MONOHYBRID PROBLEMS TUTORIAL WORKSHEET

(Created by E. Kimmel for www.zerobio.com)

<u>Video Tutorial</u>: This worksheet is intended to be used along with the video "Monohybrid Problems Tutorial" which is on my YouTube Channel in the Science Playlist at www.youtube.com/user/zerobio.

<u>Suggestions</u>: If you already know some genetics, try to solve the problems without watching the video. Or, watch a little, pause the video and work on the questions. Resume video when you need to.

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1. Two chimpanzees are sticking their tongues out at each other. If the male chimpanzee can roll his tongue (a dominant trait) but the female chimpanzee cannot and they have babies, will any of their offspring be able to roll their tongues? What are the phenotype and genotype ratios for the offspring? Note that the male chimpanzee is heterozygous for tongue-rolling.

2. Freckles is a dominant trait in humans. Freckled parents have four children and three of them have freckles. Determine all genotypes to complete the cross and Punnett square. Are any of the children homozygous for freckles? Give the phenotype and genotype ratios for the children.

3. My wife has dark coloured eyes (black), the dominant trait. All of her family and relatives have dark eyes too. I have light coloured eyes (blue), the recessive trait. We are hoping for a blue-eyed baby. What is the probability we will have a baby with blue eyes? What is the probability we will have a baby with dark eyes?

4. A blue-eyed woman and a brown-eyed man have children. If the eye colour of the man's family and relatives (hence his genotype) is not fully known, determine the phenotype and genotype ratios for their potential children with respect to eye colour.

5. A farmer wants to know if his prize cow is homozygous for black spots or heterozygous. Black spots is dominant. He has both spotted and non-spotted cattle but this one is special. How can he figure this out?