Lesson Title: Illuminating Islamic Stained Glass

Objective: Students will synthesize understandings of sacred geometry and Islamic art by creating an illuminated lightbox using Chibitronic stickers.

Overview:
1 - Introduce students to key elements of Islamic art emphasizing sacred geometry and stained glass. Mosque Nasir Al-Mulk in Shiraz, Iran is an excellent exemplar. Presentation available here: https://goo.gl/dYSVhj

2 - Examine variations of sacred geometry & mandalas in world religions; compare and contrast with Islamic examples.

3 - Digitally design (and print) an Islamic art-inspired sacred geometry mandala using the application, Mandala Maker: http://mandalamaker.online/

4 - Place printed mandala into a clear paper protector, trace, and color using permanent markers. Once finished coloring, remove print-out and cut the paper protector so that there is no longer a pocket. Tip: Apply all color before using black to protect artwork from getting muddied with black ink.

5 - Remove lid (if any) from box and color or paint it black. If desired, create an Islamic-art inspired geometric pattern on the box using metallic permanent markers.

6 - Push four holes into the back of the box using scissors. Apply copper tape, Chibitronic stickers or 3mm LED, and 3-volt button battery per the template directions. Test to ensure the parallel circuit works.

7 - Arrange and apply colored mandala to the front of the box using clear packing tape.

8 - Test, revise, and display completed Islamic-art inspired illuminated lightbox.

View the following pages for images, detailed instructions, and tips on both circuitry and lightbox design and assembly.
**Image 1:** Digitally design (and print) an Islamic art-inspired sacred geometry mandala using the application, Mandala Maker (http://mandalamaker.online/). Place printed mandala into a clear paper protector.

**Image 2:** Color mandala using permanent markers. If you want to cover the entire protector, you will have to move the mandala around and arrange it as desired. **Tip:** Place a sheet of white paper under your hand as you color. This will protect your hand and prevent smearing as you color the mandala.

**Image 3:** Remove lid (if any) from box and color or paint it black. If desired, create an Islamic-art inspired geometric pattern on the box using metallic permanent markers. **Tip:** If painting, use acrylic paint as other paints do not cooperate with pens and markers as well. You can substitute metallic permanent markers for white oil pastels or white colored pencils.
Tip: View the templates at the end of this document for more detailed instructions regarding the parallel circuits.

Image 4-6: Push four holes into the back of the box using scissors. Apply copper tape, Chibitronic stickers, and 3-volt button battery per the template directions. Test to ensure the parallel circuit works.

Tip: If the circuit does not work, check to see if you have the 3-volt button battery flipped so positive matches positive and negative matches negative.
**Image 7:** Cut the paper protector so that there is no longer a pocket. There should only be one sheet.

**Tip:** Put the colored-side of the page protector facing the inside of the box. This protects the coloring from smears, and ensures longevity.

**Image 8:** Arrange and apply colored mandala to the front of the box using clear packing tape.

**Image 9:** Test, revise, and display completed Islamic-art inspired illuminated lightbox.
Inside of Box Circuit Template

holes to back of box

Positive

Negative
Back of Box Circuit Template

- Fold the copper tape back on itself to help make a switch.
- Holes to inside of box.

Legend:
- Positive
- Negative
- Electrical Tape