

Mars for Earthlings

LESSON 7: Life-Hosting Rocks**In-Class Activity 1***Swelling Rocks***Expanding Soil**

Observe the class demonstration or video and answer the following questions.

<http://www.youtube.com/watch?v=ACpuYED9WkU>

1. According to the demo/video, why does the soil expand?
2. How does the bulk density change? What does this change indicate?

The Molecular Level

Observe the diagram below (Figure 1) and answer the following questions.

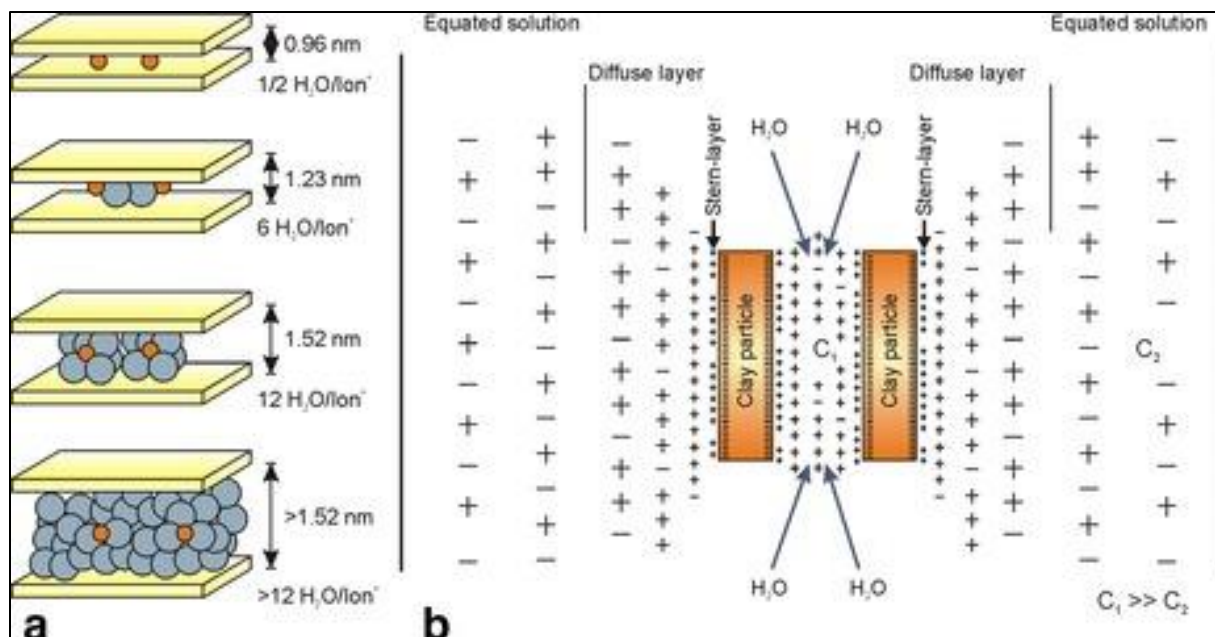


Figure 1 Butt et al., 2003

1. In Fig. 1a, how do the water molecules influence the structure?
2. Why does the water attract to the clay rather than the sand of the sandy loam (consult Fig. 1b)?

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3. Given your understanding of clays now, if clays $[\text{Na}_{0.2}\text{Ca}_{0.1}\text{Al}_2\text{Si}_4\text{O}_{10}(\text{OH})_2(\text{H}_2\text{O})_{10}]$ are observed on Mars....what does this mean?

4. Where might you find clays on Mars (what kind of features)? Hint: consider their environment of formation; do we have evidence for their presence on Mars?

