

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

Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Chromosome Worksheet

**Background:** Diploid/somatic cells always have an even number of chromosomes because they exist in pairs ( $2n$ ). Haploid/sex cells contain only half the number of chromosomes ( $n$ ). An example of haploid cells is sperm found in male species and eggs found in female species. One unique set of chromosomes are found in the father's sperm ( $n$ ) and one unique complementary set is found in the mother's egg ( $n$ ). When the sperm fertilizes the egg, it becomes a diploid cell ( $n + n = 2n$ ).

*EXAMPLE: In our somatic cells are 23 pairs of chromosomes or  $2n=46$ . In our sex cells, we have 23 unique chromosomes or  $n=23$ .*

**Complete the following table of chromosome number in various species. Notice that the number of homologous chromosome is the same as the number of chromosomes found in a haploid cell.**

Species	Number of chromosomes in diploid cells ( $2n$ )	Number of homologous chromosome pairs in diploid cells	Number of chromosomes in haploid cells ( $n$ )
Homo sapiens	$2n=46$	23 pairs	$n=23$
Fruit fly	$2n=8$		
leopard frog	$2n=26$		
housefly			$n=6$
monkey			$n=21$
bat		22 pairs	
chicken		39 pairs	
king crab		104 pairs	
camel	$2n=70$		
goat			$n=30$
armadillo			$n=32$
petunia		7 pairs	
rice	$2n=24$		

TURN OVER →

**Questions:**

1. Dogs have 78 chromosomes in their diploid cells. How many chromosomes are in their haploid cells?
2. How many *pairs* of chromosomes do dogs have in their somatic cells?
3. Cats have 38 chromosomes in their diploid cells. How many chromosomes are in their haploid cells?
4. Horses have 32 chromosomes in their sex cells. How many chromosomes are in their somatic cells?
5. How many chromosome *pairs* do horses have in their somatic cells?
6. Wheat has 42 chromosomes in its diploid cell. How many chromosomes are in the haploid cells?
7. What is a karyotype?
8. Identify the following karyotype as male or female:

