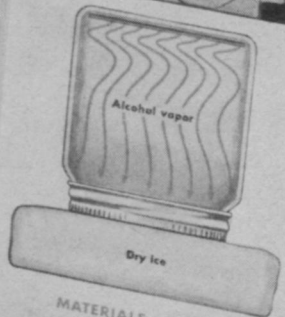
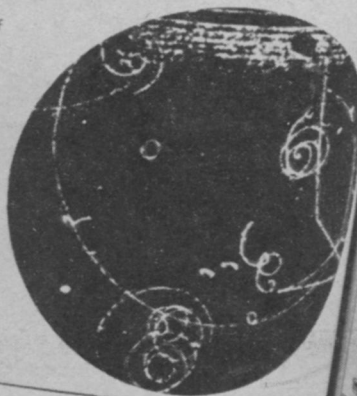


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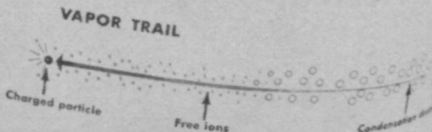
A WORLD BOOK SCIENCE PROJECT ATOMIC PHYSICS

The purpose of this project is to see the action of atomic particles by observing the trails they make in the vapor of a diffusion cloud chamber. Cloud chambers are a basic tool of modern physics.



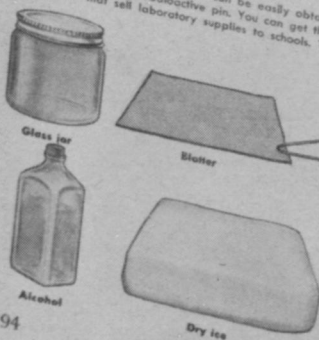
THE DIFFUSION CLOUD CHAMBER

A diffusion cloud chamber consists of a sealed transparent glass chamber or jar which gives off subatomic particles. When conditions are just right, the particles, alpha and beta particles, leave a visible trail, above, as they move through the vapor. These trails consist of droplets. The droplets form when the particles collide with air molecules as they move through the chamber, below. Certain particles can be recognized by the kinds of vapor trails they leave.



MATERIALS

All the materials for this project can be easily obtained in your own neighborhood except for the radioactive pin. You can get the pin or a similar item from companies that sell laboratory supplies to schools. The pins are not dangerous.



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ASSEMBLY

To make the cloud chamber, cut a hole in the bottom of the jar. To cover the bottom of the jar, slip a blotter into a clip to hold it in place. Cut a circle from the blotter to fit the jar. Slip the radioactive pin into the blotter near the edge. Cut a circle in the blotter near the edge. Cut a circle in the blotter near the edge. Cut a circle in the blotter near the edge. Cut a circle in the blotter near the edge.

To Prepare the Chamber, rinse the jar with alcohol around the sides of the jar. Pour off the excess alcohol, and so on.



To Operate the Chamber, position the jar on the dry ice. Look into the jar at an angle in the lid. You should see vapor trails.



PHOTOGRAPHING THE VAPOR TRAILS
For further study, you can take photographs of vapor trails. Use a 35-mm. camera with a lens for close work. Try to get a picture of a trail. Alpha particles travel from 1/10 to 1/20 of an inch.

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Please send me the reprint "Science Projects," featuring seven of the more than two dozen science projects in the 1967 World Book Encyclopedia.

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