

Hitting the Slopes – Scoring Sheet

Student Name: _____

Place a score (1-4) in each row corresponding to the student's college readiness level.

Exceeding College Ready (4): Substantially exceeds the performance expectations**College Ready (3):** Shows proficiency in all of the performance expectations**Approaching College Ready (2):** Meets only some of the performance expectations**Initiating College Ready (1):** Does not yet meet the performance expectations

| KEY COGNITIVE SKILLS | Student's Self-Assessment | Instructor's Score |
|--|---------------------------|--------------------|
| Intellectual Curiosity (engages in scholarly inquiry and dialogue; accepts constructive criticism and revises personal views when valid evidence warrants) | | |
| Reasoning (considers arguments and conclusions of self and others; constructs well-reasoned arguments; supports or modifies claims based on data) | | |
| Academic Behaviors (self-monitors learning needs and seeks assistance when needed; strives for accuracy and precision; perseveres to complete and master tasks) | | |
| Work Habits (works independently; works collaboratively) | | |
| FOUNDATIONAL SKILLS | Student's Self-Assessment | Instructor's Score |
| Writing Across the Curriculum (writes clearly, coherently using standard writing conventions) | | |
| Research Across the Curriculum (synthesizes and organizes information effectively) | | |
| SCIENCE STANDARDS | Student's Self-Assessment | Instructor's Score |
| Nature of Science: Scientific Ways of Learning and Thinking (exercises cognitive skills in science; demonstrates collaborative and safe working practices; effectively communicates scientific information) | | |
| Foundational Skills: Scientific Applications of Mathematics (understands and uses math as a symbolic language) | | |
| Foundational Skills: Scientific Applications of Communication (demonstrates appropriate reading and writing practices for science; presents scientific information accurately) | | |
| Physics (understanding the fundamental concepts of kinematics; demonstrates understanding of potential energy, kinetic energy, conservation of energy, and the relationship between work and mechanical energy) | | |

**See reverse for
comments.**

| Score | College Readiness Level |
|-------|---------------------------|
| 35-40 | Exceeding College Ready |
| 30-34 | College Ready |
| 15-29 | Approaching College Ready |
| 0-14 | Initiating College Ready |

Total Score: _____

Grade: _____

See Scoring Guide for grade conversion chart.

Hitting the Slopes – Scoring Guide

Note: The letters and numbers of the skills below refer to their designation in the College and Career Readiness Standards.

KEY COGNITIVE SKILLS

A. Intellectual Curiosity

1. Engage in scholarly inquiry and dialogue.

College Ready Description: Student engages fellow classmates in discussion, correcting misconceptions of their classmates as well as considering their arguments and reasoning.

Evidence for Scoring: Student attempts to answer questions informally posed by the instructor.

2. Accept constructive criticism and revise personal views when valid evidence warrants.

College Ready Description: Student integrates new information into his or her arguments when his or her thought processes are incorrect or incomplete.

Evidence for Scoring: When a classmate correctly and logically explains why the student is incorrect, the student is open to change.

B. Reasoning

1. Consider arguments and conclusions of self and others.

College Ready Description: Student listens attentively to fellow classmates' arguments, weighing what is present to what he or she thinks. Student is open to changing his or her views when unable to refute classmates' views and logic.

Evidence for Scoring: When a classmate correctly and logically explains why the student is incorrect, the student is open to change.

2. Construct well-reasoned arguments to explain phenomena, validate conjectures, or support positions.

College Ready Description: Student uses logical responses to support his or her opinions. Student should be able to explain his or her reasoning in a step-by-step manner, citing sound logic at each step.

Evidence for Scoring: Student does not jump from one topic to the next but expresses his or her arguments in a linear manner.

4. Support or modify claims based on the results of inquiry.

College Ready Description: Student is open to re-examining his or her arguments when other data or situations are presented.

Evidence for Scoring: Student addresses and reconsiders his or her interpretation of the motion of the sledder in light of discussion with classmates and subsequent prompts.

D. Academic Behaviors

1. Self-monitor learning needs and seek assistance when needed.

College Ready Description: Student keeps a mindful eye on his or her integration of knowledge as he or she progresses, asks questions of fellow students, and asks the instructor for help.

Evidence for Scoring: Student is comfortable admitting he or she does not know the answer and is willing to re-cover the material to relearn.

3. Strive for accuracy and precision.

College Ready Description: Student is not satisfied with incomplete arguments and tries to reason out logical arguments in a complete and full manner. Student approaches problems in a step-by-step manner to make sure he or she does not miss any key steps.

Evidence for Scoring: Student will not only ask questions he or she is supposed to answer but will go above and beyond by posing “what if” questions as well.

4. Persevere to complete and master tasks.

College Ready Description: Student does not give up when presented with a situation that he or she does not know how to solve, but rather starts with things he or she does know.

Evidence for Scoring: Student attempts a different approach when a previous approach does not work out. If student does not know how to deal with friction, the student will look at his or her experiences and compare what happens to what he or she saw happen in the previous activity.

E. Work habits

1. Work independently.

College Ready Description: Student can work through the problems by himself or herself,

Evidence for Scoring: Student does not wait until the group work to start thinking about the scenarios.

2. Work collaboratively.

College Ready Description: Student actively and equally works with others on the problem at hand.

Evidence for Scoring: Student recognizes different people have different skills and knowledge and tries to use what everyone has for the betterment of the group.

FOUNDATIONAL SKILLS

B. Writing Across the Curriculum

1. Write clearly and coherently using standard writing conventions.

College Ready Description: Student explains in writing what he or she observes in the data graphs and clearly conveys consequences of these observations. Student uses technical definitions in their explanations.

Evidence for Scoring: Student correctly uses the word “energy” in their writing.

C. Research Across the Curriculum

5. Synthesize and organize information effectively.

College Ready Description: Student brings together knowledge he or she learned from previous discussions with the data and information obtained in this particular activity.

Evidence for Scoring: Student recognizes that an icy hill implies low friction and thus no energy transfer to the surroundings. Student recognizes that information learned in the past is related to information he or she is currently learning.

SCIENCE STANDARDS

I. Nature of Science: Scientific Ways of Thinking and Learning

A.2. Cognitive skills in science.

College Ready Description: Student critically thinks about the ideas that are being addressed and logically comes to a conclusion.

Evidence for Scoring: Student does not blindly believe fellow classmates' claims but questions their validity.

C.1. Collaborative and safe working practices.

College Ready Description: Student collaborates on joint projects.

Evidence for Scoring: Student actively participates in discussions with fellow classmates as well as with the instructor. Student does not just sit passively but rather actively listens and talks.

E.1, 2. Effective communication of scientific information.

College Ready Description: Student uses several modes of expression to describe or characterize natural patterns and phenomena. These models of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic. Student uses essential vocabulary of the discipline being studied.

Evidence for Scoring: Student converses with fellow classmates about the activity. Student explains the main points of the activity in the typed abstract. Student provides a clear explanation of conservation of energy to his or her classmates, correctly using words like kinetic energy.

II. Foundation Skills: Scientific Applications of Mathematics

B.2. Mathematics as a symbolic language.

College Ready Description: Student represents natural events, processes, and relationships with algebraic expressions and algorithms.

Evidence for Scoring: Student characterizes sledding down a hill in terms of changes in specific types of energy.

III. Foundation Skills: Scientific Applications of Communication

A.1. Scientific writing.

College Ready Descriptions: Student uses correct applications of writing practices in scientific communication.

Evidence for Scoring: Student presents his or her knowledge in the form of a written abstract. Student says in words what conservation of energy means and how it is applied.

B.3. Scientific reading.

College Ready Description: Student recognizes scientific and technical vocabulary in the field of study and uses this vocabulary to enhance clarity of communication.

Evidence for Scoring: Student interprets the term “energy” in the specific context of physics, and does not confuse it with use in the more general contexts in which people discuss energy in everyday life.

C.1. Presentation of scientific/technical information.

College Ready Descriptions: Student prepares and presents scientific/technical information in appropriate formats for various audiences.

Evidence for Scoring: Student prepares an abstract describing conservation of energy.

VIII. Physics

C.1. Forces and motion.

College Ready Description: Student understands the fundamental concepts of kinematics and Newton’s laws.

Evidence for Scoring: Student describes the motion of the sledder in terms of position, velocity and acceleration; then, student relates those attributes to the physical laws pertaining to interaction with gravity and forces resulting from friction.

D.1, 2, 3. Mechanical energy.

College Ready Description: Student understands potential energy, kinetic energy, and conservation of energy. Student understands the relationship of work and mechanical energy.

Evidence for Scoring: Student shows that the total energy of the system for Activity 1 is in the form of potential energy and gets converted to kinetic energy as the rider moves down the hill.

Hitting the Slopes – Scoring Instructions

Place a score (1-4) in each row of the scoring sheet corresponding to the student's college readiness level.

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Suggested Grade Conversion:

This chart reflects equal weight given to each skill. As key cognitive skills, foundational skills, and discipline content knowledge are all important elements of college readiness, we recommend this grading approach. However, you may certainly choose to implement different weights to particular scales and assign a grade at your discretion.

| Score | Grade | | Score | Grade | | Score | Grade | | Score | Grade |
|-------|-------|--|-------|-------|--|-------|-------|--|-------|-------|
| 40 | 100 | | 32 | 89 | | 24 | 79 | | 16 | 71 |
| 39 | 99 | | 31 | 87 | | 23 | 78 | | 15 | 70 |
| 38 | 98 | | 30 | 85 | | 22 | 77 | | 14 | 68 |
| 37 | 97 | | 29 | 84 | | 21 | 76 | | 13 | 66 |
| 36 | 96 | | 28 | 83 | | 20 | 75 | | 12 | 64 |
| 35 | 95 | | 27 | 82 | | 19 | 74 | | 11 | 62 |
| 34 | 93 | | 26 | 81 | | 18 | 73 | | 10 | 60 |
| 33 | 91 | | 25 | 80 | | 17 | 72 | | | |