Introduction and Goals of Research

- Learn more about interaction between radioactive elements and the environment
- Characterize minerals in the environment: alpha alumina α-Al₂O₃, gamma alumina γ-Al₂O₃, gibbsite Al(OH)₃, and bayerite α-Al(OH)₃
- Model interaction of minerals and radioactive elements
- Europium used as an analog for plutonium because the two species can share a common oxidation state of +3
- Accurate surface areas of minerals were determined in order for experiments to control for reactive sites

minerals to characterize...

Lesson 1: Radiation Sources, Types, and Biology

What is radiation? How does it behave? How does it impact life?

- Should nuclear energy be a part of a state's plan to reduce greenhouse gas emissions?

Lesson 2: Socio-Scientific Inquiry

1st
- Entry event introduction to the driving question
- Watch the background video for every role
- Assign roles to groups of students

2nd
- Research the question from one assigned perspective
- Plan questions to ask other perspectives
- Present evidence from assigned perspective to the class

3rd
- Form and articulate personal position based on evidence presented
- Use personal position to find real audience via email, phone, etc.
- Reflect on process

Lesson 3: Model Environmental Engineering Task

In a model system, what are the most effective methods of containing radioactive waste?

Goal: Minimize spread of tablet coloring "radioactive waste"

References

3. Image courtesy of Dr. Amy Hixon

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