Topic: Sets of Chromosomes Worksheet

Summary: Students answer questions about the number of chromosomes generated by mitosis and meiosis. Also included are questions about chromosome structure and types of reproduction.

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

Standards: CA 2a *Students know* that meiosis is an early step in sexual reproduction in which the pairs of chromosomes separate and segregate randomly during cell division in order to produce gametes containing one chromosome of each type. 2e *Students know* why approximately half of an individual's DNA sequence comes from each parent.

Time Length: 20 minutes

Materials:

- Class textbook
- Photocopied worksheets
- Pencils or pens

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.

Evaluation:

Each question is worth ½ point. The assignment is worth a total of 19 points.

Name: _____ Row: _____

Date:_____ Period:_____

Number of Chromosomes Worksheet

1. What is the definition of haploid?

2. What is the definition of diploid?

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

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

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? _____

Circle the correct underlined word in the questions below.

9. If a frog cell had 26 chromosomes, then the cell is diploid or haploid.
10. If a housefly cell had 6 chromosomes, then the cell is diploid or haploid.
11. If an orangutan cell had 24 chromosomes, then the cell is diploid or haploid.
12. If a pea plant cell had 14 chromosomes, then the cell is diploid or haploid.
13. If a mosquito cell had 3 chromosomes, then it would be a gamete or somatic cell.
14. If a housefly cell had 12 chromosomes, then it would be a gamete or somatic cell.
15. If a pea plant cell had 14 chromosomes, then it would be a gamete or somatic cell.
16. If a dog cell had 78 chromosomes, then it would be a gamete or somatic cell.
17. If a human cell had 23 chromosomes, then it would be a gamete or somatic cell.

18. Why is the chromosome number in each of the animal cells an even number? _____

_____

_____

_____

19. Write two types of gametes? _____ _____

20. What process is the fusion of gametes that create a zygote? _____

21. Is a zygote a diploid or haploid cell? _____

22. Why is it important that gamete cells have only one set of chromosomes? _____

_____

_____

23. Draw below a chromosome and label the sister chromatids and the centromere.

24. Why does a chromosome have two sister chromatids? _____

_____

25. Two sets of the chromosomes of the same type are called _____ chromosomes.

26. 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 questions below.

27. In the human body, nervous system cells are haploid or diploid.

28. In the human body, gamete cells are haploid or diploid.

29. In the human body, egg cells are haploid or diploid.

30. In the human body, liver cells are haploid or diploid.

31. In the human body, bone cells are haploid or diploid.

32. In the human body, skin cells are haploid or diploid.

33. In the human body, muscle cells are haploid or diploid.

34. In the human body, sperm cells are haploid or diploid.

35. In the human body, somatic cells are haploid or diploid.

36. In the human body, body cells are haploid or diploid.

37. In the human body, ova cells are haploid or diploid.

38. In the human body, sex cells are haploid or diploid.