Precipitation Reaction Challenge

* Professor Dolf prepares them for the challenge:
  + A precipitation reaction is an exchange reaction with two soluble ionic compounds.
  + Real examples such as kidney stone formation, enamel, and bone formation.
  + Examples of removing ions from the environment such as Pb2+.
* The Challenge begins: They are on one side of an Indiana Jones type obstacle. There are holes in the floor with water (and alligators) in them.
* Professor Dolf throws an ion in the first hole. They have to add a soluble ionic compound that will form a precipitate. If solid forms, it will sink and move a lever that inserts a sheet of plexiglass a few inches below the surface of the water. They will be able to walk on it. If no solid forms, they will fall in and be eaten.
* Maybe in the second half of the course Professor Dolf has solutions with Pb2+, AsO42- etc. They have to remove the toxic heavy metal by adding the correct soluble ionic compound. Maybe there could be a bridge that expands over a chasm each time they correctly remove the toxic ion. It they don’t remove them all correctly, they can try to jump over chasm, but always fall in.
* When they get all of the way across the course, they earn a prize and go back to the main scenario.