punnett square and make gametes

STEP 5: Complete cross and determine possible offspring.

STEP 6: Determine genotypic and phenotypic ratios.

Two-Factor Crosses (Di-hybrid)

Ex) A tall green pea plant (TTGG) is crossed with a short white pea plant (ttgg).

TT or Tt = tall

tt = short

GG or Gg = green

gg = white

| | TG | TG | TG | TG |
|----|------|------|------|------|
| tg | TtGg | TtGg | TtGg | TtGg |
| tg | TtGg | TtGg | TtGg | TtGg |
| tg | TtGg | TtGg | TtGg | TtGg |
| tg | TtGg | TtGg | TtGg | TtGg |

16 Tall/Green : 0 Tall/White : 0 Short/Green : 0 Short/ White

1) A tall green pea plant (TTGg) is crossed with a tall green pea plant (TtGg)

| | TTGg x TtGg | | | |
|----|-------------|------|------|------|
| | TG | Tg | tG | tg |
| TG | TTGG | TTGg | TtGG | TtGg |
| Tg | TTgG | TTgg | TtgG | Ttgg |
| tG | TtGG | TtGg | ttGG | ttGg |
| tg | TtGg | Ttgg | ttGg | ttgg |

12

Tall/Green : 4 Tall/White : 0

Short/Green : 0 Short/ White

Dihybrid Crosses Worksheet: Mastering Mendelian Genetics

Are you struggling to grasp the complexities of dihybrid crosses? Do Punnett squares seem like a confusing maze? This comprehensive guide provides you with everything you need to conquer dihybrid crosses, including readily downloadable dihybrid crosses worksheets, helpful explanations, and practical examples. We'll break down the process step-by-step, making Mendelian genetics accessible and understandable. By the end of this post, you'll be confidently tackling even the most challenging dihybrid cross problems.

Understanding Dihybrid Crosses: A Quick Refresher

Before diving into worksheets, let's refresh our understanding of dihybrid crosses. A dihybrid cross involves tracking the inheritance of two different traits simultaneously. Unlike monohybrid crosses (which focus on a single trait), dihybrid crosses require a more nuanced approach to predicting the genotypes and phenotypes of offspring. This involves considering the independent assortment of alleles during gamete formation, a cornerstone of Mendelian genetics.

Key Terms to Remember:

Allele: Different versions of a gene (e.g., one allele for tall plants, one for short plants).

Gene: A unit of heredity that determines a specific trait.

Genotype: The genetic makeup of an organism (e.g., TT, Tt, tt).

Phenotype: The observable characteristics of an organism (e.g., tall plant, short plant).

Homozygous: Having two identical alleles for a gene (e.g., TT, tt).

Heterozygous: Having two different alleles for a gene (e.g., Tt).

Dihybrid Crosses Worksheet: A Step-by-Step Guide

The best way to master dihybrid crosses is through practice. The following steps demonstrate how to solve a typical dihybrid cross problem using a Punnett square:

Step 1: Define the Traits and Alleles

Let's consider a classic example: pea plant flower color (purple, P, is dominant over white, p) and seed shape (round, R, is dominant over wrinkled, r).

Step 2: Determine the Parental Genotypes

Suppose we are crossing two heterozygous plants: PpRr x PpRr.

Step 3: Determine the Possible Gametes

Each parent can produce four different gametes due to independent assortment: PR, Pr, pR, pr.

Step 4: Construct the Punnett Square

Create a 4x4 Punnett square and list the possible gametes from one parent along the top and the other along the side. Fill in the squares by combining the alleles from each gamete.

(Insert a visually appealing 4x4 Punnett Square here showing the PpRr x PpRr cross and resulting genotypes. Consider using a table creation tool within your writing platform or embedding an image of a neatly drawn Punnett Square.)

Step 5: Determine Genotypes and Phenotypes

Count the number of times each genotype appears in the Punnett square. Then, determine the corresponding phenotypes based on the dominance relationships. For instance, any genotype with at least one "P" will express the purple flower phenotype. Similarly, any genotype with at least one "R" will express the round seed phenotype.

Downloadable Dihybrid Crosses Worksheets

To further enhance your understanding, we've prepared several downloadable dihybrid crosses worksheets of varying difficulty levels. These worksheets include a range of problems, from simple crosses to more complex scenarios involving different dominance patterns. [Insert links to downloadable PDF worksheets here]. These worksheets provide ample opportunity for practice and self-assessment.

Beyond the Basics: Tackling More Complex Scenarios

While the basic dihybrid cross provides a solid foundation, you'll encounter more complex variations. These might include:

Incomplete Dominance:

In this case, neither allele is completely dominant. The heterozygote displays an intermediate

phenotype.

Codominance:

Both alleles are expressed equally in the heterozygote.

Sex-Linked Traits:

These traits are located on the sex chromosomes (X or Y).

Conclusion

Mastering dihybrid crosses is crucial for a thorough understanding of Mendelian genetics. By utilizing Punnett squares and practicing with our downloadable worksheets, you can build confidence and proficiency in predicting offspring genotypes and phenotypes. Remember to break down each problem step-by-step, paying careful attention to allele combinations and dominance relationships. Consistent practice is key to success!

FAQs

1. What is the difference between a monohybrid and a dihybrid cross? A monohybrid cross involves one trait, while a dihybrid cross involves two traits.
2. Can I use a Punnett square for crosses involving more than two traits? While technically possible, Punnett squares become unwieldy for crosses involving three or more traits. Other methods, like the branching method, are more efficient for larger crosses.
3. How can I check my answers on the dihybrid crosses worksheet? Many online resources provide answers to similar problems. Alternatively, you can compare your results with a classmate or consult your teacher/instructor.
4. What if I encounter a dihybrid cross with incomplete dominance? The principles remain the same, but you need to consider the intermediate phenotype expressed by the heterozygote.
5. Where can I find additional resources to help me learn more about dihybrid crosses? Many reputable websites and educational platforms offer detailed explanations, videos, and interactive exercises on Mendelian genetics and dihybrid crosses. Search for "dihybrid cross tutorial" or

"Mendelian genetics lesson" to find numerous resources.

dihybrid crosses worksheet: Science Units for Grades 9-12 Randy L. Bell, Joe Garofalo, 2005 Sample topics include cell division, virtual dissection, earthquake modeling, the Doppler Effect, and more!

dihybrid crosses worksheet: Experiments in Plant Hybridisation Gregor Mendel, 2008-11-01 Experiments which in previous years were made with ornamental plants have already afforded evidence that the hybrids, as a rule, are not exactly intermediate between the parental species. With some of the more striking characters, those, for instance, which relate to the form and size of the leaves, the pubescence of the several parts, etc., the intermediate, indeed, is nearly always to be seen; in other cases, however, one of the two parental characters is so preponderant that it is difficult, or quite impossible, to detect the other in the hybrid. from 4. The Forms of the Hybrid One of the most influential and important scientific works ever written, the 1865 paper Experiments in Plant Hybridisation was all but ignored in its day, and its author, Austrian priest and scientist GREGOR JOHANN MENDEL (1822-1884), died before seeing the dramatic long-term impact of his work, which was rediscovered at the turn of the 20th century and is now considered foundational to modern genetics. A simple, eloquent description of his 1856-1863 study of the inheritance of traits in pea plants Mendel analyzed 29,000 of them this is essential reading for biology students and readers of science history. Cosimo presents this compact edition from the 1909 translation by British geneticist WILLIAM BATESON (1861-1926).

dihybrid crosses worksheet: The American Biology Teacher , 2002

dihybrid crosses worksheet: The Use of Worksheets to Facilitate Meaningful Learning in Vertebrate Zoology Ingrid Marianne Kaatz, 1992

dihybrid crosses worksheet: Concepts of Biology Samantha Fowler, Rebecca Roush, James Wise, 2023-05-12 Black & white print. Concepts of Biology is designed for the typical introductory biology course for nonmajors, covering standard scope and sequence requirements. The text includes interesting applications and conveys the major themes of biology, with content that is meaningful and easy to understand. The book is designed to demonstrate biology concepts and to promote scientific literacy.

dihybrid crosses worksheet: Principles of Biology Lisa Bartee, Walter Shiner, Catherine Creech, 2017 The Principles of Biology sequence (BI 211, 212 and 213) introduces biology as a scientific discipline for students planning to major in biology and other science disciplines. Laboratories and classroom activities introduce techniques used to study biological processes and provide opportunities for students to develop their ability to conduct research.

dihybrid crosses worksheet: NEET Foundation Cell Biology Chandan Sengupta, This book has been published with all reasonable efforts taken to make the material error-free after the consent of the author. No part of this book shall be used, reproduced in any manner whatsoever without written permission from the author, except in the case of brief quotations embodied in critical articles and reviews. The Author of this book is solely responsible and liable for its content including but not limited to the views, representations, descriptions, statements, information, opinions and references. The Content of this book shall not constitute or be construed or deemed to reflect the opinion or expression of the Publisher or Editor. Neither the Publisher nor Editor endorse or approve the Content of this book or guarantee the reliability, accuracy or completeness of the Content published herein and do not make any representations or warranties of any kind, express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose. The Publisher and Editor shall not be liable whatsoever for any errors, omissions, whether such errors or omissions result from negligence, accident, or any other cause or claims for loss or damages of any kind, including without limitation, indirect or consequential loss or damage arising out of use, inability to use, or about the reliability, accuracy or sufficiency of the information contained in this book.

dihybrid crosses worksheet: Laboratory Manual of Genetics A. M. Winchester, Peter J. Wejksnora, 1995-12 Give your students the opportunity to apply the scientific method to real -not simulated- lab investigations in both classical and molecular genetics. It is appropriate for a range of genetics and molecular biology laboratory courses because it incorporates material spanning the areas of basic genetics, molecular genetics, and human genetics. Since the first edition, Laboratory Manual of Genetics has been carefully constructed to be student-oriented.

dihybrid crosses worksheet: *Universal Teaching Strategies* H. Jerome Freiberg, Amy Driscoll, 2005 This textbook for current and prospective teachers describes a variety of basic classroom teaching strategies. It is organized into three main sections on planning, instructing, and assessing. Sample topics include maintaining discipline, creating dialogue, and using multimedia resources. Each of 15 chapters is augmented with sample classroom mater

dihybrid crosses worksheet: Biology for AP ® Courses Julianne Zedalis, John Eggebrecht, 2017-10-16 Biology for AP® courses covers the scope and sequence requirements of a typical two-semester Advanced Placement® biology course. The text provides comprehensive coverage of foundational research and core biology concepts through an evolutionary lens. Biology for AP® Courses was designed to meet and exceed the requirements of the College Board's AP® Biology framework while allowing significant flexibility for instructors. Each section of the book includes an introduction based on the AP® curriculum and includes rich features that engage students in scientific practice and AP® test preparation; it also highlights careers and research opportunities in biological sciences.

dihybrid crosses worksheet: *Conceptual Change Strategies in Teaching Genetics* Laura Elizabeth Batzli, 1999

dihybrid crosses worksheet: Programed Genetics: Extension of the theory Chester Alvin Lawson, Mary Alice Burmester, 1966

dihybrid crosses worksheet: Biological Science, an Ecological Approach Biological Sciences Curriculum Study, 1992 A colltction of copy masters designed to supplement and extend the test material in a variety of ways. Each item is keyed to the most closely related chapter.

dihybrid crosses worksheet: Quantitative Investigations in the Biosciences using MINITAB John Eddison, 2017-09-06 Until recently, acquiring a background in the basic methodological principles that apply to most types of investigations meant struggling to obtain results through laborious calculations. The advent of statistical software packages has removed much of the tedium and many of the errors of manual calculations and allowed a marked increase in the depth and sophistication of analyses. Although most statistics classes now incorporate some instruction in using a statistics package, most introductory texts do not. Quantitative Investigations in the Biosciences using MINITAB fills this void by providing an introduction to investigative methods that, in addition to outlining statistical principles and describing methods of calculations, also presents essential commands and interprets output from the statistics package MINITAB. The author introduces the three basic elements of investigations-design, analysis, and reporting-using an extremely accessible approach that keeps mathematical detail to a minimum. He groups statistical tests according to the type of problem they are used to examine, such as comparisons, sequential relationships, and associations. Quantitative Investigations in the Biosciences using MINITAB draws techniques and examples from a variety of subjects, ranging from physiology and biochemistry through to ecology, behavioral sciences, medicine, agriculture and horticulture, and complements the mathematical results with formal conclusions for all of the worked examples. It thus provides an ideal handbook for anyone in virtually any field who wants to apply statistical techniques to their investigations.

dihybrid crosses worksheet: First Year Academic Achievement of Black and Hispanic Students in a Special Program at an Ivy League University Darwin Perry Williams, 1986

dihybrid crosses worksheet: Pearson Biology 12 New South Wales Skills and Assessment Book Yvonne Sanders, 2018-10-17 The write-in Skills and Assessment Activity Books focus on working scientifically skills and assessment. They are designed to consolidate concepts

learnt in class. Students are also provided with regular opportunities for reflection and self-evaluation throughout the book.

dihybrid crosses worksheet: A New System, Or, an Analysis of Ancient Mythology Jacob Bryant, 1773

dihybrid crosses worksheet: *Human Population Genetics and Genomics* Alan R. Templeton, 2018-11-08 Human Population Genetics and Genomics provides researchers/students with knowledge on population genetics and relevant statistical approaches to help them become more effective users of modern genetic, genomic and statistical tools. In-depth chapters offer thorough discussions of systems of mating, genetic drift, gene flow and subdivided populations, human population history, genotype and phenotype, detecting selection, units and targets of natural selection, adaptation to temporally and spatially variable environments, selection in age-structured populations, and genomics and society. As human genetics and genomics research often employs tools and approaches derived from population genetics, this book helps users understand the basic principles of these tools. In addition, studies often employ statistical approaches and analysis, so an understanding of basic statistical theory is also needed. - Comprehensively explains the use of population genetics and genomics in medical applications and research - Discusses the relevance of population genetics and genomics to major social issues, including race and the dangers of modern eugenics proposals - Provides an overview of how population genetics and genomics helps us understand where we came from as a species and how we evolved into who we are now

dihybrid crosses worksheet: Preparing for the Biology AP Exam Neil A. Campbell, Jane B. Reece, Fred W. Holtzclaw, Theresa Knapp Holtzclaw, 2009-11-03 Fred and Theresa Holtzclaw bring over 40 years of AP Biology teaching experience to this student manual. Drawing on their rich experience as readers and faculty consultants to the College Board and their participation on the AP Test Development Committee, the Holtzclaws have designed their resource to help your students prepare for the AP Exam. Completely revised to match the new 8th edition of Biology by Campbell and Reece. New Must Know sections in each chapter focus student attention on major concepts. Study tips, information organization ideas and misconception warnings are interwoven throughout. New section reviewing the 12 required AP labs. Sample practice exams. The secret to success on the AP Biology exam is to understand what you must know and these experienced AP teachers will guide your students toward top scores!

dihybrid crosses worksheet: *Biology* , 2002

dihybrid crosses worksheet: *Human Genetics, Informational and Educational Materials* , 1979 Printed and audiovisual educational and informational materials dealing with human genetics and genetic diseases. Intended for interested laypersons and professionals. Arranged by titles according to format of books, journal articles, videocassettes, film loops, slide/tape lectures, slide sets, posters and charts, motion pictures, laboratory/teaching kits, games, filmstrips, and audiocassettes. Subject heading index. List of publishers, organizations, and producers.

dihybrid crosses worksheet: *The Ash House* Angharad Walker, 2021-09-02 Miss Peregrine's Home for Peculiar Children meets Lord of the Flies in the exciting debut from Angharad Walker. A new boy arrives at the Ash House. He can't remember his name - or why he's been sent there. Given the name Sol, and troubled by a mystery pain that no medicine can cure, he joins the gang of children living in the shadows of the secretive house. Soon, however, there's more for him to face: the darkness that descends with the arrival of the Doctor ...

dihybrid crosses worksheet: *Glencoe Biology, Student Edition* McGraw-Hill Education, 2016-06-06

dihybrid crosses worksheet: *IB Biology Student Workbook* Tracey Greenwood, Lissa Bainbridge-Smith, Kent Pryor, Richard Allan, 2014-10-02

dihybrid crosses worksheet: *Teaching Genetics in an Introductory Biology Course* Kristina A. Porter, 2004

dihybrid crosses worksheet: Learning the Nemeth Braille Code Ruth H. Craig, 1979

dihybrid crosses worksheet: AP® Biology Crash Course, For the New 2020 Exam, Book +

Online Michael D'Alessio, 2020-02-04 REA: the test prep AP teachers recommend.

dihybrid crosses worksheet: Applied Probability Kenneth Lange, 2008-01-17 Despite the fears of university mathematics departments, mathematics education is growing rather than declining. But the truth of the matter is that the increases are occurring outside departments of mathematics. Engineers, computer scientists, physicists, chemists, economists, statisticians, biologists, and even philosophers teach and learn a great deal of mathematics. The teaching is not always terribly rigorous, but it tends to be better motivated and better adapted to the needs of students. In my own experience teaching students of biostatistics and mathematical biology, I attempt to convey both the beauty and utility of probability. This is a tall order, partially because probability theory has its own vocabulary and habits of thought. The axiomatic presentation of advanced probability typically proceeds via measure theory. This approach has the advantage of rigor, but it inevitably misses most of the interesting applications, and many applied scientists rebel against the onslaught of technicalities. In the current book, I endeavor to achieve a balance between theory and applications in a rather short compass. While the combination of brevity and balance sacrifices many of the proofs of a rigorous course, it is still consistent with supplying students with many of the relevant theoretical tools. In my opinion, it is better to present the mathematical facts without proof rather than omit them altogether.

dihybrid crosses worksheet: A Guide to Sorghum Breeding Leland R. House, 1982

dihybrid crosses worksheet: Thinkwell's Biology Thinkwell, George Wolfe, 2000-08-01

dihybrid crosses worksheet: Mendel's Principles of Heredity William Bateson, Gregor Mendel, 2023-05-10 Mendel's principles of heredity: A defence, has been considered important throughout human history. In an effort to ensure that this work is never lost, we have taken steps to secure its preservation by republishing this book in a modern format for both current and future generations. This complete book has been retyped, redesigned, and reformatted. Since these books are not scans of the authors' original publications, the text is readable and clear.

dihybrid crosses worksheet: Biology (Teacher Guide) Dr. Dennis Englin, 2019-04-19 The vital resource for grading all assignments from the Master's Class Biology course, which includes: Instruction in biology with labs that provide comprehensive lists for required materials, detailed procedures, and lab journaling pages. A strong Christian worldview that clearly reveals God's wondrous creation of life and His sustaining power. This is an introductory high school level course covering the basic concepts and applications of biology. This 36-week study of biology begins with an overview of chemistry while opening a deeper understanding of living things that God created. The course moves through the nature of cells, ecosystems, biomes, the genetic code, plant and animal taxonomies, and more. Designed by a university science professor, this course provides the solid foundation students will need if taking biology in college. FEATURES: The calendar provides daily lessons with clear objectives, and the worksheets, quizzes, and tests are all based on the readings. Labs are included as an integral part of the course.

dihybrid crosses worksheet: Mapping and Sequencing the Human Genome National Research Council, Division on Earth and Life Studies, Commission on Life Sciences, Committee on Mapping and Sequencing the Human Genome, 1988-01-01 There is growing enthusiasm in the scientific community about the prospect of mapping and sequencing the human genome, a monumental project that will have far-reaching consequences for medicine, biology, technology, and other fields. But how will such an effort be organized and funded? How will we develop the new technologies that are needed? What new legal, social, and ethical questions will be raised? Mapping and Sequencing the Human Genome is a blueprint for this proposed project. The authors offer a highly readable explanation of the technical aspects of genetic mapping and sequencing, and they recommend specific interim and long-range research goals, organizational strategies, and funding levels. They also outline some of the legal and social questions that might arise and urge their early consideration by policymakers.

dihybrid crosses worksheet: Human Genetics Ricki Lewis, 2004-02 Human Genetics, 6/e is a non-science majors human genetics text that clearly explains what genes are, how they function,

how they interact with the environment, and how our understanding of genetics has changed since completion of the human genome project. It is a clear, modern, and exciting book for citizens who will be responsible for evaluating new medical options, new foods, and new technologies in the age of genomics.

dihybrid crosses worksheet: Essentials of Genetics, Global Edition William S. Klug, Michael R. Cummings, Charlotte A. Spencer, Michael A. Palladino, 2016-05-23 For all introductory genetics courses A forward-looking exploration of essential genetics topics Known for its focus on conceptual understanding, problem solving, and practical applications, this bestseller strengthens problem-solving skills and explores the essential genetics topics that today's students need to understand. The 9th Edition maintains the text's brief, less-detailed coverage of core concepts and has been extensively updated with relevant, cutting-edge coverage of emerging topics in genetics. The full text downloaded to your computer With eBooks you can: search for key concepts, words and phrases make highlights and notes as you study share your notes with friends eBooks are downloaded to your computer and accessible either offline through the Bookshelf (available as a free download), available online and also via the iPad and Android apps. Upon purchase, you'll gain instant access to this eBook. Time limit The eBooks products do not have an expiry date. You will continue to access your digital ebook products whilst you have your Bookshelf installed.

dihybrid crosses worksheet: *Please Don't Kill the Freshman* Zoe Trope, 2004-07-27 A memoir of the then-fifteen-year-old author's high school experience to that point, in which diary entries reflect her struggles, angst, and rebellion.

dihybrid crosses worksheet: *Biology of Drosophila* Milislav Demerec, 1994 Biology of Drosophila was first published by John Wiley and Sons in 1950. Until its appearance, no central, synthesized source of biological data on Drosophila melanogaster was available, despite the fly's importance to science for three decades. Ten years in the making, it was an immediate success and remained in print for two decades. However, original copies are now very hard to find. This facsimile edition makes available to the fly community once again its most enduring work of reference.

dihybrid crosses worksheet: Maize Breeding and Genetics David B. Walden, 1978 History; Evolution; Breeding; Diseases and insects; Endosperm; Tissue; Gene action; Cytogenetics.

dihybrid crosses worksheet: Using Statistics for Process Control and Improvement United Nations Industrial Development Organization, 1997

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