

Inbreeding Case Studies activity Part 1

This activity exposes students to the causes and consequences of inbreeding in animal and human populations.

Assign students to groups of five to investigate and summarize one inbreeding case study. Ask students to complete the graphic organizer for their case study.

Part 2 of this lesson has students present completed case studies to new groups, and together each group completes the remaining case studies.

Discussion points for each case study:

1) Domestic dogs

- a) Purebred dogs were inbred for desired characteristics like herding, fetching, and tracking skills
- b) Unfortunately, health problems also resulted like hip, elbow, heart, and eye problems

2) The Florida Panther

- a) Hunting and habitat loss have reduced its numbers to 70 individuals confined to South Florida.
- b) So few panthers remain that they are now inbred, which has caused health problems like heart defects and abnormal sperm. These defects make it even harder for them to survive.

3) Thoroughbred Horses

- a) Thoroughbred horses were selectively bred (inbred) for speed
- b) Some Thoroughbreds have skeletal defects, which can lead to broken bones. They also have reproductive problems.

4) The Hapsburg Royal Family of Europe

- a) The Hapsburg family ruled Austria and Spain as well as many other European countries between the 15-18th centuries.
- b) In order to keep “pure” bloodlines and seal alliances for increased power, the Hapsburgs inter-married one another frequently. Marriages between first cousins and uncles and nieces were fairly common.
- c) One result of this inbreeding is the “Hapsburg Jaw” where the lower jaw grows longer than the upper jaw making for an extended chin.

5) Maple Syrup Urine Disease

- a) The Amish communities had very small founding populations, which led to genes for this disorder to be more common in today’s population.
- b) This circumstance results in the high rate of Maple Syrup Urine Disease in today’s population. This disease can cause seizures, comas, and death, if left untreated.