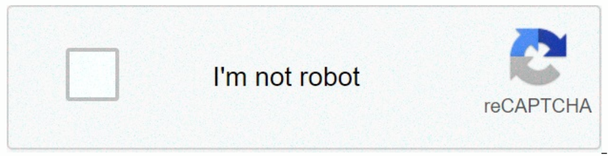

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Punnett square practice worksheet middle school pdf answer key

During the fall of my first year, teaching a mentor, we discussed our upcoming parent-teacher conferences. He shared some questions parents could ask during conferences and asked me how I would respond. One of the questions I've always had is How do you challenge your advanced students? Until now, my main differentiation of learning was designed to reach my lower performing students. I was good at reaching several levels of students, but the group I constantly left behind was my advanced students. I had very few ways to differentiate for my gifted students, and the methods I used consisted in giving them more work, not harder work. Piling up the work on gifted students is a common way for teachers to mistakenly differ for their advanced students. (I know I still make that mistake sometimes.) Does that sound familiar? Oh, did you do your job? Great! Here's another worksheet. Since talking to my mentor five years ago, I have always tried to remember to include all levels of differentiation in my class and to prefer my gifted students. It's something I'm still working on, but I've made progress. Keep in mind that he is not always the same gifted student every day. Often students thought that for advanced changes regularly depending on the subject. Every student is good at something, and I try to recognize his strengths in class. Here are a few ways I have challenged my advanced students: Let students plan and teach themselves a lesson. Insuffer teachers to train others to help prepare for upcoming tests. Have students teach classmates who are struggling on a test for the first time and are determined to better understand the content and take the test again. Work with individuals or small groups in class during a lesson. Be a teacher's assistant and help answer a classmate's questions during individual working hours. There are different levels of stations around the room and specify the most challenging. Then have each student fill out a certain number of stations of their choice. Usually each student chooses the stations for which he/she is ready. Create multiple versions of a worksheet with different question levels and let students determine which sheet to finish. I recently updated a set of worksheets I use to teach genetics and Nannet Squares. The creature genotype and phenotype stump square practice worksheets include two worksheets for the same content. In the worksheets, students make Punet squares to find the genotypes and phenotypes of the offspring of mythical creatures such as unicorns, dragons and werewolves. The worksheets have the same questions and the same answers, but what makes them differentiated is the formulation of the In worksheet A, students are given the genotype of parents, which allows them to the main purpose of practicing Punnett squares and understanding how offspring get certain traits. In worksheet B, students must understand the genotypes of the parents themselves before they can create their punnett squares. The following are examples of questions from each worksheet in the highlighted difference set. Worksheet A: In werewolves, silver hair is a recessive feature, and dark brown hair is a dominant feature. If the werewolf is crossed with a werewolf, what are the possible genotypes and phenotypes of offspring and the probability of each of them? You will need to choose the letter to use for this matter. Use punnett square to find your answers. Worksheet B: In werewolves, silver hair is a recessive feature, and dark brown hair is a dominant feature. If a silver-haired werewolf is crossed with a purebred werewolf with dark brown hair, what are the possible genotypes and phenotypes of offspring and the probability of each of them? You will need to choose the letter to use for this matter. Use punnett square to find your answers. Tweaking the worksheets only a little sometimes can be all it takes to make the job more difficult. This is an easy way to reach all levels of students. Please let me know if you have any questions or comments about me about anything in this post. Thanks for reading! Are you a science teacher? Subscribe to my newsletter! You will receive a free scientific resource only to join. SelectionFile Icon TypePhile NameDescriptionRevealing Timely ER Basic Questions - Genetics.pdfView Download 131k v. June 2, 2014, 7:52 AM Jeffrey Bucs Genetics Review Sheet.pdfView Download 28k v. June 2, 2014, 7:52 AM Jeffrey Books Št Gregor Mendel Biography.pdfView Download 237k v. 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Create a square measuring 2 x 2 Punnett and predict the traits passed on by parents to children. I describe nanotechnology research and engineering in genetics. Expected ngss performance Hs-LS3-3. The concept of statistics and probability to explain the variation and distribution of pronounced characteristics in the population is applied. (9 - 12-12- Do you agree with this arrangement? Thanks for the feedback! Click on another curriculum aligned with this Anticipation of Performance, this tutorial focuses on the following three dimensions of NGSS learning: Disciplinary and engineering practices Basic ideas Crosses Apply concepts of statistics and probability (including the defining function fits into the data, slope, intersection and correlation coefficient for linear fits) to scientific and engineering issues and problems using digital tools where possible. Compliance agreement: Thanks for the feedback! Environmental factors also influence the expression of traits and thus affect the likelihood of signs of signs appearing in the population. Thus, the variation and distribution of observed traits depends on genetic and environmental factors. Compliance agreement: Thanks for the feedback! Algebraic thinking is used to study scientific data and predict the effect of change in one variable on another (e.g. straight growth versus exponential growth). Compliance agreement: Thanks for the feedback! Technological advances have influenced the advancement of science and science has influenced advances in technology. Compliance agreement: Thanks for the feedback! Science and engineering are influenced by society and society is influenced by science and engineering. Compliance agreement: Thanks for the feedback! Find the conditional probability A given B as part of the B results, which also belong to A, and interpret the response to the model. (9 - 12-12- More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! Analyze solutions and strategies using probability concepts (e.g. product testing, medical at the end of the game). (9 - 12-12- More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! Students will develop an understanding of the role of society in and the use of technology. (Classes K - 12) More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! organisms and environments. The student knows that reproduction is a characteristic of living organisms and that the instructions for traits are managed in genetic material. Expected student to: (Grade 7) More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! recognize that the inherited traits of individuals are governed by the genetic material found in the genes in the chromosomes in the nucleus. (Grade 7) More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! comparing the results of homogeneous or diverse descendants of sexual reproduction or asexual reproduction; and (Grade 7) More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! defines heredity as the transition of genetic instructions from one generation to the next generation; (Grade 7) More details Review aligned curriculum Do you agree with this alignment? Thanks for the feedback! Suggest a alignment not mentioned above in the Harry Potter Punt checkbox table (pdf) Harry Potter Punt (pdf) Visit [www.teachengineering.org/lessons/view/uoh_hp_lesson_square] for printing or downloading. Example of an empty Punnett check box. (Be prepared to show students a video clip from Harry Potter and the movie The Goblet of Fire.) Traits are genetically defined characteristics or conditions. This means that this is some characteristic transmitted by parents to children. Examples of this are the colors of the eyes and the shapes of the nose. What are some other examples of traits? In humans, animals, plants? (Listen to students' ideas.) Some other human examples include hair color, height, ear orbs (attached or not), dimples, chin slit, tongue rolling, and a trend for some inherited diseases or other physical conditions. In plants, tolerance to herbicides, tolerance to the virus, nutritional contents, resistance to diseases or insects, other qualities such as taste or ripening time. Do you know any magical features found in the Harry Potter series? (Write this on the board.) Many magical creatures exist in the world of Harry Potter. Let's watch a video showing the Dragons of Harry Potter and the Fire Bomber. While we watch the clip, pay attention to looking for features of the dragon. (Show a video from the scene as Harry tries to catch a golden dragon egg.) What are some of the features of the dragon? (Possible answers: The ability to speak parseltoniag, which is able to talk to snakes.) It is possible to predict the likelihood that the child will inherit a trait from the using something called a Punnett square. (Continue to provide students with content information found on the Background Content tab.) content.) Squares Figure 1. Punte Square with a genotype. One of the easiest ways to calculate the mathematical probability of inheriting a particular trait was invented by an early 20th-century English geneticist named Reginald Punet. His technique uses what we call a punnett square, which is a simple graphical way to detect any potential combinations of genotypes that can occur in children, given their parents' genotypes. It also shows us the chances of each of the genotype descendants. To create a square of Punnett, draw a grid of perpendicular lines. Write the genotype of one parent at the top and that of the other parent down the left side (see Figure 1). It is usually to use capital letters to indicate dominant alleles (such as B) and lowercase letters (such as b) to indicate recessive alleles. If a parent contributes identical alleles (such as BB or BB) it is called a homozygous trait; if alleles are not identical, we call it a heterozygous trait (such as Bb or bB, also called carrier). Write the genotype of one parent at the top and that of the other parent down the left side. Then fill in the fields of the Punnett square by copying the rows and columns to the blank check boxes (see Figure 2). This gives us the predicted frequency of all potential genotypes among the generation every time it reproduces. Thus, in the example of Figure 2 with one parent contributing BB genotype and the other contributing to bb genotype, the probability of one individual offspring having a BB genotype is 0%, Bb is 100% and bb is 0%. Since scar B is dominant, the phenotype of all possible offspring is B. Figure 2. Crossing two homozygous parenting traits. Looking at the example of Figure 3 crossing two heterozygous parents (both with genotype Bb), anyone can produce either B or b allel. Thus, the probability of individual offspring of those parents who have a BV genotype is 25%, BB is 50%, and bb is 25%. For classical dominant/recessive genes, the dominant allel masking the recessive. Thus, in the example of Figure 3, since the B trait is dominant, there is a 75% chance of the appearance of the dominant phenotype (B), of which two-thirds are heterozygotes (Bb), and a 25% chance of the appearance of a recessive phenotype (bb). 3. In Figure 3. Crossing two heterozygous parenting traits. Engineering applications and nanotechnology link studying and understanding genetics is of interest to many people, including doctors, medical researchers, biologists, anthropologists, parents and engineers. Engineers need to understand the genetic heritage to design insect-like crops, genetically modify food, help with advanced medical diagnoses and treatment, and conduct cloning and stem cell research. Geneticists have developed techniques to manipulate gene sequence plants, animals and other organisms in order to express specific traits. They are developing ways to change genes to create organisms that provide benefits such as cows that produce larger amounts of meat, bacteria that generate fuel and plastics, and pest-resistant crops. In addition to characteristics such as hair color and height, the trend for some diseases can be transmitted down from generation to generation. Many are common diseases such as asthma, cancer and diabetes. Many of the applications that nanotechnology has for genetics are associated with and/or directly use DNA, a nucleic acid that carries the genetic information in the cell. One example application refers to medical diagnoses. The researchers combined nano-sized probes with DNA sequences or antibodies to form a nanosystem that detects specific DNA sequences in the body. The discovery of DNA sequences could allow researchers to detect genetic diseases long before they become problematic, allowing for early treatment and possibly better prognosis. . As another example, similar to the drug, gene therapy can be administered through nanocapsules. Allel: One of the two types of genes that take a certain position on a specific chromosome. DNA: Nucleic acid that carries genetic information into the cell. genotype: the genetic composition of an organism. heterozygous: Like different alleles. Homozygous: Like the same alleles. inherit: Get a line from a predecessor. phenotype: The observed characteristic of the body. Square Punk: a chart tool used to predict the inheritance of the line. genetic characteristic or condition. Q&A: Start the lesson by asking students: What is a trait? What are examples of traits? Worksheet: At the end of the lesson, students need to supplement the worksheet per square step Harry Potter Punt. Review their answers to gauge their understanding of concepts. As a class, go to the answer worksheet to make sure students understand the odds calculations and the concept of heterozygous-homozygous. Questions/answers to ask students after filling out the worksheet: After students complete the Punnett Square worksheet and understand how likely traits should be transmitted and expressed on an individual level, the teacher should explain that the genetic population is the sum of all the gene (or allel) frequencies represented in a population. We learned about dominant traits, but it is important to realize that dominant traits are not always common; the ability to speak parseltongue is a good example. In Harry Potter, we learn that the ability to talk to Parseltong is very rare. Let's just say one in every 100 wizards in a particular population can speak Parseltong. Class: What things need to happen to change the percentage of the population that speaks over time? (Examples of the answers include: foreign wizards who speak to Parseltonga will have to immigrate to the population from elsewhere, or a disproportionate number of Parseltomogo-speaking wizards will have to emigrate from this population, or if this is a desirable trait, then wizards with the ability may have better luck finding companions, and therefore the frequency of the population with the ability to increase for generations. Genetic mutations may also occur that either increase or decrease the appearance of this trait or the ability of someone who owns it to reproduce.) Now ask the class: Do you think a small population or large population is more likely to experience changes in the frequency of genetic traits over time? Why? (Answer: small populations are much more susceptible to changes in the frequency with which genetic traits appear over time. and this trait may disappear from the population if the paregogo-speaking counselor dies without reproducing or moving away. Ask the class: Who would want (or should) know about genetics? And why? (Sample answers: Doctors, medical researchers, biologists, anthropologists, parents, engineers. Engineers need to understand that it is a legacy of the genetics they conduct to help advance technology in areas such as medical diagnoses and treatment, crop modification and cloning and stem cell research. Borrow from your school or public library on dvd of the movie Harry Potter and the Goblet of Fire to show students a clip. If it is not present, describe the scene, as most students are familiar with the films and will be able to recall the scene and describe it in more detail to other classmates. Use Science Primer's interactive Punnett Square calculator for your good visuals and for further research and/or expansion for students and teachers. Look at genotype. Last updated March 12, 2013. Wikipedia, the Free Encyclopedia. Accessed March 12, 2013. Miller, Nanotechnology and genetics. 1 August 2005 Accessed 23 June 2010. Monohybrida Monohybrida Last updated March 12, 2013. Wikipedia, the Free Encyclopedia. Accessed March 12, 2013. Puneet Square > Monohybrid Cross. Last updated March 12, 2013. Wikipedia, the Free Encyclopedia. Accessed March 12, 2013. Last modified: 5 November 2020 2020