GEOMETRICIAN'S VIEWS

TOPIC: ARCHITECTURE
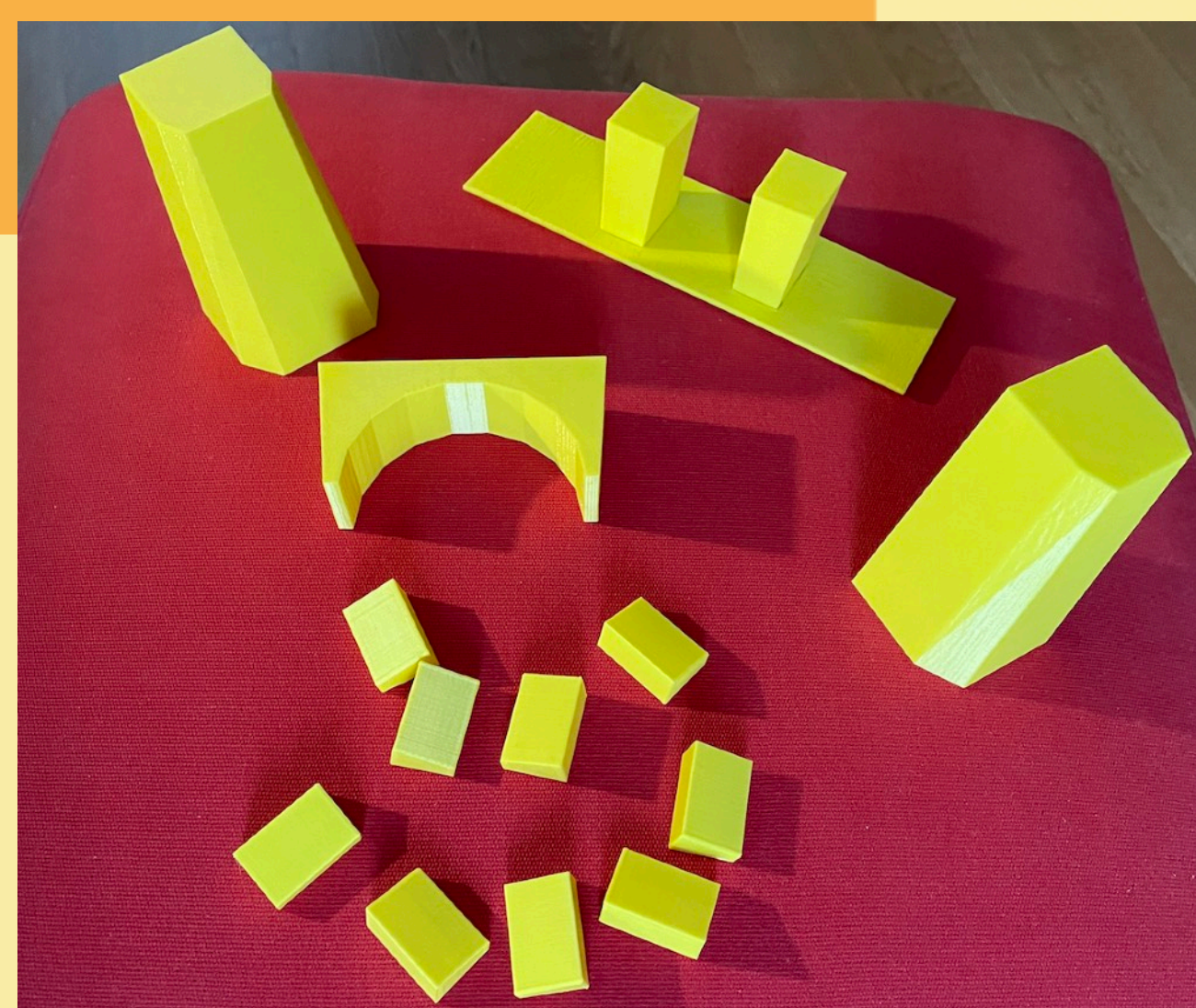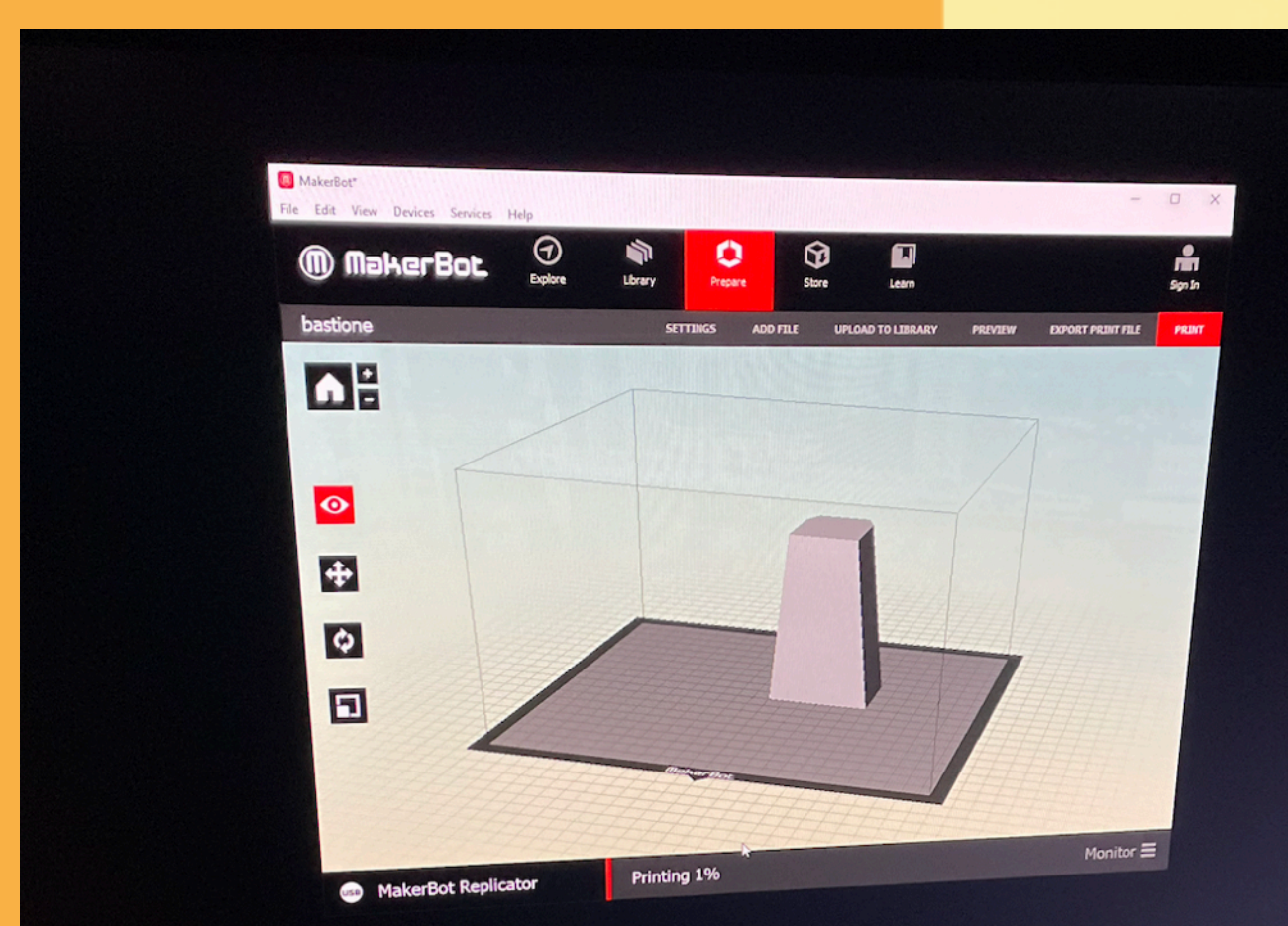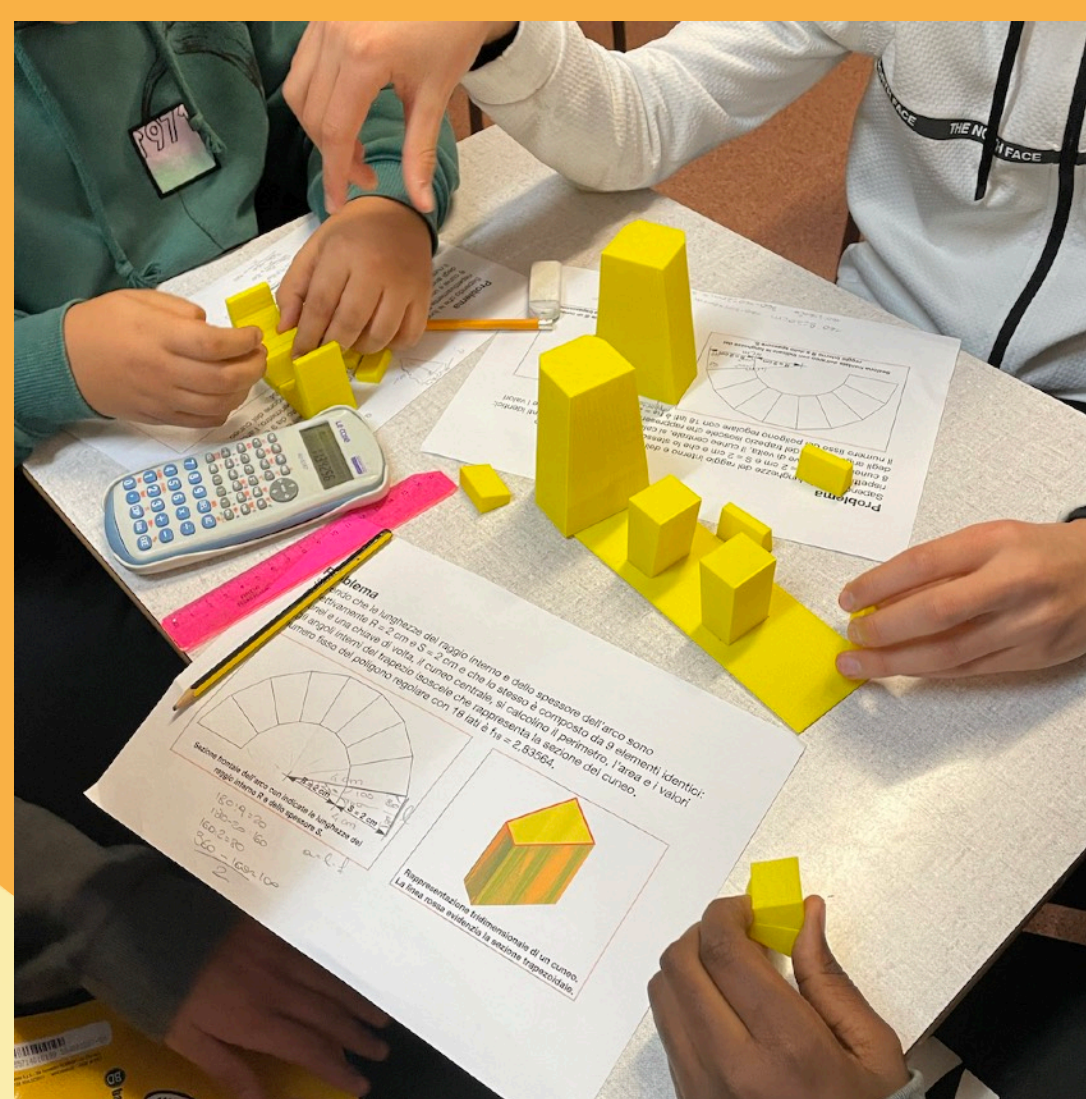
MATHEMATICAL VIEW

Geometrical analysis of "Arco Etrusco", one of the seven gates of the Etruscan walls of Perugia, built in the second half of the 3rd century BCE.
Students can learn 1) how to code and build a CAD model, and 2) to analyze geometrical shapes present in the architecture.

Researcher
Simone Pacetti

ARTISTIC VIEW

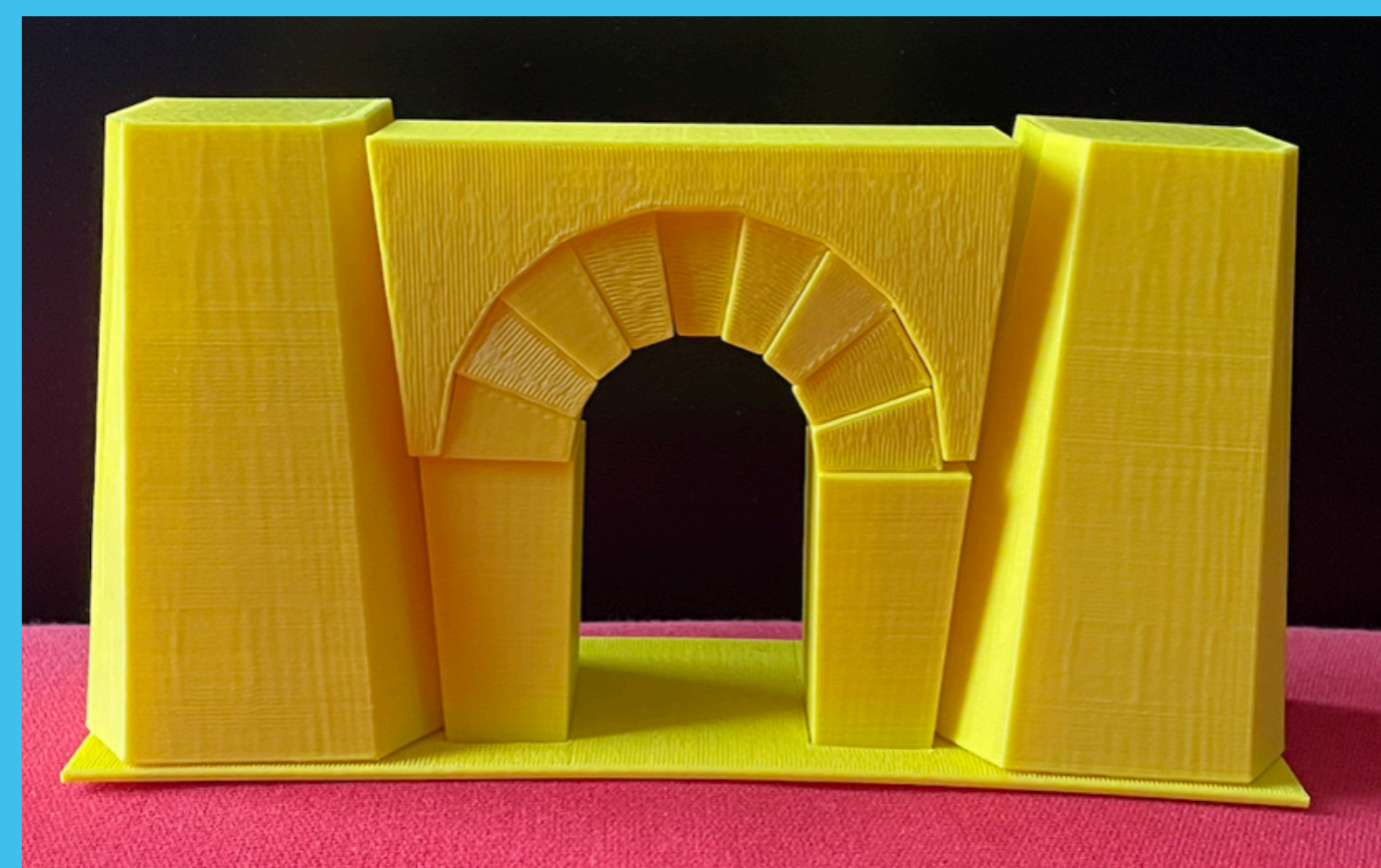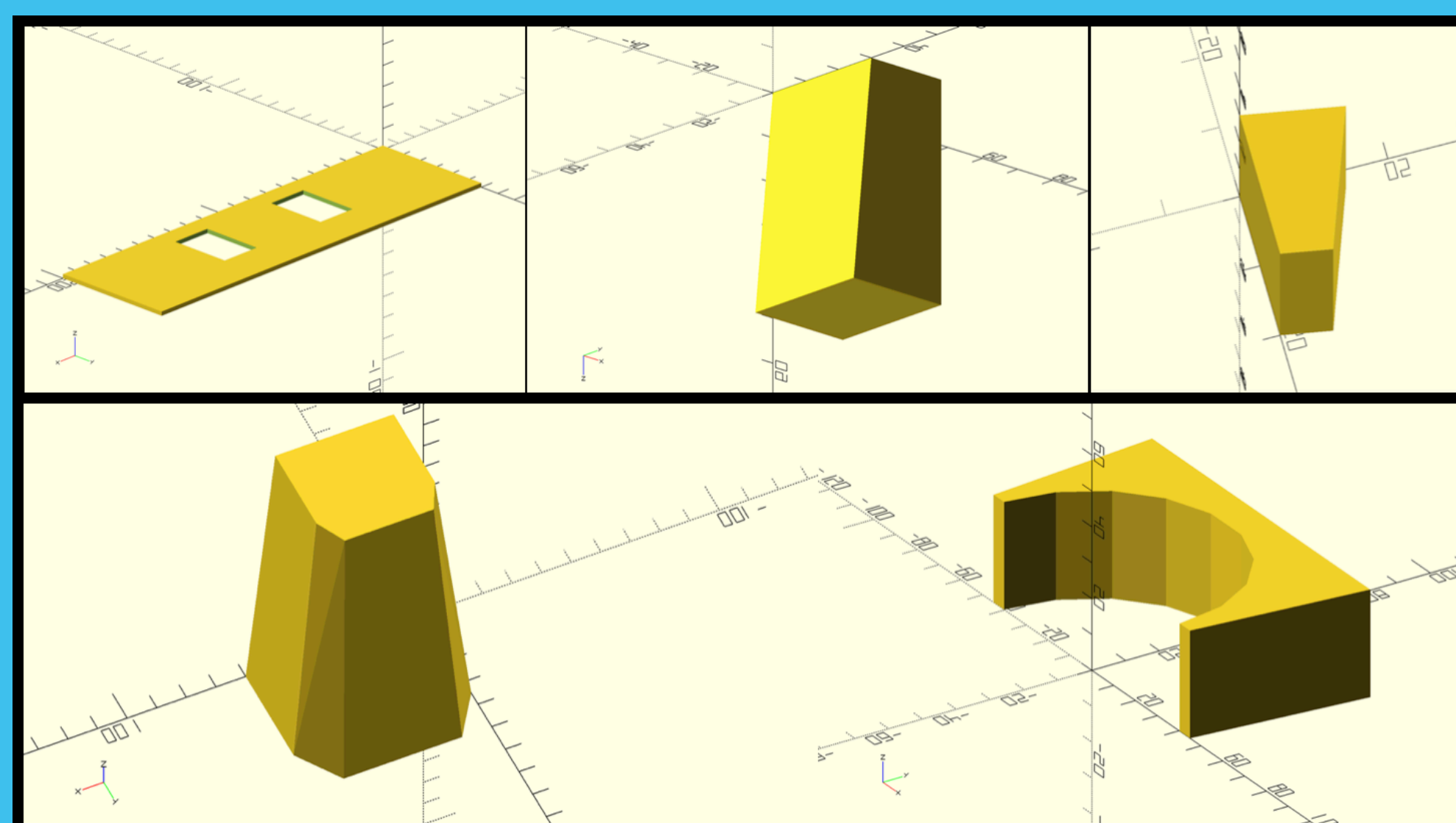The arch: why so important in architecture?
A mathematical and physical approach.
Students can figure out why the arch as "a pure compression form" and to apply their conclusions to the situation of "Arco Etrusco" using the 3D model.

Researcher
Simone Pacetti

COMMON VIEW

Architecture was in ancient times considered a part of mathematics. Undoubtedly, many fascinating stories have been written about the "Golden Number" and the Parthenon. Likely, architects did not consciously plan the project of the Parthenon thinking about the golden number, rather the relationship arose from some building techniques used. However, Vitruvius considered proportions as fundamental to achieving beauty and harmony. The whole story of architecture is connected with geometry. In each historical town, it is easy to find a monument to use as an example of this tight relationship.

"Geometry is of much assistance in architecture, and in particular it teaches us the use of the rule and compasses, by which especially we acquire readiness in making plans for buildings in their grounds, and rightly apply the square, the level, and the plummet. By means of optics the light in buildings can be drawn from fixed quarters of the sky. Difficult questions involving symmetry are solved by means of geometrical theories and methods."

Marco Vitruvio Pollione

Istituto Comprensivo Perugia 14

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