



Plastic Technologies

In the table below, record the plastic technologies you are examining. For each technology, record the problem it solves and the beneficial properties that allow it to solve that problem. Also record its harmful properties.

Plastic Technology	Problem Solved	Beneficial Properties	Harmful Properties
Example: Spoon	Example: Hold non-solid food	Example: Hard, curved	Example: Breaks easily



Bioplastic Process

Follow these instructions to try out a process for making bioplastic.

1. You will try one of the following recipes. Circle the recipe you are trying.
 - a. 2 Tablespoons cornstarch, 4 Tablespoons water, 1 teaspoon glycerin
 - b. 2 Tablespoons cornstarch, 2 Tablespoons water, 1 teaspoon glycerin
 - c. 2 Tablespoons cornstarch, 2 Tablespoons water
 - d. 1 Tablespoon agar, 6 Tablespoons water, 1 teaspoon glycerin
 - e. 1 Tablespoon agar, 4 Tablespoons water, 1 teaspoon glycerin
 - f. 1 Tablespoon agar, 6 Tablespoons water
2. Add each of the ingredients from the recipe to a paper bowl and stir the mixture until all the ingredients are dissolved.
3. Pour the mixture onto the ceramic plate.
4. Put a paper towel down in the microwave and carefully place the plate on top of it. Turn on the microwave for 30 seconds. Carefully monitor it to make sure it does not burn.
5. Let the bioplastic air-dry for 15 minutes.
6. Gently turn over the bioplastic.
7. Microwave the bioplastic sample again for 10 seconds. Label the plate with your group's name and the ingredients on a piece of masking tape.
8. Let the bioplastic air-dry for at least one day.



Process Results

Write or draw your observations of the bioplastic sample after it has dried.

After observing your sample and other samples, record the effects of using different materials in a bioplastic process.

Material	Effects of Using More or Less of the Material in a Bioplastic Process
agar	
cornstarch	
glycerin	
water	

Bioplastic Plan

Choose one technology that you will make out of bioplastic. Record it here.



Record criteria and constraints for your bioplastic technology.

Criteria the things a successful design needs to do or have	Constraints limits on a design

Plan a process to create your bioplastic technology. Record the materials in the following table.

Material	Amount

Use words or pictures to explain how you will shape your bioplastic technology.

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Bioplastic Test

Record the problem your bioplastic technology solves here.



Think of ways to test your bioplastic technology. Use words or pictures to record them here.

Activity

Record the results of your test here.



Improve and Communicate

Explain how you want to change the properties of your bioplastic technology.

Explain how you could change your bioplastic process to change these properties.

Record the audience you want to inform about bioplastics.



Record the medium you will use to reach this audience.



Write or draw what your message will be.