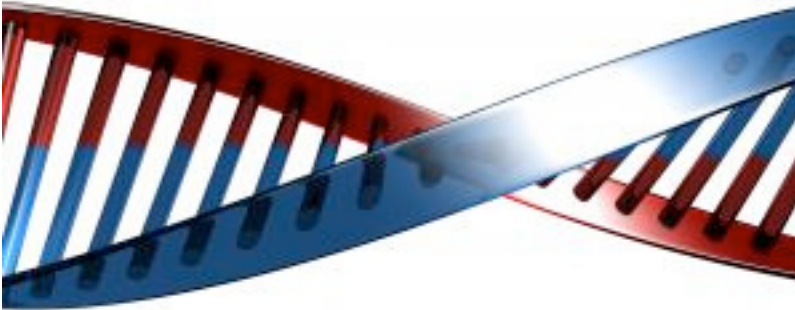


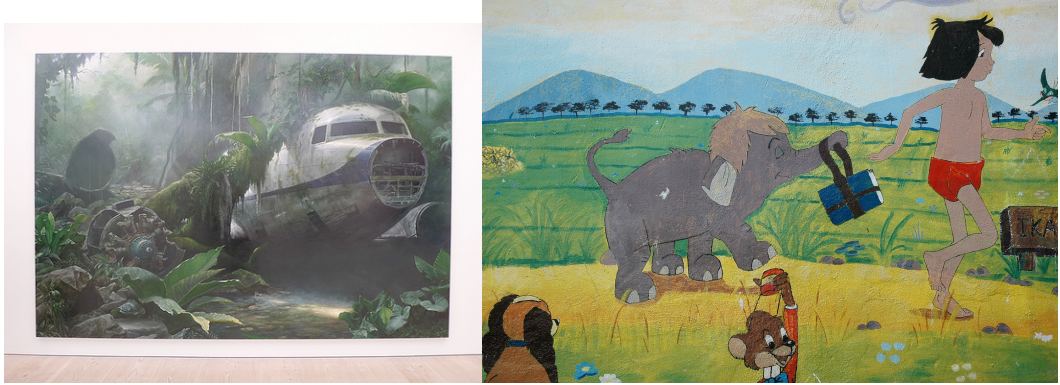


Cattle require a certain amount of space and food to thrive. They often live in very large pastures which may span many acres. A particular herd in Osage County, Oklahoma, consisted of 100 individuals ( $N_1$ ). Over a year there were 50 calves born to the herd and 15 adults died. This herd is restricted to a pasture of 1000 acres.

For another population of cattle it is determined that their carrying capacity on a 800 acre pasture is 300 cattle.



A fragment of DNA has a sequence of GCTGCACCGTGAAATGGG which is mutated to GCTGCACCGTCAAATGGG. Another is mutated to GCTGCACCGTGAATTGGG.



Tragically, a plane crashed into the jungle killing all of the adults on board but leaving all of the small children alive. The children were raised by jungle animals. Many years later, the feral children were found still alive and an effort was made to identify their parents so that they could be reunited with their extended families. Based on examination of the children and medical records of their parents, the following table of genetic traits was created to help in the effort.

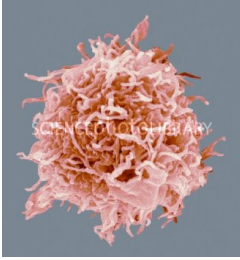
Person	Sex	Colorblind (Color-blindness is X-linked recessive)	Blood Type	Earlobe Free (free is autosomal dominant; attached is autosomal recessive)
<i>Possible Adults</i>				
Elizabeth	Female	No	A	Yes
Gertrude	Female	Yes	B	No
William	Male	Yes	AB	Yes
Fredrick	Male	Yes	B	No
<i>Rescued Children</i>				
Kamala	Female	No	B	Yes
Tarzan	Male	No	O	No
Mowgli	Male	Yes	AB	Yes

Poison dart frogs of the genus *Dendrobates* have the ability to secrete alkaloid toxins through their skin. The toxin acts as a muscle relaxant. Besides the ability to secrete toxins, the skin of poison dart frogs also features bright warning colorations.



Eucalypt trees are native to Australia but have been successfully introduced to many parts of the world and have become especially common in California. On a cool, cloudy day, the chloroplasts of eucalypt trees are operating differently than on hot, sunny days.





Activated B cells are an active part of the immune response because they produce and release antibodies. They contain more rough endoplasmic reticulum than inactivated B cells.

In mice the allele for black fur is dominant over the allele for white fur.



Turkeys have 82 chromosomes. Mitosis and meiosis are both types of cellular divisions occurring in growing and maturing turkeys.

