Meiosis Student Questions

1. Pair up with the other students at your group and record the Genotypes and Phenotypes for Mom and Dad for each Trait

A. Define Genotype:

B: Define Phenotype:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trait** | **Mom’s Genotype Ex: Bb** | **Mom’s Phenotype Ex: Red** | **Dad’s  Genotype** | **Dad’s  Phenotype** |
| **Wings** |  |  |  |  |
| **Tail** |  |  |  |  |
| **Skin Color** |  |  |  |  |
| **Albino** |  |  |  |  |
| **Tail Rings** |  |  |  |  |
| **Fire Breathing** |  |  |  |  |
| **Toes** |  |  |  |  |
| **Horns** |  |  |  |  |
| **Display Comb** | NONE | No Comb |  |  |

2. Define Homologous Chromosomes:

3. Define Sister Chromatids:

4. What happens to homologous chromosomes when crossing over occurs?

5. In the Space below, draw what each of your gametes looks like. Are these cells haploid or diploid? How do you know?

1. Mitosis is to asexual reproduction as meiosis is to:
   1. interphase
   2. seed propagation
   3. sexual reproduction
   4. asexual reproduction

Why is this answer correct? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Mitosis results in the formation of two genetically identical diploid cells (2n). Meiosis results in the formation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. four genetically identical haploid cells (2n)
   2. four genetically different haploid cells (n)
   3. two genetically different diploid cells (2n)
   4. two genetically identical diploid cells (Xn)

Why is this answer correct? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Sex cells of humans that result from meiosis have –
   1. 92 chromosomes
   2. 46 chromosomes
   3. 23 chromosomes
   4. 12 chromosomes

Why is this answer correct? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Through meiosis,
   1. alternate forms of genes are shuffled.
   2. the diploid chromosome number is reduced to haploid.
   3. offspring are provided with new gene combinations.
   4. all of these.

Why is this answer correct? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Homologous chromosomes
   1. have alleles for the same characteristics even though the gene expression may not be the same.
   2. are in pairs, one chromosome of each pair from the father and one from the mother.
   3. pair up during meiosis.
   4. all of these.

Why is this answer correct? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Compare your dragon to other dragons around the room. What differences and similarities do you see?

7. How do you explain all the differences, even though the dragons all had the same parents?