Topic 1: Scientific Method – 1c. Thinking Processing Skills – Ghost Crystals

Resources:	Flinn Scientific Catalog http://www.teachersource.com/Chemistry/HydrophilicHydrophobicPolymers/WaterGelCrystals.aspx
Building on:	Scientific Method
Links to Chemistry and Physics:	Index of refraction (physics) Dehydrated substances, polymers (chemistry)
Stories:	This is a very effective demonstration because the index of refraction of the ghost crystals matches that of water (1.0). Try to assure that no air bubbles get into the crystals by giving them a good soaking ahead of time. These crystals are also used in diapers to absorb wetness and in potting soil to retain moisture. You can obtain your crystals for the demo this way, but they will usually be smaller than the ones that you can order from Flinn. A single bottle will yield a lifetime of use!

Lab Instructions and Materials for the Teacher:

1. Drop ghost crystals into a beaker of distilled water the night before the activity.
2. The next day, take a large, hydrated crystal and tie one piece of colored thread around it and place it back into the beaker. The loop in the thread will appear to dangle in the water.
3. Pass out small sections of colored thread (6-8 inches long) and beakers of water to the students.
4. Ask students to try to recreate your setup using the thread and water. (NOTE: The thread will often float or become misshapen in the water.)
5. After several minutes ask the students to hypothesize why their setup may differ from yours. Someone may eventually propose that your setup is different.
6. Pull the crystal out by the thread and they will see it for the first time when it is out of the beaker of water.
7. Use this as an entry-level discussion of variables, hypotheses, and scientific method.