Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per \_\_\_\_\_

**Meiosis Guided Reading**

Please read pages 323- 329 to answer the questions below. Remember what you learned about Mitosis.

Refer back to Figure 11-15, fill in the **diagram** showing the steps of Meiosis I and Meiosis II, and **explain** briefly what is occurring in each phase.

|  |  |  |  |
| --- | --- | --- | --- |
| Prophase I | Metaphase I | Anaphase I | Telophase I/Cytokinesis |
| Prophase II | Metaphase II | Anaphase II | TelophaseII/Cytokinesis |

1. Explain the difference between haploid and diploid cells.

2. What is the process of meiosis and why is it important?

3. How many divisions of the nucleus are there in meiosis? How many where there in mitosis?

4. Are there homologous chromosomes involved? Yes/ No What is a homologous chromosome?

(circle one)

5. What is crossing over? During which phase of meiosis does it occur?

6. What is a tetrad? Draw a picture to remind you.

7. Use Figure 11-15 to complete the following:

a) Prophase I begins with \_\_\_\_\_\_ chromosomes in the cell (count all of them even though they are paired by the centromere). How many cells are present? \_\_\_\_\_

b) Telophase I/cytokinesis has \_\_\_\_\_\_ chromosomes in each cell. Are centromeres present? How many cells are present? \_\_\_\_\_

c) Prophase II begins with \_\_\_\_\_\_\_ chromosomes present in each cell. d) Telophase II and cytokinesis ends with \_\_\_\_\_\_ chromosomes in each cell. How many cells will form after cytokinesis? \_\_\_\_\_\_\_

8. Make a diagram of two homologous chromosome pairs undergoing crossing-over. Use Figure 11-15.

9. Compare Mitosis to Meiosis

In meiosis the chromosome number is reduced by \_\_\_\_\_\_\_\_\_\_\_\_\_.

So if diploid number is 10 then the haploid number is \_\_\_\_\_\_\_\_\_\_\_\_\_

If the haploid number 20 then the diploid number is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Go back to page 277-278 and then answer the following questions

10. What is the difference between asexual and sexual reproduction?

11. How does meiosis ensure genetic variation?