

## Tile Puzzles

Shared by: Megan Flynn, MIT class of 2021

Specialized tools/technology used:	Experience level required:
Laser cutter	Beginner
2D modeling software such as " <a href="#">Gravit Designer</a> "	Intermediate

**Grade Level** (of this example): 6-12

**Content Standards** (of this example): Math: Geometry, congruence - easy to combine with other subjects. See the example and *Possible Content Explorations* below.

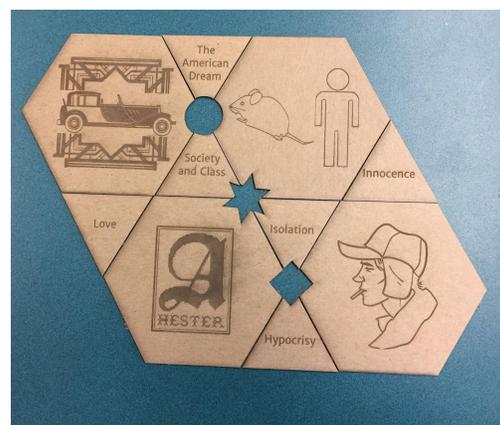
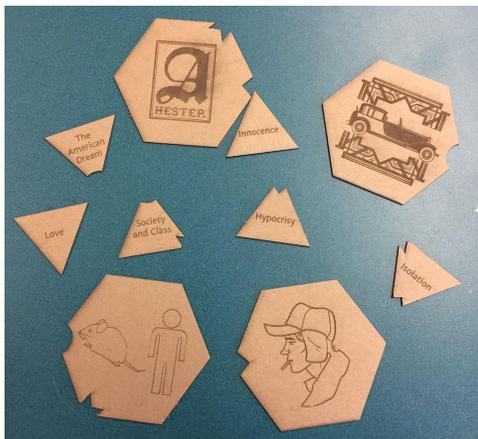
### Summary of Project:

Students work individually to craft a tile puzzle making connections between topics that they have studied. Puzzle pieces contain symbols and words representing both the content and the connections between them. To solve the puzzle, they need to match the overarching themes and symbols. Students can share their work by playing with each other's puzzles, using as study or discussion guides, or display their projects.

### Work Sample:

*ELA Standard, grades 6-12: Determine a theme or central idea of a text.*

In this example, there is a large tile for every book and a small tile for every theme. When the puzzle is solved, every theme connects two or three books that explore the theme. Graphics can be produced with the aid of found graphics (as in this example) or originally by hand. Note the cutout "hints" where the pieces intersect in the solved puzzle.





## **Possible Content Explorations:**

The math element is a great opportunity to pair Geometry with other topics. If students will be making a tessellating pattern as seen in the example, Puzzles can connect a variety of topics with this basic structure - here are some connections your students might explore using this puzzle format:

### **Social Studies**

- Revolutions and their causes
- Religions and their beliefs and rites
- Human societies and their technologies
- Ancient civilizations and their downfall
- Geographic features and natural resources
- Modern social problems and causes/solutions

### **STEM: Science and Society**

- Forms of environmental injustice and the people affected by it
- New technology and

### **STEM: Biology**

- Organisms and...
  - Their trophic level
  - Their ecological niche
  - How they reproduce

### **STEM: Physical Science/Engineering**

- Materials and their properties - tiles could even be enhanced by attaching small samples of the material in question

## **Project Variations:**

- Have students design a puzzle with multiple solutions - players must justify their arrangements.
- Tiles can feature graphics on both sides for even more open-ended play