8-27-09

Announcements: person who asked about research last time, see Dr. Wayne.
: still trying to add the class? see Dr. Wayne

PS 1 - Download from syllabus page of website
Doodle signup for PT groups tonight

Last time: Mendel's 1st Rule
This time: Mendel cont., intro to probabilities, pedigrees

What was the point? RRYY × rryy
- alleles inherited independently
→ Mendel's 2nd Rule: Rule of Independent Assortment

Backcross: Take F_1 heterozygote + cross to one of the 2 parents

Testcross: special case of Backcross: cross F_1 to homoz. recessive parent
→ testcross w/ yellow pea color:

$YY \times yy$

F_1 Yy testcross to yy

	Y	y
y	Yy	yy
y	Yy	yy

A 1:1 Ratio
Yellow : Green
- can use to distinguish Dom homz. from hetz.

Gene naming conventions: Flies
- Genes named for mutation.
- The white gene e.g. as wild type makes red eyes.
- Upper case = Dom, Lower case = recess.
- Distinguish b/t alleles w/ superscripts

w^{118}, w^{D} = Dominant mutation
w^{ts} = temperature sensitive mutation

What is wildtype?
- most common allele
- often but not always dominant

Genetic variation necessary to understand gene function hence study mutants.

A mutation = an allele
An allele = a difference in the nucleotide sequence
= a unique nucleotide sequence of a gene

What is Dominance?
- Relationship between allele of single gene, such that one allele masks the other

Functionally, what is Dominance?
- only one functional copy of gene required for phenotype

For red eyed fly, need one wild type allele

A) A rec. mutant, vermillion, causes bright orange eyes in flies
- cross vermillion ♀ to red ♂ who had a vermillion father?

♀ : vv ♂ : $V\_$ male's Dad was homoz. = vv
male's mom was $V\_$

→ male is heterozygous

	V	v
v	Vv	vv
v	Vv	vv

1:1 Hetz : Hom rec.
= 1:1 red : verm.

B) Red vs. Brown eye color in flies
Given data, what is mode of inheritance and genotypes of parents?

	Red	Brown
BR x BR	0	92 → bb x bb
red x red	79	0 → BB x B__
red x red	64	21 → red is dom. 3:1 Bb x Bb
red x brown	100	0 → BB x bb
red x brown	54	60 → 1:1 Testcross Bb x bb

Red allele = B
brown = b

c) Pigeons may be checkered or plain.

	check	plain
a) check x check	36 PP x Pp	0
b) check x plain	38 Pp x pp	0 *check = Dominant
c) plain x plain	0 pp x pp	35

check allele = P plain allele = p