

WRITING ABILITIES

Category	Desired writing ability	Grading criterion
Synthesis and summarization	<ol style="list-style-type: none"> Synthesize information and ideas located across multiple and/or disparate sources Summarize observations, data, and information in abstracts or executive summaries 	<ul style="list-style-type: none"> Includes multiple/disparate sources and is not overly narrow in scope Includes original thought and analysis, goes beyond simple agglomeration of facts Uses appropriate economy of language
Addressing the target audience	<ol style="list-style-type: none"> Communicate Earth Science concepts and information to diverse audiences, including other scientists, general public, government officials, and various stakeholders in a given issue involving Earth Science 	<ul style="list-style-type: none"> Consistently uses language, content, and formats appropriate for target audience Demonstrates technical competence and follows professional guidelines [scientific audience] Effectively distills complex information into accessible content without use of jargon. Technical details are simplified and condensed without sacrificing meaning or accuracy [non-scientific audience]
Clarity and organization	<ol style="list-style-type: none"> Write explicitly, precisely, and intentionally to the potential reader(s) so as to minimize alternative or ambiguous meanings or readings (except as intended) Communicate clearly what was performed or observed (field, lab), read (article, book, website), or heard (class, lab, field) so that observations are understandable to someone who was not present Write clear and informative sentences and paragraphs in a logical order to answer a question or make a point Write concisely without losing meaning, avoiding superfluous information or phrases 	<ul style="list-style-type: none"> Communicates clearly and unambiguously Describes what is seen (in the field/lab), read (in an article/book/website), or heard (in class/lab/field) so that the observations and information is understandable to someone who was not present Answers a question or makes a point using logically sequenced, clear, and informative sentences
Flow and transition	<ol style="list-style-type: none"> Incorporate effective transitions between subjects and statements 	<ul style="list-style-type: none"> Word choice and order provide continuity between sentences and paragraphs
Figures, captions, and equations	<ol style="list-style-type: none"> Explain in words the meaning of data and figures so that they are understandable to a reader who does not have the data or figures Explain in words the meaning of complex equations that describe processes or concepts beyond simply stating the identify of each variable or component of an equation Design and create graphs and diagrams that communicate information and concepts clearly, economically, and efficiently 	<ul style="list-style-type: none"> Explain in words the meaning of data and figures so that they are understandable to someone who does not have the data or figures Moves beyond identification of the variables or components of an equation to explain the meaning of equations in terms of processes and/or concepts Communicates information, data, and concepts in figures, graphs, and/or diagrams clearly with adequate labels and complete captions and without extraneous or distracting elements
Mechanics	<ol style="list-style-type: none"> Use proper grammar, spelling, and punctuation 	
Sources and citations	<ol style="list-style-type: none"> Identify and use appropriate, credible sources that are germane to the topic at hand Apply internal citations properly Create a reference list that follows an established scientific format 	<ul style="list-style-type: none"> Avoids biased or unscientific information, or appeals to false authority Internal citations and reference lists follow an established scientific format

TYPES OF WRITING

Category	Task	Evaluation area
Research papers	<ul style="list-style-type: none"> • Write a research paper or scientific report on a specific topic, question, problem, hypothesis, or model in the style of an article in a scientific journal (including abstract, introduction, background, results, discussion, conclusion, proper citations). • Conduct original analysis of new data from field or laboratory exercises 	
Scientific review	<ul style="list-style-type: none"> • Summarize and explain a journal article or body of scientific work • Judge/critique the scientific work or analysis or other individuals • Evaluate alternative hypotheses or competing perspectives (comparative analysis) using multiple sources 	<ul style="list-style-type: none"> • Logical reasoning and scientific understanding are effectively employed to judge plausibility of claims
Science translation	<ul style="list-style-type: none"> • Describe and evaluate the communication of scientific information (accuracy, effectiveness, style) in the popular press or other nontechnical platforms • Write about a scientific subject in the style of a newspaper/magazine article, press release, or memo, translating complex information into content suitable for an educated lay audience 	<ul style="list-style-type: none"> • Translates technical knowledge into content suitable for nonscientific audiences
Professional communication	<ul style="list-style-type: none"> • Write articulate, professional correspondence when required and know when to do so 	<ul style="list-style-type: none"> • Relays information using professional correspondence