**Biology Unit 7 Calendar – Ch. 11: Genetics**

**December 2, 2013 – January \_\_\_\_\_\_\_, 2014**

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| --- | --- | --- | --- | --- |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| December 2  ½ Day  Vocabulary | 3  Notes Ch. 11-1,  11-2 and practice problems  **HW: Complete Punnett square activity #1** | 4  Finish practice problems/ go over HW  Start  Genetics Dry Lab | 5  Genetics Dry Lab | 6  Genetics Dry Lab  **Lab Due Monday!!** |
| 9 – Dry Lab Due!  Problem set A worksheet - **Due Tomorrow** | 10  Problem set B worksheet - **Due Tomorrow** | 11  Genetics Practice Worksheet- **Due Tomorrow** | 12  Begin Study Guide for Semester 1 Final | 13  Semester 1 Final study guide |
| 16  Complete and go over semester final study guide | 17  Class review for final | 18  Semester Final – **Study guide Due!** | 19  Semester Final – **Study guide Due!** | 20 -Enjoy your winter break!!! |
| January 6  No School –  Welcome Back Tomorrow! | 7 | 8 | 9 | 10 |
| 13 | 14 | 15 | 16 | 17 |

\*\*All work not complete in class becomes homework. Homework can also be assigned randomly- does not have to be indicated on this calendar.

\*\* Read Chapter 11, sections 1, 2, and 3 to keep up with class discussions and assignments.

**Participation Packet Grading Rubric:**

Unit calendar and Rubric \_\_\_\_\_\_\_\_/5 Points (for completed calendar and rubric)

Unit Notes \_\_\_\_\_\_\_\_/ \_\_\_\_\_\_\_\_ Points (2 points per page)

Vocabulary \_\_\_\_\_\_\_\_/ 16 Points (16 words)

Daily Pages \_\_\_\_\_\_\_\_/ \_\_\_\_\_\_\_\_ Points (5 points per page)

Unit Study Guide \_\_\_\_\_\_\_\_/ \_\_\_\_\_\_\_\_ Points (1 point each)

**Total Points \_\_\_\_\_\_\_\_\_/**\_\_\_\_\_\_\_\_ **Points**

**Genetics**

**Ch. 11 Notes**

**Ch. 11 -1 and 11-2**

Gregor Mendel

* The father of modern \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Lived from 1822-1884.
* He was an Austrian \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, whose experimental work became the basis of modern \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ theory.
* He was a teacher and worked in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the monastery
* This is where Mendel began to work with pea plants and grew an interest in how plants get their color and height

Mendel’s Methods

* Mendel used **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** techniques in which pollen is transferred between flowers of two different plants.

Mendel’s Experiment

* Mendel bred plants for several generations that were \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (TT, tt) for specific traits (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) and called these theP generation (Parent Generation).
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (babies) of the P generation were called the **F1 generation**
  + **(F = Filial; Latin for son or daughter).**
* Offspring of the F1 generation were called the **F2 generation.**

Mendel’s Conclusion and Results

* **Recessive and Dominant Traits**
* Mendel concluded that inherited characteristics are controlled by \_\_\_\_\_\_\_\_\_\_\_ (different versions of genes) that occur in pairs.
* In his experiments on pea plants, one allele in a pair masked the other. The trait that masked the other was called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_trait. The trait that was masked was called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_trait.
  + Known as the **Principal Of Dominance**

The Law of Segregation

* The **law of segregation** states that alleles are *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*, or separated, during the formation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sex cells). That is, each gamete, receives one copy (gene) of each chromosome.
* The law of segregation explains why you may have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ neither of your parents have.

Practice Problems

1. Cross a dog that is pure for black fur with a hybrid black fur dog. Use B for black fur and b for light fur.

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1. How many offspring have black fur?
2. How many offspring have light colored fur?
3. How many offspring are pure black?
4. How many offspring are hybrid black?
5. In flowers, red is dominant to white. Cross a white flower with another white flower. Use (R) for red and (r) for white.
6. How many offspring are red?
7. How many offspring are white?

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1. If two dogs with black fur are crossed and out of the 12 offspring, 9 were black and 3 were light, what are the genotypes of the parents?

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1. In some dogs, brown hair is dominant to light colored hair. Cross a dog that is hybrid for brown with a light hair colored dog.

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1. 1st Cross a pure tall plant with a short plant.   
     
   Then cross two of the offspring from this cross.

Generation 1 (F1) Generation 1 (F2)

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1. What is the phenotypic ratio and genotypic ratio of this cross?

**Ch. 11 – 3**

**Exploring Mendelian Genetics**

The Principle of Independent Assortment

* The principle of independent assortment states that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for different traits can segregate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during the formation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Pair/Share**  
Complete the following dihybrid cross.   
When you are finished, talked to your partner, check your answer, and be prepared to share with the class.

Complete a 4 x 4 dihybrid cross using the following genotypes:

—Mom = rrYy

—Dad = Rryy

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The Principle of Codominance

* In “codominance” both alleles contribute to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the organism.
* For example, cattle with the allele for white hair that mates with cattle with the allele for red hair can produce “roan” offspring, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of red and white hairs.

The Principle of Incomplete Dominance

* Sometimes alleles are neither \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Cases in which one allele is not completely dominant over another is called “incomplete dominance.”
* The hybrid, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ phenotype is somewhere in between the two phenotypes.

Multiple Alleles

* Many genes have more than \_\_\_\_\_\_\_\_\_\_\_\_ alleles and therefore are said to have multiple alleles.
* This doesn’t mean that an individual can express more than one allele per gene, it means that there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of phenotypes available for the organism.
* For example, coat color in rabbits and blood types in humans.

Polygenic Traits

* Many traits are produced by the interaction of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genes.
* Traits controlled by two or more genes are said to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ traits, which means “having many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.”
* Eye color in fruit flies and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in humans result from polygenic interaction.

Pair/Share

* Complete the following problems in your notes.
* When you are finished, talked to your partner, check your answers, and be prepared to share with the class.

1. In Pea plants Axial flowers are dominant to terminal flowers and round peas are dominant to wrinkled peas. Show a cross between a hybrid axial-round plant and another axial-round plant.
   1. What are the possible gametes of each parent.
   2. Set up a punnett square to show your cross.
   3. Predict the possible outcomes.
2. In Pea plants tall plants are dominant to short plants and round peas are dominant to wrinkled peas. Show a cross between a hybrid tall-round plant and a short-wrinkled plant.
   1. What are the possible gametes of each parent.
   2. Set up a punnett square to show your cross.
   3. Predict the possible outcomes.
3. In Pea plants Yellow pods are dominant to green pods and tall plants are dominant to short plants. Show a cross between two plants that have green pods and are short plants. Y=yellow, y=green T=tall, t=short
   1. What are the genotypes of the parents?
   2. What are the gametes that each parent will make?
   3. Set up a punnett square to show your cross.
   4. Predict the possible outcomes.