



Putting Together the Pieces

Fitting just-broken pieces together is hard enough, but imagine how difficult it is to do after thousands of years—and a few civilizations—have passed. Archaeologists faced with hundreds of thousands of pieces at a site have turned to mathematicians to help reassemble the fragments. The pieces are first digitally scanned; then software uses geometry, combinatorics, and statistics to reconstruct ancient artifacts, even when many pieces are missing.

Mathematics is also used in other new approaches to archaeology and paleontology: in the precise mapping of buried shipwrecks and the recreation of the movement of dinosaurs. In these cases and others, progress, perhaps paradoxically, actually brings us closer to understanding the past. Whether it's refining a basic technique like triangulation or applying an involved subject such as partial differential equations, mathematics researchers are breaking new ground to uncover antiquity's secrets.

For More Information: “Automatic Archaeology,” Haim Watzman, *Nature*, January 8, 2004.



The *Mathematical Moments* program promotes appreciation and understanding of the role mathematics plays in science, nature, technology, and human culture.

www.ams.org/mathmoments