



Polymer clay whistles



Background information

People have been making clay whistles and ocarinas (whistles with more than one note) for thousands of years. The ceramic ocarina has been popular in many countries and cultures, including China, Central and South America (Maya, Aztec, Inca), and India. When explorers first brought ocarinas back from Central and South America, European craftsmen began making these whistles in the form of geese and other animals; the word ocarina is actually Italian for “little goose.” Many Native American tribes in North America created different forms of zoomorphic (animals, reptiles, and birds) and anthropomorphic (human) shapes for their whistles and ocarinas. The “sweet potato” is a variation of the ocarina that became popular in Europe during the 19th century and in the United States in the 1930s and 1940s. Soldiers in World War I carried molded plaster or metal ocarinas, which seemed to lift their morale when played. During World War II, American servicemen brought the first molded plastic version of the sweet potato, made of Bakelite, to Europe.

With the introduction of polymer clay, you can now make whistles without having to fire them at the high temperatures needed for ceramic clay. Another advantage is that polymer clay won't shrink when you bake it, which can change the sound of the whistle. Complex shapes can be built and baked in steps. The fingering holes can also be drilled out or changed after the whistle has been baked hard.

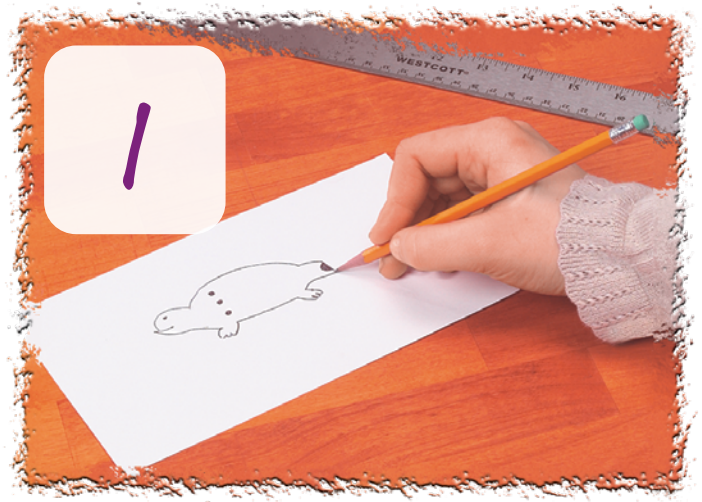
Objectives

Students will...

- Incorporate art history, sculpture, and music with a hands-on activity
- Learn how to design and model their own clay whistles/ocarinas
- Focus on ceramic sculptural techniques and design elements essential to working on a curved surface, painting technique, and self expression.
- Play notes and simple melodies on their clay whistles/ocarinas

Instructions

1. It is a good idea to plan how you want your clay whistle to sound and sketch how you want it to look. For example, you should decide how big you want your whistle to be. A simple one- or two-note whistle can be extremely small, whereas an ocarina with three or four holes should be bigger. However, whistles that are too large are difficult to work with; a finished diameter of about 2" is an ideal size. Keep in mind, the larger the whistle, the lower the sound. Also, the whistle can be simply round or oval in shape, or you can make it look like a person, an animal, or anything you choose. Remember to plan for the mouthpiece (to blow air into) and any fingering holes.
2. Work the clay with your hands until it is soft and pliable. The amount of clay you need will vary depending on the size and design of your whistle. If you like, you can make the basic instrument out of scrap clay and cover it with colors or patterns later.
3. Set aside a marble-sized piece of clay for the mouthpiece. Divide the rest of the clay in half and work each part into a cup shape. Make the edges flat and about the same size so they complement each other. The walls should be approximately $\frac{1}{4}$ " thick, with no thin spots. Try to keep the walls as smooth and rounded as possible on the inside; it will help give the whistle a better sound later.
4. Link the halves together and smooth the seam, adding clay if necessary to make a strong connection. Be sure it is completely sealed and airtight. Your clay will hold its shape surprisingly well if handled gently. (If the clay is very warm and soft, you may want to let it cool down for a while before continuing.) Work the whistle into your design. Keep it basic at this point; don't add too much detail until just before the whistle is ready to bake.
5. Form the mouthpiece by rolling the marble-sized piece of clay into a cylinder approximately 1" long and $\frac{5}{8}$ " thick. Attach it firmly to the whistle and blend the seam. The mouthpiece must come off the edge of the whistle in a straight line. (If any of the parts of the whistle don't line up correctly, the whistle will not work!) Keep in mind that the mouthpiece and air hole can be placed anywhere on the whistle.
6. Cut a rectangular hole where the long edge of the mouthpiece joins the whistle. The hole should have sides as straight as possible and be about $\frac{3}{8}$ " wide and $\frac{1}{4}$ " across. With a sharp knife, carefully cut the back side of the rectangle at a 45° angle. Make the front edge as straight and sharp as you can or, if necessary, you can sand it after it is baked.
7. With a gentle, twisting motion, push a smooth toothpick through the mouthpiece so that it crosses the hole and barely touches the angled edge. If you miss, pull the toothpick back and try again. Now gently work the toothpick sideways, back and forth, until you have a slot-shaped hole from the wall to the end of the mouthpiece. The slot should be about $\frac{1}{8}$ " high and as wide as the wall. Be sure to keep the wall smooth and straight and check to be sure that the slot is still lined up with the angle.
8. Cut about a 1" piece from a plastic drinking straw. With a twisting motion, gently push the straw about $\frac{1}{2}$ " into the mouthpiece. (A tiny dab of Vaseline® will make the straw easier to get in and out without distorting the whistle.) Leave enough sticking out that you can blow through it without touching your lips to the clay. Take out the straw and carefully remove the clay inside the circle it made in the mouthpiece.



Link the halves together and smooth the seam, adding clay if necessary to make a strong connection.



With a gentle, twisting motion, push a smooth toothpick through the mouthpiece.

8



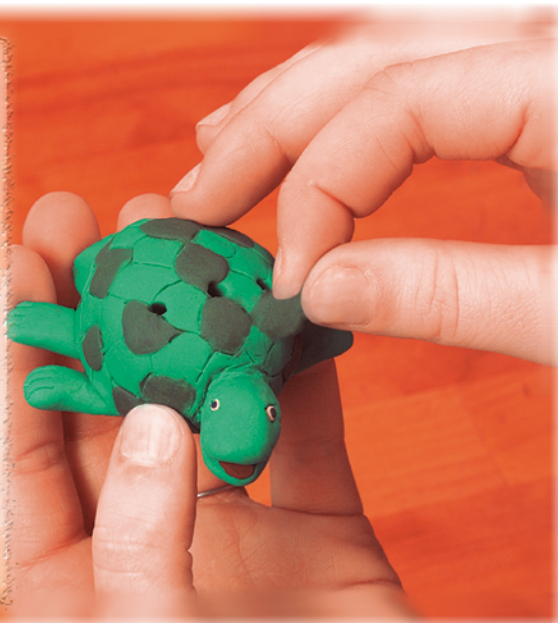
You can make one or more fingering holes to get additional, higher notes.



Blow softly into the straw.
The whistle should make a fairly clear note.

13

Complete your design without disturbing any of the holes. Always recheck your tuning just before baking.



9. Finish cleaning up this area by pushing the ¼" dowel into the straw hole. Fix the air slot, making the hole a little rounder so it fits inside the straw, but maintain the slot shape at the other end. Put the straw back in and shape the mouthpiece around it. Be sure the mouthpiece is thick enough, or your whistle may break easily.
10. Blow softly into the straw. (Use a clean straw if you got clay on the first one.) The whistle should make a fairly clear note. If not, check to see if the rectangular hole is too big or misshapen, you are blowing too hard, there are rough edges somewhere in the mouthpiece, the angled edge is not straight and sharp, or the air slot doesn't line up with the angle. Work slowly and patiently — small changes can make a huge difference! Remember, every whistle will sound unique.
11. The sound the whistle makes now is the lowest note you will be able to play on it. You can make one or more fingering holes to get additional, higher notes. Make the holes now while the clay is soft, or carefully drill them out later, after the whistle is baked. Start with the lower notes and work to the highest. Remember, the more air that escapes from the whistle (more holes or bigger holes), the higher the note. Don't forget to put the holes where you can reach them easily with your fingertips while you hold the whistle and don't make them so big that you can't close them off with your fingers.
12. Tuning the whistle can be quite complicated, especially as you increase the number of holes. Unfortunately, the size of the holes, and therefore, sound of the whistle, can only be determined by trial and error.
13. Complete your design without disturbing any of the holes. Always recheck your tuning just before baking. Remember, you can bake just the basic whistle body, then add more clay and bake it again.
14. Carefully remove the straw from the mouthpiece after your whistle is returned by gently twisting and pulling. Then, bake the whistle at the recommended time and temperature — be sure to check the package for specific directions. Always double-check that all the straws have been removed from the clay before baking. Remember, the whistle is hollow, so figure baking time based on wall thickness, not overall size. Also be sure to open a window or leave the room while the polymer clay is baking, especially with large amounts. Do not burn it!
15. The finished whistle can be sanded, carved, or polished, and the fingering holes drilled if you have not already made them. Drill slowly and carefully with a small drill bit. The holes can be enlarged a little at a time by moving the bit in a circle, or with a file. It is recommended that dust masks be used when sanding or drilling polymer clay.
16. Now it is time to experiment! Try to figure out the best fingering method or how you can make a certain sound. Then, try to make another clay whistle based on what you've learned from the first one.



Materials list

- Sculpey III® polymer clay (9719130)
- 24 plastic straws, 10" L (9723620)
- Round toothpicks (1500557)
- Wood dowels, 12" x ¼" (9734600)
- Sandpaper (9714789[B])

Safety

Never put polymer clay in your mouth. Use plastic straws as mouthpieces. Always wash your hands after working with polymer clay. Open a window or leave the room during the polymer clay baking process. Do not overbake or burn polymer clay. Use of a dust mask is recommended when sanding or drilling polymer clay. Pay close attention to all instructions in order to create a clay whistle that you can play safely.

Resources

Moniot, Janet. *Clay Whistles: The Voice of Clay*. 1989. The Whistle Press. This instructional book and 30-minute video show how to make whistles and ocarinas from clay. Includes construction, tuning, and problem-solving techniques. Grades 4-12.

