

RUBIN RESOURCE: CREATIVE CONSTRUCTIONS




The Goals of this Lesson:

By engaging with mandalas—a core part of the Rubin’s art collection—students learn about culture, symbolism, math, and design. Whether teaching in a classroom or through remote teaching, K–12 educators can embrace the power of imagination with the Rubin’s Digital Teaching Resources.

<p>Essential Question</p> <p>A bigger question or understanding that serves as the central focus of the lesson.</p>	<p>How does math inform art making? Learning from the design philosophies used to make Buddhist mandalas (geometric diagrams of celestial palaces), students will explore the process of transforming 2D materials into 3D architectural sculptures. This workshop is ideal for classes interested in math, geometry, architecture, and design techniques.</p>
<p>Skills</p> <p>Are they using different motor skills? Critical thinking skills? Expanding vocabulary?</p>	<ul style="list-style-type: none"> ● Using your imagination to give abstract forms symbolic and personal meaning ● Basic model-making skills ● Making symbols to represent people, places, and things

10 minutes

INTRODUCTION

Outline	Notes
<p>What is the Rubin Museum of Art?</p>  <p>3D Mandalas Where does the art in the Rubin come from?</p>  	<ul style="list-style-type: none"> ● The Rubin Museum of Art is a dynamic environment that stimulates learning, promotes understanding, and inspires personal connections to the ideas, cultures, and art of Himalayan regions. ● Contextualize origin of art (in the Himalayan region, circled in red) with the location of New York (marked by the red star) ● What areas are part of the Himalayan region? <ul style="list-style-type: none"> ○ Bhutan ○ Pakistan ○ Nepal ○ China ○ Afghanistan ○ Tibet ● What is Himalayan art? <ul style="list-style-type: none"> ○ Himalayan art is indigenous to the Himalayas and surrounding regions. The art is based on religious subjects and is recognizable through its compositions, symbols, and motifs. Common art forms include paintings, sculptures, and textiles.

What is a mandala?

- Mandala is a Sanskrit term meaning “circle.”
- What are mandalas made from?
 - Mandalas can be painted on paper, wood, stone, cloth, or even a wall. They can also be constructed from butter or colored sand. In some Buddhist sects, mandalas can be architectural structures and entire temples.
- What do mandalas represent?
 - Mandalas are visual representations of the universe or cosmos.
 - They also represent a deity’s (or god’s) palace, with the deity (for younger students, ‘a god’ is an appropriate term to use) at the center.
 - The palace has four gates oriented to the four directions.
 - Several layers of circles form a protective barrier around the center. Each layer symbolizes a quality that one must attain before accessing the center of the palace.
- How are mandalas used?
 - Mandalas are tools for spiritual guidance. They establish a sacred space and aid in visualization meditation. The meditator repeatedly contemplates the mandala and internalizes it in detail. By moving from the outside to the center, the trained Buddhist practitioner moves closer to the goal of enlightenment and understanding the true nature of reality.
 - A mandala can also be a meditation on impermanence, a central teaching of Buddhism. It can take weeks of effort and focus to create a sand mandala, which is then destroyed upon its completion. The sand is then brushed together into a pile and spilled into a body of running water to spread the blessing of the mandala.
- *Suggested additional class activity: Watch this free video of a sand mandala being created and discuss the concept of impermanence: <https://itunes.apple.com/us/itunes-u/id397132482>.*
- What are the symbols in a mandala and what do they mean?
 - The colors in a Tibetan Buddhist mandala often represent the following:
 - White: Openness
 - Red: Power, Life Force
 - Yellow: Humility
 - Blue: Infinity, Purity and Life
 - Black: Darkness
 - Gold: Sun, Fire
 - Green: Nature, Balance between Humans and Earth
 - Guardian Figures: Protection
 - Circle of Fire: Wisdom
- Why are geometric shapes important in a mandala?
 - A mandala’s form gives order to an infinite space. Mandalas organize inner space so you know “where you are” psychologically. A teacher helps the practitioner navigate the mandala to transform poison—hatred, lust, pride, jealousy, and delusion—into wisdom. The mandala is

	<p>ultimately a map to enlightenment.</p> <ul style="list-style-type: none"> ○ Mandalas also feature shapes to create symmetry, which gives order, proportion, and harmony to the composition. ● What is the influence of mandalas in other cultures and in modern times? <ul style="list-style-type: none"> ○ Forms that evoke mandalas are prevalent in Christianity, most notably in the rose windows of cathedrals and in the Celtic cross. The influence of mandalas also appears in dromenons, or labyrinths, which represent a journey from the outer world to the sacred inner center where the divine is located. ○ Mandalas are used today to relieve anxiety and stress. Studies show that creating and coloring mandalas reduces hyperactivity in children and assists people through hardship and trauma. The act of coloring a mandala allows a person to focus on the peace, harmony, and unity they represent.
<p>Close Looking Activity (5 minutes)</p>	<ul style="list-style-type: none"> ● What are the differences between 2D and 3D mandalas? <ul style="list-style-type: none"> ○ A mandala can represent the entire universe, which is traditionally depicted with Mount Meru as the axis mundi (like a pillar) in the center, surrounded by the continents. All 2D mandalas are representations of 3D palaces or universal environments. The 3D mandalas are often made of metal and have many levels and layers, while 2D mandalas are usually painted on cloth scrolls called thangka. ● Close Looking: Print out the large format versions of the following images and have students look at an image in small groups (one image per group). Use some of the classic inquiry-based teaching techniques to encourage them to look closely. <ul style="list-style-type: none"> ○ Spend 30–60 seconds quietly looking at the image. If needed, the teacher can do a visual description for children. ○ Students go around sharing one observation with each other. ○ Ask younger students what shapes and colors do you see? ○ Ask older students where do you see evidence of symmetry, tessellation, and other geometrical principles? ○ Students work together to explore the different parts of the mandala as a celestial palace.



- Four Mandalas of the Vajravali Cycle
Ewam Choden Monastery, Tsang Province, Central Tibet;
1429 –1456
Pigments on cloth
Rubin Museum of Art
C2007.6.1 (HAR 81826)
- This exquisite thangka (scroll painting on cloth) is the thirteenth painting in a set depicting the mandalas of the Vajravali cycle, a compendium of Esoteric teachings compiled by the eleventh-century Indian master Abhayakaragupta and widely transmitted in Tibet.




- Mandala of Guhyasamaja-Akshobhyavajra
Tibet; 14th century
Pigments on cloth
Rubin Museum of Art
Gift of the Shelley & Donald Rubin Foundation
F1997.43.1 (HAR 575)
- This mandala is focused on the meditational deity Guhyasamaja, who is a form of the Buddha Akshobhyavajra, the Unshakable Vajra. He and the deities who surround him are the so-called directional buddhas, with Vairochana in the East, Ratnasambhava in the South, Amitabha in the West, and Amoghasiddhi in the North. They represent the enlightened qualities and wisdom of the five constituents (*skandhas*) of the human body and mind, which the practitioner develops through the practices of visualization, meditation, and ritual.



- Mandala of Pancharaksha
Central Tibet; 18th century
Pigments on cloth
Rubin Museum of Art
Gift of Shelley and Donald Rubin
C2003.50.6 (HAR 274)
- From a set of forty-two mandalas, as described in the Vajravali Sanskrit text of Abhayakaragupta, this painting was commissioned in honour of Lama Dampa Sonam Gyaltzen.

40 minutes

ACTIVITY

Step	Notes
<p data-bbox="110 348 261 380">Description</p> 	<ul style="list-style-type: none">● Students build their own 3D structures inspired by the geometry, colors, and design of mandalas.● Materials:<ul style="list-style-type: none">○ Students can use whichever materials they have access to. A great place to start looking is the recycling bin! Boxes, paper towel rolls, and coffee cans are perfect for stacking.○ Some students may use tape to hold everything together, and others will take it apart when they are done. Be flexible with materials and allow students to explore.● Structure Size:<ul style="list-style-type: none">○ It all depends on the materials. If a student uses a lot of big boxes, then their project might be huge! Others may prefer to work in miniature.○ As long as they are exploring the geometry and concepts inspired by the mandala images, then they are learning.
<p data-bbox="110 911 261 942">Explanation</p>	<ul style="list-style-type: none">● Show the students an image of a mandala again.<ul style="list-style-type: none">○ Ask them to imagine what this mandala might look like as a 3D building or palace.○ “Now think about creating your own structure. What parts of a mandala (shapes, symbols) will inspire you?”○ If there is time, engage the students in a brief discussion or invite them to share some of their ideas.● “You are all going to build your own structures now, using items that can be found in the classroom, at home or ‘where you are living’. My favorite place to find building materials for this project is the recycling bin! But you can use anything that can be stacked. Think of these materials as your building blocks.”● Give students 5 minutes to gather materials.
<p data-bbox="110 1398 186 1430">Build!</p>	<ul style="list-style-type: none">● 30 minutes of build time
<p data-bbox="110 1486 228 1518">Clean up</p>	<ul style="list-style-type: none">● This should take no more than 5 minutes.

APPENDIX

Materials/ Resource List	
<ul style="list-style-type: none"> ● Cardboard boxes, cereal boxes, etc. ● All kinds of cans ● Empty bottles ● Paper ● Toilet paper or paper towel rolls ● Tissue boxes 	<ul style="list-style-type: none"> ● Anything else you can think of for building! ● Scissors ● Tape ● Glue sticks
Vocabulary	
<ul style="list-style-type: none"> ● Mandala An artistic representation of a protective palace surrounding a Buddhist deity (god). ● Buddha An awakened being who has reached enlightenment. ● Buddhism A religion practiced around the world, founded over 2,000 years ago when a prince, Siddhartha Gautama, reached enlightenment and became Shakyamuni Buddha (also known as the Buddha). 	<ul style="list-style-type: none"> ● Dromenon This word means a repetitive action or ritual. Similar to mandalas, dromenons represent the journey from an outer world to an inner one with a divine being in the center. An example appears on the floor of Chartres Cathedral—it looks like a circular maze. ● Labyrinths A complicated structure that is hard to travel through; a maze. ● Deity A god or divine being. ● Celestial Heavenly, in the sky.

LARGE-FORMAT PHOTOS

THE RUBIN PROGRAMS



CREATIVE CONSTRUCTIONS

Education programs are supported by Agnes Gund, The Prospect Hill Foundation, Tiger Baron Foundation, Con Edison, The Pierre and Tana Matisse Foundation, and public funds from the New York City Department of Cultural Affairs in partnership with the City Council.

The
Pierre and Tana
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Where does the art in the Rubin come from?



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Ewam Choden Monastery, Tsang Province, Central Tibet; 1429-1456

Pigments on cloth

Rubin Museum of Art

C2007.6.1 (HAR 81826)

Four Mandalas of the Vajravali Cycle

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Mandala of Guhyasamaja-Akshobhyavajra
Tibet; 14th century
Pigments on cloth
Rubin Museum of Art
Gift of the Shelley & Donald Rubin Foundation
F1997.43.1 (HAR 575)

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Mandala of Pancharaksha
Central Tibet; 18th century
Pigments on cloth
Rubin Museum of Art
Gift of Shelley and Donald Rubin
C2003.50.6 (HAR 274)

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RUBIN MUSEUM OF ART CORE VALUES OF TEACHING

Dynamic / Differentiated	We aim to meet our program participants at every education, knowledge, language, and creative skill level by dynamically differentiating our program lessons and activities for a variety of levels of learners.
Inquiry-Based	We follow an inquiry-based learning methodology that employs question posing and problem solving as primary ways to engage students in active and empowered learning.
Relevant / Relatable	As the only art museum dedicated to the arts and cultures of the Himalayas in New York, we strive to make our unique content relevant and relatable to the contemporary lives of our local visitors and program participants.
Exploration-Focused	We challenge students to find their creative voices and visions through process-based art making that allows them to explore new types of material techniques, artistic processes, and creative ways of thinking and making.
Culturally Attuned	We actively collaborate with members of New York City's Himalayan community to ensure the most accurate and just representations of the Himalayan people, arts, cultures, religions, and histories in our programs.
Teamwork	We strive to create programs, activities, and a supportive learning environment that cultivates creative collaboration between peers and across all generations of visitors.

NYS and Common Core Standards

K-12

CCSS.ELA-LITERACY.CCRA.SL.2

Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

K

CCSS.ELA-LITERACY.CCRA.SL.2

Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

CCSS.MATH.CONTENT.K.G.A.1

Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.

CCSS.MATH.CONTENT.K.G.B.5

Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

NY Arts Standard: VA:Cr1.1.K

Engage in exploration and imaginative play with materials.

1

CCSS.ELA-LITERACY.SL.1.3

Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

CCSS.ELA-LITERACY.SL.1.4

Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

CCSS.MATH.CONTENT.1.G.A.1

Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

CCSS.MATH.CONTENT.1.G.A.2

Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

NY Arts Standard: VA:Cr1.1.1

Engage collaboratively in exploration and imaginative play with materials.

2

CCSS.ELA-LITERACY.SL.2.1

Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL.2.3

Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

CCSS.MATH.CONTENT.2.G.A.1

Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

NY Arts Standard: VA:Cr1.1.2

Collaboratively brainstorm multiple artmaking approaches to an art or design problem.

3

CCSS.ELA-LITERACY.SL.3.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.3.3

Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

CCSS.ELA-LITERACY.SL.3.5

Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.

CCSS.MATH.CONTENT.3.G.A.2

Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape.*

NY Arts Standard: VA:Cr1.1.3

Elaborate on an imaginative idea.

4

CCSS.ELA-LITERACY.SL.4.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.4.5

Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

CCSS.MATH.CONTENT.4.G.A.2

Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

CCSS.MATH.CONTENT.4.G.A.3

Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

NY Arts Standard: VA:Cr1.1.4

Brainstorm multiple artmaking approaches to a creative art or design problem.

5

CCSS.ELA-LITERACY.SL.5.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.5.5

Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

CCSS.MATH.CONTENT.5.G.B.3

Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.

NY Arts Standard: VA:Cr1.1.5

Combine ideas to generate an innovative idea for art-making.

6

CCSS.ELA-LITERACY.SL.6.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.6.2

Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

CCSS.ELA-LITERACY.SL.6.5

Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

CCSS.MATH.CONTENT.6.G.A.4

Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

NY Arts Standard: VA:Cr1.1.6

Collaboratively exchange concepts and different points of view to generate innovative ideas for creating art.

7

CCSS.ELA-LITERACY.SL.7.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.7.2

Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.

CCSS.ELA-LITERACY.SL.7.5

Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.MATH.CONTENT.7.G.A.2

Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

CCSS.MATH.CONTENT.7.G.A.3

Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

NY Arts Standard: VA:Cr1.1.7

Apply strategies to overcome creative blocks.

8

CCSS.ELA-LITERACY.SL.8.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.8.2

Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.

CCSS.ELA-LITERACY.SL.8.5

Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

CCSS.MATH.CONTENT.8.G.A.2

Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

CCSS.MATH.CONTENT.8.G.A.3

Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

NY Arts Standard: VA:Cr1.1.8

Document and reflect on early stages of the creative process visually and/or verbally in traditional or new media.

9-10

CCSS.ELA-LITERACY.SL.9-10.1

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

CCSS.MATH.CONTENT.HSG.C.A.2

Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.

NY Arts Standard: VA:Cr1.1.HSI

Use artmaking approaches to begin creative endeavors.

11-12

CCSS.ELA-LITERACY.SL.11-12.1

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

NY Arts Standard: VA:Cr1.1.HSIII

Visualize and hypothesize to generate ideas and plans for creating art and design that can affect social change.