

CLASSROOM INVESTIGATIONS

The decomposition of a pumpkin presents many opportunities for students to **ask questions, make predictions (or formulate hypotheses), make observations** and **draw conclusions**. They can also engage in the final step of the scientific method, which is to **publish** (or write about) the results of their experiments.

Scientists find ways to quantify their observations, meaning they make measurements and collect data. Instead of saying, "Pumpkin A looks more rotten than Pumpkin B," they record the approximate percentage of each pumpkin's surface area covered with decomposers, the number of different decomposers, or the time it has taken to completely decompose. Students can decide for themselves how they will record their observations.

Here are three questions students might ask in order to generate an experiment.

Does temperature affect decomposition?

Two similar pumpkins can be placed in environments at different temperatures. What happens?

Does carving a pumpkin change what grows on it or how fast it decomposes?

One pumpkin can be carved and a similar one left whole. The progress of decomposition for each can be recorded. A time interval for observations (daily, every other day, weekly, monthly, etc.) should be decided upon in advance. Students can compare how much and how quickly decomposition occurs on the pumpkins. Alternatively, they can observe the diversity of decomposers in the two situations. If there is a difference, they can speculate on the reasons.

Does the decomposition process change when animals are involved?

Think of a way to exclude creatures over a certain size from visiting one pumpkin, while leaving another pumpkin open to all visitors. But also think about whether the means of excluding animals is changes the pumpkin's environment in other ways. For example, if a pumpkin is put in a tight metal box, small animals would be excluded but other factors would also be different. The pumpkin would be in the dark. The humidity inside the box might be higher than outside the box. In scientific experiments, it is best to change only one factor, or variable, at a time.