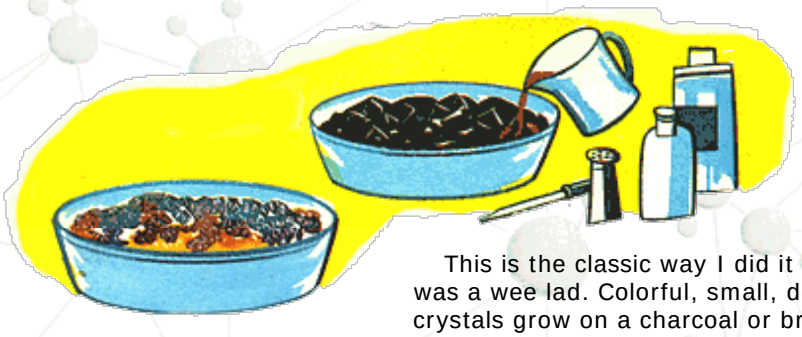
Charcoal crystal garden



This is the classic way I did it when I was a wee lad. Colorful, small, delicate crystals grow on a charcoal or brick surface. You can also use pieces of sponge, coal, or crumbled cork to grow the crystals on. Crystals are formed because the porous materials they grow on draw up the solution by capillary action. As the water evaporates on the surface, deposits of solids are left behind, forming the crystals. As more solution is drawn up, it passes through the crystals that have already formed, depositing more solids on their surfaces, causing the crystals to grow.

Stuff you need

- Charcoal briquettes (or brick pieces or small porous stones)
- Water (pref. distilled)
- Pie plate (non-metal)
- Salt - not iodized
- Ammonia
- Bluing
- Food coloring (optional)

Whack the charcoal into smallish bits (don't pulverize it - you want one inch (25 mm) or so chunks). Spray them with water until they are soaked. Put them in the pie plate, using enough for an even layer. In a jar, mix

- 3 tablespoons (45 ml) ammonia
- 6 tablespoons (90 ml) bluing
- 3 tablespoons (45 ml) salt (not iodized)

Make sure it all dissolves. Dampen the charcoal with it. Add a little water to the jar - a couple of tablespoons (30 ml) - and swirl out the rest of the chemicals. Put this on the charcoal. Drop food coloring here and there (whatever isn't colored will be white). Sprinkle with a couple more tablespoons (30 ml) of salt. Set aside. On days 2 and 3, pour a mixture of ammonia, water, and bluing (2 tablespoons - 30 ml - each) in the bottom of the pan. Afterwards, leave it someplace where it won't get messed with (cat proof) until you have crystals (2 days to 2 weeks depending on climate). The crystals will be very fragile.

Bluing isn't as easy to find as it once was. Check a grocery store in an older neighborhood, or in a smaller town. If you find powdered bluing instead of liquid bluing, it can be substituted if you mix it app. 1:1 with distilled water. If you really can't find the bluing, it will work somewhat without it, but not very well. If you can't find it locally you can order it from the Mrs. Stewart's Bluing home page - they now also sell a crystal growing "kit". Also, this project works well substituting bits of sponges for the charcoal briquettes.

Charcoal Crystal Garden,
an alternate method

Put several pieces of charcoal briquettes in a bowl. Mix:

1/4 cup (60 ml) water
- 1/4 cup (60 ml) laundry bluing
- 1/4 cup (60 ml) table salt (not iodized)
- 1 tablespoon (15 ml) ammonia

Stir well and pour over the briquettes, making certain they are sticking up from the liquid. If you want, drop mercurochrome, colored inks, or food coloring here and there. Wait for the crystals to grow.

Charcoal Crystal Garden, another alternate method

There have many variations on the theme over the years. This is another ratio that the chemicals can be mixed:

- 4 tbsp. (60ml) bluing
- 4 tbsp. (60 ml) salt (no iodine)
- 1 tbsp. (15 ml) ammonia
- food coloring

The procedure is the same as for the first crystal garden.

Charcoal Crystal Garden, non-bluig method

Produces somewhat different crystals from the other methods. You need:

- 2 tbsp. (30 ml) ammonia
- 2 tbsp. (30 ml) water (pref. distilled)
- iodine*
- food coloring
- small pieces of coal or cork
- 2 tbsp. (30 ml) salt (not iodized)
- mercurochrome*
- small non-metallic dish or glass pan

Arrange small pieces of coal, charcoal, cork, or brick in the bottom of the dish. Mix together the salt, ammonia, water, and about 10-12 drops of mercurochrome*. Pour over the chunks in the pan. Add a few drops each (a dozen or so) of mercurochrome*, iodine*, and food coloring here and there over the top. The crystals will start to form in a few days. You can add more solution once the crystals form to increase their size.

*Iodine is toxic; care must be taken so that it is not ingested or splashed into the eyes. Supervision of small children is recommended. Mercurochrome is also toxic and, since it contains mercury, should not be handled or disposed of improperly. Neither iodine or mercurochrome are necessary for the project to work; keep in mind that this is a classic project and is presented as it would have been 40 years ago.

Salt garden

Place pieces of charcoal, brick, or small porous stone in a dish. Stir salt into warm water until no more salt will dissolve. Add a spoonful of vinegar to the solution, and pour it over the charcoal or stones. The vinegar will degrease the stones, allowing capillary action to carry the salt water to the surface, where it evaporates, leaving salt crystals. Capillary action continues as long as there is solution remaining, which is carried up through the new crystals, building on top of them.

CRYSTAL PAGE

For further research...

Books

Crystals and Crystal Growing

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http://bizarrelabs.com

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