

# Biomass Bag

## Background

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Biomass energy is energy that comes from living things. Wood, garbage, animal waste, landfill gas, and crops all count as biomass. None of these items can give off their energy until they are burned, fermented, or decayed. In this Lab, we'll make some biomass gas in a bag!

## Time

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15 minutes, plus a few minutes each day for 1-2 weeks

## Materials

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- Resealable plastic bag
- Yard waste (leaves, grass clippings, etc.)
- Leftover food scraps (lettuce, pizza crust, etc.)
- Packet of powdered yeast
- Water
- Camera or camera phone
- Notebook and pencil

## Hypothesis

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Describe what you think will happen to your biomass over time.

## Procedure

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1. Open the plastic bag. Grab some yard waste items that find outdoors, or pick some leaves, flowers, and grass and put them in your bag. Crunch them up or smush them up into small pieces. It is okay if your materials start to get goeey or ooze.
2. Take the bag inside and add some food scraps. It's best to avoid meat, but veggies, fruit, or even some old pizza crust will do! Make sure your bag has empty space, too.
3. Add a teaspoon of yeast to the collection in the bag.
4. Add a tablespoon of warm water so that the mixture is moist.
5. Force as much air as possible out of the bag before sealing it. Take a picture of the bag and note anything you see on day 1.
6. Place the bag in a warm place, like a windowsill, and allow it to stay there for a week or more. Snap a picture each day and compare what you see happening to the contents of the bag and the space in the bag. Dispose of licorice either in your gullet or in the garbage.

## Conclusion

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1. What did you notice in the bag over time?
2. What would happen if the bag was placed in a cool space?
3. Could this process happen without the yeast?
4. How is your biomass bag similar to a landfill or biogas digester that creates renewable natural gas? How is it different?