

Answer Guide Under the Microscope

1. Vertebrates

Some of the cells which become gills in fish also become jaws in reptiles, and form the inner ear in humans.

2. Regulating body temperature through sweating, controlling blood pressure through the kidneys increasing or decreasing the concentrations of salt and water in the blood.

3. **1. Prophase, 2. Metaphase, 3. Anaphase, 4. Telophase, 5. Cytokinesis**

4. a. Sugar-Phosphate
b. Sugar
c. Phosphate
d. Guanine
e. Cytosine
f. Adenine
g. Thymine
h. Hydrogen Bond

5. **A codon is a series of three bases on the DNA which codes for a specific amino acid.** These amino acids are then combined and folded into proteins which are essential for the functions of cells or life.

Grades 9-12

6. Substitutions, insertion, and deletion

After genes mutate, a permanent change is made to the DNA molecule, this can affect the base which make up a codon, causing a change in the protein by those codons and creating a different protein than was intended by the original DNA.

7. Eliminating hereditary disease, scientific research, making crops more resistant to climate change, and more.

Benefits: could create healthier animals, plants, or humans

Risks: could be used to create designer babies