

Radioactive Sources Laboratory:

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Teacher's Guide

Goals

- To give the students information about radiation
- To give students some hands-on experience with radiation

The Activity

In this class period, students use radioactive sources in order to learn about radiation, its effects, and about ways to protect from it. Students use Geiger counters to study the effects of shielding materials and distances from the radioactive source on the measured radiation.

Materials for Each Group

- A series of radioactive sources
- A Geiger counter
- A series of blocking materials in different widths (teflon, lead, paper...)
- A meter stick
- Tongs
- Protective wear and shields

SAFETY

No student may work with any radioactive materials unless the work is carefully supervised by a certified staff member. For example guidelines, see the following:

<http://www.isbe.state.il.us/secondaryed/Science%20Ed/Guidebook%20Science%20Safety/ch10.pdf>
Guidelines from the State of Illinois. See especially 10.2 "Radioisotope Use."

Teaching Tips From Ms. Berry

Students have so many misconceptions about radiation. They don't realize that radiation is everywhere around us.

They find out that everything has radiation.

They see that radiation drops significantly as they move away from the radiation source.

It's important for our life to have that background about radiation.

It's one thing to tell them about these different things, but for them to actually see it and try it out with their own hands, they really get a feel for it.

One of the reasons that I talk to them about it, is that they are the decision makers of the future and they are the ones that are going to vote for the people who are going to decide whether nuclear reactors will be in their own back yards.

References: Readings

Hutchison, S.G., and Hutchison, F.I. (1997) "Radioactivity in Everyday Life," *Journal of Chemical Education*, Vol. 74, No. 5, pp: 501-504.