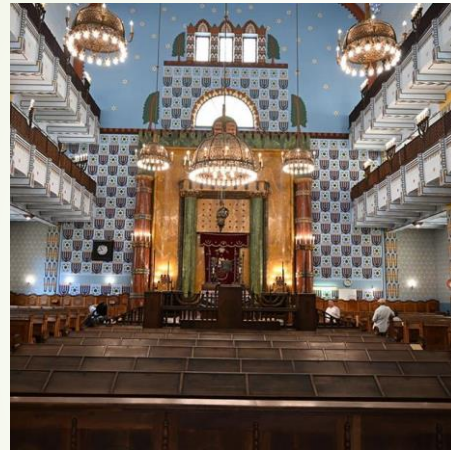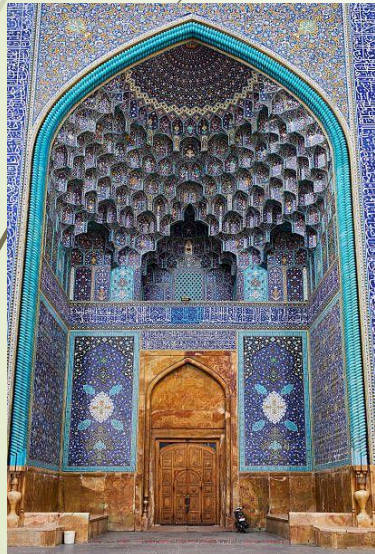# STEAM EDUCATION BASED ON THE STUDENTS CULTURAL BACKGROUND: OCTAGONAL MONUMENTS AND DIGITAL TOOLS

Thierry (Noah) Dana-Picard and Sara Hershkovitz

Geometric features of monuments: tesselations and symmetries
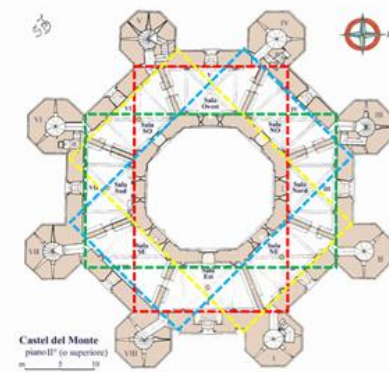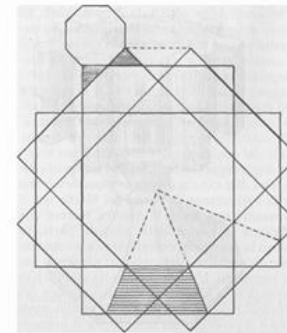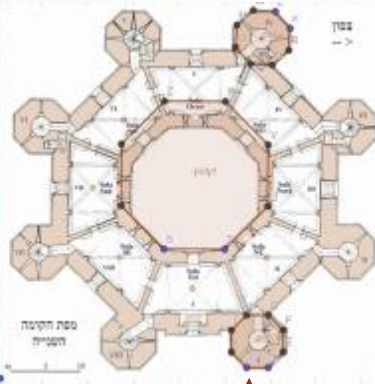
Isfahan Mosque, Iran

Kadoorie Synagogue, Porto, Portugal

Kazinczky Utca Synagogue Budapest, Hungary

Octagonal monuments: fortifications

Castelo del Monte, Italy

Augmented reality

Reconstitution using DGS

Geometrical analysis and DGS assisted synthesis performed by students

Octagonal monuments: fortifications

Neuf-Brisach, France

Augmented reality

Octagonal monuments: Rumbach Synagogue, Budapest
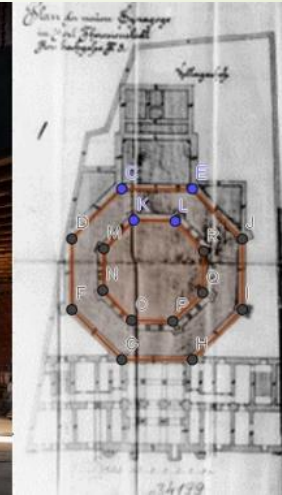
Octagonal towers

Reconstitution
Verification of proportions

Octagonal decorative elements
Tesselations and symmetries

and golden ratio, etc.

Usage of technology – augmented reality Dohany Ut. Synagogue, Budapest

Regular polygons, Symmetries, Tesselations, Number theory (Fibonacci sequence)

A student explains to his classmates the design of the rosette using DGS and analytic geometry

Conclusions

- The usage of elements from the cultural background of the students reinforces their interest for the mathematics

- Development of technological skills, as integral part of the new mathematical knoweldge

- Application (both by ahnd and with DGS) of fundamental notions in mathematics

- Other topics and objects can be included: cristals, paintings, etc.

- Multidisciplinarity is the name of the game in 21st century : STEAM!!!!

Thank you   Köszönöm   Hvala vam
Merci   Хвала вам   ขอบคุณ
Gracias   Mulțumesc   Þakka þér fyrir
Grazas   Dziękuję Ci   teşekkür ederim
Gràcies   Děkuju   **cảm ơn bạn**
Obregado   Ďakujem   धन्यवाद
Grazie   Ευχαριστώ   תודה רבה
Vielen Dank   شكرا جزيلا

NEXT YEAR at JCT IN JERUSALEM FOR CADGME 2020-21