

# **ROTTING PUMPKIN INVESTIGATIONS**



Have you ever carved a pumpkin, and kept it around to watch its face “age” from a joyful jack-o-lantern to an elderly creature as it decomposes? While its fun to observe this shift, it’s also a great learning opportunity! This year, save your jack-o-lanterns after Halloween, and investigate the science behind rotting organic matter!

## MATERIALS

- Fresh jack-o-lantern
- Magnifying glass
- Tray
- Pencil
- Notebook/Paper

## STEPS

- 1) Carve your pumpkin
- 2) Put your jack-o-lantern on display, and observe it every day.
- 3) Record your observations in your journal/paper.
- 4) When mold begins to form, carefully remove some and place it in your tray to examine it more closely.
- 5) Draw a picture of your jack-o-lantern's face each day to document its "aging."
- 6) Dissect your pumpkin as it ages and journal what you see!

## INVESTIGATION PROMPTS

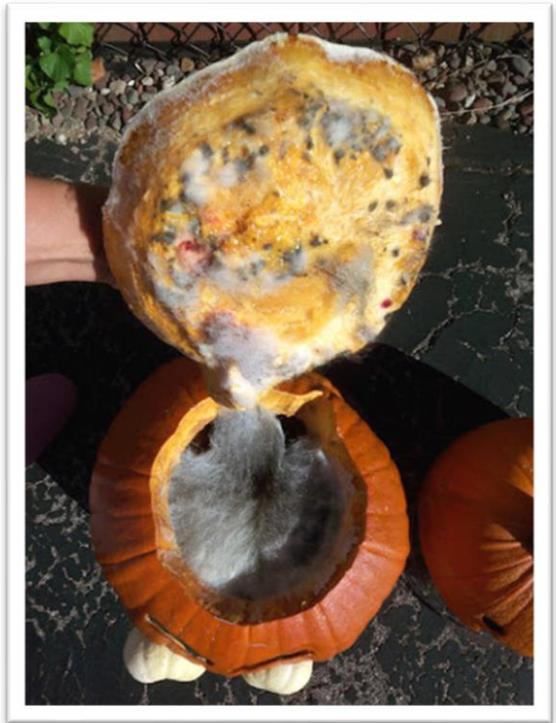
Observe your jack-o-lantern each day- Touch it, smell it, examine it closely with your magnifying glass. What do you notice? Does the smell change over the course of the week? What is happening to its skin? To the inside? Are there any changes in color, in texture? Is anything growing inside? Do you see any fuzz? What do you think it is? Why do you think it's there? As your pumpkin's body begins to collapse, do you see any liquid secretions? What do you think is the connection there? Did your pumpkin "age" before you carved it, or only after? Why do you think carving it aged it?



# THE SCIENCE BEHIND IT

Thanks to a pumpkin's thick skin, which protects the gourd's very soft inside from harmful elements outside such as fungi, mold, bacteria, animals, insects, and extreme weather, an uncut pumpkin can last for three to six months if stored somewhere dry and safe. But the moment we cut our pumpkins to create jack-o-lanterns, they begin to rot! When we cut a pumpkin, we expose it not only to all of these things, but most critically, to air. When the squishy pumpkin insides are exposed to air, "oxidation" begins.

All living things eventually decompose. Decomposition is all about rotting and decay. When it decomposes, the pumpkin's cells begin to break down, attracting microscopic fungi that travels through the air and lands on the pumpkin's surface to feast in on its nutrients. When this happens, mold and bacteria begin to form on its flesh. The carved areas of the pumpkin become swiftly vulnerable to mold because they are so moist, and mold loves most surfaces. Mold spores are super tiny, but when enough of them grow in the same spot, they are visible and appear black, grey, blue, or even green, and fuzzy! Mold produces a chemical that makes fruit break down and start to rot. As the jack-o-lantern gets "eaten" by the mold, it begins to "age," losing its moisture, nutrients, and structure.



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