Sorting Algorithm Demonstration Proficiency Rubric

Live demonstration of sorting algorithms with playing cards

EMERGING

Unable to complete the sorting process correctly for one or both algorithms

- Gets stuck or uses wrong steps; cannot complete the sort without significant help
- Cannot explain what they are doing; moves cards without describing the process
- Confuses one algorithm with another or invents steps not part of the algorithm
- Misses scheduled demonstration without communication or refuses to attempt

PROFICIENT

Completes both algorithms correctly with clear verbal explanation

- Sorts cards using correct steps for both algorithms without errors or prompts
- Clearly explains each step as it happens: what is being compared, why cards swap or move
- Answers follow-up questions correctly showing genuine understanding, not memorization
- Arrives on time and ready; communicates if rescheduling is needed

DEVELOPING

Completes sorting with some errors or needs occasional prompts

- Sorts cards correctly but skips steps or makes minor errors; may need a hint to continue
- Explains some steps but struggles to describe why comparisons or swaps happen
- Shows basic understanding but cannot answer follow-up questions about the algorithm
- Arrives late to demonstration or needs to reschedule at last minute

EXTENDING

Demonstrates deep understanding and can explain algorithm behavior

- Executes algorithms smoothly while explaining; identifies sorted/unsorted regions clearly
- Can explain edge cases: what if cards were already sorted? What if all cards were the same?
- Compares algorithms: explains why quick/merge sort is faster for large lists
- Prepared and confident; could teach the algorithm to another student

Assessment Note: You will demonstrate two randomly selected algorithms using 9 playing cards (2–10). One algorithm from {bubble, selection, insertion} and one from {quick, merge}. Explain each step as you sort. Be prepared for follow-up questions to show understanding.