



www.NGSSLifeScience.com

Topic: Diploid vs Haploid Worksheet

Summary: Students answer questions about the number of chromosomes generated by mitosis and meiosis.

Goals & Objectives: Students will be able to describe why gametes have one chromosome of each type and why body cells have two sets of chromosomes.

NGSS Standards: *HS-LS-3.1:* Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

Time Length: 20 minutes

Materials:

Class notes or textbook or online textbook

- <https://flexbooks.ck12.org/cbook/ck-12-biology-flexbook-2.0/section/2.36/primary/lesson/meiosis-bio/>
- <https://flexbooks.ck12.org/cbook/ck-12-biology-flexbook-2.0/section/2.34/primary/lesson/mitosis-and-cytokinesis-bio/>

Procedures:

1. Tell the students which section they are to use in the textbook. Students are then going to read the section and answer the questions on the worksheet.

Accommodations:

Students who cannot read at a high school level can be shown pictures in the book that help explain the answer. Students with an IEP can take the handout home if they need extra time.

Editable DOCX File and Answer Key:

Available at www.ngsslifescience.com

Diploid vs. Haploid WS

The data table below shows the number of chromosomes for *body cells*. Questions 1-16.

Organism	2n Chromosomes	Organism	2n Chromosomes
Mosquito	6	Pea Plant	14
Housefly	12	Corn	20
Frog	26	Human	46
Orangutan	48	Dog	78

1. What is the number of chromosomes for diploid human cells? _____
2. What is the number of chromosomes for haploid pea plant cells? _____
3. What is the number of chromosomes for diploid orangutan cells? _____
4. What is the number of chromosomes for diploid dog cells? _____
5. What is the number of chromosomes for human gamete cells? _____
6. What is the number of chromosomes for diploid frog cells? _____

Circle the correct underlined word in the questions below.

7. If a frog cell had 26 chromosomes, then the cell is diploid or haploid.
8. If a housefly cell had 6 chromosomes, then the cell is diploid or haploid.
9. If an orangutan cell had 24 chromosomes, then the cell is diploid or haploid.
10. If a pea plant cell had 14 chromosomes, then the cell is diploid or haploid.
11. If a mosquito cell had 3 chromosomes, then it would be a gamete or body cell.
12. If a housefly cell had 12 chromosomes, then it would be a gamete or body cell.
13. If a pea plant cell had 14 chromosomes, then it would be a gamete or body cell.
14. If a dog cell had 78 chromosomes, then it would be a gamete or body cell.
15. If a human cell had 23 chromosomes, then it would be a gamete or body cell.
16. Why is the chromosome number in each of the animal cells an even number? _____

17. Write the two types of gametes? _____
18. What process makes haploid cells? _____
19. What process is the fusion of gametes that create a zygote? _____
20. Is a zygote a diploid or haploid cell? _____
21. Why is it important that gamete cells have only one set of chromosomes? _____
-
-

22. Diploid cells have one set of chromosomes that come from the mom's _____ and the other set comes from the dad's _____.

Circle haploid or diploid in of the sentences below.

23. In the human body, gamete cells have a haploid or diploid number of chromosomes.
24. In the human body, egg cells have a haploid or diploid number of chromosomes.
25. In the human body, muscle cells have a haploid or diploid number of chromosomes.
26. In the human body, sperm cells have a haploid or diploid number of chromosomes.
27. In the human body, brain cells have a haploid or diploid number of chromosomes.
28. In the human body, heart cells have a haploid or diploid number of chromosomes.
29. In the human body, sex cells have a haploid or diploid number of chromosomes.