ROBERT C. WILLIAMS MUSEUM of PAPERMAKING

Glow Lamp

Grade Level: Art 2-8, Social Studies 7, Science 1&4

Time: 45 minutes

Objective: Students will create a Chinese-inspired paper lantern by using principles of symmetry so that they will understand how translucent and opaque materials allow the passage of light.

I Can Statements: I can: (1) accordion fold paper and make cuts to paper while folded that creates symmetrical negative space; (2) complete glow lamp project to expected standards; (3) use accurate vocabulary; (4) use tools safely and appropriately; (5) test different papers for translucency and opacity.

Georgia Standards of Excellence:
Science:
S1P1.abc, S4P1.a

Art:
2nd Grade: VA2.CR.2.b, VA2.CR.5, VA2.RE.1.c, VA2.CN.1.a-c, VA2.CN.2, VA2.CN.3
3rd Grade: VA3.CR.1.A, VA3.CR.2.b, VA3.CR.3.c, VA3.CR.4.a, VA3.RE.1.a.c, VA3.CN.1.a-b, VA3.CN.2.a, VA3.CN.3
4th Grade: VA4.CR.1.a, VA4.CR.2.b VA4.CR.3.c.e, VA4.CR.4.b, VA4.CR.5, VA4.RE.1a-b, VA4.CN.1.a-c, VA.CN.2.b, VA.CN.3
5th Grade: VA5.CR.1.a, VA5.CR.2.b.d, VA5CR.3.c.e VA5.CR.4.b, VA5.CR.5, VA5.RE.1.a, VA5.CN.1.a-d, VA5.CN.2, VA5.CN.3
6th Grade: VA6.CR.1.c, VA6.CR.2.b, VA6.CR.3.a-c, VA6.CR.4.b, VA6.CR.5.b, VA6.RE.1a-c, VA6.RE.2.b, VA6.CN.1a-c, VA6.CN.3.c
7th Grade: VA7.CR.1.c, VA7.CR.2.b, VA7.CR.3.a-c, VA7.CR.4.b, VA7.CR.5.b, VA7.RE.1a-c, VA7.RE.2.b, VA7.CN.1a-c, VA7.CN.3.c
8th Grade: VA8.CR.1.c, VA8.CR.2.b, VA8.CR.3.a-c, VA8.CR.4.b, VA8.CR.5.b, VA8.RE.1a-c, VA8.RE.2.b, VA8.CN.1a-c, VA8.CN.3.c

Social Studies:
Map and Globe Skills 10
7th Grade: SS7G9, SS7G12, SS7E5.a, SS7E8.a

Background:
Deng is a Chinese term that refers to either a lamp or lantern, which is why these objects are often mistaken or used interchangeably in English translations. Lamps or lanterns were used as primary light sources and for decoration. These beautiful decorated lamps lit homes and public buildings until electricity became common.

The original Chinese lamps were pottery lamps, originating more than 7,000 years ago. Scholars believe that the oldest pottery examples are the trumpet-shaped mouth utensils unearthed at the Kuahuqiao site in Zhejiang Province, or the broad-mouthed utensil unearthed in a tomb from the Shang Dynasty

(1600 - 1046 BCE). Bronze lamps were introduced in the Warring States Period (453-221 BCE) and four types of decorative bronze lamps became popular: *dou* (a high-legged plate with legs, a lid and handles at its base) and *gui* (a large bowl with a round mouth and large belly) cooking utensils, human-shaped lamps, and tree-shaped lamps. The design and execution of the lamps show extraordinary talent in the Qin (the first dynasty of Imperial China, 221 - 207 BCE) and the golden age of the Han Dynasties (second great imperial dynasty of China, 206 BCE – 220 CE). Bronze lamps could only be used by the staff at the Royal palaces and by aristocratic families. One Changxin palace lamp discovered at a tomb in Mancheng has the shape of a palace maid and is an engineering marvel for the time. The head and arms of the maid lamp can be disassembled, the lampshade can be opened and closed to adjust the light and right arm serves as a chimney. These lamps mark an important step in the development of lighting facilities in ancient China.

Porcelain lamps became popular in the golden ages of art and culture in the Tang (618- 906 CE) and Song dynasties (960 - 1279 CE), replacing bronze lamps. Candles made of beeswax were also commonly used at this time. The aesthetic beauty of the porcelain lamps increased during the Ming (1368 - 1644 CE) and Qing (1644 – 1912 CE) dynasties. The Ming dynasty was known for its trade and expansion which established ties with the West, as well as its drama, literature, and beautiful porcelain. The Qing dynasty was the final imperial dynasty.

A later development, baron lamps, developed in the 20th century, consist of a wick dipped into kerosene covered with a glass shade to protect the flame from wind. The lighting was adjustable, and this was a common type of lighting in less developed, rural areas to provide a more accessible and functional lighting option.

The first examples of paper lanterns date from 230 BCE. Paper lanterns were originally made from paper or silk with a bamboo or wooden frame and a candle. Chinese myth tells that lanterns were originally created to symbolize the power of Buddha. Paper lanterns are still used in festivals, the most notable ones being the Lantern Festival and the Mid-Autumn Festival. The Lantern Festival takes place on the 15th day of the first month of the lunar calendar in honor of the first full moon of the year, in January or February. The Mid-Autumn Festival celebrates the ending of the harvest and symbolizes sun, warmth, and good harvest for the next year. The basic form of a Chinese paper lantern is the "Tomato Light," a round, red lantern. In Chinese tradition, red symbolizes prosperity.

Sources:
http://www.csstoday.com/Item/5287.aspx
www.history.com

https://theculturetrip.com/asia/china/articles/brief-history-chinese-lanterns/
http://www.historyoflamps.com/lantern-history/history-of-paper-lanterns/

Vocabulary:

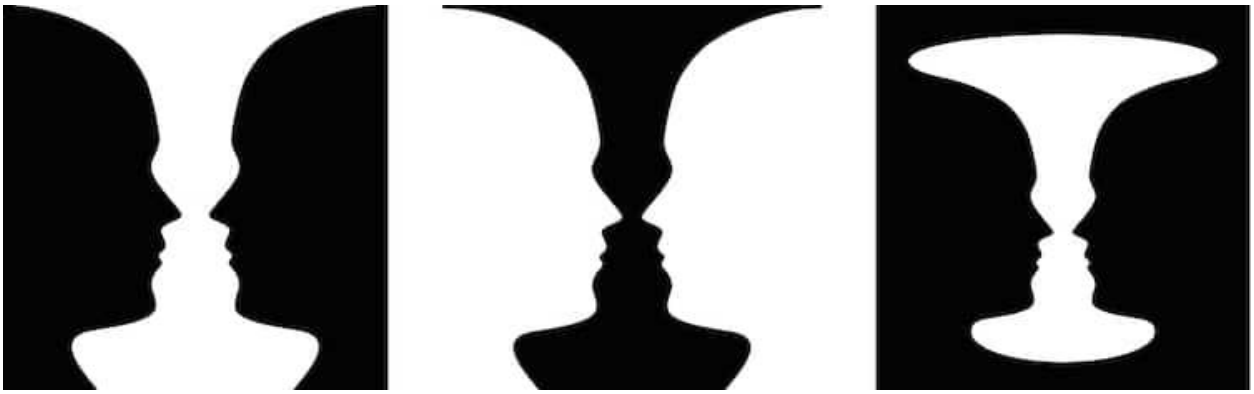
accordion fold — a folding method using a series of alternating folds to create multiple panels of a similar size. The parallel pleats formed by the alternating folds resemble the expandable mid-section of an accordion musical instrument

circumference — the distance around a geometric shape or form

deng — a Chinese term referring to either a lamp or lantern

negative space — the space around and between the subject(s) of an image. It appears in all drawings and paintings, and one of the best examples of it is the optical illusion called *Rubin's vase. Rubin's vase* emphasizes negative space. In the middle of the composition, there is a symmetrical vessel (also known as *positive* or *activated* space). Portraits of people appear on either side of the vase; the curves of the pot create the illusion of a forehead, nose, and mouth. While the negative space itself has no defining details, the hard edges of the vase and the contrast of the vessel to the rest of the image activate the area and allow your mind to fill in the blanks.

Sources: https://mymodernmet.com/negative-space-definition/



opacity — the quality or state of matter that makes something unaffected by light or radiant energy**;** the capacity of matter to obstruct the passage of radiant energy

opaque — not able to be seen through; not transparent, blocking the passage of light

positive space — the area or part of an artwork's composition occupied by the subject

symmetry — the quality of being made up of exactly similar parts facing each other or around an axis Often when two or more parts are identical after a flip, slide or turn.

translucent — allowing light, light can pass through, but objects on the other side can't be seen clearly; semitransparent

Materials: Each student will need: 1 glass jar (we recommend using a standard sized mason jar), colored paper to fit around jar, tissue paper to fit around jar, a ruler to measure paper, glue, scissors, one candle (real or LED)

Preparations: Although students will measure size of papers to fit jars check to make sure papers are long enough and high enough to wrap around chosen jars.

Essential Questions: (1) How does the thickness and type of paper affect its opacity? (2) What types of paper are opaque and which types are translucent? (3) What different techniques can be used to create positive and negative space?

Introduction: Instructors will introduce history of Chinese lamps/lanterns. Instructors will demonstrate how to measure and cut colored paper and tissue paper. Then they will show students how to accordion fold paper and cut small triangles or other shapes out of both sides of folded paper. After gluing colored and tissue paper together instructors will demonstrate how to wrap papers around circumference of jar and secure papers to jar.

The following can be used as an instructional guideline:

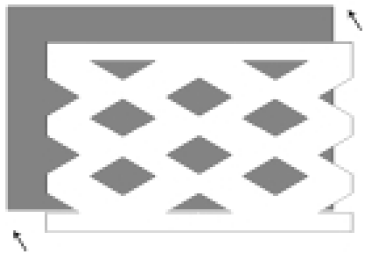
1. Over 7,000 years ago, the Chinese first made lamps or lanterns, which are called *deng. Deng* are made from many different materials, from clay to glass to paper. Paper lanterns are still very popular to use, especially in festivals such as the spring lantern festival or the fall harvest festival. Many of the lanterns at these festivals are made with red paper, which symbolizes good fortune.
2. A special feature of paper lanterns is that they allow the light of a candle or other light source to pass through. This is called *translucency.* A translucent material allows light to pass through, but objects on the other side cannot be clearly seen. Something that does not let light through is called *opaque*. We are making lanterns that have translucent and opaque parts.
3. Each student needs a piece of colored paper and a piece of tissue paper for the activity. Ask students to compare the papers to each other: how are they different? The same? How does the thickness and type of paper affect its opacity? What types of paper are opaque and which types are translucent? Create a list of opaque and translucent papers.

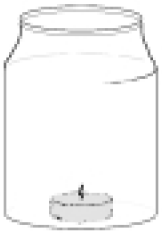
Procedure:

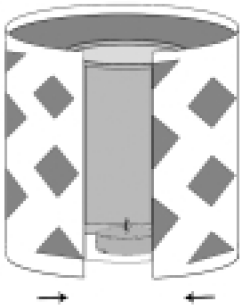
1. Prepare the papers to cover the jar: The paper should be as high as the jar and cover the circumference of the jar. Set the tissue paper aside for now.
2. Measure the height and circumference of the jar. Write down measurements, adding one inch onto the circumference to allow for overlap. Measure and cut the paper to recorded measurements
3. Accordion fold the colored paper. More folds mean more cut outs on the finished product. Leaving the paper folded, cut out small triangles on either side of the paper (like cutting out snowflakes). Remind students to not cut all the way across, because that will cut the sheet into multiple piece.
4. Unfold the colored paper, revealing the cut-out design. Point out that the cutouts are *negative space* and the latticework of paper is *positive space*. What are some other ways that positive and negative space can be made?
5. Glue the tissue paper to the back of the colored paper. Then wrap the two layers around the jar and secure with tape or glue. Place a LED candle in the jar.

6. Wrap up questions: why do you think the Chinese developed *deng*? What are some other lamp styles? How are they similar or different than what we just made? People around the world have made lamps and lanterns for centuries. What kind of lantern do we use today? What is a benefit of using a lantern rather than a candle? How would your lantern look if you had more negative space? Less? What do you consider to be a "good" lantern?
7. Students will articulate reasons why the Chinese culture made deng. Students will identify universal themes related to lamps and lantern in works of art from diverse cultures, both past and present. Students will evaluate their own artwork through verbal discussion with other students discussing topics such as: craftsmanship, negative space, cultural relevance and completion.

Sample:







Extension: Students can explore what different colored lanterns mean in Chinese culture and what different colors mean in other various cultures. Students can then compare and contrast the meanings across cultures. Then when creating their lantern students can make intentional choices as to the coloration of their papers.