Paper Lanterns examples
Paper Lanterns - basic parts

- Decorative cut line for top of lantern
- Image to cut (Could also be a sticker)
- Tea Light
- Scores do NOT start at edge of paper (pulls paper off mat)
- Cuts for fastening tabs
- Cut lines
- Score lines for folds
- Cuts for fastening tabs
# Materials and Tools

(find this list at k12maker.mit.edu/paper-lanterns)

<table>
<thead>
<tr>
<th>Materials</th>
<th>Tools</th>
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<tbody>
<tr>
<td>● Paper</td>
<td>● Cricut, Silhouette, or other craft cutter</td>
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<tr>
<td>● Tea lights, battery powered, flickering or constant, such as: <a href="http://www.amazon.com/Battery-Operated-Flameless-Tea-Lights/dp/B08LZC93F5/">www.amazon.com/Battery-Operated-Flameless-Tea-Lights/dp/B08LZC93F5/</a></td>
<td>● Scoring tool for vinyl cutter such as: <a href="http://www.amazon.com/Cricut-2002370-Tools-Scoring-Stylus/dp/B00100RB2W/">www.amazon.com/Cricut-2002370-Tools-Scoring-Stylus/dp/B00100RB2W/</a></td>
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<tr>
<td>● Tape or glue</td>
<td>● Weeding tools, could be pins or paper clips</td>
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<tr>
<td>● Adhesive vinyl (optional)</td>
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<tr>
<td>● Tissue/thin paper (optional)</td>
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2D Design Tools - options:
- picsvg.com
- Gravit.io
- Vectr.com
- Google Drawings

Templates for Cricut cutter
- Luminary template with scored fold lines
- Luminary template with small cuts on fold lines
Design, and build your Paper Lanterns

1. Come up with ideas and themes that are worth lighting up!
   a. Shapes, icons, silhouettes, emojis, text, logos…

2. Choose an image and process it to be cuttable (basic - more later)
   a. Download and process from online or draw your own!

3. Create the cut and score lines (use template or recreate)

4. Upload your graphics, prepare for cutting, cut on vinyl/craft cutter

5. Fold, assemble, and add light!

6. Image processing techniques for cuts, basic / intermediate
Brainstorm and design your Paper Lantern
1. Come up with ideas and themes worth lighting up!

Shapes, icons, silhouettes, emojis, text, logos…

Marija & Nick
9-10-20
2. Choose an image and process it to be cuttable (basic here - more later)

Find silhouettes online - download and crop as needed
2. Choose an image and process it to be cuttable (basic here - more later)

Choose wisely - one of these is easier to cut then the other!
2. Choose an image and process it to be cuttable
(basic here - more later)
Color images are okay
3. Create the cut and score lines (use template or recreate)

How it will look on paper. Turn off visibility of the Square cut before Making

Dashes are score lines that make folding easy. Scores should start ~0.5 in from edge to prevent paper from wrinkling

Luminary template with scored fold lines
3. Create the cut and score lines (use template or recreate)

If you do not have a scoring tool, use small cuts to mark the fold lines. Use them as guides and carefully create the folds.

You can use small cuts to mark the fold lines if you do not have a scoring tool.

Luminary template with small cuts on fold lines
4. Upload graphics, prepare for cutting, cut on vinyl cutter

Bring in your graphics and Attach them to all the Cut and Score lines.
4. ... prepare for cutting, cut on vinyl cutter

Align the top corner of the paper to (½”, ½”), bottom edge is on 9” line.

Do the same in the Make screen.
The design is ready - it's time to build!
5. Fold, assemble, and add light!

Tip: Make a screen behind the graphic. This will help it stay together and add more effects to the light

Try tissue/thin paper, cellophane, bubble wrap, or just a plastic sheet.
6. Image processing techniques for cuts - basic / intermediate

For images that you cannot simply download and crop, try these techniques:

1. Use contrast and brightness tools to get a silhouette.
2. Use Picsvg to create cuttable pieces
3. Crop in vectr.com or gravit.io
4. Trace over printout to make lines thicker or revise the image
Types of image files

**Pixel-Based**
- Images are stored as dots of color
- File types: .JPG, .PNG (.JPG has smaller file size and lower resolution)
- Look “pixely” when enlarged
- Adobe Photoshop

**Vector-Based**
- Images are stored as lines and shapes with a color fill
- File type: .SVG (Scalable Vector Graphics)
- Do not lose resolution when enlarged
- Adobe Illustrator, Vectr.com, picsvg.com
Google Slides

- Slides has all the functionality of Google Draw:
  - add text, images, and shapes
  - arrange their order from front to back.
  - Images can be recolored, adjusted and inverted

- Each slide can be exported individually

- Exported in all formats, including SVG format

- Keep all class projects in 1 place
Simplified shapes

Example: adjusting the coloring and contrast to create a high contrast image
Trace and use picsvg.com

- Find your shape
- Trace it with a dark marker. Make thin features thick enough to cut.
- Take a picture or scan
- Upload to picsvg.com and try different filters to get the image you want in svg.
Image processing - beginner → intermediate

- Picsvg.com
- Google Slides and Google Draw
- Vectr.com
- Gravit Designer designer.gravit.io
Vectr.com

Free Vector Graphics Software

Vectr is a free graphics software used to create vector graphics easily and intuitively. It's a simple yet powerful web and desktop cross-platform tool to bring your designs into reality.

New File
Geometric Logic

**Union**
Remove inside features and create a continuous shape

**Intersection**
Intersections preserves the intersecting areas of objects, and deletes the rest.

**Difference**
Removes the intersecting area. Work best with filled shapes.

**Subtraction**
Removes one shape from the other
Vectr.com

- Browser-based and free
- Easy to use
- Has geometric logic functions
- Has a pen tool that makes it easy to crop out extraneous pieces of an image
- Makes alignment easy with snapping features,
- Allows you to set specific sizes for your shapes
- Has grouping functionality
- Has visibility toggle for each shape
- Exports an SVG file
Vectr.com
What we love about this project

Paper Lanterns

- Inexpensive materials
- Creativity and expression
- Critical thinking about Graphics
- Learning more about image types, what makes them different and how to process them
- Opportunities for embellishment
- Can be used in personal as well as academic settings
- Sets a nice mood!
Connect with us:

Visit us k12maker.mit.edu for FREE Maker Resources

Join us for Teacher Professional Development (Maker tools this summer, Master Making in the Classroom - project design, teacher practices and more - this fall!)

Email us at k12maker@mit.edu to learn more about bringing Maker PD to your school or district (we’re happy to hop on Zoom to discuss your needs and how we can help!)
FREE Maker Resources for Teachers

- Designing, setting up and equipping a Makerspace
- Maker Methodology - process for educators designing Maker projects
- Idea Gallery of adaptable Maker projects
- Articles and Books - curated by us

k12maker.mit.edu
Instructables

Starter projects that are easy for beginners as well as more in-depth projects with lots of room for creativity.

instructables.com/member/EdgertonCenter
Teacher PD

- Free webinars with project tutorials
- Maker tool skills workshops
  - A full-day of hands-on learning
- Master Making in the Classroom
  - 10 week program to learn and practice Maker project design
- Maker PD Packages
  - Customized for your school or district
Questions? Thoughts? Ideas?

Please unmute and share!
THANK YOU!

Did you make some Paper Lanterns based on this webinar? If so, please share pics with us at k12maker@mit.edu and we will share them on the webinar resources page!

Find materials and videos for all of our K-12 Maker Project Tutorials plus many more FREE resources for Maker Educators at k12maker.mit.edu