



PROJECT

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ATTALIA'S TEA LIGHT HOLDERS

Attalia headed to the river after dance class on a Friday night. Although the weather was typically hot that time of year, on that evening, rain threatened for much of the night. Eventually it began to pour. Attalia found a nice sandy part of the riverbank and got to work digging holes. The rain didn't stop her. Things got a little Zen as she kicked off her shoes and worked in the sand. The results were eight fun outdoor tea light holders that she placed on the path leading up to her home.

MATERIALS

- Sand. If you do not have a natural area for sand, you can use a large (24" x 24") cardboard box, or something similar. You'll need about 6" of sand (if you are buying it, that's a 50-pound bag).
- 1 box or bag of Cement All
- Cold water—about 1 gallon will do the trick
- Concrete color, if desired (see Materials Glossary)
- Cooking spray

Note: These tea light holders tend to be chunky and great for outdoor use.

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TOOLS

- 1 trowel or small shovel for mixing
- 1 bucket or other container
- 8 tea light space holders—anything the size of a tea light and at least 2" deep (Attalia used glass tea light holders, but you can use any small container, as long as it's the right size—a minimum of 1½" diameter)
- One 1-quart bucket (available in the paint section of the hardware store)

SKILLS

- Cement mixing
- Digging
- A little artistic flair

Adult oversight:

Cost after tools:

Safety gear:

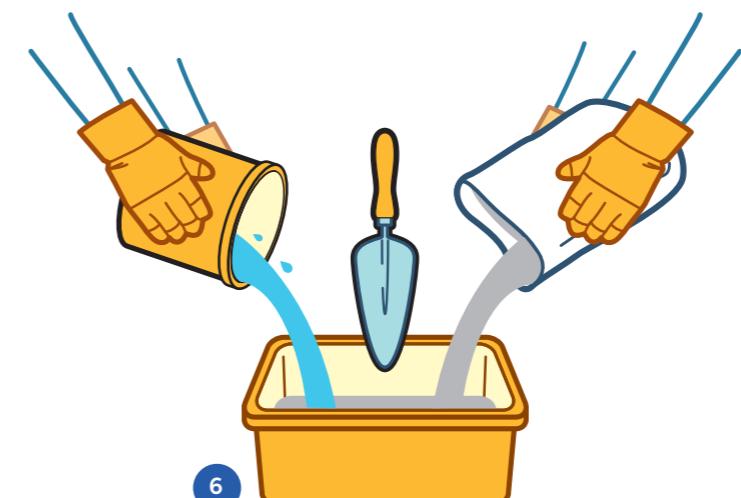
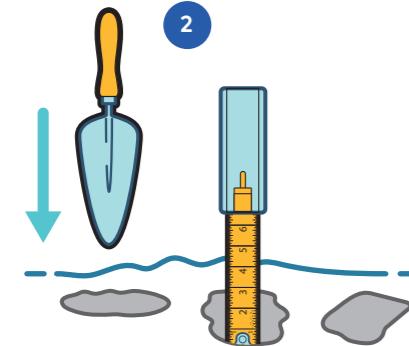
- Safety glasses
- Cement-specific dust mask
- Latex or nonlatex gloves

Work surface:
Flexible

Skill level:

Time:

Dry time



STEPS

- Put on safety glasses and gloves. Check for and remove loose clothing and jewelry, and make sure hair is tied back.
- Begin by digging eight holes in the sand in any shapes you are excited about. If using store-bought sand, you will need to wet it. Attalia created circles and ovals, but you can do any shape you want. Remember to make them big enough to fit the tea light space holder, leaving $\frac{3}{4}$ " to 1" of room around the edges and bottom of the tea light (dig holes at least 3" deep).
- Make sure the bottom of each hole is fairly flat so the holders can sit on a flat surface once

they come out of the sand. Attalia also took a minute to measure her holes to make sure they were the right size and depth.

4. Put on your gloves and mask. Cement can burn your skin, so take your safety seriously. Read steps 5–10 before you start mixing, so you know what you are supposed to do and can work quickly.

5. Open the bag of Cement All. Set your mixing container next to it, along with a small bucket of water. Note: If you are doing more than one color, you need to mix multiple small batches instead of one big batch, because the cement will dry before you have a chance to pour.

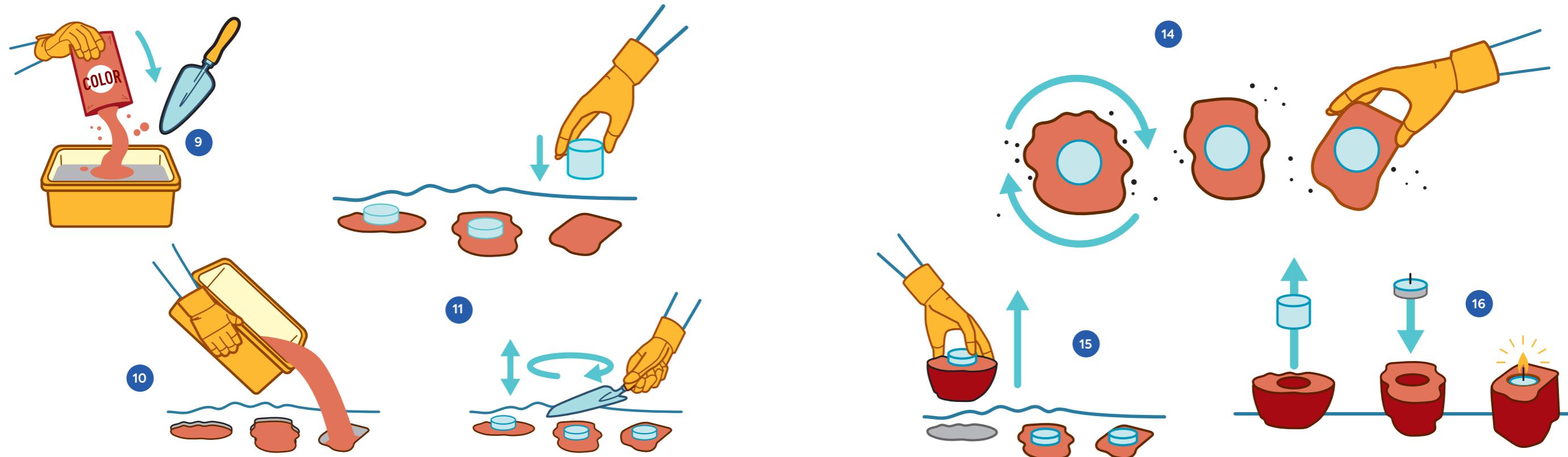
6. To make eight tea light holders with only one added color, use 3 quarts Cement All. Pour the Cement All into your mixing container. Even though you are wearing a mask, take care to pour close to your bucket to minimize dust. Add $\frac{3}{4}$ quart water to the Cement All, and begin mixing with a trowel or small shovel. As you stir, check for lumps in the mixture, and make sure to break them up with your trowel.

7. The final consistency should be like a milkshake. If yours is too wet, add small amounts of Cement All until it is thick enough. If it is too thick or dry, add small amounts of water. Beware: When mixing concrete or cement, a little water goes a long way. If your mixture is

dry, add no more than $\frac{1}{4}$ cup water. Mix and repeat until you get the right consistency.

8. If you want your tea light holders to be half gray and half colored, you need to pour the gray ones first, then color the remaining cement, then pour the remaining holders. Note: If you want a variety of colors, set out multiple containers to mix your colors in.

In the next step, pour your colors into these separate containers.



9. Coloring: If you want colored holders, add color to your cement until it is the shade you want. Attalia added a lot of color to get a nice dark red. If you want gray and one more color like Attalia did, mix and pour the Cement All first without adding color. Pour the number of holders you want to keep gray, then add color to the rest of the cement. Mix the cement very vigorously so the color is even throughout. Pour the colored cement into your remaining holes.

10. Pouring: Fill the holes you made in the sand with the Cement All mixture almost to the top, stopping about $\frac{3}{4}$ " below the surface. Next, spray the outside of the space holders with cooking spray, then push them gently into the center of each glob of Cement All mixture, forcing each one down about 1".

11. Using the back of your trowel, pat the top of the Cement All around the space holder. Feel free to wiggle and jiggle it a little bit. This movement settles the Cement All and will make for a nicer

finished project. Tip: Tap the surface of cement anytime you pour it too (remember, this is cement, which is different). It settles the rocks away from the surface of the cement and makes for a nice, smooth finish.

12. Repeat steps 6 to 11 on any remaining holes.

13. You have one hour until your holders are ready. Time to clean up! Remember that cement can burn your skin, so wash up thoroughly using soap.

14. Once the cement is firm, after about an hour, you can take the space holders out by twisting them side to side, then pulling up and out. Do not attempt this step if the Cement All is still soft to the touch.

15. Dig your pieces out of the sand. Attalia brushed them off so the sand wouldn't stick.

16. Set your new holders out where you want them, and add real or electric tea lights. Your mood has been set!



ANFAL

AGE: 8

LOCATION: Portland, Oregon

WHERE ANFAL LEARNS: At SUN School, an after-school program

**“Be brave.
Because life is not that scary.”**

What are some things you want us to know about you?

I like making play dough, and I love making slime, especially orange, pink, and blue. I like to play tag with Khadija. I was born in Portland, and I live with my mom and my dad and my two baby brothers. I like PE because I like running. I speak Swahili, Somali, and English. Orange is my favorite color. I like birds, especially jays because they are blue, my old favorite color. We learned about birds in science, and we got to make bird feeders. I like to play in the snow. We had a snowball fight against the boys.

What is the first thing you ever built?

A playground in art class out of paper. We had hopscotch, slides, and a tunnel. We got to put it in a green screen, and

we put grass and a picture of something on the green screen. And the playground was big on the green screen. My friend and I put our two playgrounds together, and it was one big playground.

How does building make you feel?

Good. It is fun to use the wrenches. You get to make cool stuff.

Why do you build?

Because building is fun and I wanted to do it again after I got to do it at school.

What advice do you have for other girls?

Be brave. Because life is not that scary.

What's the first step in trying something new?

You can do it with a friend.

Who do you look up to?
My mom and my dad.

What are some other activities that make you feel courageous, strong, and bold?

When I went on my first roller-coaster I was really scared, and it got funner and funner and funner.

What are some ideas of things girls can build at home?

A bridge out of toilet paper rolls or Popsicle sticks. A scarf.

What project are you sharing with us?

I built a candleholder made out of pipes.



PROJECT

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ANFAL'S CANDLEHOLDER

Anfal put this project together outside her apartment building in a shared playground and grassy area. She had to be quite protective of her tools and materials because when other kids came out to play they were really excited about what she was making. Her best friend, Khadija, was nearby working on her own project (see Project 2), and both girls were proud to show off their projects to their friends. One note: When buying the fittings for this project, buy one extra of each fitting, in case you accidentally grabbed the wrong one. People tend to mix them up at the store, and you don't want to have to come back! Also, you might need to special order the 4-way fitting.

MATERIALS

The following are all $\frac{1}{2}$ " gas pipe fittings:

- Six 90-degree elbows
(Make sure you do not get street elbows.
Double-check the label to make sure.)
- 5 tees
- Ten 2" nipples
- One 8" nipple
- One 4-way
- 5 taper candles

TOOLS

- 2 pipe wrenches

SKILLS

- Using a pipe wrench

This project gets grease on your skin and clothes. Wear gloves if you want to, and be sure to have some rags nearby to clean your hands, clothes, etc.

Adult oversight:

Cost after tools:

Safety gear:
• Safety glasses
• Gloves (optional)

Work surface:
Clean and flat—you don't want to lose parts

Skill level:

Time: