Name _____ Date _____

# Sexual Reproduction and Genetics

## Section 3 Gene Linkage and Polyploidy

**Main Idea** **Details**

**Scan** *the headings, boldfaced words, pictures, figures, and captions in Section 3.*

- ☐ Read all section titles.
- ☐ Read all boldfaced words.
- ☐ Look at all pictures and read the captions.
- ☐ Look at all figures.
- ☐ Read all captions.

*Predict three things that you think will be discussed.*

1. _____

2. _____

3. _____

**Review Vocabulary**

*Use your book or dictionary to define* protein.

*protein* _____

**New Vocabulary**

*Use your book or dictionary to define each term.*

*genetic recombination* _____

*polyploidy* _____

Name _____ Date _____

## Section 3 Gene Linkage and Polyploidy (continued)

**Main Idea** | **Details**

### Genetic Recombination

*I found this information on page _____.*

**Calculate** *the number of chromosome combinations due to independent assortment by filling in the chart. Use the formula $2^n$. The first one has been done for you.*

| Species | Chromosome Number (*n*) | Possible Combinations |
|---|---|---|
| Pea | 7 | $2^7 = 128$ |
| Housefly | 6 | |
| Cabbage | 9 | |
| Fruit fly | 4 | |
| Frog | 13 | |

### Gene Linkage and Chromosome Maps

*I found this information on page _____.*

**Summarize** *at least five pieces of information about genetic recombination by creating a concept map below.*

**Name** _____ **Date** _____

## Section 3 Gene Linkage and Polyploidy (continued)

**Main Idea** _____ **Details** _____

*I found this information on page _____.*

**Complete** ***the paragraph about gene linkage.***

- chromosomes
- crossing over
- farther
- individual genes
- inherited
- linked
- sequence

Genes close together on the same chromosome are _____. Linked genes are usually _____ together. _____, not _____, follow Mendel's law of independent assortment. Linked genes might become separated, as a result of _____. Crossing over is more likely to happen if genes are _____ apart on a chromosome.

**Analyze** ***whether the gene linkage is an exception to, or an example of, Mendel's law of independent assortment. Use an example from your book.***

_____

_____

_____

### Polyploidy

*I found this information on page _____.*

**Identify** ***four species that show polyploidy.***

**1.** _____ **3.** _____

**2.** _____ **4.** _____

### SUMMARIZE

**Compare and contrast gene linkage to polyploidy and how they do not follow all of Mendel's laws of inheritance.**

| Gene Linkage | Polyploidy |
|---|---|
| | |