

Name:

Date:

Class:

Polymers, Plastics and Bioplastics Quiz **Answer Key**

Instructions: Use your notes to answer the questions. Answer using complete sentences.

1. What is a polymer? Can you give examples of natural and synthetic polymers?
A polymer is a long molecule made of smaller monomers. Natural polymers: hair, wool, DNA, protein, cotton, cellulose. Synthetic polymers: plastic, vinyl, nylon, polyester, Styrofoam.
2. How are plastics made from polymers?
Plastic is made when molecules are broken down in a lab and put back together in new ways.
3. What is the difference between a plastic and a bioplastic?
A plastic is a material that has been made from petroleum and is very difficult to break down. Bioplastic has been made from natural resources and will break down more easily.
4. What roles do the following substances play in making a bioplastic?
 - a. Cornstarch - helps the bioplastic become flexible but firm.
 - b. Gelatin - forms a gel that cools into a solid, making the plastic stretchy and flexible. Also binds everything together.
 - c. Glycerin - makes the plastic soft, bendy, and flexible.
 - d. Vinegar - breaks some of the bonds in the cornstarch so the polymer chains can rearrange, making a smoother, more flexible plastic.
5. Why are engineers trying to find ways to break down plastics?
Answers will vary by student but should include something about engineers trying to help find uses for our plastic waste in hope of reducing the amount of plastic in landfills and bodies of water.
6. If you were an engineer, what would you design to help with the plastic pollution issue?
Answers will vary.
7. What is one thing you learned in this unit that surprised you or changed the way you think about plastics?
Answers will vary.