

Feline colour genetics course – Module 2 exercises

Here are the exercises for you to complete in module two: All about white cats, Bi-colour cats and the genes responsible for them. Please feel free to print it off to make it easier to complete the questions.

Write down your answers and any notes you wish to make as you work through the module and then when you have completed all of the questions you can check the answers using the answers sheet - a link for which can be found at the bottom of module one.

Good luck!

Exercise 1

M2.E1 a)

1. If a red eyed albino cat and a homozygous black cat carrying dilute mated what colour would the kittens be? _____
2. Using the mating described in Q 2.2a), what (if any) recessive genes would the kittens carry and what percentage of kittens in the litter would carry them? _____
3. The phenotype of a heterozygous albino(Cc) would be albino True or False? _____
4. Does the albino gene mask colour or remove colour in the phenotype of the cat? _____

M2.E1 b) Fill in the punnet square below and answer three questions below...

	bc	bc
b1C		
b1c		

1. What percentage of kittens were albino? _____
2. What colour were the kittens which were not albino? _____
3. What percentage of albino kittens were male? _____

Exercise 2

M2.E2 a) What is the correct term for odd eyes? _____

M2.E2 b) Fill in the punnet square below for the following mating: Heterozygous dominant white male who is chocolate carrying cinnamon and a female who is chocolate carrying cinnamon.

1. What colours would you potentially see in the litter? _____
2. What percentage of kittens would be white? _____

Exercise 3

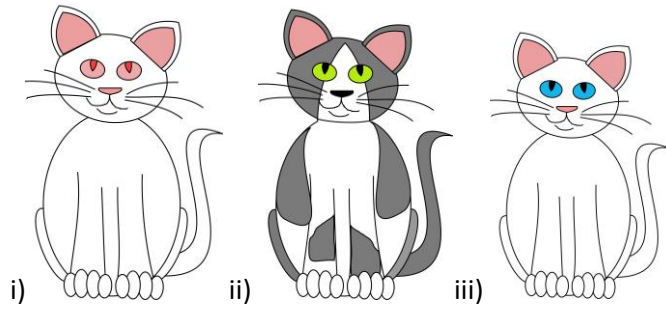
M2.E3 Dominant white cats are always deaf: True or False? _____

Exercise 4

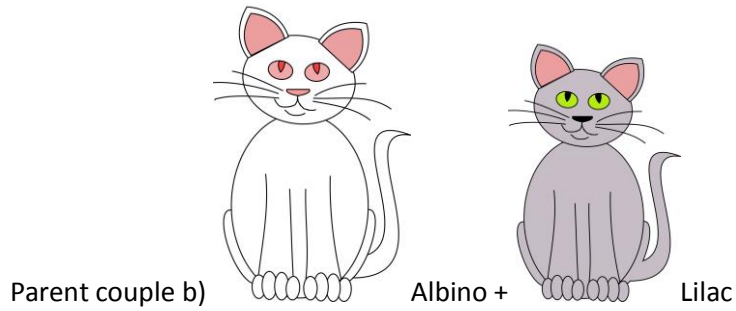
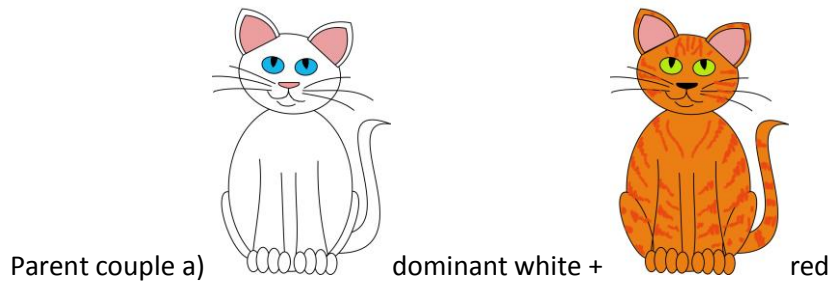
M2.E4 If you have a solid white cat in front of you and you do not know what its parentage is - aside from genetic testing and taking into consideration eye colour - can you think of another reliable way that is as reliable as genetic testing in which you would be able to deduce if the cat is a grade 10 white spotting cat or a dominant white cat? _____

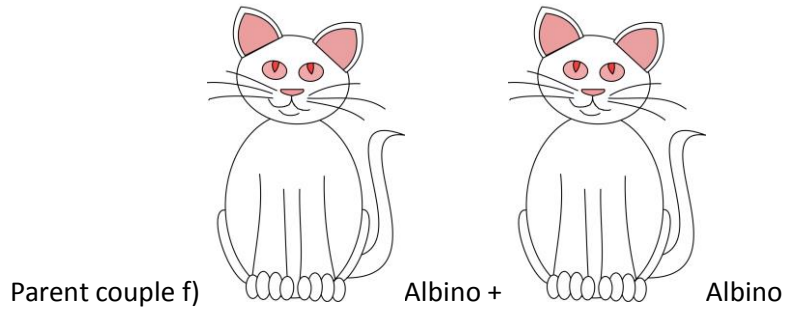
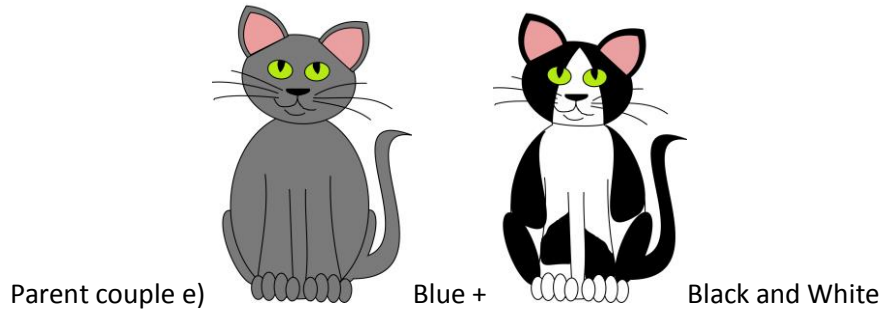
Exercise 5

M2.E5 a) Using what you have learned about cat genetics so far can you identify the most likely pair of parents for each of the kittens pictured below? For this exercise we shall assume that none of the parents are carriers and so we are basing our answers purely on the phenotype of the parents. This is to enable you to begin to really get to grips with what colours are recessive and which ones are dominant and to enable you to begin developing and eye for what may show up in a litter even with white thrown into the mix.

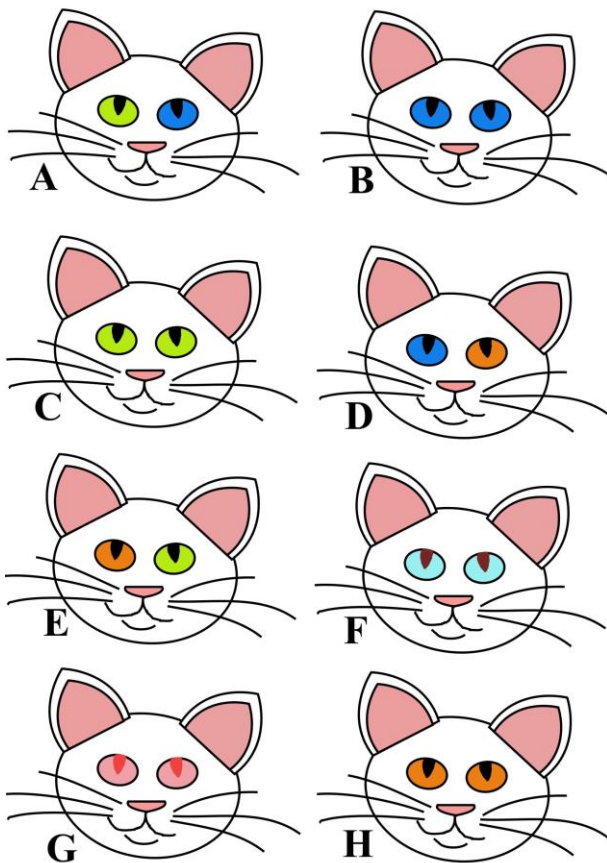


Parent couple choices...





M2.E5 b) Below is a picture of various cats' eyes. Each pair of eyes belongs to a pure white cat of unknown genotype. Try to answer the questions using the illustration and what you have just learned to help you find the answers.



1. Of the cats eyes above which ones would be likely to be deaf on both ears?
2. Of the cats eyes below which cats would be likely to be deaf on one side?
3. Looking at the cats eyes in the picture, how many cats are quite likely to be dominant white cats?
4. How many cats are albino?

NB. When working out dominant white on punnet squares...If you prefer to work over two separate punnet squares for ease of reading when adding in the dominant white gene you may certainly do that. You will still get the same results. As for dilute, you would simply fill out the colour in one punnet square and work out your results to determine what colour your kittens would be. You would then fill out a separate punnet square for the dominant alleles to determine what percentage of the kittens would be dominant white and know that this trait could apply to any of your kittens. If you know that dominant white masks all other colours but those dominant white cats will still be a particular colour it can help you predict future matings from that cat and you will always be able to work out what colours you might end up with in any given litter.