Appendix B: Answer Sheet

Howard Hughes Medical Institute
Planaria Video Questions: Teacher Version

View video: http://www.hhmi.org/biointeractive/planarian-regeneration-and-stem-cells

1. What are Planaria related to? Where and how do they live?
   Answer: (1:53) Flatworm and tapeworm. They are free living live in wet environment, feeding on decaying remains of animals and plants.

2. What evolutionary aspect is noteworthy about Planaria?
   Answer: (2:30) They're the simplest life form with a central nervous system.

3. What function does a Planaria's pharynx serve?
   Answer: It is used to obtain food and excrete waste.

4. What are Planaria's eyespots for?
   Answer: (4:02) Detecting light.

5. Why are Planaria's cells different from other organisms?
   Answer: Almost all Planarian cells are capable of regenerating an entire Planaria (they are totipotent).

6. What is the minimum amount of a Planaria needed to regenerate an entire new planaria? How long does regeneration take?
   Answer: (5:28) You can regenerate a whole planaria from 1/279th of the original animal, in about a week.

7. What is the function of Neoblast cells?
   Answer: (7:32) They migrate to damaged areas of the planaria and allow them to regenerate.

8. How many genes are involved in a Planaria's regeneration? What does the protein *smedwi* do?
   Answer: (7:43) 240 genes. They are responsible for the maintenance of stem cells. Also determines the function and differentiation of the new cells created by stem cells, for repairing damaged areas.