

**Genetic Problems**

Use the following gene types to solve the following problems.

<u>Human</u>	<u>Pea Plant</u>	<u>Mice</u>
B - brown eyes b - blue eyes	R - round seeds r - wrinkled seeds	G - black color g - white color
F - brown hair f - blonde hair	T - tall plant t - short plant	S - long tail s - short tail

1. Give the phenotypes for the following genotypes:

a) Bb = _____	f) TT = _____
b) gg = _____	g) RR = _____
c) rr = _____	h) Ff = _____
d) Ss = _____	i) gg = _____
e) BBFf = _____	j) ggSs = _____
  
2. Give the genotypes of each of the following:

  - hybrid round seed = \_\_\_\_\_
  - hybrid long tail = \_\_\_\_\_
  - short pea plant = \_\_\_\_\_
  - purebred tall plant = \_\_\_\_\_
  - white mice = \_\_\_\_\_
  - purebred round seeds = \_\_\_\_\_
  - homozygous blonde hair = \_\_\_\_\_
  - heterozygous black mice = \_\_\_\_\_
  - homozygous black mice = \_\_\_\_\_
  - heterozygous eye color = \_\_\_\_\_
  
3. a) A purebred black mouse can give either \_\_\_\_\_ or \_\_\_\_\_ genes.

b) A hybrid black mouse can give either \_\_\_\_\_ or \_\_\_\_\_ genes.

4. Complete the Punnett Square and determine the possible phenotypes of the offspring.

Cross a purebred and a hybrid black mouse.

		G	G	male gametes	
female gametes	G				Black mice = _____
	g				White mice = _____

5. Cross a purebred and a hybrid human for hair color

		f	f	male gametes	
female gametes	F				Brown hair = _____
	f				Blonde hair = _____

6. Cross a hybrid black mouse with a white mouse and determine the possible genotypes and phenotypes.

				male gametes	
female gametes					Black mice = _____
					White mice = _____

7. Cross two hybrid tall pea plants and determine the possible genotypes and phenotypes.

				male gametes	
female gametes					Tall plants = _____
					Short plants = _____