Apple Molecular Biology
Gene Expression. From DNA to RNA.

Directions
1. Go to the Apple Genomics website at www.four-h.purdue.edu/apple_genomics
2. Click on the link Apple Molecular Biology.
3. Click on the link Cloning.
4. After reading the introduction click on the second animation to learn more about cloning.
5. Then complete the review questions on this worksheet using what you learned from the reading and animation.

Cloning and Replication
To 'clone' plants, plant scientists, or horticulturalists, use a method called vegetative propagation. In the wild, plants can produce new plants without the use of sexual reproduction by vegetative propagation. In the greenhouse or other similar laboratories, horticulturalists propagate by natural means using epiphyllous buds, corms, scaly bulbs, tubers, stolons, root sprouts, or tip layering. Each method is successful in propagating plants. One must also be aware before using the methods that not all plants will effectively be propagated by every propagation technique.

Animation three in the series explains the use of RNA polymerase to "read" the genes and then transcribes this information.

Key Terms:
Define the following key terms that were discussed in the reading and or the animation.

1. RNA Polymerase
2. RNA
3. Eukaryotes
4. Messenger RNA
5. Vegetative Propagation
6. Exons
7. Introns
What Did You Learn?
Answer the following questions using complete sentences.

8. Does all of the DNA in a chromosome encode genes?

9. Describe how introns are removed from a stretch of RNA?

10. Describe how horticulturists use vegetative propagation. List some of the techniques they may employ.