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Genetics Fill-in Notes

6.5 Traits and Probability

Notes

1. Objectives: Students fill out →

2. Key Concept

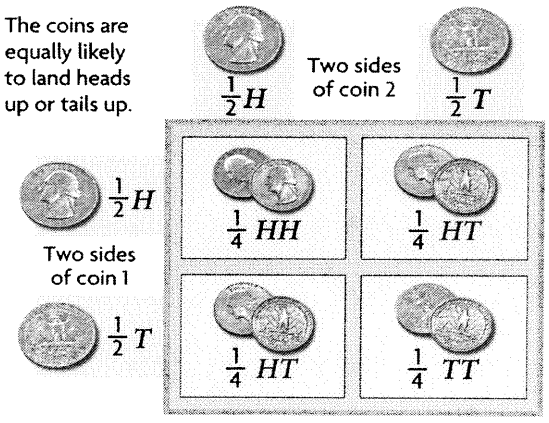
3. Vocabulary

1. Key Concept: The inheritance of traits follows the rules of _____.

2. Vocabulary

- **Punnett Square** – model for predicting all possible genotypes resulting from a cross, or mating
- **Monohybrid Cross** – cross, or mating, between organisms that involves only one pair of contrasting traits
- **Testcross** – cross between an organism with an unknown genotype and an organism with a recessive phenotype
- **Dihybrid Cross** – cross, or mating, between organisms involving two pairs of contrasting traits.
- **Law of independent assortment** – Mendel's second law, stating that allele pairs separate from on another during gamete formation
- **Probability** – likelihood that a particular event will happen

3. How can heredity be calculated using probability?



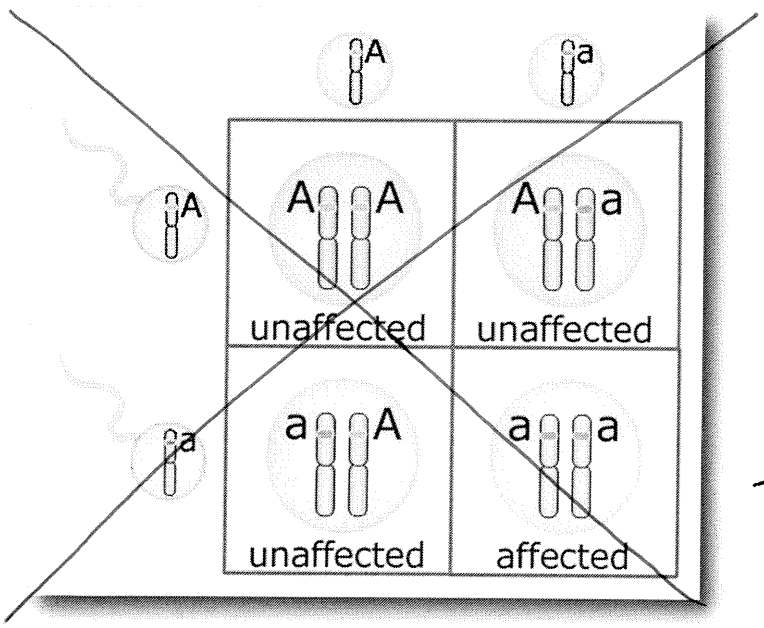
3. Heredity patterns can be calculated with _____

- Probability is the _____ that something will happen.
- Probability predicts an _____ _____ of _____, not an _____ number of occurrences.
- Probability applies to _____ events such as _____ and _____.
- Probability can also be shown as a _____ (25%) or as a _____ (**1HH:2HT:1TT**)

The probability of getting HT is

Probability = $\frac{\text{Number of ways a specific event can occur}}{\text{Number of total possible outcomes}}$

4. What is a Punnett Square?



4. Punnett squares illustrate genetic crosses

- A _____ square is a system for predicting the possible _____ of offspring resulting from a cross.
  - The axes represent the possible _____ of each parent.
  - The boxes show the possible _____of the offspring
- The Punnett square yields the _____ of possible genotypes and _____.

too many pictures
too busy.

5. What is a monohybrid cross?

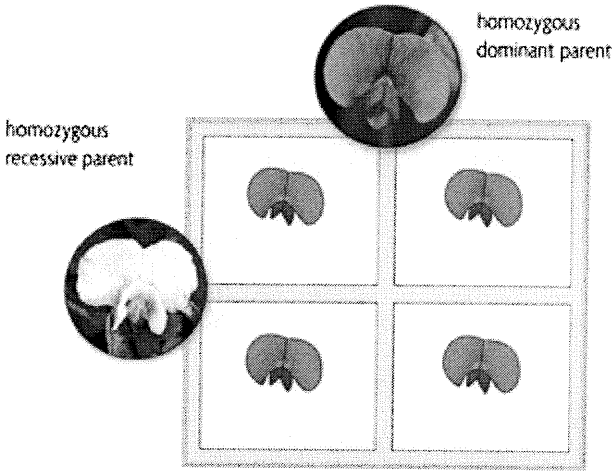
5. A monohybrid cross involves one trait

- _____ crosses examine the inheritance of only one specific trait
- Example 1: _____
  - female is homozygous dominant (__ __)
  - male is homozygous recessive (__ __)

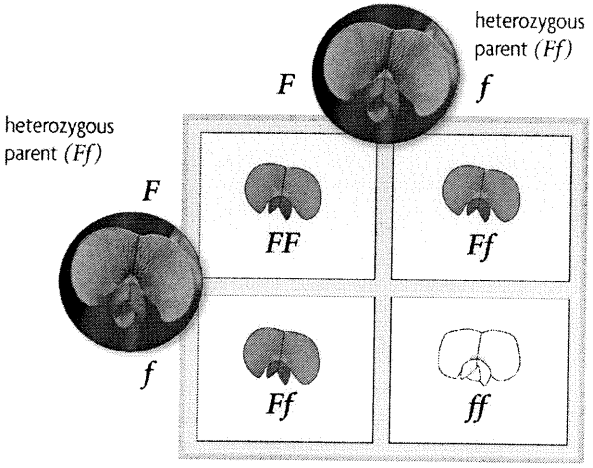
__ __ X __ __

- Results
  - The possible Genotypes – all _____ (__ __)
  - Possible Phenotypes – _____ _____

Example 1

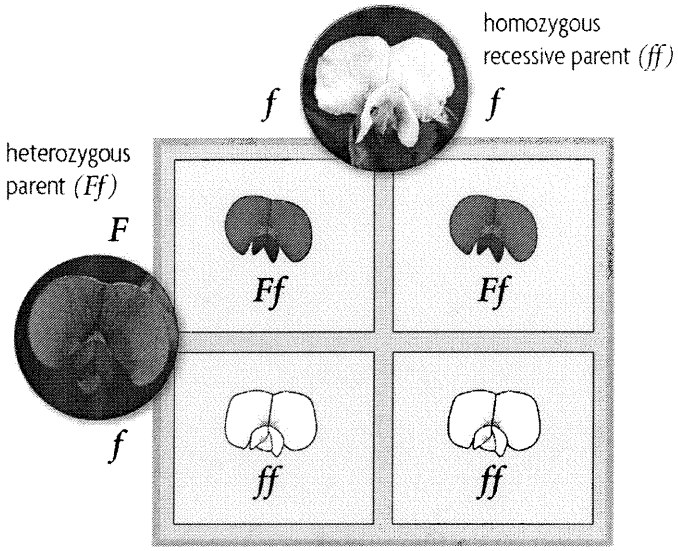


Example 2



- Example 2
  - Parents:Heterozygous (__ __) x hybrid (__ __)
  - What is the ratio of the possible offispring's genotypes?
    - _____ : _____ : _____ or 25% FF, 50% Ff, and 25% ff
  - What is the ratio of the possible offspring's phenotypes?
    - ___ purple : ___ white or 75% purple and 25% white

6. What is a testcross?

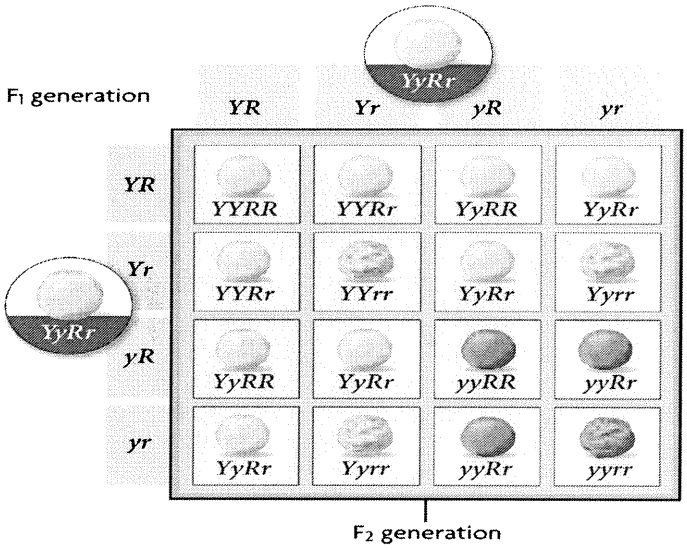


6. Testcross

- A _____ is a cross between an organism with an unknown genotype and an organism with the _____ phenotype
- Cross an unknown genotype purple parent (F___) and white parent (ff)

STOP - too much information for 1 day.

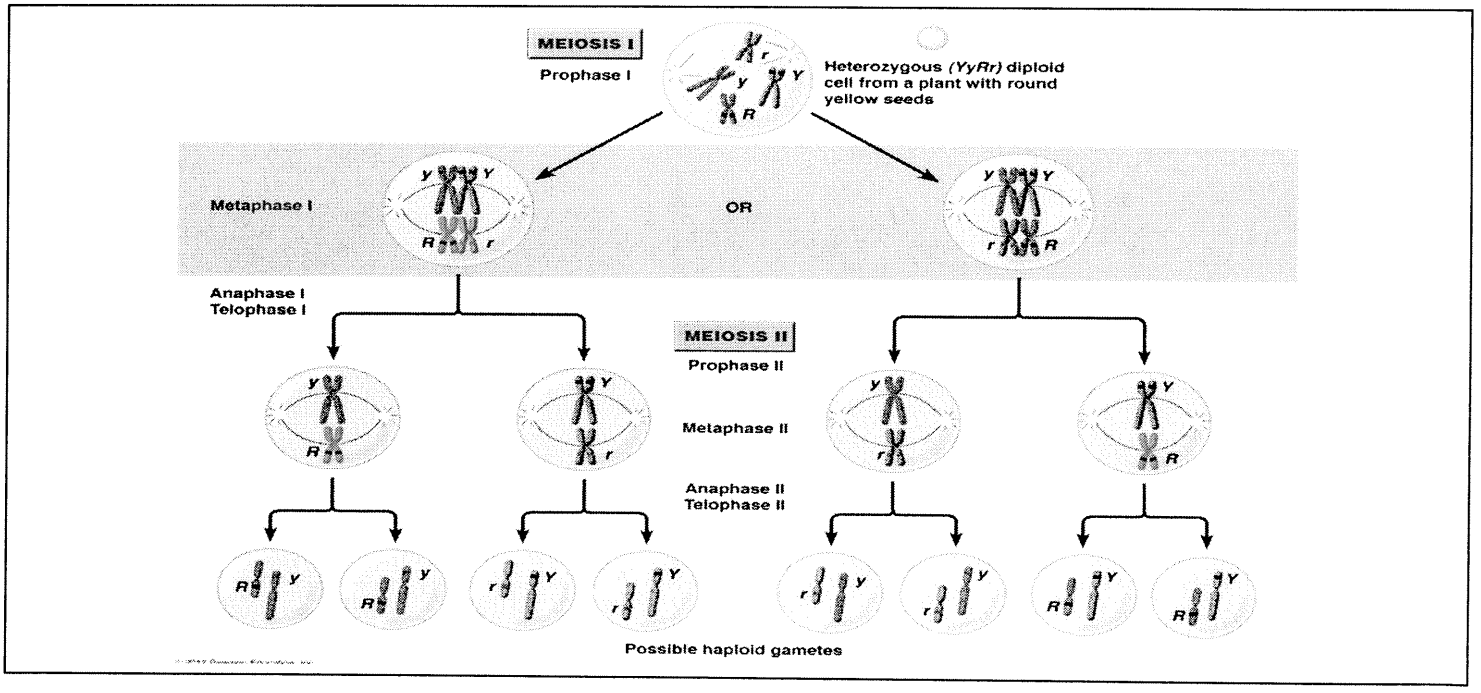
7. What is a dihybrid cross?



7. Dihybrid cross – A cross that involves two traits

- Mendel's dihybrid crosses with heterozygous plants yielded a ___ : ___ : ___ : ___ phenotypic ratio
- Mendel's dihybrid crosses led to his second law, the law of _____ _____
- The law of independent assortment states that allele pairs separate independently of each other during meiosis

* Introduct hihybrid next day after practice of monhybrid.



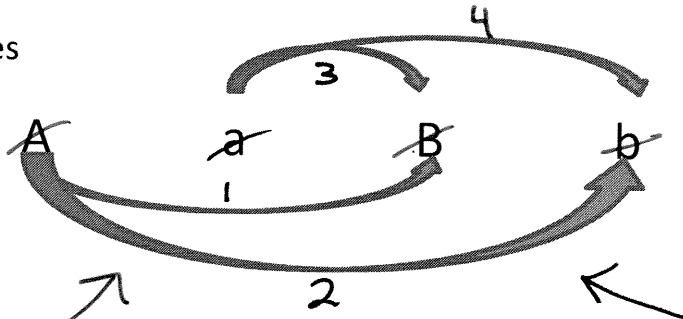
write out FOIL

1. First
2. Outside
3. Inside
4. Last

Dihybrid Cross

Example: AaBb x AAbb

Step 1: FOIL out the Alleles



Parent 1 Allele

First (1) = AB

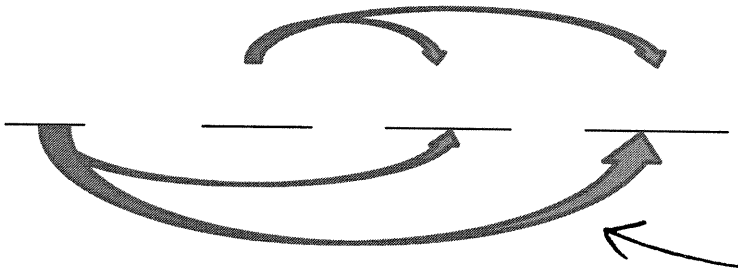
Outside (2) = Ab

Inside (3) = aB

Last (4) = ab

model this, remove Letters.

Make more clear w/ #'s



Student practice

Parent 2 Allele

First (1) =

Outside (2) =

Inside (3) =

Last (4) =

* Have students figure out offspring after axis are written

model x-axis

Trait	Parent 1 Allele	Parent 1 Allele	Parent 1 Allele	Parent 1 Allele
Parent 2 Allele				
Parent 2 Allele				
Parent 2 Allele				
Parent 2 Allele				

Student practice