



## Activity: Bugs and Squares

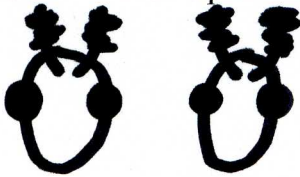
You are now probably junior genetic counselors and are excited about working with 2 traits at a time. This activity should help you visualize how the genotypes of two pairs of alleles can influence the phenotype of the individual.

**Materials:** this instruction sheet, 4x4 checkerboard, envelope with 8 plastic squares

**Procedure:** Find the four plastic squares which represent the male

 gametes (sperm) and place them in the following order along the top horizontal margin of the checkerboard (see the diagram): FD, Fd, fD, ff. Now

line up the four pieces representing the female  gametes (egg) along the left vertical margin. Place two pieces of plastic in the upper left hand box of the checker board according to the diagram below. Record the genotype and phenotype in the square. Replace the plastic pieces to their original position and continue to match up all remaining combinations until each square is filled.



F = antenna with hair      D = black eye  
f = antenna without hair      d = white eye

Parents: FfDd x FfDd

	FD	Fd	fD	fd
FD				
Fd				
fD				
fd				

- Analysis:
- 1) List the probability for all possible outcomes of genotype.
  - 2) List the probability for all possible outcomes of phenotype.

FD

Fd

♂

fD

fd

FD

Fd

♀

fD

fd
