Reductive Sculpture

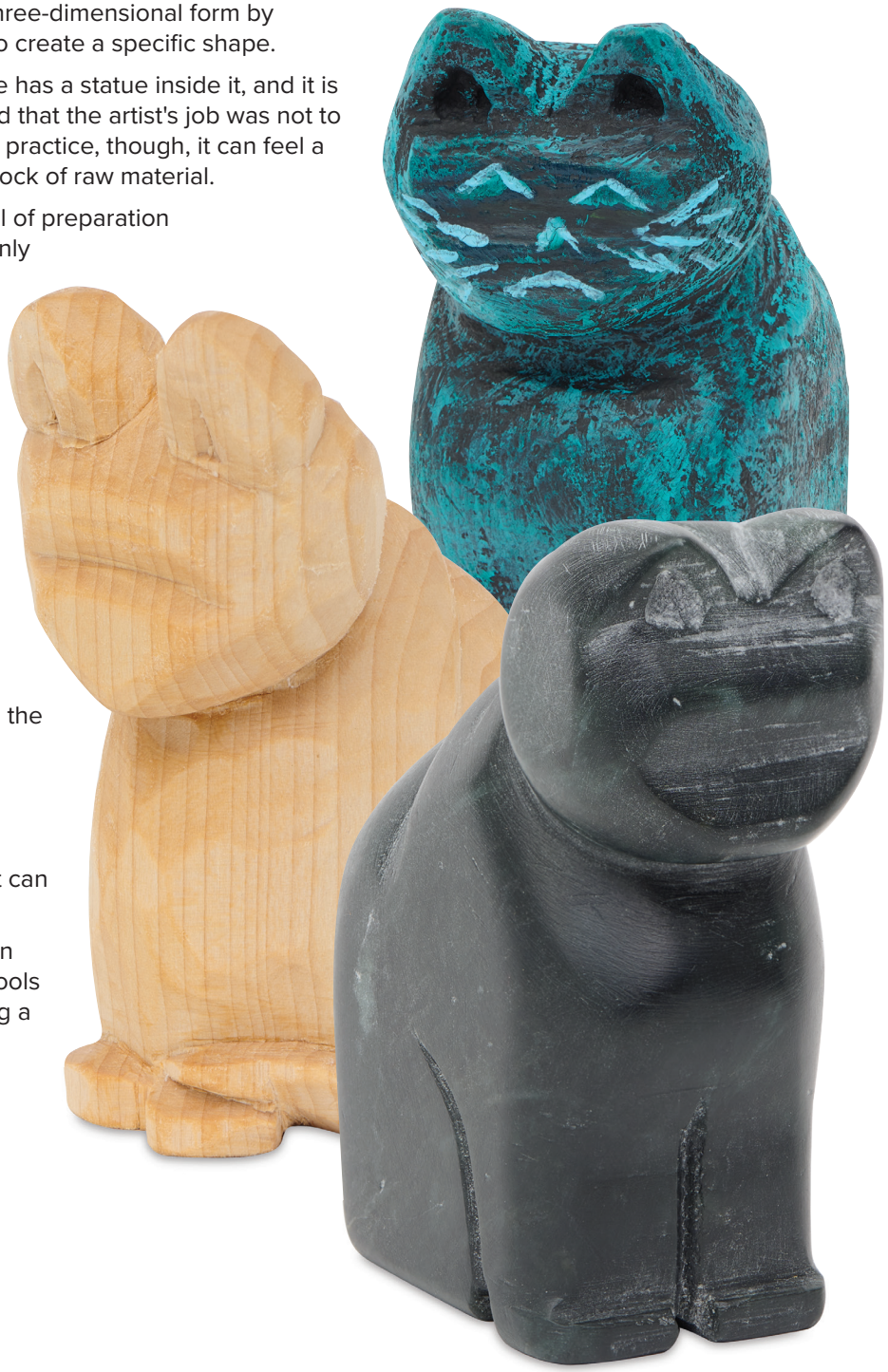
Recommended for Grades 5-12

Learn the right tool for the right job and sculpt like a pro!

Reductive sculpting is the process of creating a three-dimensional form by selectively removing material from a solid block to create a specific shape.

Michelangelo famously said, "Every block of stone has a statue inside it, and it is the task of the sculptor to discover it." He believed that the artist's job was not to create, but to reveal what was already present. In practice, though, it can feel a bit more complicated when you're faced with a block of raw material.

In reality, reductive sculpting requires a great deal of preparation and planning. Once an idea is conceived, it can only be realized through a slow, repetitive process of sanding or carving, which requires focus and attention. The form does not magically reveal itself; instead, the artist makes a series of small decisions—such as what tool to use and when to turn the piece—based on observation to bring the form to life.



Reductive sculpture also teaches valuable skills that go far beyond the craft. It requires awareness of safety protocols and an understanding of the responsibility that comes with working with sharp tools. It builds problem-solving and re-evaluation skills as the artist works to draw a three-dimensional form out of a block. Finally, it demands focus and resolve to complete the task at hand.

Introducing reductive sculpting can feel overwhelming—after all, young fingers and sharp tools are involved—but with the right scaffolding through appropriate tool and material selection, it can be done safely and appropriately.

This lesson is divided into three sections based on sculpting material and skill level. While different tools are used for each material, the basics of preparing a block of material are the same.

Note: Instructions and materials are based upon a class size of 24 students. Adjust as needed.

Ready to order materials?

Go to www.DickBlick.com/lesson-plan/reductive-sculpture to access a product bundle for your convenience.

Safety Tips

1. Be alert and focused: never use sharp tools when unfocused or tired. Take breaks at least every 15 minutes. These mini breaks also offer an opportunity to slow down and inspect the progress of the piece and to clean up any dust or material around the workstation.

2. Make a safety circle: extend one arm straight out, away from the body. Make a big circle rotating from the shoulder. This area should be completely clear of other people.

3. Wear safety gloves when working: cut resistant gloves don't just help protect against a slipped rasp or knife, they can also improve grip and increase hand strength. Always wear gloves on both hands when working.

4. Keep a firm fist grip: wrap all four fingers around the working piece. The thumb should wrap around in the opposite direction of the fingers, creating a "C" shape. This keeps your thumb out of the way in case of a slipping accident.

5. Keep tools pointed down and away from yourself: whether using a knife or a rasp, tools should only be moved in a motion with the tip pointing away from your body. Always consider the path of the tool; there should never be fingers, hands, knees, or other people in this pathway. There are large main blood vessels in the thighs; never work on a piece in your lap, just in case of tool slippage.

6. Do not use dull or damaged tools: knives should be kept sharp, and rasps should be free from gouges or irregularities. Insufficiently sharp tools can lead to accidents.

6. Keep a first aid kit nearby: accidents do happen, be prepared. Ensure that the kit stays well stocked and is easily accessible.

Preparation

1. Plan on what to carve. Compact forms free of projections or protrusions work best for beginners, since less material needs to be removed overall. For example, if sculpting a cat, choose a seated pose rather than a standing pose, where individual limbs would need to be carved.
2. Whether the final shape will be abstract or realistic, it's important to have multiple source images. These images will serve as a roadmap as you remove material. Make at least three drawings showing the form from the top, the side, and the back.
3. Use a pencil and a piece of paper to trace around the carving block. Then use your side-view drawing to create a basic template that fits inside the traced block.
4. Cut out the template with scissors. Use a soft pencil to trace around the template onto the face of the carving block. If using a soapstone block, use a white China marker or a Stabilo All Colored Marking Pencil instead. Regular graphite is hard to see on soapstone and will smear off in later working steps.
5. Turn the block to the opposite side. Flip the template over and trace. Both outlines should be directly across from each other and align as closely as possible.

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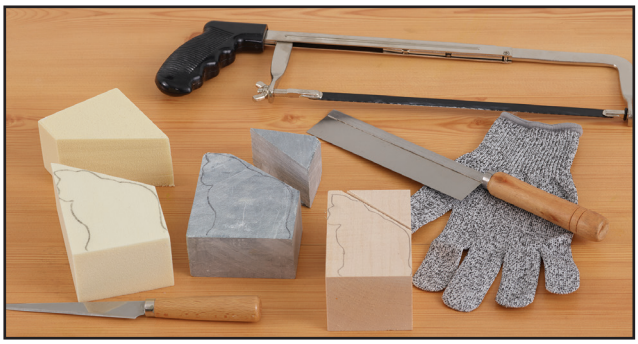
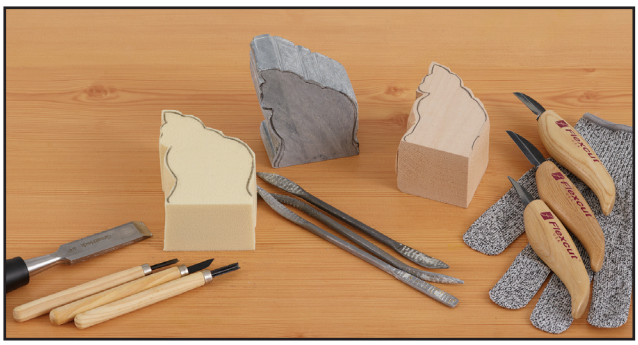
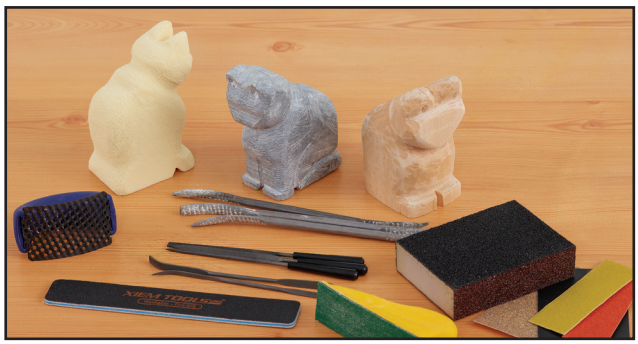
Step 1: *Create multiple reference drawings and a template. Trace the template onto opposite sides of the block.*



Step 2: *Cut away large areas with a fettling knife or saw.*



Step 3: *Refine with chisels, rasps, files, or flexcut knives.*

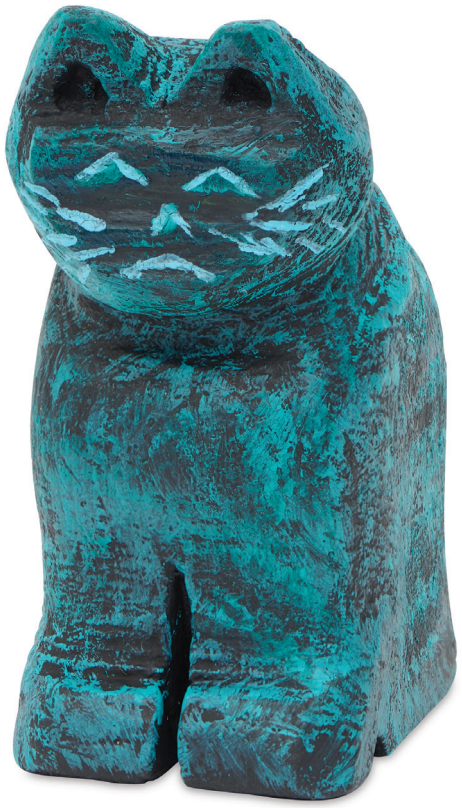


Step 4: *Use rasps, fine files, and sandpaper to smooth the surface.*

Blick Carving Foam is an excellent material for beginning, intermediate, and advanced sculptors. It is lightweight yet strong, easier to carve than similar products, and more economical than wood or stone.

Recommended for Grades 5-12

The foam is soft enough that an entire piece can be created using rasps, files, and sandpaper alone. More advanced students can use woodcutting knives and chisels, which helps prepare them for working with wood in the future. Because very little pressure is needed to remove the foam, students can build confidence using knives to whittle with minimal risk of losing control.



Process

1. Remove material, getting as close to the outlined form as possible. Most forms will require a large amount of material to be removed from certain areas. Blick Carving Foam is soft enough that a fettling knife can be used. More advanced students can use a small saw, such as the Excel Blades Mitre Box Set, to remove material more quickly and efficiently. Orient the block with one of the template sides facing up on a table and the other facing down. Make straight cuts from the top down.
2. Some areas along the outlined shape will be angled, or indented, and will need to be cut. Keep the piece on a table, face side up. Try to keep cuts as vertical as possible. Use the Richeson Student Wood Chisel Set to make these cuts.
3. At this point, the piece should look like a flat cutout of the template when viewed from above. If the outline cuts are angled from front to back, turn the piece so that the side with excess material is on top and make additional cuts. A flat bastard file could also be used to even out the cuts.
4. From this point on, keep original source materials and drawings nearby to use as reference.
5. Now that a basic shape has been established, it's time to create volume. While the piece is technically three-dimensional, it will still look flat and blocky. Volume is created by removing material from corners at an angle, creating new planes.
6. Hold the piece in your hand and rotate it, assessing areas where material could be removed.
7. Choose one area to begin removing material. Use a soft pencil to mark the area to be removed.
8. Different tools can be used to rough out the shape. Flat bastard files have a double-cut design, with two sets of diagonal teeth overlapping in opposite directions, allowing for efficient removal with firm pressure. They are like large emery boards, but more effective. Flat files can remove large, flat areas of material or help round edges. The Richeson Coarse Riffler Set includes eight double-sided steel rasps with a variety of head shapes. They are smaller than bastard files, and their coarse teeth and varied shapes make quick work of removing specific areas of material. More advanced students preparing for wood carving could use Flexcut knives. Choose a tool and remove material in the marked area.
9. Turn the piece and mark the area opposite where material was just removed. Remove material from that area.
10. Continue this process: assess the piece from all sides, refer to your source imagery, mark areas to be reduced, and remove material gradually.
11. As the piece nears completion, smaller files may be needed to reach tight areas. The Hawk Riffler Rasp Set features 10 double-sided curved rasps in a variety of shapes, each measuring 5-1/2" including the handle, making them useful for detail work. Similarly, the GreatNeck Needle File Set includes six flat swiss pattern files in different shapes for fine shaping and refinement.
12. To finish smoothing the form, use sandpaper, starting with the coarsest grit and progressing to the finest.
13. Finally, seal the piece with Blickrylic Gesso, then paint.

Required Materials

Blick Carving Foam, package of 36, choice of size, 6" x 41/2" x 1" (34382-1001) or 6" x 3" x 2" (34382-1002); need one piece per student

BeaverCraft Cut-Resistant Wood Carving Gloves, choice of sizes, (84253-); need one pair per student

For rough cuts:

Art Alternatives Fettling Knives, hard, 4-3/4" (30707-1003); share one between two students

Midwest Products Easy Mitre Box Deluxe, (35131-1001); share one between four students

For shaping:

Richeson Coarse Rifflers, set of 8 (33079-1089); share one set between two students

Enkay Flat Bastard File, 10" (84242-1110)

Enkay Round Bastard File, 6" (84242-1406)

Richeson Student Wood Chisels, set of 12 (33005-1009) share one set between two students

For detailed work:

Hawk Riffler Rasps, set of 10 (84238-1010); share one set between four students

GreatNeck Needle Files, set of 6 (34360-1069); share one set between four students

For smoothing:

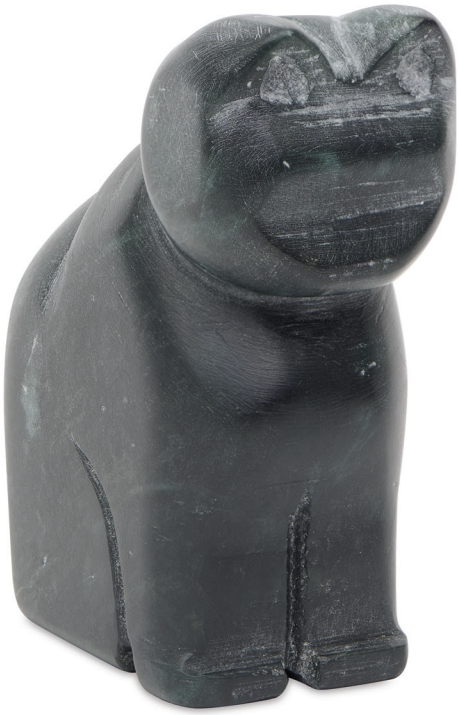
Art Alternatives Sanding Block, medium/coarse grit, 4" x 2-3/4" x 1" (34224-1002); share one block between four students

Norton Sandpaper, assorted grit, 9" x 11", 25 sheets (34935-0069); share one package across class

Blickrylic Gesso, White, 32 oz (00711-1017); share bottle between four students

Soapstone Blocks are perfect for intermediate sculptors who are comfortable working with Blick Carving Foam and are ready to advance to a high-quality sculptural material. Like Blick Carving Foam, soapstone is easy to carve and soft enough to scratch with a fingernail. Familiar tools such as rasps, knives, and sandpaper can be used to shape soapstone, resulting in an ultra-smooth finish. Because rasps and sandpaper create dust, keep a bowl of water nearby that is large enough to accommodate the soapstone piece. Soak the soapstone for a couple of minutes before you begin, and dip it into the water periodically while working to re-wet the surface, remove excess material, and minimize dust.

Recommended for Grades 5-12



Process

1. Most forms will require a large amount of material to be removed. To prevent chips or the unintentional loss of material, use a small saw. First, make a groove with a small V-gouge chisel to create a channel for the saw to follow. This will prevent the saw from slipping. Once the groove is established, very little pressure is needed and the material can be removed quickly. For these first cuts, orient the block with one of the template sides facing up on a table and the other down. Make straight cuts from the top down, following around the form as close to the template as possible.
2. Some areas of the template will be curved or indented and will require additional material removal. Use bastard files or the flat files in the Richeson riffler set to remove the material.
3. To keep filing as straight as possible, turn the piece over in hand regularly while working. A good rule of thumb is to flip the piece each time you dip it in water. The goal is to make the piece look as much like the outline as possible. When complete, it should resemble a piece of dough after a cookie cutter has been used; there will be dimension, but the form will still look flat from above.
4. From this point on, keep original source materials and drawings nearby for reference.
5. Now that a basic shape has been established, it's time to create volume. Volume is created by removing material from corners at an angle, creating new planes.
6. Turn the piece over and around, assessing areas where material can be removed. Use the reference drawings as a guide. Choose one area to begin and use a China marker to mark the area to be removed.
7. The whole variety of Richeson riffler files can now be used to rough out the shape. Choose files with contours that match the desired shape to remove material.
8. Continue like this, assessing and removing material. Go slowly and take frequent breaks. Use these breaks to reset the working area. Silt will accumulate in the water bowl, so replace the water and soak the stone while you clean the area.
9. As the piece gets closer to completion, smaller files may be needed for tight areas. The Hawk riffler rasp set and the GreatNeck needle file set can be used to make grooves in a variety of shapes. Hawk wax and plaster carving tools are good for smoothing or expanding grooves.
10. To finish shaping and smoothing the form, use a small piece of extra fine or super fine 3M Wetordry Sandpaper.
11. For the final steps, the piece should be dry. Heat the piece with a hair dryer, then buff with a cloth, taking care around thin or delicate areas.
12. Wet a small area of cloth with linseed oil and rub it into the piece. A brush may be needed to work oil into fine grooves. Continue buffing until all areas are covered with oil, then set the piece aside to dry for 24 hours.

Required Materials

Gian Carlo Stoneworks Green Indian Soapstone Blocks, Green, 2 lb, 3-1/2" x 3" x 1-1/2" package of 4 (33824-7022); need one piece per student

BeaverCraft Cut-Resistant Wood Carving Gloves, choice of size, (84253-); need one pair per student

For rough cuts:

Midwest Products Easy Mitre Box Deluxe, (35131-1001); share one between four students

Richeson Student Wood Chisels, set of 12 (33005-1009) share one set between two students

For shaping:

Richeson Coarse Rifflers, set of 8 (33079-1089); share one set between two students

Enkay Flat Bastard File, 10" (84242-1110)

Enkay Round Bastard File, 6" (84242-1406)

For detailed work:

Hawk Riffler Rasps, set of 10 (84238-1010); share one set between two students

GreatNeck Needle Files, set of 6 (34360-1069)

Hawk Wax and Plaster Carving Tools, double-ended carvers, set of 6, (33059-0169); share one set between two students

For smoothing:

3M Wetordry Sandpaper, assorted, package of 5, 9" x 11" (35024-9000); share two packages across class

Gator Zip Micro Tool Detail Sanding Kit, assorted grit, 30 sheets, (84246-1000)

Xiem Tools Sanding Sticks for Color Clays, fine grit, package of 2, (30690-1000); share six packages across class

Bag of Rags, 1lb, (62978-1001); share one package across class

Utrecht Safflower Oil, 16oz (01765-1166); share one bottle across class

Balsa Wood and Basswood are both excellent materials for beginning wood carvers. Carving a softer wood like balsa is a great way to build a new carver's confidence. Balsa has a density close to Blick Carving Foam, but it also has a grain, which helps beginners learn proper whittling techniques before moving on to a harder soft wood like Basswood.

Recommended for Grades 9-12

Basswood, though about four times firmer than balsa, is still considered a soft wood. It carves easily, and its smooth, uniform texture is free from frustrating knots and cracks, making fine details easier to achieve. Basswood can be purchased in blocks or ready-to-carve precut shapes called blanks. Starting with a blank means templates aren't needed, and there's no need to spend precious time sawing away large sections of excess material.

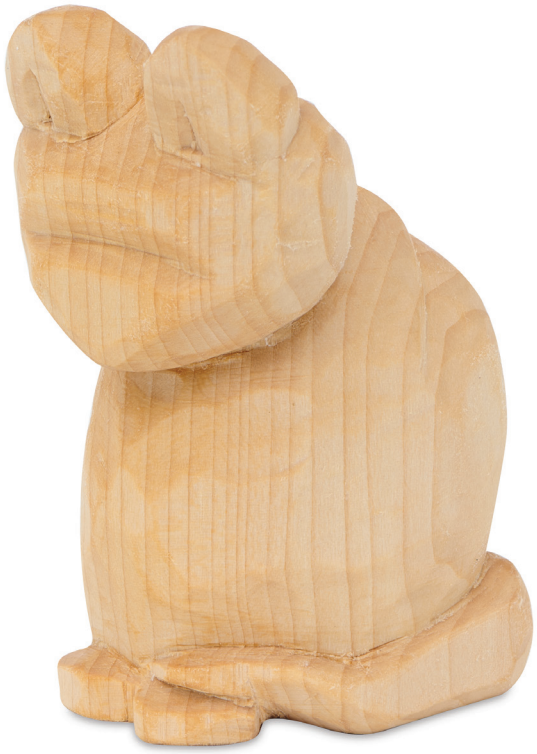
Whichever material is chosen, beginning carvers will need to know a few basic cutting techniques. These cuts can be combined to create almost any form. It's a good idea to practice the four basic cuts outlined below on a 1" x 1" x 6" (or longer) piece of wood before creating what is called a sampler.

Straight Cut: good for carving long, straight areas. Hold the back half of the wood with a fist grip (if right-handed, your thumb wraps around the piece and points to the right, while your four fingers wrap to the left, creating a C-shape). Use the same fist grip to hold the knife. Align the blade away from your body and away from the hand gripping the wood. Use your whole arm and bending at the elbow, move the knife away from your body along the surface so it just catches, carving long, thin strips.

Push Cut: a strong but controlled cut used for roughing out shapes. The resulting cut looks similar to the straight cut, but it's safer because the knife's range of motion is limited. Start by holding both the wood and the knife with a fist grip, then extend the thumb of the hand holding the wood so it rests on the back of the knife handle. With all four fingers holding the wood safely behind the blade and both thumbs guiding the motion, push the knife forward to carve a short wood chip. To create a deeper divot or U-shaped cut, flip the wood and make a push cut in the opposite direction. Continue until the desired depth is reached.

V-Cut: creates a two-sided angle cut that forms a V-shape when viewed from the side. Hold the knife and wood as if preparing to make a push cut. Instead of pushing the knife away, press down into the wood at an angle. Pull the knife out. Flip the piece and make another cut at the same angle, meeting the stopping point of the first cut and removing a triangle-shaped wood chip.

Stop Cut: similar to the V-cut, this two-part cutting technique creates a shape like a "7" when viewed from the side. Hold both the knife and wood in a fist grip, with the blade at a 90-degree angle and perpendicular to the grain. Push down into the wood to make a shallow cut, then remove the knife. Next, make a short, slightly angled push cut toward the first cut. Repeat until the desired depth is reached.



Choose a wood base:

BeaverCraft Basswood Carving Block Sets, choice of assorted sizes and quantities, (84262-)

Midwest Products Mini Carving Block Bags, Balsa Wood, (60415-1001)

Midwest Products Mini Carving Block Bags, Basswood, (60415-8514)

Flexcut Basswood Spoon Blanks, set of 4 shapes, (85084-1009)

BeaverCraft Wooden Animal Carving Blanks, choice of shapes, (84261-)

Tools for carving and finishing wood:

BeaverCraft Cut-Resistant Wood Carving Gloves, choice of sizes, (84253-); need one pair per student

GreatNeck 50 Adjustable Hacksaw, 12" (18309-1001); share one across class

Flexcut 3-Knife Starter Set, includes a cutting knife, detail knife, roughing knife, and polishing compound, (17341-1039); need one set per student

Flexcut Knife Strop Blade Sharpener, leather strop and polishing compound, (33660-1001); share one between four students

Minwax Wood Finish Oil-Based Penetrating Stains, 8oz can, choice of colors, (02036-)

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Go to www.DickBlick.com/lesson-plans/reductive-sculpture to access a product bundle for your convenience.

Process

1. Unless you are working with a precut blank, most forms will require a large amount of material to be removed, just as they did with Blick Carving Foam and soapstone. Use a small saw. This will take longer than it did with soapstone, so be patient and work slowly and steadily. If fatigue sets in, take a break—remove the saw and set it safely aside until you're ready to resume.
2. Some areas of the template will be curved or indented and will require additional material removal. Use a Flexcut knife to make stop cuts, removing material as close to the template as possible.
3. From this point on, keep original source materials and drawings nearby for reference.
4. Now that a basic shape has been established, it's time to create volume. Volume is created by removing material from corners at an angle, creating new planes.
5. Turn the piece over and around, assessing areas where material could be removed. Use the reference drawings as a guide. Choose one small area to begin, and use a soft pencil to mark the area to be removed.
6. Different cuts will be needed depending on the shape, but the most important thing is to go slowly and take frequent short breaks. Woodcarving doesn't create dust like Blick Carving Foam or soapstone, but it does produce shavings. When taking a break, put knives away and clean up around the work area. Keeping your workspace clean can help prevent accidents.
7. To keep the blade sharp, it should be sharpened with a polishing strop every 15 to 30 minutes. If cuts become fuzzy or dull, or if the blade begins to drag, strop it immediately. Frequent stropping can eliminate the need for sharpening stones. To use the Flexcut strop, first rub polishing compound onto the leather surface, then drag the knife blade at an angle over the strop. Take care not to cut through the leather; match the blade's bevel angle so the knife glides smoothly. It's a good habit to begin each carving session—or return from a break—by stropping your knives.
8. Continue working this way: assess the piece, remove material gradually, take frequent breaks, and compare your progress to your preliminary drawings.
9. To finish, the piece can be left as is, painted, or stained. Previous finishing methods for Blick Carving Foam and soapstone involved sanding, and while sanding can be done on wood, it often creates a fuzzy appearance and is not needed for most designs.

National Core Arts Standards - Visual Arts

Creating

Anchor Standard 1: Generate and conceptualize artistic ideas and work.

Anchor Standard 2: Organize and develop artistic ideas and work.

Anchor Standard 3: Refine and complete artistic work.

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