

Gateway Practice: Solutions

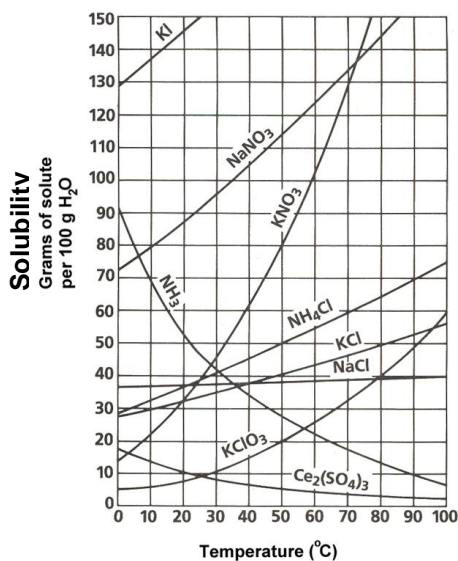
Write a well-developed essay demonstrating your understanding of solutions in chemistry.

- Explain how solutions form and describe the factors affecting solvation.
- Discuss solubility in terms of saturated, unsaturated, and supersaturated solutions. Explain the factors affecting solubility of solid and gaseous solutes.
- Explain how dumping warm, clean water into a lake might affect the ecosystem of the lake.

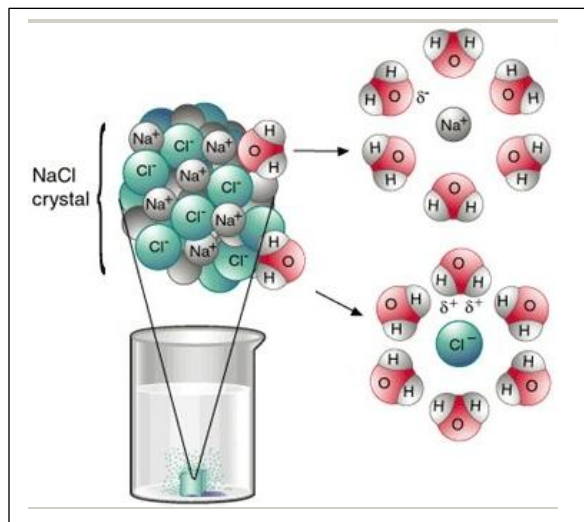
Writing Guidelines

- Essay should include an introductory paragraph, body paragraphs, and a concluding paragraph.
- Each paragraph should be five to seven sentences in length and should demonstrate proper grammar, mechanics, and conventions.
- Write objectively, avoiding personal pronouns, and use appropriate scientific vocabulary.
- Write clearly and concisely, being sure to communicate accurate information.
- Cite documents appropriately.
- Use the Gateway scoring rubric to insure you have addressed all necessary components.

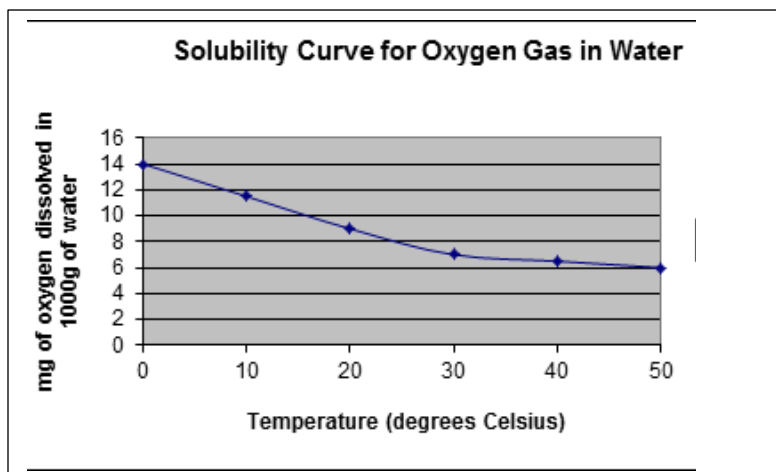
Document 1



Document 2



Document 3



Science Gateway Practice Grading Rubric

5 = Full Command, 4 = Consistent Control, 3 = Sufficient Control, 2 = Limited Control, 1= Lacks Control

Development of Science Processes (DEV)

- 5 (Fully elaborated and developed; exceptionally clear and explained in all parts; all ideas relevant)
- 4 (Well developed; reasoning clear and correct in most parts; most ideas relevant)
- 3 (Sufficiently developed; reasoning clear, correct and explained in some parts; most ideas relevant)
- 2 (Limited development; limited reasoning; ideas relevant but undeveloped or a mixture)
- 1 (Task not addressed or unclear or incorrect; ideas irrelevant and/or repeated; insufficient writing to determine competence)

Expression of Scientific Knowledge (KNO)

- 5 (Extensive, relevant and correct prior knowledge; extensive and precise scientific vocab.; effective use of documents)
- 4 (Considerable relevant and correct use of prior knowledge and scientific vocabulary; clear and appropriate use of documents)
- 3 (Generally relevant and correct prior knowledge; generally appropriate scientific vocabulary and use of documents)
- 2 (Mixture of correct and incorrect prior knowledge or limited to information in the documents; mixed control of scientific vocab.; mixture of appropriate and inappropriate use of documents; limited by brevity of response)
- 1 (No prior knowledge; little or no attempt to use or inappropriate use of scientific vocabulary and documents; insufficient writing)

Organization of Scientific Concepts (ORG)

- 5 (All parts appropriate; logical and appropriate sequencing; logical grouping of ideas; effective and varied transitional elements; intro establishes topic and conclusion provides closure w/o repetition, both are appropriate to task and purpose)
- 4 (Most or all parts appropriate; appropriate sequencing; consistent grouping of ideas; varied transitions; introduction establishes topic and conclusion provides closure without repetition)
- 3 (Generally appropriate; generally clear sequencing and grouping of ideas; some transitions; introduction is clear and conclusion provides closure)
- 2 (Little organization; limited sequencing and grouping; lacks or ineffective introduction or conclusion; limited transitions; competence limited by brevity of response)
- 1 (Ineffective organization; most ideas not sequenced; unrelated ideas often included; lacks introduction and/or conclusion; lacks transitions; insufficient writing to show competence)

Conventions (CON)

- 5 (Extensive variety of sentences that are clear and effective throughout; all elements of usage and mechanics consistently correct; errors infrequent and do not affect meaning)
- 4 (Varied sentences that are consistently clear and generally effective; most elements of usage and mechanics are correct; minor errors that don't affect meaning)
- 3 (Most sentences correct with some variation; mostly correct usage and mechanics with some errors; few errors affect meaning)
- 2 (Simple sentences with little variation; mixture of correct and incorrect usage and mechanics; some errors affect meaning; competence limited by brevity of response)
- 1 (Lack of sentence variety; frequent and severe errors in usage and mechanics; errors interfere or obscure meaning; insufficient writing to show competence)