LESSON PLAN

NATURE'S ARMOR; HANGING BEETLE SCULPTURES

Suggested Levels: 7th grade to Advanced

Designer: Bailie Benson

In this lesson, students will create a realistic ceramic beetle wall hanging sculpture using Mayco hump molds and found objects. Students will explore beetle anatomy, texture, and color while learning clay sculpting, joining, and glazing techniques. Finished pieces will be both decorative and functional, showcasing intricate insect designs.

Students will focus on texture, detail, and form while creating their ceramic beetle. The finishing touches comes with Mayco's vibrant line of Elements™ glazes, which are inspired by aspects of nature. These sculptures are also enahnced with the help of Mayco Classic Crackles© Glazes. Classic Crackles© are glazes that are designed to "craze," or develop subtle surface cracks in the finished glaze.

These versatile glazes make it easy to achieve professional-quality results, turning simple clay forms into stunning works of art. Perfect for blending skill-building with creativity, this project highlights how Mayco Elements™ and Classic Crackles© glazes inspire nature in ceramic works.

OBJECTIVES

I CAN... create a realistic ceramic beetle by sculpting and adding detailed features using clay.

I CAN... use slump or hump molds and texturing tools to form and shape a hollow insect sculpture.

I CAN... apply glazing techniques to add realistic colors and finishes to my beetle sculpture.

NATIONAL VISUAL ART STANDARDS

Generate and conceptualize artistic ideas and work.

- Students will generate ideas and concepts by researching beetles and sketching their designs, allowing for exploration of both realistic and imaginative approaches to their sculptures.

Develop and refine artistic work for presentation.

- Students will refine the appearance of their sculptures through glazing; ensuring they convey meaning and realism in the final presentation.

Perceive and analyze artistic work.

- Students will analyze their work and the work of their peers, evaluating how effectively the beetle sculptures capture realistic features, textures, and color while also considering the artistic interpretation.

Synthesize and relate knowledge and personal experiences to make art.

- Students will incorporate their observations of real-life beetles (whether from nature walks or research) into their designs, adding personal experiences or memories of encounters with insects to inspire creative choices in texture and form.

MEET THE MASTERS

Kate MacDowell

brings nature to the forefront of her work as she creates ceramic sculptures featuring insect or animal motifs. Her art is inspired by the environment and the ways in which she percieves the world.

Her sculptures are full of detail, showing the extent to which she observes the world and its creatures around her. Her work often evokes a connection between humans and nature, telling a visual story of the two's relationship to one another. Kate's art inspires people of all ages to see nature, animals, and insects in new and enlightening ways.

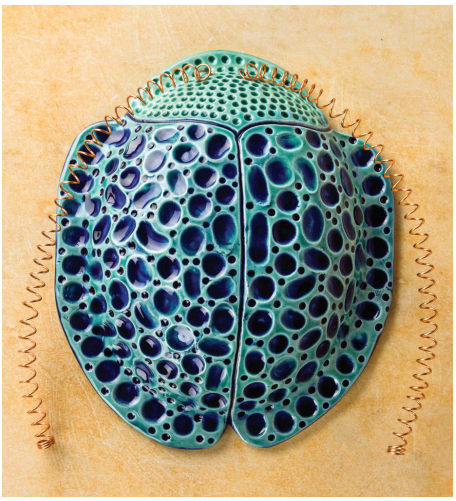
SUPPLY LIST

CLAY

- Clay body of choice

TOOLS

- Rolling pins and guide sticks or a slab roller
- Clay cutting tools
- Canvas sheets
- Slip containers and scoring tools
- Sponges
- Modeling or loop tools
- Wire brushes
- Slump molds or bowl
- Newspaper, tape or found objects to drape
- Plastic card



This project features Mayco's Elements™ and Classic Crackles© glazes. These glazes add the perfect finish to the Hanging Beetle Sculptures.

Elements™ glazes are inspired by natural colors and earthy tones. These glazes are designed to created an organic two-toned finish and are an ideal glaze choice for replicating the look of beetle shells.

In addition to Elements™, student can use Classic Crackles© on their beetle sculptures to enhance the dimension of the final piece. Classic Crackles© glazes are designed to "craze" which adds subtle and decorative surface cracks in the glaze.

Both of these glaze lines were formulated for cone 06 firing; however, Elements™ glazes have the ability to be fired up to cone 10, whille Classic Crackles© glazes can be fired up to cone 6. This allows for this lesson plan to adapt for any art room, regardless of firing temperature.

ACTIVITY

Steps for Creating a Ceramic Beetle Using Drape or Hump Molds

1. Research and Design

- Research different types of bettles, focusing on their body shapes, textures, and details.
- Sketch your beetle design, including top, side, and additional detailed views to guide your work.

2. Prepare Your Mold

- Choose a pre-made slump or hump mold, or create your own using found objects (e.g., bowls, plaster, bisque clay forms, or newspaper and tape).
- Apply a thin latyer of cornstarch or plastic wrap to the mold to prevent the clay from sticking.

3. Shape the Beetle's Body

- Roll out a slab of clay (about 1/4-inch thick) and drape it to fit the mold.
- Gently press the clay to take on the mold's shape, smoothing edges with your fingers or a sponge and a spray of water to add to the elasticity of the clay.
- Trim excess clay around the edges to match your desired body shape.

4. Add Details

- Sculpt additional beetle parts, such as legs, antenae, and wings, from clay coils or small slabs.
- Attach these pieces securely to the body using slip and score techniques.
- Add texture using carving tools, stamps, or natural objects like leaves to replicate the beetle's surface.

5. Hollow and Refine

- If your sculpture is thick, hollow out areas from the underside to ensure even drying and prevent cracking.
- Smooth seams and refine details with a damp sponge or small tools.

6. Dry and Fire

- Allow the sculpture to dry completely to the leather-hard stage, then refine further if needed.
- Once fully bone-dry, bisque fire your beetle and prepare for glazing.

7. Bisque Fire the Creature

- Once completely dry, the creature is ready for its first (bisque) firing in the kiln.

8. Glazing Techniques Overview

- Apply a base layer of Mayco Classic Crackles© glaze to create an organic, textured effect. Let dry completely.
- Add accents or layering with Mayco Elements™ glazes to enhance colors, depth, and patterns. Experiment with overlapping for unique results.

9. Final Firing

- Fire the glazed beetles in a kiln according to the firing temperature of the clay body used.

10. Presentation

- Display your finished beetles as wall hangings; adding wire or clay hooks to the back before the first firing, or present them in a naturalistic arrangement for a gallery setting.

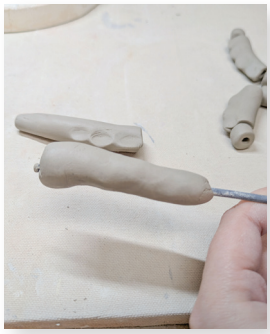
CLAY BUILDING DIRECTIONS

1. Begin by rolling out and compressing a slab of clay large enough to fit over the top of the hump mold or bowl. Lay the slab of clay on top of the hump mold and compress down around the form using a sponge. Cut the excess clay off around the hump. Remove the body of the beetle from the hump mold or bowl.

2. Lay a small bit of excess clay over the front of the hump mold or bowl to form the "head" section. Compress and cut to the desired size and style. Scratch and attach the body and head together. Roll out a coil about the thickness of a pencil to create a separation accent and scratch and attach this where the body attaches to the head.

3. Using your choice of carving tool, carve in the sections where the wings separate from the rest of the shell. Don't forget to use reference photos if needed. Roll three thick coils and shape to form the horns of the rhino beetle. If the horns are exceptionally thick, hollow them out with carving tools and poke a hole in the head underneath where they'll attach. Scratch and attach the horns to the head and smooth out the attachment point with a finger. Carve in detail like ridges on the body and horns. Punch holes in the side of the body where the legs will attach.

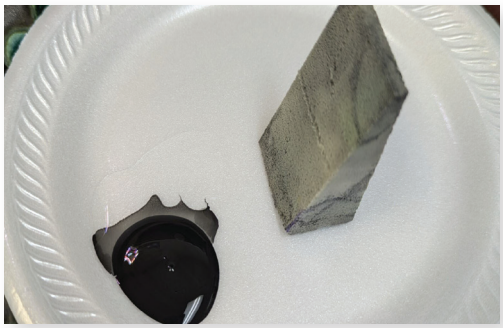
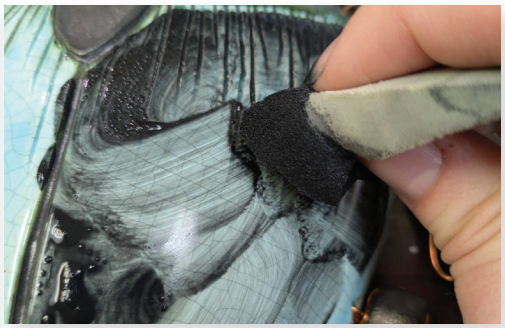
4. To create the leg pieces, roll twelve balls of clay slightly smaller than half an inch. Spear the clay balls onto one of the wire rods from the bead rack and gently roll the bead on the table while on the wire rod to create slightly larger holes to compensate for shrinkage in drying and firing so the shapes can be glaze fired on the rods. For the larger parts of the leg, roll 6 coils about half an inch thick and between one and two inches in length. Repeat the bead process from earlier in this step. Pinch out sections of one side of the bead to create interest and shape.

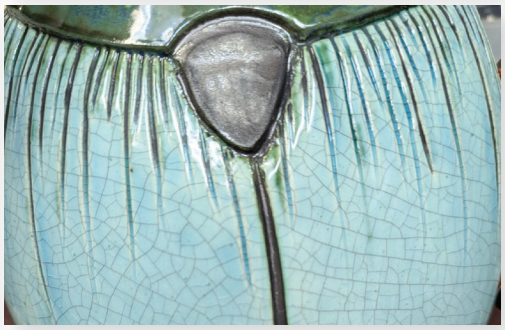


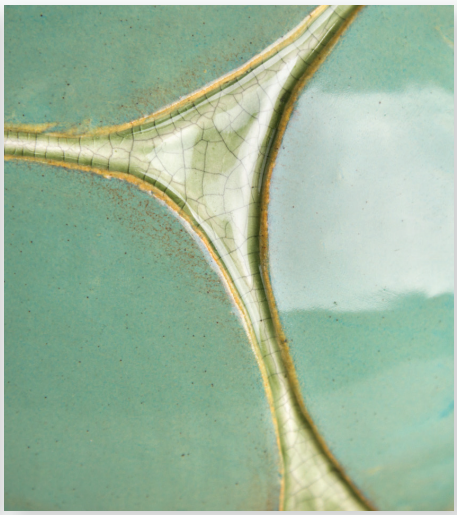
5. Allow clay to fully dry and bisque fire to cone 04.

GLAZING DIRECTIONS

1. Using a soft fan brush, apply three coats of CC108 China Sea to the body of the beetle, halfway down the horns, and in the indents of the long bead leg pieces. Allow glaze to dry between coats. Apply three coats of EL119 Burnished Steel to the unglazed areas of the beetle and leg beads, and overlapping the CC108 China Sea halfway up the horns, on the legs, and the middle section of the body.
2. Allow glaze to fully dry. Thread the leg beads onto the bead rack. Fire to cone 06.
3. Antique the crackle glaze using a coat of OS476 Black and immediately wipe back using a damp paper towel.
4. Using about 24 inches of copper wire on each leg, thread the beads onto the wire. Use wrapping to keep the beads in place and position the leg shape. Attach through the holes on the main body. Clip off any excess wire that's left over.




EXTEND THE LEARNING *using Gardner's Multiple Intelligences Theory*

LINGUISTIC
(Word Smart)

Students research the scientific names of beetles, breaking down their Latin or Greek roots to uncover their meanings (e.g., Goliathus goliatus for the Goliath beetle).

Discuss how scientific naming reflects beetle characteristics, such as physical traits, behavior, or the person who discovered them.

Students can create their own "scientific name" for their ceramic beetle and write an explanation of its meaning.

SPATIAL
(Picture Smart)

Incorporate other materials, such as metal wire for legs or wings, into the beetle sculpture to extend its form into space.

Have students break down the beetle into geometric shapes (e.g., ovals for the body, lines for antennae) and visualize how these forms come together.

INTERPERSONAL
(People Smart)

Host a debate about whether their beetle sculptures are better categorized as artistic interpretations or scientific representations.

Pair or group students to research how beetles are featured in the myths, stories, or traditions of different cultures (e.g., Egyptian scarabs, Japanese stag beetles).

BODY KINESTHETIC
(Body Smart)

Have students experiment with creating beetle textures by physically pressing natural objects (like leaves, bark, or textured fabrics) into clay.

Students use their hands and tools to mimic the physical movements and gestures of sculpting while shaping their clay beetles.

NATURALIST
(Nature Smart)

Students research threats to beetle populations, such as habitat destruction or climate change.

Students research the biodiversity of beetles, focusing on their role in ecosystems (e.g., pollination, decomposition, or predator-prey dynamics).

LOGICAL/ MATHEMATICAL
(Number Smart)

Students analyze the bilateral symmetry of beetles and apply this understanding to their sculptures using rulers and compasses to measure and replicate symmetrical details, such as wings, legs, and antennae.

Students calculate the proportions of their beetle sculptures based on real-life dimensions. Introduce a ratio or scale (e.g., 2:1) to enlarge or shrink their designs while maintaining accuracy.

INTRAPERSONAL
(Self Smart)

Encourage students to reflect on the traits or qualities of beetles (e.g., resilience, adaptability, transformation) and how these might connect to their own experiences or identities.

Before starting, students set specific goals for the project (e.g., mastering a new technique, improving glaze application, or creating a detailed sculpture).

MUSIC
(Music Smart)

Students create a soundscape inspired by the natural environments where beetles live, incorporating sounds like rustling leaves, chirping insects, or buzzing wings.

Explore how composers have used insects as inspiration, such as Nikolai Rimsky-Korsakov's Flight of the Bumblebee or Bela Bartók's from the Diary of a Fly.

RUBRIC

	4 - EXCELLENT	3 - GOOD	2 - SATISFACTORY	1 - NEEDS IMPROVEMENT
DESIGN & CREATIVITY	Highly original, imaginative, and unique design; exceptional creativity in concept and execution.	Creative design with some original elements; mostly successful concept.	Basic design with limited originality; lacks full development.	Lacks creativity or originality; design is underdeveloped.
ATTENTION TO DETAIL	Exceptional detail in beetle features; realistic anatomy and careful, intricate work.	Good attention to detail, with some thoughtful anatomical features.	Some detail present but lacks precision or is inconsistent.	Very few details; missing key anatomical features or poorly executed.
USE OF MATERIALS	Excellent use of clay, glazes, and tools; techniques are applied with skill.	Good use of materials with appropriate glaze application; some minor inconsistencies.	Adequate use of materials; glaze application or construction may be uneven.	Poor or incorrect use of materials; glaze application is sloppy or incorrect.
CONSTRUCTION & TECHNIQUE	Strong, stable construction; precise use of slump/ hump molds; excellent craftsmanship.	Solid construction with minor imperfections; appropriate use of techniques.	Some construction flaws; lack of stability or uneven molding.	Weak construction; significant structural flaws or improper technique.
PRESENTATION & REFLECTION	Clear, thoughtful reflection; explains design choices, challenges, and successes in a professional manner.	Good reflection; explains most design choices and challenges.	Minimal reflection: some design choices are explained but lacks depth.	Little or no reflection; does not explain design choices or challenges.

This rubric provides a clear and balanced way to assess both the technical and creative aspects of the project, while also encouraging student reflection and effort throughout the process.

Total Score: _____/20

PERFORMANCE LEVELS

16-20 POINTS (EXCELLENT): THE PROJECT SHOWS A HIGH LEVEL OF SKILL, CREATIVITY, AND ATTENTION TO DETAIL. DEMONSTRATES STRONG UNDERSTANDING OF THE TECHNIQUES AND MATERIALS.

11-15 POINTS (GOOD): THE PROJECT IS WELL-DONE WITH SOME CREATIVE ELEMENTS AND ATTENTION TO DETAIL, THOUGH SOME AREAS MAY NEED IMPROVEMENT.

6-10 POINTS (SATISFACTORY): THE PROJECT MEETS BASIC EXPECTATIONS, BUT LACKS REFINEMENT IN DESIGN, TECHNIQUE, OR EXECUTION.

1-5 POINTS (NEEDS IMPROVEMENT): THE PROJECT DOES NOT MEET EXPECTATIONS AND REQUIRES SIGNIFICANT IMPROVEMENT IN MOST AREAS.