

Reebop lab essay sample

[Science](#), [Genetics](#)



a) The characteristics that showed up most frequently were: One nose, pink coloured nose, 2 antennas, 6 legs, 2 eyes and 2 green humps were the most common characteristics.

b) The Characteristics that showed up very seldom were: 3 eyes, 2 body segments, blue legs, 1 antenna, a straight tail and 1 green hump.

c) The following traits were found to be homozygous dominant: EE (Eye number - 2 eyes)CC (Curly Tail)VV (Red eyes)

d) The following traits were found to be heterozygous: Aa (Antenna number: 2 antennas)Mm (# of Humps - 2 green humps)Nn (Leg number - six legs)Ll (blue legs)

e) The following traits were found to be homozygous recessive: dd (2 body

segments)tt (white tail)ii (o group blood type)

f) Is your ReeBop a Purebred? Why or why not? No, our reebop Baljit is not a purebred. This is because there are many genotypes involved in making the reebop which means that the results will vary. Since most of the characteristics were heterozygous, this results in a creature that will not be a purebred as for different traits can form. Also the mating was very random which could also increase the chance of the reebop not being a purebreed.

g) What is the probability of your ReeBops genotype occurring?

h) What is the probability of your ReeBops phenotype occurring? Phenotypic TraitProbability RatioTwo antenna $\frac{1}{2}$ Orange nose $\frac{1}{3}$ Two eyes $\frac{1}{2}$ Red eyes $\frac{1}{2}$ Two body Segments $\frac{1}{2}$ Two green humps $\frac{1}{3}$ Curly tail $\frac{1}{2}$ Blue legs $\frac{1}{2}$ White tail $\frac{1}{2}$ Male $\frac{1}{2}$ 6 legs $\frac{1}{2}$ Blood type O $\frac{1}{4}$ 3rd Darkest Skin colour $\frac{1}{7}$ Therefore, the probability would be $\frac{1}{129024}$.

i) Genotype and phenotype of grandbaby.

Trait Male Gene Female Gene Genotype Phenotype
 Antenna # AAAa2
 antennae Nose Colour BoBoBo Bo Orange nose Eye # EeEe2 eyes Eye
 Colour VVVV Red eyes Body Segment # DdDd3 body segments # of
 Humps mMMm2 green humps Tail Shape CcCc Curly Tail Leg Colour LILL Red
 legs Tail Colour TTTt Red tail Gender X tX tX t X t Female Disorders XX tX X
 t Colour Blind Leg Number NNNN 6 legs Blood type iiiiiO blood type Skin
 Color FgHfGHFfggHH 2nd lightest j) If your ReeBop has three eyes, your
 ReeBop will only live 2 years. What type of alleles are these? Find an
 example of where this actually occurs in a real situation.

A ReeBop that has three eyes, resulting in him/her living for only 2 years is related to lethal alleles. The genes that result in a reebop having three eyes is homozygous recessive (ee). This means that the homozygous recessive will die either immediately or sooner. For example, in 1907, Edwin Baur was working on understanding what was happening to his snapdragons. He realised that when you crossed two plants with the same alleles, you would receive a 2: 1 ratio. These seedlings would not develop and would die almost instantly or within a few days. The only way these lethal alleles would result in death would be if two copies of the lethal allele were being carried by the same organism. Some examples relating to humans would be sickle cell anemia, and achondroplasia.

k) If your ReeBop has only 4 legs, they will not be able to move as quickly as a ReeBop with 6 legs. What is the evolutionary significance of this? The evolutionary significance having 4 legs instead of 6 legs is that a reebop

having six legs would more likely be able to walk or run faster than a reebop with only four legs. The reebop with six legs will also be more stable and would be able to stand easier than the reebop with four legs.

l) What is the difference between Incomplete Dominance and Codominance?

Incomplete dominance is when two different genes mate and have an offspring of a completely new phenotype, whereas co-dominance is when two different genes mate and have an offspring that show both traits and alleles. For example in incomplete dominance, you will have a blend, and for codominance you will have half and half showing up.

m) Which ReeBop gene(s) demonstrate Incomplete Dominance? Give an example of where this occurs in any other organism.

Red and Orange are both dominant genes. A pink nose appears as a combination of both of these colors together. When the dominant red gene mixes with the dominant orange gene, it results in a new phenotype which is a pink nose. A good example of incomplete dominance is a red snapdragon and a white snapdragon. When they mate they create an offspring of a pink snapdragon.

n) Which ReeBop gene(s) demonstrate Codominance? Give an example of where this occurs in human.

Co-dominance can be found in the blood type of the reebop. For example blood type PQ demonstrates co-dominance because the reebop has a dominant gene from the P group and a dominant gene from the Q group. This occurs in human blood groups also like for example the blood group AB.

A human with the blood group AB has one dominant gene from the A group and one dominant gene from the B group.

o) Which ReeBop gene(s) represent Polygenics? Give a different example of where this might occur in a human.

The skin color of our reebop demonstrates polygenics because it was determined with the help of multiple alleles. The skin color is a combination of 3 letters. These letters can either be dominant or recessive. An example of this relating to humans would be with eye colour, weight or hair.

p) Does your ReeBop exhibit any sex linked disorder(s)? If not, is he/she a carrier? Our ReeBops both have a sex linked disorders. This disorder is color blindness.

q) Why is it more likely to have a colour-blind male over a colour blind female? What would the genotype need to be to get a colour-blind female daughter? It is more likely to have a colour blind male than a color blind female because a female needs two recessive alleles to be colour-blind, whereas a male has only one recessive allele possibility since they only have one X chromosome and one Y.

r) Draw a karyotype for your ReeBop. Assume that a nondisjunction occurs in chromosome#7, creating a Trisomy. How might this affect the development of your ReeBop. Using Meiosis in your explanation, explain how this nondisjunction occurred.

Since chromosome number 7 is the chromosome for tail number, the Reebop may have an extra tail. This would result in 2 tails. This nondisjunction may have occurred in the sperm during the process of meiosis. This would happen when the two sister chromatids migrate to the same pole leading the sperm cell having two chromosome while the other sperm cell has none. The result would be a trisomy with three chromosomes in total. Two chromosomes would fertilize an egg with only 1 chromosome.

s) A Lucid Dream: How can you use this information to your benefit? In order to make Reebops that only produce gold feces, we would need to cross the desired traits from the specific reebop. In this case it would be gold feces. In result, a reebop with the favoured characteristics will be produced as the offspring. This is known as selective breeding. Humans use selective breeding all the time on animals like dogs to create offsprings with desired characteristics.

t) Pedigree for colour blindness: Legend: = Male = Female = 2 Eyes = 3 Eyes
Generation one
Generation Two
Generation Three
Bibliography: 1.
<http://www.genetics.org/2>. <http://www.genetics.org/current>. dtl