**Study Guide- Probability Quiz- Answer Key**

**Probability**

* No matter how many times you flip a coin the probability it will be heads is always \_\_\_\_\_\_
* 10 marbles- 5 white, 3 red, 1 blue, 1 green

Pull out 1 at a time: the probability of white- \_\_\_\_\_\_red or blue -\_\_\_\_\_\_, green- \_\_\_\_\_\_

**Cells**

* Two types

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- all body cells except sex cells- contain 46 chromosomes

* Divisions

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- nucleus divides- each daughter cell has 46 chromosomes
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- cell division where chromosome number decreases (1/2)

* Picture of all chromosomes lined up- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Different forms of the same gene-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The amount of chromosomes in an organism does not depend on its **size** or its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mutations**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- any substance that causes a mutation – ( sun, tobacco, gas, radiation)
* Mutations can be

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_( causes damage)
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- ( increased lifespan)
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- ( does nothing)

* How a mutation affects an organism depends on 2 things:

1. What \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of cell is mutated
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the organism lives

* Mutations can occur in somatic and/or sex cells

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- affects 1 person- less harmful
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- more severe- affects offspring

**Types of Gene Control- ( Hybridization, Inbreeding, Cloning, Gene Therapy, Genetic Engineering)**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- breeding organism with nearly identical genes (purebred dogs)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- creating identical offspring

1. Plants- “cutting”/”splicing” branches
2. Animals- empty egg- replace with DNA of animal to be cloned

* Dolly- sheep- 1st cloned mammal
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- crossing 2 different traits/organisms to get best of both
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- 1 single gene is implanted into the gene of another organism
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- genes are placed in viruses- then injected into the organism