

Name: _____

47pts

Date: _____ Period: _____

Number of Chromosomes Worksheet

1. What is the definition of haploid? 1pt
2. What is the definition of diploid? 1pt

The data table below shows the number of chromosomes for *somatic cells*. Questions 3-18.

Organism	# of Chromosomes	Organism	# of Chromosomes
Mosquito	6	Pea Plant	14
Housefly	12	Corn	20
Frog	26	Human	46
Orangutan	48	Dog	78

1pt each

3. What is the number of chromosomes for diploid human cells? _____
4. What is the number of chromosomes for haploid pea plant cells? _____
5. What is the number of chromosomes for diploid orangutan cells? _____
6. What is the number of chromosomes for diploid dog cells? _____
7. What is the number of chromosomes for human gamete cells? _____
8. What is the number of chromosomes for diploid frog cells? _____
9. If a frog cell had 26 chromosomes, would that cell be diploid or haploid? _____
10. If a housefly cell had 6 chromosomes, would that cell be diploid or haploid? _____
11. If an orangutan cell had 24 chromosomes, would that cell be diploid or haploid? _____
12. If a pea plant cell had 14 chromosomes, would that cell be diploid or haploid? _____
13. If a mosquito cell had 3 chromosomes, would it be a gamete or somatic cell? _____
14. If a corn cell had 18 chromosomes, would it be a gamete or somatic cell? _____
15. If a housefly cell had 12 chromosomes, would it be a gamete or somatic cell? _____
16. If a pea plant cell had 14 chromosomes, would it be a gamete or somatic cell? _____
17. If a dog cell had 78 chromosomes, would it be a gamete or somatic cell? _____
18. If a human cell had 23 chromosomes, would it be a gamete or somatic cell? _____

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 <i>2pts each</i>	Number of chromosomes in diploid cells ($2n$)	Number of homologous chromosome pairs in diploid cells	Number of chromosomes in haploid cells (n)
19.	Homo sapiens	$2n=46$	23 pairs	$n=23$
20.	Fruit fly	$2n=8$		
21.	leopard frog	$2n=26$		
22.	housefly			$n=6$
23.	monkey			$n=21$
24.	bat		22 pairs	
25.	chicken		39 pairs	
26.	king crab		104 pairs	
27.	camel	$2n=70$		

Circle haploid or diploid in of the questions below. *1pt each*

28. In the human body, nervous system cells are haploid or diploid.
29. In the human body, gamete cells are haploid or diploid.
30. In the human body, egg cells are haploid or diploid.
31. In the human body, liver cells are haploid or diploid.
32. In the human body, bone cells are haploid or diploid.
33. In the human body, skin cells are haploid or diploid.
34. In the human body, muscle cells are haploid or diploid.
35. In the human body, sperm cells are haploid or diploid.
36. In the human body, somatic cells are haploid or diploid.
37. In the human body, body cells are haploid or diploid.
38. In the human body, ova cells are haploid or diploid.