

chromosomes to the next generation. This would quickly become a problem! Future generations would be unable to reproduce because their gametes would contain an incompatible number of chromosomes! Be aware that some commercially developed plants do follow this pattern. After one or two generations, these plants may become sterile or are unable to reproduce due to unmatched pairs of chromosomes. This is one example of genetic engineering.

Polyploidy (poly meaning many) is a condition that occurs when more than the usual number of chromosome sets is present. For example, many fruits such as blueberries, plums, grapes, cherries, strawberries, and cranberries are genetically altered or engineered by humans through the introduction of certain chemicals like colchicine (KAHL-chuh-seen) to produce larger fruits. Polyploidy sometimes occurs in nature during the formation of the gametes, but rarely occurs in animals.

Equipment

- Pictures of puppies, kittens, and plants
- Meiosis kit which includes: 32 green pipe cleaners (cut in half), 32 orange pipe cleaners (cut in half), 64 yellow beads, 32 red beads, 32 brown beads, 16 Meiosis sheets

Activity Sheets



Make sure you have copied the activity sheets for this inquiry.

- Activity One: Genes and Chromosomes
- Activity Two: Chromosome Comparison
- Activity Three: Focus Questions for Genes and Chromosomes

Engage

1. Show the students pictures of a litter of puppies, kittens, and plants that look very much alike.
2. Ask if the students can see any similarities between the littermates? (Fur color, eye color, facial features, size, shape of body.)
3. Can they see any differences? (They may point out some differences: size, shape.)