

**Lesson Title:** *Meiosis Internet Activity Review & Quiz*

**I. Identification**

**Course title:** *Biology/Life Science*

**Teaching unit:** *"Meiosis: The Steps to Creating Life"*

**CDE Standards Addressed:** *Biology/Life Sciences*

- a. *Students know meiosis is an early step in sexual reproduction in which the pairs of chromosomes separate and segregate randomly during cell division to produce gametes containing one chromosome of each type.*
- b. *Students know only certain cells in a multicellular organism undergo meiosis.*
- c. *Students know how random chromosome segregation explains the probability that a particular allele will be in a gamete.*
- d. *Students know new combinations of alleles may be generated in a zygote through the fusion of male and female gametes (fertilization).*
- e. *Students know why approximately half of an individual's DNA sequence comes from each parent.*
- f. *Students know the role of chromosomes in determining an individual's sex.*
- g. *Students know how to predict possible combinations of alleles in a zygote from the genetic makeup of the parents.*

**Lesson number in this unit:** #4

**Length (time):** *one class period*

**II. Specific Instructional Objective(s):** *Upon completion of this lesson student should be able to:*

- *Analyze how Meiosis maintains a constant number of chromosomes within a species.*
- *Infer how Meiosis leads to variation within a species.*
- *Relate Mendel's laws of heredity to the events of Meiosis.*
- *Describe the process of fertilization in living organisms.*
- *Discuss the transmission of genes through meiotic division to form sperm and ova*
- *Define the terms phenotype, genotype, haploid, diploid, homozygous, heterozygous, segregation, and homologous and use them correctly in discussing meiosis and the genetic makeup of organisms.*

**III. Equipment, materials, supplies, books, resources needed for this lesson (attach handouts):**

- *Meiosis Internet Activity Review Student Handout*
- *Computer and Internet Access*  
<http://www.sumanasinc.com/webcontent/anisamples/majorsbiology/meiosis.html>
- *Meiosis Quiz*

**IV. Academic Vocabulary:**

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|-------------------------|--------------------------------|--------------------------------|
| • <i>Meiosis</i>        | • <i>Telophase</i>             | • <i>Sperm</i>                 |
| • <i>Prophase</i>       | • <i>Diploid</i>               | • <i>Egg</i>                   |
| • <i>Metaphase</i>      | • <i>Haploid</i>               | • <i>Sexual Reproduction</i>   |
| • <i>Anaphase</i>       | • <i>Homologous Chromosome</i> | • <i>Genetic Recombination</i> |
| • <i>Nondisjunction</i> |                                |                                |

**V. Teaching procedures:**

- a. **Anticipatory set:** *Good morning everyone! Considering that we have spent the last couple of days talking about where babies come from, more specifically, about Meiosis and the roles/phases it plays in sexual reproduction, today we are going to spend some reviewing the phases before taking out Meiosis Quiz.*
- b. **Stated objective(s):** *Today we are going to be reviewing the phases of Meiosis with the help of an internet activity. This internet activity will allow for each of you to visually see the step-by-step process of Meiosis. Once we finish the internet activity we will take the "Meiosis Quiz".*
- c. **Purpose:** *Understanding Meiosis and the many phases it plays in sexual reproduction allows for us to determine how and why different genetic traits occur in offspring. The purpose of this assignment is to give you a visual of Meiosis, as well as a detailed description of this step-by-step process.*
- d. **Input (presentation):**

### Subject Matter (outlined)

### Teaching Methods

<p><b>Directions:</b>  <i>Visit the below website to review the steps of Meiosis. Begin by reading the introduction to meiosis and proceed to the animation. Pay attention to all of the steps during the animation. This will explain all of the many steps to Meiosis I and Meiosis II. After the animation, read the conclusion, because next you must complete the quiz. Figure out what you know or what you may need to review!!!</i></p> <p><a href="http://www.sumanasinc.com/webcontent/anisamples/majorsbiology/meiosis.html">http://www.sumanasinc.com/webcontent/anisamples/majorsbiology/meiosis.html</a></p> <ol style="list-style-type: none"> <li>1. Describe what happens in each of the following: <ul style="list-style-type: none"> <li>• Interphase:</li> <li>• Prophase I:</li> <li>• Metaphase I:</li> <li>• Anaphase I:</li> <li>• Telophase I:</li> <li>• Prophase II:</li> <li>• Metaphase II:</li> <li>• Anaphase II:</li> <li>• Telophase II:</li> </ul> </li> <li>2. How does meiosis differ from mitosis?  <i>Meiosis is the type of cell division where one body cell produces four different gametes, each containing half the number of chromosomes as a parent's body cell. Mitosis is the type of cell division where one body cell produces two identical daughter cells each containing a full set of chromosomes.</i> </li> <li>3. What kind(s) of species go through meiosis?  <i>Meiosis will occur within any living organism that reproduces sexually.</i> </li> <li>4. During Meiosis, how many cells are produced and what are they called?  <i>In the last stage of Meiosis, four different haploid cells are produced, each containing one chromosome from each homologous pair.</i> </li> <li>5. Are meiotic cells genetically different or identical?  <i>Each meiotic cell is different.</i> </li> </ol>	<p><i>Pass out the "Meiosis Internet Activity Review Student Handout". Have students read over the directions before beginning work on the computer.</i></p> <p><i>Students need to include a description and picture for each phase.</i></p>
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- e. **Check for understanding (write it out fully):**
  - 1. *What questions do you have about the "Meiosis Internet Activity Review"?*
- g. **Guided practice (application ... bullets or paragraph):** *Students will work on the "Meiosis Activity Review" for the first half of the period. They will then take the "Meiosis Quiz".*
- h. **Quest activities (optional, if time permits):** *Begin Reading Chapter 11 on DNA and Genes.*
- i. **Closure (Select one or more. Review, summarize, evaluation, synthesis, prep for tomorrow.):** *Student will take the "Meiosis Quiz".*
- j. **Independent practice (homework):** *None.*
- k. **ELL / Special Needs:** *Allowing students to work in teams (paring up bilingual students with ELL), using visuals & handouts, repeating directions, demonstrating directions while saying them aloud, and including guided practice of the topic.*