
 Chromosome Number Worksheet

Date: _____ Hour: _____

Introduction:

- 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	# of chromosomes in diploid (2n)	# of homologous chromosome pairs in diploid cells	# 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	$2n = 24$		
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Questions:

1. Dogs have 78 chromosomes in their diploid cells. How many chromosomes 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 cells. How many chromosomes are in the haploid cells?

7. A goldfish has 94 chromosomes in each body cell, a human has 46, and a guinea pig has 64. What does this suggest about the complexity of an organism and the number of chromosomes it may have?

8. What is the relationship between chromosome number in body cells and sex cells? _____
