

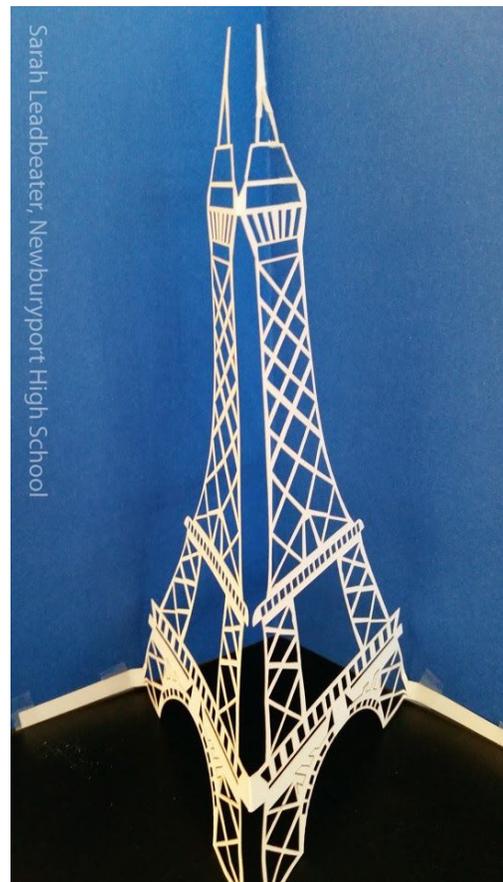
Pop-Up Cards

Shared by: Sarah Leadbeater, Newburyport High School

Technology used	Experience level suggested
Laser cutter	intermediate-advanced
2D graphics modeling software	intermediate-advanced
craft tools	intermediate

Grade Level (of this example): 3-12

Summary of Project: Students will work individually or in groups to design a pop-up greeting card which creates layers and dimension using different colors of paper. They will use 2D modeling software and cut their component pieces on a laser cutter. Depending on prior maker experience, students may be given time to research card construction independently or presented with physical examples to start. Each student or group will present their work to the class, describing their design and decision making process verbally or through accompanying imagery and text. Cards may be evaluated on their aesthetics, functioning, durability, and relevant content standards. See below for more content-specific evaluation and presentation ideas.





Possible content explorations:

- **ELA** - Students role-play literary characters - hold a “Secret Santa” drawing and create cards that each character might send to their partner character. Pre-fab prep might include research on the character/author, group note-taking, aesthetic trends during the time of the story, etc. An example presentation might include students, in character, writing/acting out a response to the cards they received. Students evaluate both cards and responses in a debrief or written form based on believability, entertainment value, etc. (If the author is living and may be contacted, maybe the cards can be sent directly to them.)
- **Social Studies, STEM** - as above, but for historically/currently significant figures.
- **Social Studies, STEM** - Recreations of culturally/historically significant events, scenes, or landmarks (e.g. the Eiffel tower, above). The presentation may include peer-to-peer in-class address
- **Social Studies** - pop-up incorporates design elements particular to a region or time period (cave paintings, geometrical Islamic art, patterns common in local Native American beadwork)
- **ELA, Social Studies** - collaborate with community organizations to offer pop-ups as informational pamphlets to spread news, promote volunteer signups, event turnout, etc. Projects may be evaluated based on final organization selection, signup/turnout number, pre/post surveys on issue awareness, etc.
- **STEM** - product with specific design constraints (price, time of manufacture, mass appeal, niche market, etc.). Presentation may include in-school sales of cards as Candygram accompaniment during seasonal events, sales for school fundraiser via online sales, etc. Product may be evaluated according to ultimate or relative profit made, quantity sold, social media stats, # of local vendors that agree to distribute, etc.

Ideas for advanced makers:

- pop-up component reveals different information as it moves from partly open to fully open
- kinetic elements drive automata that move continuously as the card opens and closes
- cards interlock to form machines or automata
- cards are wired to light up, turn on a speaker, or turn on other machines when the card is open

Suggested Resources:

[The Elements of Pop-Up by David Carter and James Diaz](#)