

## Exercise 1.12

The photo below shows a picture of an agate stone. Jack, who picked up the stone on the Lake Superior shoreline and polished it, insists that agate is a chemical compound. Ellen argues that it cannot be a compound. Discuss the relative merits of their positions. [Section 1.2]



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### Solution

Because Jack polishes the stone, it's not a heterogeneous mixture. The only question is what its composition at the microscopic level is. If there is not a variable composition, the substance is pure, and it's a compound as Jack says. If there is a variable composition (which is common for rocks), the substance is a homogeneous mixture as Ellen says.