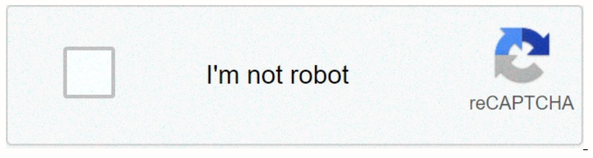

Continue

Multiple allele worksheet human blood type answer key

... Mr. kousen is ... Water Man MULTIPLE ALLELES It makes absolutely no sense to continue if we do not know what the word allele means. allele = (n) an encoding form of genes for a possible result of the type of type For example, in mendel's bean surveys, he found that there was a gene that determined the color of the bean shell. One form of it (an allele) produces a yellow shell, & another form (allele) that produces a green shell. Do you get it? Two possible aptypes of a characteristic (shell color) are determined by two alleles (forms) of a colored gene. SOME CONTEXT When the gene gives a characteristic that exists as only two alleles & alleles played under Mendel's Dominant Law, there are 3 possible genotypes (a combination of aele) & 2 possible stylings (the dominant one or the one diving). Using bean shell characteristics as examples, the possibilities are the same as the following: GENOTYPES Homozygous Dominant (YY) Heterozygous (Yy) Homozygous Recessive (yy) RESULTING PHENOTYPE Yellow Yellow Green where Y = the dominant allele for yellow & y = the recessive allele for green If only two alleles are involved in determining the phenotype of a given feature , but there are three , followed by the inheritance of illustrated characteristics that are either incomplete dominance or codominance. In these situations, the he ce mortality genotype that produces the third type is a blend of two other types (incomplete dominance) or mixing other patterns with both appearing at the same time (codominance). Here's an example with incomplete esophagies: GENOTYPES BB = Homozygous Black BW = Heterozygous WW = Homozygous White RESULTING PHENOTYPE Black Fur Grey Fur White Fur where B = allele for black & W = allele for white And here's an example with Codominance: GENOTYPES BB = Homozygous Black BW = Heterozygous WW = Homozygous White RESULTING PHENOTYPE Black Fur Black & White Fur White Fur where B = allele for black & W = allele for white THE DEALS ON MULTIPLE ALLELES Now Codominance: GENTYPES BB = Homozygous Black B = Homozygous Black B = allele for black & W = allele for white THE DEALS ON MULTIPLE ALLELES Now, if there are 4 or more possible stylings for a particular characteristic, then more than 2 alleles for that characteristic must exist in the population. We call this MANY ALLELES. Let me emphasize something. There may be many A amounts in the population, but individuals have only two of those alleles. Why? Because the individual has only two biological parents. We inherit half of our genes (alleles) from ghosts, & the other half from pa, so we end up with two alleles for each of the characteristics in our type. A great example of multiple allele inheritances is the human blood type. Blood type exists as four possible patterns: A, B, AB, & O. There are 3 alleles for genes that determine blood type. (Remember: You only have 2 out of 3 in your genotype --- 1 from your mother 1 from dad). The amounts are as follows: ALLELE IA IB i CODES FOR Type A Blood Type B Blood Blood Blood O Blood Notice that, according to the symbols used in the table above, that allele for O (i) is diving to the a quantity for A & B. With three alleles, we have a combined number that may be higher in the creation of a genotype. GENOTYPES IA IAi TYPE A IBIB Type IBi Type B Type B IAIB Type AB II Type O Note: As you can count, there are 6 different genotypes & 4 differenttypes for blood type. Note that there are two genotypes for either blood A&B --- or co-death (IA or IBIB) or hemmosis with a diving allele for O (IAi or IBi). Also note that the only genotype for O blood is a combined contracted recess (ii). And finally, what is the deal with AB blood? What is this an example of? A & B characteristics appear together in the type. Think about it.... We have to go. SAMPLE QUESTIONS Let me inform you that during my teaching this wonderful topic of biology & this incredibly interesting unit of genetics, there are only many allele questions I have ever seen about human blood type characteristics. So included here, for your learning pleasure, are some examples of these kinds of questions. Work out the problem on paper & then click to see the solution. (I realized that paper is old-fashioned in the world o' internet, but I didn't become technically savvy enough to do it any other way.... not yet.) 1. A woman with type O blood and an AB type man are expecting a child. What are the possible blood types of the child? (answer) 2. What are the possible blood groups of a child's parents who are both heterozygous for blood type B? (answer) 3. What is the chance of a woman with Type AB and a man with type A having a child with Type O? (answer) 4. Identify possible genotypes & patterns for blood type for a couple of A & heterozygous B. {answer} 5. Jill is blood type O. What is your two older brothers (who tease her like crazy) with blood type A & B. What is her parents' genotype for this trait? (answer) 6. A test has been performed to determine the biological father of a child. The child's blood type is A and the mother is B. Dude #1 has a blood type of O, & dude #2 has blood type AB. Which guy is the biological father? (answer) Well, that's all I can say about that.... hope it is useful. Biotopics page click here TOP SECRET ANSWER AREA 1. A woman with O blood and an AB type man are expecting a child. What are the possible blood types of the child? Solve this by using symbols for a good old punnett a quantity of blood type & squares. Step #1, find out the genotype of ma & pa using certain information. Woman with type O must be ii, because it is the only & unique genotype for Type O. Ab man must be IAIB, again because it Genotype unique & unique to AB blood. ii x IAIB. The appropriate square p will look like this: As you can see, our results are as follows: 50% of children who will be hematopsic with blood type A 50% will be hematolyceous with blood type B up to #2 2. What are the possible blood types of a child's parents who are both heterozygous for blood type B? Step 1 - determine the parent's genotype using the information in question. Heterozygous means a dominant allele & a diving side. Since they are type B, the dominant allele is IB, & allele diving only for blood type is i. So both parents are IBi, & the cross is IBi x IBi. Step 2 - our friend is punnett sqaure: There is a 75% (3 of 4) chance that the child will be type B, and 25% (1 of 4) chance that the child will inherit Type O (ii). on #3 3. What are the chances of a woman with Type AB and a man with Type A having a child with Type O? All right, no sweating. Parental genotypes are provided to us, so it's just a matter of using punnett squares correctly. But wait a minute, we do not know whether the father is a contract A (IAIA) or heebyotomy A (IAi). Hmmmm.... Well, let's go with what we know. Will we use only one ? for an unknown amount. Using the right square p will lead you to something similar to this: Remember, the question is what is a child's chance with TypeO? As you can see, no square will be ii, so there is no chance of a child with Type O. If a parent is AB, there is no chance any child could be O because AB parents do not have i to pass. april #4. Identify possible genotypes & types for blood type for a couple of A & hemmedotomy type B. Step #1 - A- IA, & hemmedotomy B = IBi Step #2 - Punnett Square Time ! Okay, the result is in. 50% (2 of 4 squares) is IAIB & the children will have AB blood. the remaining 50% (2 out of 4 squares) is IAi, those children will have type A blood on #5 5. Jill is blood type O. What is your two older brothers (who tease her like crazy) with blood type A & B. What is her parents' genotype for this trait? With some careful thinking, we don't even need to do the p-square thing. Jill is Type O, which means her genotype is ii. This means that her parents both have at least one i-word in their genotype (since she inherits one word from each parent). Since a brother is type B, one parent must have allele IB, making that parent IBi. And since the other brother is type A, other parents must have allele IA & have a genotype of IAi. There you have it. Jill's parents are IAi & IB, and her brothers shouldn't be so mean. june #6. A test was carried out to determine the biological father of a child. The child's blood type is A and the mother is B. Dude #1 has a blood type of O, & #2 blood type Which guy is the biological father? Yes, a kind of real brain teaser. Sherlock Holmes solved the question. First arrange certain events. Then do 2 punnet squares, each dude crosses with the mother to see what the offspring may or may not be for the blood type. Fact 1 - The child is IA or IAi. Fact 2 - Mom has B blood, so she is IBIB or IBi. BUT, if she were IBIB the child would have inherited an IB from her & couldn't have a blood type only A (which he didn't). So mom must be IBi. Fact 3 - Dude #1 has O-type blood, so his genotype must be ii, because it is the only genotype encoding blood O. Fact 4 - Dude #2 type AB. The only genotype for AB blood is the IAIB, so that's what he is. Now, let's identify the possible blood groups of children produced by mothers with each dudes. Woman x Dude #1 IBi x ii Can be the offspring of Woman & Dude #1 50% Type B, 50% Type O Woman x Dude #2 IBi x IAIB Can be the offspring of Woman & Dude #1 25% chance AB child 25% chance A child 50% chance B child is category A, so dude #1 can not be a father Dude #2 can't be. Questions that can be answered more quickly are realized that since the child's blood type is different from his mother, that allele must have come from the father. So allele A that makes him type A comes from his father, & dude #2 is the only one with that allele in his genotype (IAIB). Dude #1 without any IA alleles, he type O (ii). BACK Type AB is an example of codominance. The A amount of IA & allele IB is equal. What I mean is that no one dominates the other. Instead, when inherited together in genotypes, they appear together in type. Wa-la! Codominance. Back

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