

Pre-Lab, Skills, and Standards Alignments

POLLEN TELLS A STORY

Discovered in the Italian Alps in 1991, the 5,300-year-old mummy nicknamed Ötzi the Iceman has become an important source of information about the Neolithic. Still, there are many unanswered questions about his life and death. Discover how pollen in Ötzi’s digestive system was used as a forensic tool to track where he may have been in the final 36 hours before his untimely demise.

Lab Length: 1 hour

Suggested Pre-Lab Teaching

- Animal and plant cell anatomy
- Flowering plant (angiosperm) reproduction.
- Structure and function relationship

Lab Skills

- Use a compound microscope to magnify and view pollen samples.
- Identify pollen types found throughout Ötzi’s digestive system.

Conceptual Knowledge/Skills

- Describe the role of pollen in plant reproduction.
- Use lab pollen data to support an explanation of Ötzi’s movement in the days before he died.
- Explain how pollen can be used to track changes in an individual’s geographic location.

New York State Science Learning Standards/NGSS

Science and Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts
<p><u>Constructing Explanations and Designing Solutions</u> Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students’ own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.</p> <p><u>Analyzing and Interpreting Data</u> Analyze and interpret data to provide evidence for phenomena.</p>	<p><u>S1.B: Growth and Development of Organisms</u> Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. (MS-LS1-4)</p> <p><u>LS4.A: Evidence of Common Ancestry and Diversity</u> The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth. (MS-LS4-1)</p>	<p><u>Interdependence of Science, Engineering, and Technology</u> Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.</p> <p><u>Patterns</u> Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.</p>