*Use the information in Chapter 11.4 (p.323-327) to answer the following questions. Bozeman also has a nice podcast called,* [*Meiosis*](http://www.bozemanscience.com/meiosis)*.*

1. What are homologous chromosomes? (HINT: I already talked about these in lecture!)
2. Complete the following chart in which you **organize** information about diploid and haploid cells.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Definition | Abbreviation | Location Within an Organism |
| Diploid |  |  |  |
| Haploid |  |  |  |

1. Briefly **summarize** the purpose of meiosis.
2. Prior to meiosis I, what important cellular event must occur?
3. **Draw** a picture of a tetrad and **explain** the process of crossing over. Label sister chromatids and homologous chromosomes.
4. Complete the following table in which you **describe** the events of meiosis and provide a diagram for each phase.

|  |  |  |
| --- | --- | --- |
| **Phase** | **Events Inside Cell** | **Diagram** |
| PROPHASE I  |  |  |
| METAPHASE I |  |  |
| ANAPHASE I |  |  |
| TELOPHASE I |  |  |
| CYTOKINESIS |  |  |
| PROPHASE II |  |  |
| METAPHASE II |  |  |
| ANAPHASE II |  |  |
| TELOPHASE II |  |  |
| CYTOKINESIS |  |  |

1. **Explain** how the process of meiosis relates to the formation of a zygote and mitosis?
2. **Compare** and **contrast** the processes of mitosis and meiosis.

|  |  |  |
| --- | --- | --- |
| Mitosis | Both | Meiosis |
|  |  |  |

1. **Complete** the following table in which you calculate the haploid and diploid numbers of a variety of organisms.

|  |  |  |
| --- | --- | --- |
| Organism | Haploid (N) Number | Diploid (2N) Number |
| Human |  | 46 |
| Amoeba | 25 |  |
| Chimpanzee | 24 |  |
| Fern |  | 1010 |
| Onion |  | 16 |
| Hamster | 22 |  |
| Earthworm | 18 |  |

* Why is a diploid number always even?