LOS ANGELES COUNTY MUSEUM OF ART 5905 WILSHIRE BOULEVARD LOS ANGELES, CALIFORNIA 90036

EDUCATION DEPARTMENT

BUILDING STEAM: ART, MATH, AND TECHNOLOGY



MICHAEL HEIZER United States, b. 1944 *Levitated Mass*, 2011 Granite, concrete, and steel; 258 x 5472 in. Zenith: 180 in., Weight: 340 tons LACMA © Michael Heizer (M.2011.35)

STEAM and its application to K–12 classrooms highlight the relationship between artistic, mathe-

the collection of the Los Angeles County Museum of Art can provide the basis for lesson plans that have the potential to broaden student thinking in all of these subjects. The key question addressed in this packet is: How do artists connect math, engineering, and technology to make art? This curriculum connects initiatives that cross into the museum and the classroom by placing artworks in conversation with what are often considered "hard" subjects.

PROJECT-BASED LEARNING

Just as STEAM is a newly named initiative that revisits older ideas in a contemporary way, Project-Based Learning, or PBL, is a reconception of longstanding pedagogy in a project-based approach. The units included here are presented in this format, and each is formulated to support student inquiry in math and engineering through the language of the visual arts and principles of design.

Educators have long valued teaching that emphasizes *learning while doing* in contexts inspired by real-world situations. PBL supports this philosophy by placing the student at the center of his/her own learning, empowering students to propose questions, direct research, and interpret answers. The educator acts as a guide through exercises in exploration, experimentation, revision, and reflection. The process is the focus, rather than the culminating project, which requires educators to relinquish some control over the end product. Teachers learn alongside students as they cooperatively define the project, utilizing a combination of direct instruction and open-ended questioning.

In PBL, teaching and learning take the form of an extended experience comprising key tenets.

Point of Entry: An introductory activity such as a field trip, discussion, or demonstration that can be inspired by literature, journalism, media, or art.

Essential Question: A driving question that frames the unit and guides student thinking throughout the process.

Core Content: Curricular concepts that integrate learning across subject areas.

Line of Inquiry: A series of open-ended questions that navigate exploration of the essential question and practice with core content. Stages include brainstorming, mapping of tasks, and generating possible solutions.

Equal Voicing: Various roles (chosen by either the student or the educator, depending on age or learning needs) that provide opportunities for individual and collaborative contributions.

Revision: Editing prompts to encourage adjustments in research or improvements to the final product.

Presentation: A forum that allows students to share their research with classmates, the school, the neighboring community, or practitioners in the field.

Reflection: Students state their accomplishments through formative assessment and cumulative self- or group-evaluation. Reflection recalls the use of problem-solving and persistence.

The artworks featured in this curriculum serve as engaging entry points into math and engineering concepts. Use the information and images provided to facilitate an initial conversation or interaction with an artwork through questions such as, "What do you see?" "What do you see that makes you say that?" and "What more can you find?" The essential questions that follow serve as extensions into PBL experiences, and, in this case, students should utilize the languages of mathematics and the visual arts to answer such questions. Suggested grade levels are aligned with content standards that can be scaffolded and adapted for students.

Urban Light, 2008, Chris Burden



CHRIS BURDEN United States, b. 1946 *Urban Light*, 2008 202 restored cast-iron antique street lamps, $320^{1}/_2 \ge 666^{1}/_2 \ge 704^{1}/_2$ in. LACMA, the Gordon Family Foundation's gift to Transformation: The LACMA Campaign © Chris Burden (M.2007.147.1–.202)

ARTWORK IN FOCUS

Chris Burden, an L.A.-based artist interested in contemporary life and the urban experience, has spent much of his career exploring the intersection of art and engineering, employing construction materials and found objects to create large-scale sculptures such as *Urban Light*. For *Urban Light*, Burden utilized a collection of 202 antique street lamps from the city of L.A. circa the 1920s and '30s. Their installation, arranged carefully on a grid, exemplifies the real-world nexus of math, art, and design. The lights that populate this work were collected over a seven-year period, and each individual lamp represents the unique time and place of its original location. For example, the seventeen lamps from Lynwood are each twelve feet tall and simple in design, with a single light globe. The six from Glendale stand at nineteen feet and feature double globes and a decorative design. All 202 lamps have fluted shafts or trunks in the form of prisms, and all are painted grey. The street lamps are grouped in rows according to neighborhood, and the arrangement forms a grid that (despite initial appearances) is not perfect—but does offer repetition of shape and color.





CHRIS BURDEN United States, b. 1946 Diagrams of Urban Light, 2007 © Chris Burden Studio

PROJECT: DESIGN AN URBAN GARDEN

Point of Entry: Planning for the sculpture's installation paralleled the planting of a garden. The lampposts were first measured for height, weight, and square base. Similar to how one might organize flowers, the artist grouped the lamps according to their unique designs, such as single, (symmetrical) double, or (rotationally symmetrical) triple globes. Rows were arranged by height. The tallest posts comprise the middle section and are flanked by the shortest posts to create the effect of a symmetrical pyramid. From the perspective of the street, this allows the viewer to see all of the lamps at once. In the practice of gardening, a similar arrangement ensures that the shortest and tallest plants receive equal amounts of light.

Essential Question: How can you use symmetry and scale to beautify the school?

Grades: K-4

Core Content: Line, shape, pattern, motif, form, scale, polygonal prism, symmetry (bilateral and rotational), algebraic expression, and space.

Line of Inquiry: What do you see in *Urban Light*? When you look closely, what shapes, patterns, or motifs do you notice? How would you describe the bases and columns in geometric terms? When you take an overall view, what type of lines emerge? How does the sculpture's arrangement form a two-dimensional grid and a three-dimensional pyramid? How are the lampposts grouped? How many globes do you see in each group? Write an algebraic expression to describe the total number of globes (y) as it relates to the number of lampposts (x). Use a coefficient of 1, 2, or 3 to distinguish single-, double-, and triple-globed posts. If you were to design a school garden inspired by this artwork, how would you map the arrangement of flowers and plants, and why?

Equal Voicing: How will you work in teams to execute the garden? Students may take roles: botanists to research plants and their characteristics; mathematicians to determine the distance between two plants and where seeds should be planted by plotting the plants on a grid; and, finally, gardeners to realize the design.

Revision: What other ways could you group the plants? How can you arrange them so that they all receive equal amounts of sunlight? Where on campus will you plant the garden? How much space will it require?

Presentation: Unveil the gardens in a ribboncutting ceremony for the school. Present your research, such as information on the various garden habitats, at an accompanying science fair. Ask students to present their findings to classmates and peers.

Reflection: How do people practice math in everyday life? What is the relationship between math and design? If you were to design the garden again, what parts of the process would you repeat? What would you do differently, or what changes would you make? Where could you plant another garden?

Metropolis II, 2010, Chris Burden



CHRIS BURDEN United States, b. 1946 *Metropolis II* (detail), 2010

3½ hp DC motors with motor controllers, 12,000 custom manufactured die-cast cars (1,100 for operating, 10,900 for replenishing damaged cars), 26 HO-scale train sets with controllers and tracks (13 for operating,13 for replenishing damages), steel, aluminum, shielded copper wire, copper sheet, brass, various plastics, assorted woods and manufactured wood products, Legos, Lincoln Logs, Dado Cubes, glass, ceramic and natural stone tiles, acrylic and oil-based paints, rubber, and sundry adhesives; 117 x 339 x 230 in. © Chris Burden. Courtesy Gagosian Gallery. Photography by E. Koyama. (L.2010.33.1)

ARTWORK IN FOCUS

In addition to large-scale objects, Burden is also an avid collector of miniatures, and has employed them to create imaginative works such as *Metropolis II.* A model city composed of cars, trains, and buildings, *Metropolis II* is a maze of speed and sound. Eleven hundred Hot Wheelssize cars and thirteen miniature passenger trains race through 1,350 feet of track. Twenty-five skyscrapers dot the horizon, interwoven with two freeway ramps and eighteen lanes of traffic. The energy starts at the center of the sculpture, where the conveyor belt magnets carry six lanes of cars to a seven-and-a-half foot peak. The cars are lined up in rows, and each follows a distinct and specific path. Attempting to follow a single car with the eye can be dizzying; if they were full-size cars they would be traveling at 240 miles per hour.



ZAK COOK United States, b. 1969 *Map of Metropolis II*, 2010 © Chris Burden Studio. Photo © Zak Cook.

PROJECT: BUILD A MODEL CITY

Designer Zak Cook worked with Burden and a team of artists to build Metropolis II. The planning phase, mapping, was accomplished with simple string and pen. The sculpture's footprint, or overall length and width, were first determined based on the dimensions of the magnetic conveyors. A core base was mapped out at seven by twenty-two feet to scale. Designers added extensions and corners to the basic rectangular shape to alter the direction of the cars' eventual travel routes. In terms of dimensions, special consideration was given to the fact that the final sculpture would not remain in Burden's studio and would need to be shipped – and likely many times-to exhibition sites. Cook decided where the different parts of the base would separate, creating seam lines so that all parts would be removable and replaceable for both assembly and disassembly. Within the footprint, Cook mapped out a series of track configurations using colored string to code track groupings. The goal of mapping the tracks was to maximize the number of tracks that could assemble onto the twodimensional footprint, considering the width of track groupings as outer tracks would be longer and the inner tracks shorter. Designers also mapped both right and left curves to create balance in the overall direction of travel.

Finally, the string tracks were marked with pen at five-foot-scale increments to help the artists transform a two-dimensional representation into a three-dimensional sculpture.

The boxes that would eventually transport the sculpture were seven and a half feet tall, so Cook set the maximum height of the sculpture at seven and a half feet. With the tallest peak in mind, he experimented with the slope of the tracks and figured that a slope of five and a half degrees would produce an ideal speed. Cook used the Pythagorean theorem to determine the width of construction (one and one-eighth feet of fall per linear foot of travel), and artists built to this dimension. Designers worked out individual curves using curve templates, and track walls were beveled by hand for fluid travel. They tested the cars on the tracks, placing brushes before and after significant curves to avoid crashes. Lastly, the support structure was "sketched out" by positioning metal frames in different combinations. Cardboard mockups of buildings were added in as layers, and final buildings took the form of wooden replicas (and one paper original) of the children's game House of Cards by 1950s designers Charles and Ray Eames, as well as tiled ceramic, mirrored, and metallic buildings.

Point of Entry: The relationship between the sculpture's vehicles, roads, and buildings and the process the artist went through to create it resemble a city-planning experiment. City planners use design principles and engineering tools to create environments that connect people with buildings, transportation, and the surrounding urban landscape. With technology, they create designs that impact the real world. Use accessible and recyclable materials to create your own classroom city.

Essential Question: How do artists and designers practice engineering in everyday life?

Grades: 4-8

Core Content: Length, height, and width; square footage; cubic feet; ratio; slope; radius; and velocity.

Line of Inquiry: What is the first thing you notice about *Metropolis II*? What do you find following a closer look? Does the sculpture look like a representation of the past, present, or future? What do you see that makes you say that? Describe the size of the work and the speed of the cars.

What impact does a model version like this have on the "life" of the city? What types of vehicles, buildings, and infrastructure would you include in your own unique city? For what purposes and functions? How would they be used in relationship to one another?

Determine the footprint of your classroom city, starting with a simple rectangular shape. Map roads using string. Determine a ratio for taking measurements to scale, and mark intervals on the map accordingly. Using marbles as vehicles and cardboard (folded in a V shape) or pipe insulation (cut in half for a U shape) as roadways, experiment with dropping the "cars" onto the track. How can you alter the tracks to control the speed of travel? Map the course of the track on a coordinate plane. Now, how will you transform a two-dimensional map into a three-dimensional city?

Equal Voicing: How will the class work together to build the city? Assign roles that include city planners to map the space, engineers to design the roadways, architects to imagine mixed-use structures, and mathematicians to help preparators take the map to scale.

Revision: Where will the support structures go? How should they be configured and why? Where do marbles fly off the tracks? Reduce the angle of descent to slow the rate of travel, or add a textured material such as brushes to slow the marbles at key trouble spots. Finally, how will you layer buildings into the structure for aesthetic effect? What household and recycled materials will you source to construct the buildings?

Presentation: Conduct a series of test runs in the school auditorium for lower-grade audiences. Present a series of accompanying poster boards that scaffold the construction process down into digestible steps comprehendible for younger students. After receiving feedback from students and teachers, invite local engineers and city planners to a special viewing. Ask groups of students to talk about how the creators' different roles contributed to the overall process.

Reflection: What are the real-world professions that practice design and engineering? What are the paths of study and entry points into the field? How do these jobs require creative and collaborative thinking similar to the artistic process?

Smoke, 1967, Tony Smith



TONY SMITH United States, 1912–1980 Smoke, 1967, fabricated 2005 Painted aluminum, installation; 290 x 564 x 396 in. LACMA, made possible by the Belldegrun Family's gift to LACMA in honor of Rebecka Belldegrun's birthday © Tony Smith Estate/ARS, NY (M.2010.49)

ARTWORK IN FOCUS

During the 1960s and '70s, Tony Smith's architectural artworks helped define "minimalism" in modern sculpture, which was concerned with simplicity rather than ornamentation. Many of his sculptures employ the triangle in complex geometric patterns. In the sculpture Smoke, in LACMA's permanent collection, two basic triangular units, a tetrahedron (a polyhedron or threedimensional solid made of four triangular faces) and an octahedron (formed by two tetrahedrons opened at a vertex and conjoined), are scaled to life size, repeated, and combined in a methodical configuration. While the design is strictly prescribed, the sculpture's outline seems organic, appearing curvilinear and growing both taller and wider, akin to the multidirectional path of billowing smoke as the viewer walks toward it, beneath it, and views it from above.

The individual parts of *Smoke* are machine-made, but their configuration references shapes and forms inspired by life, such as a crystalline structure. The overall hexagonal formation mimics the shape of a honeycomb and points to Smith's fascination with natural enclosures.¹ As with a cave, both positive and negative space serve defining roles. The patterned absences or gaps in space define the sculpture's environment as much as the solid portions. Perhaps this is why Smith called his works "presences" rather than sculptures, emphasizing the relationship between an artwork and its surrounding environment in the creation of a multidimensional experience. ATTACH OPEN ENDS OF ELEMENTS () and (2) TOGETHER MATCHING LETTERS ON CORNERS OF PARALLELOGRAMS, TIP INTO PLACE SO THAT ELEMENT () IS UPSTANDING AND LONGER ARM OF ELEMENT (2) LIES HORIZONTALLY ON FACE "X", BALLAST.



TONY SMITH United States, 1912–1980 Diagram of Cigarette, 1967 © Tony Smith Estate

PROJECT: SCULPT A GEOMETRIC PATTERN

The tetrahedron and octahedron (an eight-faced polyhedron) are modules, or basic units, that dominate much of Smith's practice. "In my work," he explained, "I use small cardboard maquettes [models], actual little tetrahedra and octahedra, and I paste them together with tape in order to arrive at the form of the work."² By rearranging the modules in various combinations until he reached a desired spatial effect, Smith not only determined the overall form but the ratio between the two parts, such as three tetrahedra to every two octahedra. The ratio presumably created a system for production that informed the execution of the final work.

Smith explored this building process in a nearly thirteen-foot-tall "cave" constructed of three thousand die-cut tetrahedra and fifteen hundred octahedra-shaped pieces of corrugated cardboard. For the sculpture's installation, the cardboard diecuts were shipped flat to the installation site and individually assembled and adhered together according to Smith's model. This and other works made of expendable materials have since been destroyed. Some sketches, however, have remained, such as this diagram for another Smith sculpture titled *Cigarette*. **Point of Entry:** Take a closer look at the diagram and chart the details that you see. How does it mark Smith's mathematical thinking and artistic process? Notice the overall form of the sculpture as well as the shape of the module. Each vertex is labeled a, b, c, or d, forming a system to direct the connection of angular points.

Essential Question: How do shapes combine to create sculptural forms inspired by life?

Grades: 6-10

Core Content: Shape, module or fractal, vertex, polyhedron, volume, ratio, form, geometric and organic, positive and negative space, maquette or model, scale, and weight.

Line of Inquiry: What do you notice about *Smoke*? Describe the basic unit that comprises this work. How is it repeated and arranged to create a pattern? If you added more units to the pattern, what would the progression of growth look like and where would the sculpture's outer limits expand? If you were to create a sculpture inspired by nature using a pattern, what form would you choose? Visit a local park for inspiration.

Sketch a shape, then bring the sketch to class. Examine the shape that you created and think about how you might divide the shape into a fractional representation. What is the basic unit that could comprise the overall form? How are the units joined? Is there a hidden shape at the junctures? Use toilet paper tubes or rolled newspaper as basic industrial units and experiment with construction. Determine the points of intersection and the secondary form (for example, a crumpled and compressed sheet of newspaper) that could be used to adhere two or more units at a vertex. As you build, count the ratio of primary to secondary units and document your plan as a blueprint.

Equal Voicing: How will you work as a team to create the sculpture? Roles may include mathematicians to measure the units, draftsman to draw the blueprint, engineers to design construction, and preparators to execute the design. Researchers should determine the cost of reproducing the paper units in metal, and accountants calculate the total cost of building a final version in metal. **Revision:** If certain parts appear unstable, how will you alter the weight distribution or stress to secure the sculpture? If an alteration occurs to one piece, how will it affect other pieces? Revisit the location where the sculpture will be installed. Does it fit aesthetically with its surroundings? How much material will be needed to execute a final version of the sculpture in metal, and at what cost? Include financial findings on the blueprint.

Presentation: Request permission to install the paper sculptures in the local park for one day. Invite the city parks and recreation department to attend the opening, and ask students to present the blueprints as new artwork proposals. Ask department representatives to vote on the most successful proposal, based on aesthetics and production costs.

Reflection: Does math exist in nature? How do artists transform natural shapes into man-made forms? How do teams of people execute artworks? How do other creative practitioners, such as designers and architects, find inspiration in nature?



TONY SMITH United States, 1912–1980 Diagram of Cigarette, 1967 © Tony Smith Estate

Levitated Mass, 2011, Michael Heizer



MICHAEL HEIZER United States, b. 1944 *Levitated Mass*, 2011 Granite, concrete, and steel; 258 x 5472 in., Zenith: 180 in., Weight: 340 tons LACMA © Michael Heizer (M.2011.35)

ARTWORK IN FOCUS

LACMA's newest installation, *Levitated Mass*, connects the fields of math and engineering with art. Its creator, Michael Heizer, had visited archaeological sites with his father, Dr. Robert Heizer, an archaeologist who studied the transport of megarocks during antiquity. The concept of ancient cultures using technology to mark their place and time undoubtedly influenced Michael Heizer, who is considered to be an early land artist. The land-art movement of the 1960s and '70s engaged the land as a sculptural material, and often located artworks in nature. Levitated Mass was originally conceived in 1969, during the land-art movement, and realized in 2011, after the perfect rock was identified to serve as the artwork's specimen. The 340-ton piece of granite was transported 106 miles from its home in a Riverside, California, quarry to its new installation at LACMA. At a height of 21½ feet, the boulder sits along a 456-foot-long ramp cut into the museum's Hancock Park lawn at a total depth and width of 15 feet, which allows crowds to walk directly underneath the giant rock.



MICHAEL HEIZER United States, b. 1944 Preliminary sketch for Levitated Mass, 2011 Courtesy of the artist © Michael Heizer

PROJECT: INSTALL A SITE-SPECIFIC SCULPTURE

When Heizer identified the pyramidally shaped rock, he inspected it and took detailed measurements. Construction workers used these dimensions to build the customized ramp out of concrete and reinforced steel, and designers used them to engineer the 294-foot-long, 32-foot wide by 23-foot-tall transporter to lift and carry the rock. To move the rock, workers first dug beneath all of its sides and used hydraulic jacks to lift it. Workers then assembled the carrier around the rock to form the foundation of the transporter. The carrier was designed with many pivot points so that various sections could move independently. Nearly the width of three freeway lanes, the boulder was driven at just five to eight miles per hour over eleven consecutive days.

When the rock arrived at LACMA, a custom-built crane lifted the rock into place. Granite landscaping and palm trees were added to reference its original desert home. A band of steel encircles the installation, marking a slope that slowly descends toward the ramp, giving visitors the opportunity to approach the rock from ground level and even touch its surface. **Point of Entry:** *Levitated Mass* is an example of a site-specific installation, or an artwork in the form of an environment made with a particular location in mind. Take a look at Heizer's preliminary sketch. How did he consider the museum campus when planning for the installation? What evidence can you find to support your claim? Installation art often engages the viewer in a sensory experience. What might it feel like to walk underneath *Levitated Mass*? How would the experience change under a larger or smaller rock, or an entirely different object?

Essential Question: How do artists connect math, engineering, and technology to create sculptural installations?

Grades: 8-12

Core Content: Weight, displacement, balance, force, mass, density, volume, dimensions, gravity, distance.

Line of Inquiry: What surprises you about Levitated Mass? What questions do you have for the artist? For the mathematician or the engineer? How can you calculate the amount of force (mass multiplied by speed) required to move this mass a specific distance? Considering the amount of energy and coordination required to move the rock, what might the impact be of moving several rocks of this scale to a single location? What tools would be necessary for such transport?

Experiment with the transport of objects of varying weight and scale, from a marble to a gallon of water, a projector, a desk, or a television. What technology could aid in the transport process? How could you enlist the expertise of others? Choose a large-scale object that exists on your campus, such as an old bench or an unused bookcase. Consider where you might move this object, whether to the playground or the library. Calculate the distance it must travel and the force required to move it. Generate a list of technologies or resources needed for the transport. How will you prepare the new site? What will you add to transform this object and site into a functional art installation?

Equal Voicing: How will the class work as a team to install the object? Roles may include engineers to plan the transport, preparators to execute the installation, and sculptors to re-envision the surrounding environment to enhance the installation's look and feel.

Revision: Perhaps this object has previously gone unnoticed. How will students and teachers interact with it now? What will you need to enhance the object and site? Identify source materials that complement the look, feel, and function of your installation, such as books or seating to turn the old bookcase into an interactive library site.

Presentation: Invite members of the school, neighborhood, and professional community with whom students interacted over the course of the previous units to view the campus installations. Present the preliminary studies that informed the artwork.

Reflection: What are the similarities and differences between artistic, mathematical, and engineering practice? What is the value of each to society? Why is it beneficial for artists, mathematicians, and engineers to work together?

CLASSROOM RESOURCES

Use LACMA as a resource for your PBL instruction. Compare the images on the following pages with:

- twenty-four-hour video of *Urban Light* (included on the curriculum CD)
- a spotlight video of *Metropolis II* (http://lacma.wordpress.com/2012/01/10/ metropolis-ii)
- time-lapse images of *Smoke's* construction (www.lacma.org/video/time-lapse-imagessmoke)
- multimedia documentation of *Levitated Mass* to track the rock's transport (http://www.lacma. org/video/levitated-mass).

Consider launching your unit by visiting the museum with your class as an interactive entry-point activity.

When designing your own PBL units of instruction, consider using the brainstorming template and project calendar provided to plan and facilitate the experience. Research artworks from LACMA's permanent collection to serve as inspiration (www.lacma.org/art/collection). If you share students with another instructor, perhaps divide the work by pairing up with a colleague so that, for instance, the math teacher handles math instruction and the art teacher facilitates the artmaking. Build in as many opportunities as possible to share student work with classmates, faculty, administrators, and the Education Department at LACMA.

WORKS CITED

- 1 Jane Livingston, "Tony Smith" in A Report on the Art and Technology Program of the Los Angeles County Museum of Art, 1967–1971, pp. 307–8.
- 2 Jane Livingston, "Tony Smith," p. 309.

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CHRIS BURDEN United States, b. 1946 Urban Light, 2008 202 restored cast-iron antique street lamps, 320½ x 666½ x 704½ in. LACMA, the Gordon Family Foundation's gift to Transformation: The LACMA Campaign © Chris Burden (M.2007.147.1–.202)



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CHRIS BURDEN United States, b. 1946 *Urban Light (detail)*, 2008 202 restored cast-iron antique street lamps, 320½ x 666½ x 704½ in LACMA, the Gordon Family Foundation's gift to Transformation: The LACMA Campaign © Chris Burden (M.2007.147.1–.202)



CHRIS BURDEN United States, b. 1946 Metropolis II (detail), 2010

3½ hp DC motors with motor controllers, 12,000 custom manufactured die-cast cars (1,100 for operating, 10,900 for replenishing damaged cars), 26 HO-scale train sets with controllers and tracks (13 for operating, 13 for replenishing damages), steel, aluminum, shielded copper wire, copper sheet, brass, various plastics, assorted woods and manufactured wood products, Legos, Lincoln Logs, Dado Cubes, glass, ceramic and natural stone tiles, acrylic and oil-based paints, rubber, and sundry adhesives; 117 x 339 x 230 in. © Chris Burden. Courtesy Gagosian Gallery. Photography by E. Koyama. (L.2010.33.1)



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TONY SMITH United States, 1912–1980 Smoke, 1967, fabricated 2005 Painted aluminum, installation; 290 x 564 x 396 in. LACMA, made possible by the Belldegrun Family's gift to LACMA in honor of Rebecka Belldegrun's birthday © Tony Smith Estate/ARS, NY (M.2010.49)



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MICHAEL HEIZER United States, b. 1944 Megalith slated to become part of Michael Heizer's Levitated Mass, prepared for transport from quarry in Riverside County to the Los Angeles County Museum of Art, 2012 2012 © 2012 Michael Heizer, photo by Tom Vinetz



MICHAEL HEIZER United States, b. 1944 Megalith slated to become part of Michael Heizer's Levitated Mass, prepared for transport from quarry in Riverside County to the Los Angeles County Museum of Art, 2012 2012 © 2012 Michael Heizer, photo by Tom Vinetz



Name:

PROJECT PLANNING	
Artwork in Focus:	
Essential Question:	
Core Content:	
Line of Inquiry:	
Equal Voicing:	
Revision:	
Presentation:	
Reflection:	

Name:

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Goals:				
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Goals:				

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WEEK THREE							
Goals:							
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