**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**TEST REVIEW:**

**Cell Cycle, Mitosis, Meiosis, Karyotypes, and Genetics**

1. What is the Cell cycle? A series of events a cell goes through as they grow and divide
2. What are the phases of the cell cycle?

1.G1

2.S

3.G2

4.M

1. What happens in each of the cell cycle phases?

1.G1 – cell does most of its growing

2.S - Chromosomes are replicated

3. G2 organeels required for division are produced

4. M – cellular division

1. Draw a diagram representing the cell cycle.



1. What causes cancer? Mutations in the DNA
2. What happens in Mitosis? One parent cell produced 2 identical cells with the SAME # of chromosomes as the parent cell
3. How many cells are produced in Mitosis? 2
4. What type of cells go through Mitosis? Somatic (body Cells)
5. Are the cells Haploid or Diploid that go through Mitosis? Diploid
6. What are the phases of Mitosis in order?

Prophase, metaphase, anaphase, telophase

1. Draw and color Interphase



1. Draw and color prophase.
2. Draw and color metaphase.
3. Draw and color Anaphase.
4. Draw and color Telophase.
5. Explain in words what happens in Interphase.

Cell grows and replicates DNA

1. Explain in words what happens in prophase.

Chromosomes appear

1. Explain in words what happens in metaphase.

Chromosomes line up in the middle of the cell

1. Explain in words what happens in Anaphase.

Chromatids separate and move to opposite ends of the cell

1. Explain in words what happens in Telophase.

2 new nuclear membranes form

1. What in the last step in cell division?

cytokinesis

1. What happens in Meiosis? A gamate cell is divide into 4 cells with ½ the number of chromsomes as the original cell
2. How many cells are produced in Meiosis? 4
3. What type of cells go through Meiosis? Sex cells…gametes
4. Are the cells Haploid or Diploid that go through Meiosis? Division 1 Diploid, Division 2 Haploid
5. What are the phases of Meiosis in order?

Prophase 1, metaphase 1, anaphase 1, telophase 1 & cytokinesis, prophase II, metaphase II, Anaphase II, Telophase II and cytokinesis

1. What causes genetic variation/diversity in Meiosis? Crossing over
2. Are all of your gametes identical? NO…all different
3. What is a Karyotype? A picture of all of the chromosomes of a particular organism
4. Analyze the karyotype below.



Is the Karyotype a human Karyotype? Yes, 23 pair

Is this of a male or female? female

Are they normal or mutated? normal

1. Analyze the karyotype below.



Is this karyotype a human karyotype? Yes, 23 pair

Is there a mutations? yes

If so what is the type of mutation? Trisomy 21

Is this a male or female? female

1. How many chromosomes do you have in your somatic cells? 46
2. How many chromosomes do you have in your gametes? 23
3. Draw a picture of a chromosome.



1. 

For each of the following problems, give the genotype of the parents, make a Punnett square and give the genotype ratio and phenotype ratio expected in the offspring.

1. In hobbits, hairy toes (H) are dominant to smooth toes(h). Cross a homozygous hairy toed hobbit with a heterozygous hairy toed hobbit.
2. Dihybrid cross

**In summer squash, white fruit color (W) is dominant over yellow fruit color (w) and disk-shaped fruit (D) is dominant over sphere-shaped fruit (d).  If a squash plant true-breeding for white, disk-shaped fruit is crossed with a plant true-breeding for yellow, sphere-shaped fruit, what will the phenotypic and genotypic ratios be for:**

Parents Genotype\_\_\_\_\_\_\_\_\_\_\_\_\_X\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

 White / Disk shaped :

 White/ Sphere shaped:

 Yellow/ Disk shaped:

 Yellow/ Sphere shaped:

Phenotypic Ratio: \_\_\_\_\_\_:\_\_\_\_\_\_:\_\_\_\_\_:\_\_\_\_\_\_

 WwDd:

 WWDD:

 wwDd:

 wwDD

 wwdd:

 Wwdd:

 WWdd:

 Genotypic Ratio:\_\_\_\_\_:\_\_\_\_\_:\_\_\_\_\_:\_\_\_\_\_\_

Define the following terms:

Phenotype- physical appearance- blue eyes, curly hair

Genotype- genes , HH, Hh, hh

Homozygous Dominant - HH

Homozygous Recessive - hh

Heterozygous - Hh

Purebred- HH, hh

Hybrid- Hh

Allele- the letters,

Gene- the location on the chromosome where the alleles are located

