

Science Year 4

Intramolecular and Intermolecular Forces

A and D

Statement of Inquiry: Models of energy changes can be built on the basis of previously recognised patterns

Global Context: Scientific and Technical Innovations

Key Concept: Change

ASSESSMENT TASK:

G (goal): You are to show your understanding that energy changes in substances show evidence of patterns that can be measured and used to make further inferences.

R (role): You are a meteorological expert and you need to develop a report of the meteorological conditions of a mountainous area where you reside.

A (audience): Skiers

S (situation): It is winter and skiers this time of year need to check the weather forecast to make an informed decision about skiing based on avalanche risk.

P (product, performance or purpose): For a given day of your choice you will provide data that supports your claims about the possibility or lack thereof of an avalanche, including weather conditions, earthquake history, and slope of the mountain you are evaluating.

S (standards): A C and D

ASSESSMENT RUBRIC:

Level	Descriptor
0	The student does not reach a standard identified by any of the descriptors below.
1-2	<p>A The student is able to:</p> <ul style="list-style-type: none"> i. state scientific knowledge in relation to avalanches ii. apply scientific knowledge and understanding to suggest solutions to problems set in familiar situations in relation to risk assessment for avalanches iii. interpret information to make judgments about avalanches <p>C The student is able to:</p> <ul style="list-style-type: none"> i. collect and present data in numerical and/or visual forms in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. ii. interpret data in relation to meteorological data (temperature fluctuations and

	<p>precipitation) and slope of the mountain.</p> <p>D The student is able to:</p> <ol style="list-style-type: none"> i. outline the ways in which science is used to address risk assessment for avalanches. ii. outline the implications of using science to solve a specific problem or issue, interacting with a factor in relation to risk assessment for avalanches. iii. apply scientific language to communicate understanding but does so with limited success in relation to risk assessment for avalanches. iv. document sources, with limited success.
3-4	<p>The student is able to:</p> <ol style="list-style-type: none"> i. outline scientific knowledge in relation to avalanches ii. apply scientific knowledge and understanding to solve problems set in familiar situations in relation to risk assessment for avalanches iii. interpret information to make scientifically supported judgments about avalanches <p>C The student is able to:</p> <ol style="list-style-type: none"> i. correctly collect and present data in numerical and/or visual forms in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. ii. accurately interpret data and explain results in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. <p>D The student is able to:</p> <ol style="list-style-type: none"> i. summarize the ways in which science is applied and used to address risk assessment for avalanches. ii. describe the implications of using science and its application to solve a specific problem or issue, interacting with a factor in relation to risk assessment for avalanches. iii. sometimes apply scientific language to communicate understanding in relation to risk assessment for avalanches. iv. sometimes document sources correctly.
5-6	<p>A The student is able to:</p> <ol style="list-style-type: none"> i. describe scientific knowledge in relation to avalanches ii. apply scientific knowledge and understanding to solve problems set in familiar situations and suggest solutions to problems set in unfamiliar situations in relation to risk assessment for avalanches iii. analyse information to make scientifically supported judgments about avalanches <p>C</p>

	<p>The student is able to:</p> <ol style="list-style-type: none"> i. correctly collect, organize and present data in numerical and/or visual forms in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. ii. accurately interpret data and explain results using scientific reasoning in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. <p>D</p> <p>The student is able to:</p> <ol style="list-style-type: none"> i. describe the ways in which science is applied and used to address risk assessment for avalanches. ii. discuss the implications of using science and its application to solve a specific problem or issue, interacting with a factor in relation to risk assessment for avalanches. iii. usually apply scientific language to communicate understanding clearly and precisely in relation to risk assessment for avalanches. iv. usually document sources correctly.
7-8	<p>A</p> <p>The student is able to:</p> <ol style="list-style-type: none"> i. explain scientific knowledge in relation to avalanches ii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations in relation to risk assessment for avalanches iii. analyse and evaluate information to make scientifically supported judgments about avalanches. <p>C</p> <p>The student is able to:</p> <ol style="list-style-type: none"> i. correctly collect, organize, transform and present data in numerical and/ or visual forms in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. ii. accurately interpret data and explain results using correct scientific reasoning in relation to meteorological data (temperature fluctuations and precipitation) and slope of the mountain. <p>D</p> <p>The student is able to:</p> <ol style="list-style-type: none"> i. explain the ways in which science is applied and used to address risk assessment for avalanches. ii. discuss and evaluate the implications of using science and its application to solve a specific problem or issue, interacting with a factor in relation to risk assessment for avalanches. iii. consistently apply scientific language to communicate understanding clearly and precisely in relation to risk assessment for avalanches. iv. document sources completely.

COMMAND TERMS:

State: give a specific name, value or other brief answer without explanation or calculation.

Outline: give a brief account or summary.

Describe: give a detailed account or picture of a situation, event, pattern or process.

Explain: give a detailed account including reasons and causes.

Apply: use knowledge and understanding in response to a given situation or real circumstances. Use an idea, equation, principle, theory or law in relation to a given problem or issue.

Suggest: propose a solution, hypothesis or other possible answer.

Solve: obtain the answer(s) using appropriate methods.

Interpret: use knowledge and understanding to recognize trends and draw conclusions from given information.

Analyse: break down in order to bring out the essential elements or structure. (To identify parts and relationships, and to interpret information to reach conclusions.)

Present: Offer for display, observation, examination or consideration.

Discuss: Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence

Evaluate: make an appraisal by weighing up the strengths and limitations.