

Abstract Plaster Casting

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Basic Information

Title	Abstract Plaster Casting
Summary	Students will mix plaster and cast a solid abstract form into balloons. While forming the pieces in their hands, the plaster will begin to harden and students will decide on the permanent abstract form. The final products will de-molded from balloons, sanded to a smooth surface, mounted on painted wooden blocks and show a true understanding of the plaster medium and non-representational art forms.
Grade/Level	Grade 9, Grade 10
Time Frame	Four classes - Each 55 minutes in duration
Subject(s)	Art Foundations
Modifications	<p>This lesson was created mainly for students to be introduced to plaster. In the future different techniques such as plaster mold making may be used to introduce the medium.</p> <p>In the future the room that the project is done in always needs proper ventilation. If the room cannot accommodate this, students will need to use dust masks.</p> <p>In the future nitrile gloves can be purchased for students who have sensory issues with the consistency of plaster.</p> <p>During student teaching, the room being used for this assignment was a room that was used by more than one teacher. In the future if the room is specifically catered to plaster, the paper used on the tables as protection can stay for the entire assignment.</p> <p>If a projector is not available, the slides from the power point can be printed.</p>

Standards And Key Concepts

Standards

MA- Massachusetts Core Course Objectives (2014)

Subject:

The Arts

Grade Range:

9-12

Area:

Visual Arts

Objective:

Students demonstrate knowledge of the methods, materials, and techniques unique to the visual arts.

Indicator:

Basic: Students demonstrate the ability to create 2D and/or 3D works that show knowledge of unique characteristics of particular media, materials, and tools.

Objective:

Students demonstrate their powers of observation, abstraction, invention, and expression in a variety of media, materials, and techniques.

Indicator:

Basic: Students create 2D and/or 3D artwork that explores the abstraction of ideas and representations of ideas.

Objective:

Students demonstrate knowledge of the processes of creating and exhibiting their own artwork: drafts, critique, self-assessment, refinement, and exhibit preparation.

Indicator:

Basic: Students demonstrate the ability to develop an idea from conception to completion, responding to criticism and self-assessment.

Indicator:

Extended: Students organize and present a body of their own work to others.

MA- Massachusetts Curriculum Frameworks

Subject: Visual Arts

Strand: The Arts Disciplines

Standard 1: Methods, Materials, and Techniques Students will demonstrate knowledge of the methods, materials, and techniques unique to the visual arts.

Grade 9-12:

Learning Standard 1.9:

Demonstrate the ability to create 2D and 3D works that show knowledge of unique characteristics of particular media, materials, and tools

Learning Standard 1.14:

Demonstrate a mastery of tools and techniques in one medium
By the end of extended study in grades 9-12

Learning Standard 1.15:

Describe and apply procedures for the safe and proper maintenance of the workspace, materials, and tools; identify potential health hazards associated with materials and techniques, and possible substitutes for hazardous materials

By the end of extended study in grades 9–12

Standard 3: Observation, Abstraction, Invention, and Expression Students will demonstrate their powers of observation, abstraction, invention, and expression in a variety of media, materials, and techniques.

Grade PreK-4:

Learning Standard 3.2:

Create 2D and 3D expressive artwork that explores abstraction

For example, a student simplifies an image by making decisions about essential colors, lines, or textures.

USA- 21st Century Skills Guidelines

Content and Skill Area: LEARNING SKILLS: THINKING AND PROBLEM-SOLVING SKILLS Students need to think critically, analyze information, comprehend new ideas, communicate, collaborate, solve problems, and make sound decisions. Some critical elements of these thinking and learning skills are:

Skill: Critical thinking and systems thinking. Exercising sound reasoning in understanding and making complex choices, understanding the interconnections among systems.

Skill: Problem identification, formulation and solution. Ability to frame, analyze and solve problems.

USA- NAEA National Visual Arts Standards (2012)

Grade: 9 – 12

Content Standard:

1. Content Standard: Understanding and applying media, techniques, and processes

Achievement Standard:

a. apply media, techniques, and processes with sufficient skill, confidence, and sensitivity that their intentions are carried out in their artworks

USA- National Core Arts Standards (2014)

Discipline: Visual Arts

Process: Creating

Anchor Standard: Organize and develop artistic ideas and work.

Grade: Grade Hs proficient

Indicator: VA:Cr2.1.HSI Engage in making a work of art or design without having a preconceived plan.

Overarching Goal

By the end of this lesson students will have created abstract three dimensional forms in plaster. Students ability to demonstrate knowledge of how to mix, pour, de-mold, and sand plaster is the main focus. Each student will create an abstract form that will show an understanding and appreciation for taking a material and creating objects that communicate the breaking down of complexity within the visual world.

Understandings and Lesson Objectives

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1. Students will demonstrate proper use of plaster including mixing, pouring, de-molding, and sanding.
 2. Students will implement proper safety procedures when using plaster and related materials.
 3. Students will create three dimensional objects that represent abstract forms.
 4. Students will prepare sculptures for exhibition by mounting their pieces and considering the conditions in which it will be exhibited.

Essential Questions

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1. What does it mean to abstract something?
 2. What is the difference between representational art and abstract art?
 3. How is three dimensional art used to communicate ideas?

Unit (guiding) Questions

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1. Why is proper ventilation necessary for plaster mixing and sanding?
 2. What is the ratio of plaster to water when mixing?
 3. What is the “mountain” or “island” method of mixing plaster?
 4. What are the four mixing stages of plaster solidification?
 5. What is curing and how can you tell the plaster has fully cured?
 6. How does mixing with cold, warm, or hot water effect the curing process?
 7. Why do you never pour plaster directly into a sink?
 8. Once casted, what does it mean when the plaster is hot, cold, and room temperature?

9. When is the ideal time for sanding, painting, or clear sealing?

Knowledge and Skills

Students have created abstract three dimensional forms in a previous lesson out of wire. Students began by gesture drawing as a way to understand how to break down forms. They also viewed abstract and realist artwork. For this lesson, students will be introduced to the new material plaster. During the initial demonstration students will learn that the material is time sensitive. Through problem solving students will be challenged to develop and create an abstract sculpture under a quickly changeable circumstance.

Performance Tasks And Assessment

Performance Task/ Activity

In this lesson students are being introduced to a new material. Their ability to learn about all the steps needed to work with plaster and then mixing, pouring, de-molding and sanding efficiently will be essential in demonstrating an understanding of the material. Students need to understand how to manipulate an object that is changing. By doing this students are showing an ability to evaluate a situation and change as needed to be successful in whatever challenge they are being presented.

Motivation

The lesson will begin with a Power Point presentation. Included in the presentation are images of abstract and realist sculptures. Students will begin by viewing the new artworks and be called on to verbally respond the similarities and differences within the works as a way to build upon knowledge already established about realism and abstraction. Next the students will watch a video demonstration of plaster mixing. This will lead to all the preliminary steps needed for the material. Lastly, the teacher will pass around abstract examples created in plaster for students to see the end result that they are assigned to accomplish.

Assessment/Rubrics

Attachments:

1. Plaster_Rubric.docx

Learning Experiences And Resources

Routines

At the beginning of every class the teacher will present the objectives for the day. This is included in sequence of activities. Each class will begin this way.

The safety procedures are absolutely necessary and are to be used within this lesson. This is explained in the sequence of events as well as the power point. Plaster can be harmful if not used properly. The safety of students is always the number one priority.

Allow 10 minutes for students to clean up at the end of class. All plaster powder needs to be swept in the room and disposed in the trash. All paper that is used to protect the tables also needs to be disposed by the end of class to clear off the surface for the next classes using the room.

Instructional Approaches

Socratic - Students will be asked many guiding questions to ensure an understanding of plaster. At the start of the lesson students will be reintroduced to abstraction and realism. Through questioning and verbal responses students will comprehend the similarities and differences between the art forms to apply to their sculptures.

Constructivism - Students will build upon knowledge of abstraction and three dimensional forms. By reflecting on those experiences, students will construct artwork that is created by the new established material, plaster.

Sequence of Activities

Before the lesson begins, the teacher needs to prepare the work for the students. Each student will need a 4in. X 4in. X 2in. base for this assignment. The teacher will measure and cut these bases using a circular saw.

At the beginning of each day the teacher needs to open the windows in the room. This will for ventilation purposes.

Day One

1. Greet the class and tell students to have a seat. Take attendance.
2. Start PowerPoint presentation about plaster.
3. Included in the PowerPoint are figurative realist and abstract sculptures. Students have been introduced to realism and abstraction in a previous assignment but have not viewed the artworks in this power point. The teacher will prompt students to identify the similarities and differences within the artwork being shown. Students will verbally respond. This is the formative assessment within this assignment. The next slides include mixing plaster (with an instructional YouTube video), safety precautions to take when dealing with plaster, sanding finished products, mounting finished products, and the objectives of the lesson. After the presentation, the teacher will pass out the examples of the finished assignment for students to feel and view to understand what is needed of the assignment.
4. As an introduction to abstraction in the past, students were assigned to practice gesture drawing as a way to break down the human form into simple shapes. With the remainder of class the class will choose a classmate to pose for gesture drawing. The students can volunteer for this. If nobody volunteers it is the teacher's responsibility to choose and motivate students to participate.
5. Have the students use one 18X24 sheet of white paper for this part of the lesson. Pass out pencils to students.
6. Start by having one student pose for 2 minutes. Gesture drawing poses will be split into 2 minute intervals. After two minutes, prompt another student to pose.

7. The teacher will keep the time as well as walk around the room.
8. Allow 10 minutes for students to clean up. Inform students that plaster will destroy clothing so they should bring clothing that they are willing to get dirty for the next class. Have students put away gesture drawings in portfolios and return all materials to the cart where all materials are kept. Each student will also use a sponge to wipe down the area of table they were working. Dismiss class at the bell.
9. Before day two, the teacher needs to ready the room for plaster mixing. The teacher will cover the entire tables with paper from the paper roll and tape it down. Only areas covered in tape will be used during this assignment. Also place one 25 gallon bucket filled half way with water into the sink. This will be later used for cleaning hands.

Day Two

1. Greet the class and tell students to have a seat. Take attendance. Start by explaining the objectives of the day. Students will mix plaster and cast their abstract sculptures. The class will begin by the teacher demonstrating how to mix and pour the material.
2. Start laying out materials on paper covered tables. All materials are located on the cart with materials. Give each student one 1 quart bucket, one balloon, a piece of 4 in. X 10 in. drawing paper to be used to create a funnel and masking tape. This will create a spout for the plaster to be poured into and eliminate spilling once mixed. Roll paper into a tube, insert paper funnels into balloons and set aside. The teacher will also create a funnel balloon for the next step of the lesson.
3. The teacher will begin by demonstrating proper plaster mixing and pouring into balloons. Have students get up and crowd around during the demonstration. The teacher will fill a bucket half way with warm water. Plaster should always be mixed with warm water for proper curing. Begin by slowly sifting plaster into water using the plastic cups. The plaster is being used from one bag. The students will crowd around and take plaster from this one bag for the project. While the teacher sifts, keep emphasis on not adding large clumps to the water to lessen plaster dust particles in the air. Tell students to also sift slowly when they are mixing their own bucket. Wait until an "island" or "mountain" of plaster forms on top of the water that floats. (From PowerPoint. Also see "key terms" in appendices.) Once mixed, pour the plaster into the balloon through the funnel and look inside the funnels so not to overfill and create spills. Slowly remove funnels over table. This can create a mess if removed too quickly. Tie the balloons. (Any unused material will be kept in buckets until hardened and then disposed into the trash on day three.) The plaster takes time to cure so set aside balloon and have students begin mixing their own plaster. This "demo sculpture" will be used throughout the project as a piece to use for sanding and mounting demonstrations. The teacher will do the steps for the project along with the students.
4. Have students follow the exact same procedure from the plaster mixing demonstration.
5. After the balloons are tied, students will need to begin forming the abstract sculpture in hands.
6. As the plaster is worked, it will begin to turn from a liquid to a solid. As it solidifies, students will stop moving it and decide on the final shape they want to create. Emphasize on not creating any part of the piece to be less than a ½ inch thick so that the piece will not break. Have the students hold a shape and count to thirty. After thirty seconds have the student start to move one finger. If the shape does not keep its form, hold for another thirty seconds and repeat. Once the form stays the plaster is set and needs to be placed down. Over mixing plaster will make the material crumble.
7. Once the pieces have gone from warm, to hot, to cold, they can be moved.
8. Students may clean off hands by first using paper towels to get most of the material off then by rinsing hands in the water filled bucket in the sink. Never put plaster directly into sink.
9. Have students mark their balloons with their initials in sharpie.
10. Have students cut the ties off balloons by tugging at the knot and cutting. This needs to be done so that moisture can be released.
11. Allow 10 minutes for students to be clean up. All plaster powder needs to be swept slowly in the room and disposed in the trash. Students need to sweep slowly to lessen the amount of plaster dust particles in the air. Over exposure to plaster dust is harmful to the body so the safety procedures are absolutely necessary and are to be used within this lesson. The safety of students is always the number one priority. All paper that is used to protect the tables also needs to be disposed of by the end of class to clear off the surface for the next classes using the room. Have students move plaster sculptures to one table. These will not be moved until day three. Dismiss class at the bell.
12. Before day three, the teacher needs to ready the room for plaster sanding. The teacher will cover the entire tables with paper from the paper roll and tape to the table. Only areas covered in paper will be used during this assignment. The teacher will also have all cut wooden bases ready for students.

Day Three

1. Greet the class and tell students to have a seat. Take attendance. Start by explaining the objectives of the day. Students will clean their buckets from day two, de-mold their plaster sculptures, sand their sculptures/bases and paint their wooden bases.
2. Start by having each student clean their bucket. The plaster does not stick to plastic so squeeze the sides of the bucket. This will release the material. If plaster sticks to the bottom of the bucket, flip bucket over and tap the bottom over trash. This will break up the material. You may need to pick out pieces from the bucket but it will always release. Dispose plaster directly into the trash. Once that is finished, have students take their sculptures to their seats. Pass out scissors and sand paper.
3. Have students de-mold the pieces by simply cutting more of the balloon off. Do this slowly and cautiously to ensure students will not break sculptures into small pieces. Remove entire balloon. Use the "demo sculpture" to show students this step.
4. Have students sand the entire pieces on paper covered tables. The sanding surface is shown in the power point presentation as well as the teacher examples. Use the "demo sculpture" to demonstrate the sanding procedure. A smooth surface that has no remnants

of sandpaper or holes is the main objective. Students should sand any air bubbles or finger prints that could have casted in the process. The casting will also have creases where the balloon was tied. Sand this part off. Students will use the 600 grit sand paper to sand their sculptures. If the plaster has large holes or large air bubbles, the 220 grit sand paper can be used to get rid of this. If 220 sand paper is used, the student needs to also sand the plaster with 600 grit sandpaper. The smaller the number, the larger the sand grit size so this means the 220 will leave marks on the surface. When finished the sanded plaster powder needs to be swept slowly with a dust pan. Emphasize doing this slowly so that fewer particles get into the air.

5. Give each student a pre-cut wooden base. Pass out 220 grit sandpaper. The sand paper comes in 9 in. X 11 in. Fold the paper into four and cut a piece for each student.
6. Sand wooden bases smooth. Students will know when bases are sanded properly because they can run their fingers across it and the surface does not feel rough.
7. Once sanded, the students can paint bases. Paint and brushes are kept on the cart with all materials. Students can paint directly on the paper covered tables. Make sure students rinse out brushes in the sink.
8. While bases are drying, the teacher will walk around the room with a sharpie. The teacher will discuss with students how they would like to mount their sculptures. The teacher will mark this point with the sharpie so the plaster and base can be drilled before day four. The teacher needs to prepare this for the last day of the lesson.
8. Allow 10 minutes for students to be clean up. All plaster powder and wood dust needs to be swept slowly in the room and disposed in the trash. Students need to sweep slowly to lessen the amount of dust particles in the air. Over exposure to plaster and wood dust is harmful to the body so the safety procedures are absolutely necessary and are to be used within this lesson. The safety of students is always the number one priority. All paper that is used to protect the tables also needs to be disposed by the end of class to clear off the surface for the next classes using the room. Have students move plaster sculptures and wooden bases to one table. Dismiss class at the bell.
9. Before day four, the teacher needs to ready the room for the final plaster sculpture mounting. The teacher will cover the entire tables with paper from the paper roll and tape. Only areas covered in paper will be used during this assignment. The teacher needs to drill all bases and sculptures before day four and insert steel nails so students can epoxy their final works.

Day Four

1. Greet the class and tell students to have a seat. Take attendance.
2. Have students get their sculptures and sit at paper covered tables.
3. Pass out pre-drilled bases with inserted pins. Plug in hot glue guns at this time so they will be ready to use during the epoxy demonstration.
4. Each student will apply epoxy to their pins and permanently adhere sculptures to bases. The teacher will demonstrate how to do this. The teacher and each student will use gloves while doing this part of the lesson. The teacher will use the "demo sculpture" to demonstrate the gluing procedure. To apply epoxy the teacher will cover the entire steel nail. The epoxy needs to be in the base and the sculpture. The epoxy takes 24 hours to properly cure. Use hot glue to add a small dab of glue to the sculptures and base to keep them in place while the epoxy sets. Students will need to hold sculptures in place while hot glue sets. This should take 1 minute.
5. Have students follow the gluing demo procedure for their own sculpture. Dispose of gloves after gluing is finished. Students can unplug glue guns after gluing is finished. Have students write their names on the bottom of their bases. Remove paper from the tables. Have students line up the finished sculptures on the tables.
6. With the remainder of class conduct an in-class discussion. Ask students to reflect on the project. Call on students to verbally explain their thoughts about plaster and the final products. This final critique is the final summative assessment of the lesson.
7. Allow 10 minutes for final clean up. The room needs to be completely swept of all plaster. Tables should be completely cleaned with a wet sponge. Have students pass in their final pieces and dismiss the class at the bell.

Differentiated Instruction and Adaptations

It is the teachers legal responsibility to always follow all mandated Individualized Education Programs (IEP's) and 504's for each student within the classroom.

For students with auditory needs, the teacher will always speak with these students individually to make sure all communication for the task at hand has been understood. The teacher will always print all the information for the students and meet with students one on one for any additional questions.

For English language learners, the teacher will always speak with these students individually to make sure all communication for the task at hand has been understood. The teacher will always print all the information for the students and meet with students one on one for any additional questions.

Advanced learners, for instance students enrolled in Advanced Placement Art (AP), will be assigned to create two abstract plaster sculptures. The teacher will limit their instruction to the student(s) as they complete the second piece. This is to show that the student(s) can prove they have understood all the concepts introduced in the lesson. This added work and keeping the same deadline of all students will prepare these particular gifted learners for future artistic endeavors.

Any other additional accommodations that help the students succeed in the lesson not yet discussed will be followed by the teacher.

Resources

- Materials and resources:
Artwork References
Auguste Rodin - "The Thinker"

Henry Moore - "Reclining Figure 1936"
Anish Kapoor - "Cloud Gate"

Plaster mixing demonstration:
<https://www.youtube.com/watch?v=3YuHXVBT1D4>

- Technology resources:
Teacher will project PowerPoint to students from teachers laptop.

Materials

- 18 - sheets of 19 X 24 Strathmore 400 series white drawing paper for gesture drawings
- 2 packs – 12 per pack of General’s Layout Pencils
- 1 box - 18 per box Factic Latex Free Black Erasers
- 1 - 50lbs. bag of USG Number 1 Molding Plaster
- Water (Plaster is mixed in a 2 to 1 ratio. The amount of plaster needed determines the amount of water being used)
- 18 - 1 quart mixing buckets
- 18 - 8 oz. disposable plastic cups for plaster sifting
- 1 - 25 gallon bucket filled halfway with water in sink for washing hands
- 3 - rolls of Paper towels
- 4 in. X 10 in. drawing paper to be used to create funnels
- 1 roll masking tape
- 1 - roll of 36ft X 100 yard roll of white drawing paper to protect tables
- 18 - 12 inch Balloons
- 18 - Scissors
- 1 - black Sharpie
- 3M 220 and 600 grit sand paper
- 1 - 2 in. x 4 in. x 8 ft. #1 Southern Pine Pressure-Treated Lumber to be cut into 4in. X 4in. bases
- 1 - BLACK & DECKER 20-Volt 5-1/2-in Circular Saw to cut bases
- 1 - BLACK & DECKER BDEDMT Matrix AC Drill
- 1 - RIDGID 1/4 inch drill bit
- 2- 4 oz. tubes of Liquitex black acrylic paint
- 18 – Grumbacher Academy Hog Bristle Brushes - Bright: Size 6
- 18 - 2 in. steel finishing nails to pin sculptures to bases
- 6 - hot glue guns (to be shared by the 18 students)
- 1 - package SUREBONDER hot glue sticks - 4 inch
- 1 - 3.7 oz. tube of E6000 Epoxy
- 20 - pairs of nitrile disposable gloves
- 1 - Dust pan
- 5 - sponges for clean up of studio
- Teacher’s two plaster balloon sculpture examples

Appendices

Key Terms:

Casting: Creating an object by pouring a liquid material into a solid, hollow form.

De-molding: With plaster, once the plaster has changed from warm, to hot, to cold, it has fully solidified (became solid) and is safe to remove from casted hollow form.

Mountain or island method: To mix plaster, there must be a two to one ratio. Always mix two parts plaster to one part water. While adding plaster powder to water, the way to know when to start mixing is by using the mountain or island method. The powder will begin to float on the surface of the water. Once there is a mound of powder in the middle of the water that does not sink, the plaster is ready to mix. The mound is referred to as the “mountain” or “island.”

Curing: As water releases from plaster is goes through chemical changes. These are marked by the plaster changing temperature. As it cures, the plaster will start warm then become hot and cold. The last stage is when the plaster becomes room temperature. This means all water has been released. This is the best time to sand, paint, mount or seal the object.

Plaster hardens the more you mix it. These consistencies are categorized into four stages:

Flick, smear, or milkshake coat: This is the thinnest layer of plaster mixing. This consistency is used to pour solid forms or the first layer of making a mold. It is flicked or smeared on clay to make a mold. This is the consistency needed to make the casting for this project. The next consistencies are used in mold making. As the plaster is hardening, they will transition through these stages.

Yogurt consistency: As the plaster is mixed more, the material will thicken. The consistency is similar to that of yogurt. It is runny but is thicker than the flick/smear coat. This is used as the second layer of mold making.

Mayonnaise consistency: As the plaster is mixed more, the material will thicken more. The consistency is similar to that of mayonnaise. It is no longer runny and starts to keep its shape. This is used in the third layer of mold making.

Peanut butter consistency: As the plaster is mixed more, the material will thicken more. The consistency is similar to that of peanut butter. Use caution in this mixing because the plaster can easily change from movable to crumbling. Crumbling plaster has been over mixed and is not usable. This consistency is used in the fourth layer of mold making.

Attachments:

1. **Artwork_Citation_Plaster.docx**
2. **Plaster_New.ppt**
3. **Plaster_Rubric.docx**

Links:

1. [Plaster Mixing Demonstration](#)