

- parent (see #21).
18. Parti-color cats (blue-cream, tortie, calico) are almost always female, but males can and do occur occasionally (and are not always sterile).
  19. A white cat must have a white parent.
  20. A white cat breeds as both a white (which you see) and a masked color (which you don't see) and can produce based on both white and the unseen color/pattern. The masked color/pattern must be determined, based on the white's pedigree and the offspring produced in a controlled breeding, in order to effectively predict the color/pattern of the expected offspring. Interestingly, white kittens may have a small spot of color on top of their heads when born. This color should be noted as it is the color that the white is masking and the color that the cat will breed as when an adult. The spot of color may be visible for several months, but often disappears as the kitten matures.
  21. Genetics for solid white cats can affect the possible color/pattern of expected kittens in that the white parent may be masking the color/pattern needed to produce this result.
  22. Two longhair parents cannot produce a shorthair kitten.

23. Two classic tabby parents cannot produce a mackerel, spotted, or ticked tabby kitten. A ticked tabby must have a ticked tabby parent. A mackerel or spotted tabby must have a mackerel, spotted, or ticked tabby parent (see #21).
24. The dilute gene must be present in both the sire and dam's pedigree in order to produce a dilute offspring.
25. The chocolate or lilac gene must be present in both the sire and dam's pedigree in order to produce chocolate or lilac offspring.

*For further information on feline genetics, we recommend the following:*

*"Feline Genetics" in Feline Domesticus - Manual of Feline Health 1982-1983, Cornell University, Judith Kinnear, PhD., Page 121.*

*"The Genes of Cats" in The Book of The Cat, Summit Books, New York, 1980.*

#### ***Suggested Advanced Reading***

*Robinson's Genetics For Cat Breeders & Veterinarians, Fourth Edition, Butterworth Heinemann, Boston, 1999.* "Feline Genetics" in *A Standard Guide to Cat Breeds, McGraw Hill, New York, 1979.*

---

#### **THE CAT FANCIERS' ASSOCIATION, INC.**

1805 Atlantic Avenue • PO Box 1005  
Manasquan NJ 08736-0805

Phone: 732-528-9797 • Fax: 732-528-7391

[www.cfa.org](http://www.cfa.org)

# Basic Principles of Feline Genetics



**The Cat Fanciers' Association, Inc.**  
*World's Largest Registry of Pedigreed Cats*

# FELINE GENETICS

## Frequently Asked Questions

The following statements are generally true but there are exceptions. This pamphlet is not meant to be a complete manual on cat genetics. For more information, please refer to books on the subject, some of which are listed at the end of this pamphlet.

When the term COLOR is used, it refers to color only (blue, cream, black, red, etc.). When PATTERN is used, it refers to pattern only (tabby, shaded, smoke, etc.). When both are affected, the statement will contain the term COLOR/PATTERN.

1. Male kittens always obtain both color genes from the dam. The male offspring in a litter will always be either the color of the dam (or one of the colors in the case of parti-colors) or the dilute form of the dam's color. See the statement on dilutes for more information (see #21 & #24).
2. Female kittens take one color gene from each parent. The color of the female kittens in a litter will always be either a combination of the sire's and dam's colors, or the dilute form of those colors (see #21 & #24).
3. To obtain any of the red or cream color/patterns in female kittens, the

sire must be one of the red or cream color/patterns PLUS the dam must in some form demonstrate red or cream (see #21).

4. Only the immediate parents determine the color/pattern of a kitten. The color/patterns found in the pedigree of a kitten will NOT always directly affect the color/pattern of the kitten. One notable exception is the colorpoint gene, which can carry through a number of generations (see #21 & #24).
5. A kitten's pattern can be inherited from either parent.
6. A dominant characteristic (all dominant colors and patterns such as shaded, smoke, white, tabby, bi-color, etc.) cannot skip generations. The characteristic cannot be transmitted from one generation to the next without showing that characteristic in each generation.
7. A cat displaying a dominant color (black, red, tortie, etc.) must have a parent which displays a dominant color (see #21).
8. Two recessive color parents (cream, blue, etc.) cannot produce an offspring of a dominant color (black, red, etc.).
9. Two colorpointed parents cannot produce a non-colorpointed offspring.
10. To get a colorpointed kitten, both

parents must be carrying the colorpointed gene (even if they do not appear colorpointed themselves).

11. The mating of a colorpointed cat and a cat with no colorpointed background will produce NO colorpointed offspring.
12. A (non-silver) tabby must have at least one parent that is either a shaded or a tabby. A silver tabby must have at least one silver tabby, shaded or smoke parent (see #13).
13. All red cats will have some tabby markings. Whether or not a red can produce as a tabby will depend on whether it is a true tabby with a tabby or shaded parent or whether it is a red with ghost tabby markings and neither a tabby nor a shaded parent. A red tabby that is not a true tabby cannot produce a tabby offspring of any other color without being bred to a true tabby or a shaded.
14. A cat with a white undercoat (smoke or shaded) must have a parent that has a white undercoat (see #21).
15. A shaded cat must have at least one parent that is a shaded (see #21).
16. A shaded parent can produce a smoke offspring, but a non-shaded (smoke) parent cannot produce a shaded offspring unless bred to a shaded (see #21).
17. A bi-color must have a bi-color