**Mutations 8.7**

* **Mutation:**
  + Any \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the \_\_\_\_\_\_ sequence
  + Can change the \_\_\_\_\_\_\_\_\_\_\_ that will then create a different \_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
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| **2 Main Types of Mutation** | |
| **Gene Mutations** | **Chromosomal Mutations** |
| Changes occur in a single gene | The number of structure of chromosomes is changed |
| 2 types:  1.  2. | 4 types:  1.  2.  3.  4. |

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| **Gene Mutations** | | |
| **1.** | One nucleotide is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for another | Example:  Normal: A C T G T **T** A G C T A  Mutated: |
| **2.** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a nucleotide causes the whole sequence to \_\_\_\_\_\_\_\_ | Example: Insertion  Normal: TH**E** CAT ATE THE RAT  Mutated: |
| Example: Deletion  Normal: TH**E** CAT ATE THE RAT  Mutated: |

**What type of mutation are the following (substitution, insertion, or deletion)**

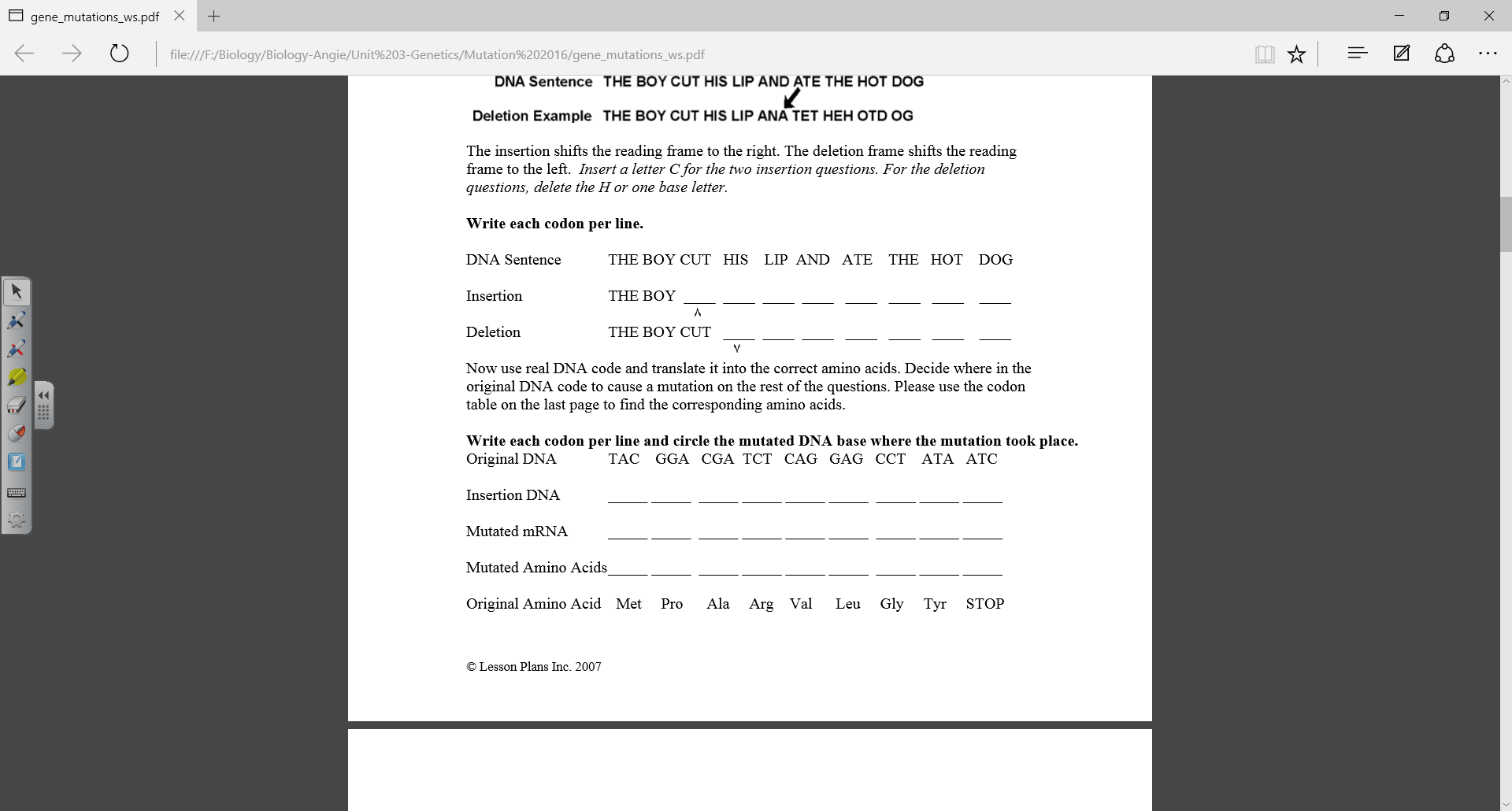
**A. B. C.**

A T C G G T A C T G C T A A C G T A T A G C C A G GG

A T C G C T A C T G C A T A A C G T A T A C C A G G G

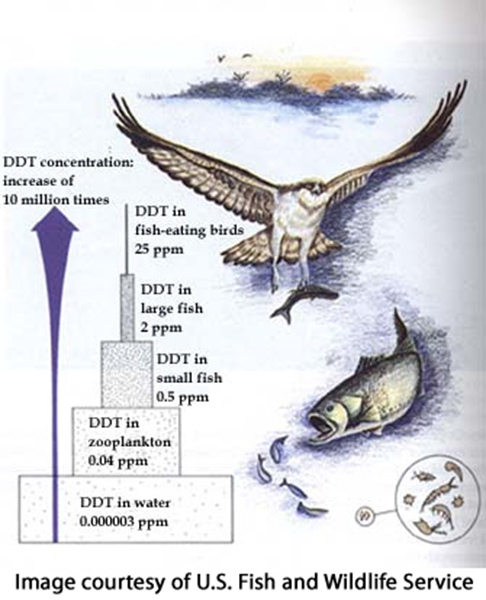
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Which of the mutations above would cause a frameshift mutation?**



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| **CHROMOSOMAL MUTATIONS** | | |
| **1.) Deletions** | Lose \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_ of a chromosome |  |
| 2.) **Duplications** | \_\_\_\_\_\_\_\_\_\_\_\_ parts of a chromosome are made |  |
| **3.) Inversions** | \_\_\_\_\_\_\_\_\_\_\_\_\_ of chromosome parts are \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
| **4.) Translocations** | Part of a chromosome \_\_\_\_\_\_\_\_\_\_\_\_\_\_ off and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to another |  |

**Mutagens:**

* Agents in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that can \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_
* Mutations may be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Ex: UV \_\_\_\_\_\_\_\_\_\_, pesticides & other \_\_\_\_\_\_\_\_\_\_\_\_\_
* Ecologist warn against the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_use of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and other potential mutagen and \_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_, a pesticide used caused a lot of harmful efforts on \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Example:
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wrote and book called “\_\_\_\_\_\_\_\_\_\_\_\_\_\_” warning the community about the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was having on the environment and human.

What organisms were most affected because of the pesticide DDT?