Grade 9 Science

Test #2 Review

Body Cells (Mitosis)/Sex Cells (Meiosis) (1 01, 1 02)

Fill in the blank to solidify the following concepts. Some blanks have words/phrases below the blanks to help you choose proper vocabulary.

How many cells result when a cell cycle involving mitosis is complete? \_\_\_\_\_\_

What is their proper name? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Are they **diploid or haploid**? \_\_\_\_\_\_\_\_\_\_\_\_\_

For a human, what number is the diploid number? \_\_\_\_\_\_\_\_\_What is the haploid number? \_\_\_\_\_\_\_\_\_\_\_\_\_

Are these numbers the same for all organisms? \_\_\_\_\_\_\_\_\_\_\_\_

What does haploid mean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Body cells are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_because they have the full number of chromosomes for that organism.

haploid, diploid

Body cells are made by mitosis and therefore, have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

genetic variation; no genetic variation

Some organisms use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as their way of reproducing. Their offspring are

mitosis, meiosis

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_the parent. In some situations, this is an advantage because

genetically identical to, genetically different than

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sex cells are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because they have half of the number of chromosomes for that organism.

haploid, diploid

The process involved in making these sex cells with half the number of chromosomes as sex cells

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mitosis.

could be, could not be

The two sex cells (called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the female and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the male)

egg cell, sperm cell egg cell, sperm cell

will join to create a new organism \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genetic variation. Genetic variation can be good in some

with, without

situations because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Genetic Information from Each Parent

Draw a chromosome. Draw a homologous chromosome from the other parent beside it. Homologous chromosomes carry \_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the same \_\_\_\_\_\_\_\_\_\_ .

Give an example of a possible genotype for the trait of blue/brown eye color on your drawing.\_\_\_\_\_\_\_\_\_

Give the phenotype for that genotype \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is a gene? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is eye color a sex-linked trait? (ie does it travel attached to the x-chromosome).

**Genetics**

**(1 11, 1 12, 1 13)**

**Single Trait Inheritance (1 11)**

In this type of inheritance, there is a trait that is “either-or”. For example, **either** blue eyes or brown eyes.

Be prepared to look at graphed results of a survey on human traits and IMPROVE the labeling on it using proper vocabulary!! Be ready to interpret (analyze) the graph by describing **patterns** in the inherited traits.

**Writing Genotypes and Phenotypes (1 12)**

1. When you receive a trait from your biological parents, we say you “inherited” traits. One \_\_\_\_\_\_\_\_\_\_\_ for the trait of eye color for example came from your biological mom and one of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the trait of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ came from your biological dad.

**Dominant and Recessive**

1. In terms of traits, describe what it means for one form (allele) of a trait to be dominant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Give 2 ways that you could know whether a form (allele) for a trait is dominant or recessive.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Homozygous and Heterozygous**

1. Write a checkmark beside the genotypes that show a human who is **heterozygous** for brown eye color:

BB \_\_\_\_ Bb\_\_\_\_\_ bb\_\_\_\_\_ Bbbb \_\_\_\_\_\_\_ b\_\_\_\_\_

1. Write a checkmark beside the genotypes that show a human who is **homozygous** for brown eye color:

BB \_\_\_\_ Bb\_\_\_\_\_ bb\_\_\_\_\_ Bbbb \_\_\_\_\_\_\_ b\_\_\_\_\_

1. Write a checkmark beside the genotypes that show a human who is **homozygous** for blue eye color:

BB \_\_\_\_ Bb\_\_\_\_\_ bb\_\_\_\_\_ Bbbb \_\_\_\_\_\_\_ b\_\_\_\_\_

**Write Genotypes**

7) Write the following genotypes

1. heterozygous for dimpled cheeks \_\_\_\_\_\_\_\_
2. homozygous for curly hair \_\_\_\_\_\_\_\_
3. homozygous for smooth chin \_\_\_\_\_\_\_\_
4. heterozygous tongue roller \_\_\_\_\_\_\_\_
5. homozygous recessive for eye color \_\_\_\_\_\_\_\_

8) What does it mean when an organism is “homozygous” for a certain trait? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9) What is a genotype? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10) What is a phenotype? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2 Genotypes for One Phenotype**

There can sometimes be 2 genotypes for 1 phenotype. For example, if I observe a human and I see that they have free (detached) earlobes, that description is called their phenotype. I can observe the expression of that trait in that human. However, I do not see their genotype. There are two possible genotypes. What are they?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Punnett Squares for Predicting Traits

Cross a heterozygous tongue roller with a homozygous non-tongue roller. Remember to give all possible genotypes and phentoypes of the offspring including percentages.

Be sure to complete the PUNNETT SQUARE REVIEW that is on the homework on-line.

**Sex-Linked Traits**

Females carry the chromosomes \_\_\_\_\_ and \_\_\_\_\_\_. Males carry the \_\_\_\_\_\_ and \_\_\_ chromosomes.

Some traits are attached to the X chromosome.

When using a Punnett Square, you must pay attention to what chromosome is coming from each parent.

Be sure to review the PUNNETT SQUAREs for sex-linked traits that we did in class.

Mutations (1 15)

Be sure you have completed and reviewed the text questions on mutations (p. \_\_\_\_\_\_\_\_\_\_)

**Common Errors from Last Test**

What exactly is the difference between chromatin & double stranded chromosomes?

When the cell is in interphase, the chromosomes are at first in the form of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. This is

like a messy ball of wool that has been unwound. In interphase, replication happens and the chromosomes

become **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** .

During which phase of the cell cycle do the chromosomes become double stranded? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This process is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Are the chromosomes double stranded in prophase? \_\_\_\_\_\_\_\_

In which phase do double stranded chromosomes first become single stranded? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In which phase must the cell be in when the centromere is ripped apart to separate the two strands of DNA into

separate cells? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ After cell division, the chromosomes will become chromatin again, until

mitosis starts again.

**Biotechnology(1 16, 1 17)**

Be able to describe at least one of the following issues that we explored. This time you must CHOOSE a side: are

you PRO (for) this form of biotechnology or CON (against) this type of technology.