State data after Question 2, Part 3

Running BFS:
BFS states: 6
None

Running DFS:
DFS states: 6
None

No solution was found. This makes sense because our rover has no way to complete the mission and extract the sample

After implementing depth limited search, limit=1:

Running BFS:
BFS states: 6
None

Running DFS:
DFS states: 6
None

Running DLS:
Depth limited states: 2
None

After adding tool implementations,
BFS states: 54 (Goal found)
DFS states: 53 (Goal found)
DLS states: 37 (Limit = 5, Goal found. Minimum limit to find a goal.)

Using subproblems:
BFS states: 51 (Goal found)
DFS states: 66 (Goal found)
DLS states: 34 (Goal found, respective limits at minimum to find a goal of 1, 2, and 2 for subproblems)

The most interesting thing to me here was how DFS actually did worse, but when I thought about how DFS works, it made sense. Since DFS goes as deep as possible down a specific path, it may "undo" the work done in previous subproblems or explore actions completely irrelevant to the problem. My DFS subproblem 1, for just moving to the sample, would actually go all the way and extract the sample as well, however, this left a larger number of states. I figured BFS would've fared better, and though it did, I figured it would've been by a bigger

degree. At the same time, this makes sense since BFS is exploring all possible options at the same level, then all options on the next. So, of course, this brings us to DLS. Depth-limited search worked extremely well. I must admit, however, that I played with the limits and made them as small as possible to still find a "goal". This result does not shock me as performing the best as, with the limit tweaks, it is only exploring the correct action as deep as it goes.