**Groundwater pollution lesson plan summary**

When students think of water sources, they typically only think of surface water. Groundwater is often overlooked, even though it is an important source for agriculture and drinking water. Disregarding its importance can lead to groundwater pollution. For example, there are more than 34 million gallons of uranium-contaminated groundwater at Old Rifle, CO, completely unusable by its local community. Contaminants in groundwater can have far-reaching ecological, economical and health effects.

ENGAGE: One student waters a potted plant. Students then answer the question, where does the water go? What about non-potted plants? A class discussion follows.

EXPLORE: Students create their own groundwater model, using a large beaker, pea-gravel, sand, peat moss, topsoil, food coloring (soluble pollutant), beads of the same color (insoluble pollutant), a screen (to create a well), and water. Students hypothesize where the polluted water will go and how long it will take. Using a timer, they will then test their hypotheses and create a time-line indicating when the polluted water reached various points. Students draw their model to scale and answer questions like, how long does it take after pouring the pollutant to contaminate the groundwater? The well? Would it be easier to clean up a surface water pollutant or a ground water pollutant?

EXPLAIN: Students share their results and watch a short video of ground water.

ELABORATE: Often times, water pollutants are undetectable by sight, taste or smell. Students collect and chemically test drinking water samples from different sites and present their data.

EVALUATE: Students submit a lab report, complete with model drawn to scale, time-line of polluted water, and the results of their water quality tests.

**Materials needed**

Potted plant

Water pitcher

Six large beakers (1000 mL)

Pea-gravel

Sand

Peat moss

Topsoil

Food coloring

Colored beads

Pre-cut [fiberglass screen](http://www.homedepot.com/p/New-York-Wire-36-in-x-84-in-Fiberglass-Screen-FCS8558-M/100397104)

Water

Stopwatches

Groundwater basics video

[Fukushima groundwater video](http://www.pbs.org/newshour/bb/inside-fukushima/)

LaMotte products:

* [Low Cost Water Monitoring Kit](http://www.lamotte.com/en/education/water-monitoring/3-5886.html)
* [Urban Water Test Kit](http://www.lamotte.com/en/education/water-monitoring/5918.html)
* [TesTabs Water Investigation Kit](http://www.lamotte.com/en/education/water-monitoring/5849.html)

Plastic vials for water samples

Test tubes

Test tube caps

Graduated cylinders