How does *Nelson Physics 11* help teachers assess and evaluate student achievement?

Assessment Standards for Nelson Resources

1. Curriculum Congruency

Assessment strategies and tools are matched to the Ontario curriculum with respect to performance standards (such as Achievement Levels) and content standards (such as Curriculum Expectations).

2. Manageability

Each resource provides teachers with an efficient and manageable approach to assessment that includes diagnostic, formative, and summative components.

3. Variety of Tools

Teachers receive a variety of assessment tools, including: rubrics, checklists, tracking sheets, and answer keys.

4. Clear Criteria

Assessment criteria are clearly indicated so that teachers and students know what is expected in each assessment task.

5. Opportunities for Self-Assessment

Clear directions are provided to involve students and, where appropriate, parents in the assessment process.

Questions Reflect the Achievement Chart Categories

A balance of Understanding Concepts, Applying Inquiry Skills, and Making Connections questions appear throughout the text.

Section 3.2 Questions

Understanding Concepts

1. What is the magnitude of the force of gravitational attraction between a 55-kg student and a 65-kg student, whose centres are 1.0 km apart?
2. At a certain instant, a 255-kg meteoroid moving toward Earth is located 6.75 Mm from Earth's centre. What is the magnitude of the force of gravitational attraction between the two bodies? (Earth's mass is 5.98×10^{24} kg.)
3. Is it possible for a body to exist somewhere in the universe that has no forces whatsoever acting on it? Explain your answer.

Applying Inquiry Skills

4. Describe how you would use a globe to illustrate the orbit of a geosynchronous communications satellite.

Making Connections

5. Research the meanings and causes of "spring tides" and "neap tides." Follow the links for Nelson Physics 11, 3.2. Draw diagrams to show what you discover.

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6. Astronomers have used equations derived by Sir Isaac Newton to estimate that the Milky Way Galaxy has a mass of approximately 4×10^{41} kg. If the mass of our Sun is 2×10^{30} kg, how many stars are there in our galaxy? Assume for this question that all stars have the same average mass and that the masses of planets are negligible.

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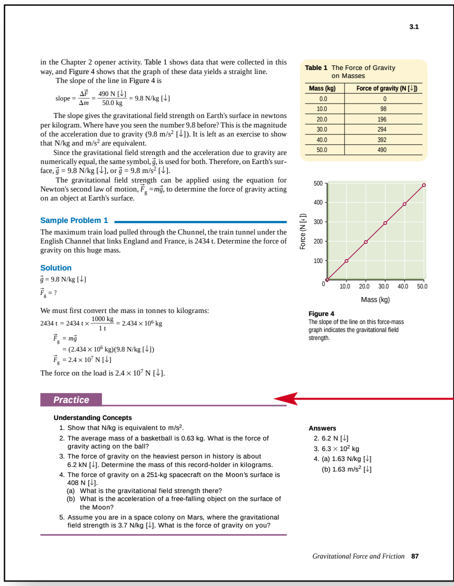


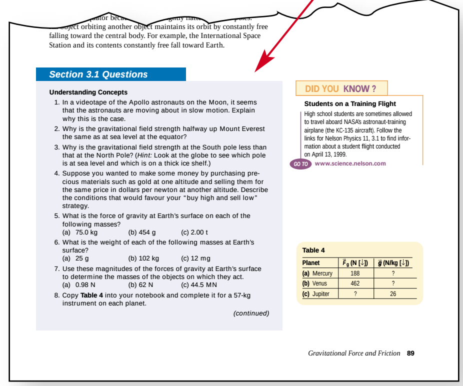
Section Questions

Section Questions are presented when it is convenient to assess a cluster of expectations that are "finished" in their development. They are intended to be used largely for formative or summative assessment and are categorized to reflect the Achievement Chart.

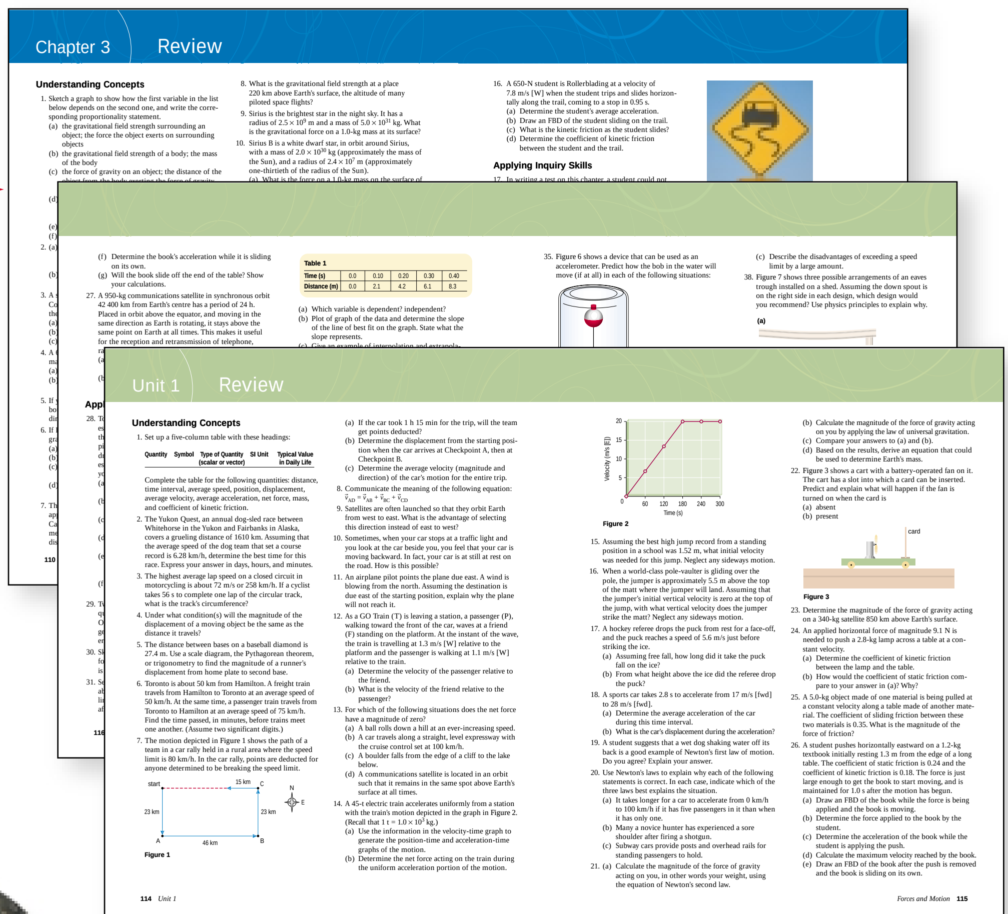
NOTE: Answers to Section Questions are not presented anywhere in the Student Text. Solutions and sample written answers are presented in the Solutions Manual.

Practice Questions

Practice Questions are presented in the middle of a section, offering students the opportunity to practise working with the terms, mathematical or problem-solving techniques, skills, or concepts presented in the text. These questions often follow a *Sample Problem* and are intended to be used largely for formative assessment.



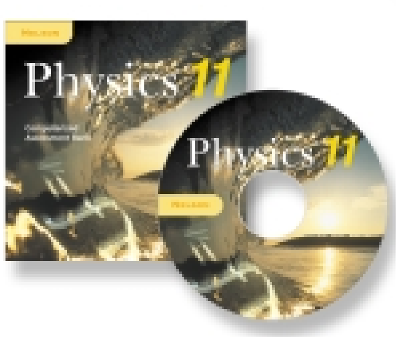
NOTE: Answers to Practice Questions, when they are numerical, are presented in the margin beside the questions. Solutions and sample written answers are presented in the Solutions Manual.



Chapter and Unit Review Questions

Chapter and *Unit Review Questions* can be used for more formative assessment, and questions are categorized to reflect the Achievement Chart.

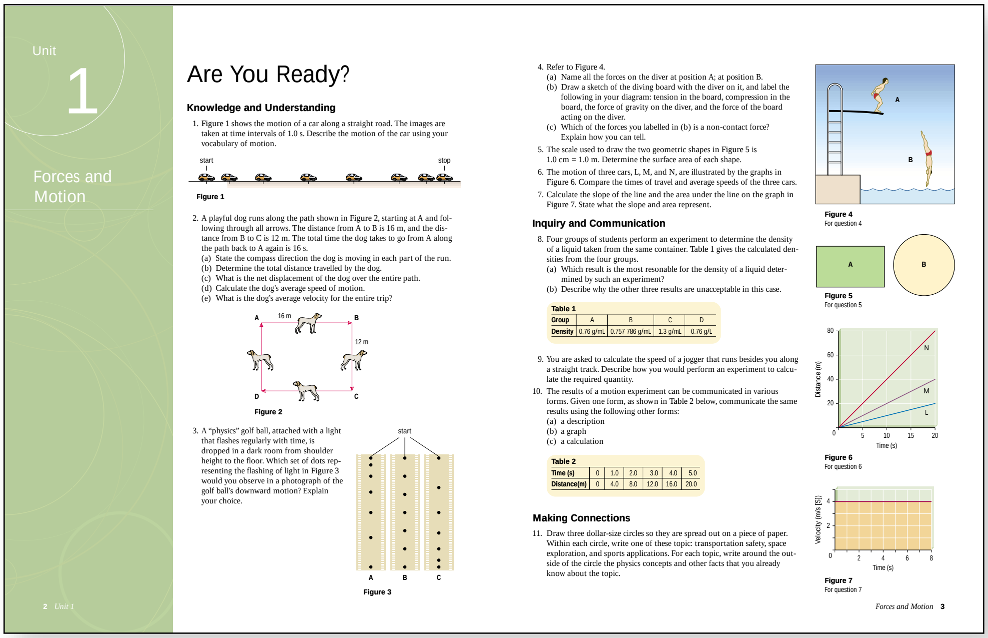
NOTE: Answers to *Chapter* and *Unit Review Questions*, when they are numerical, are presented in Appendix D at the back of the student text.

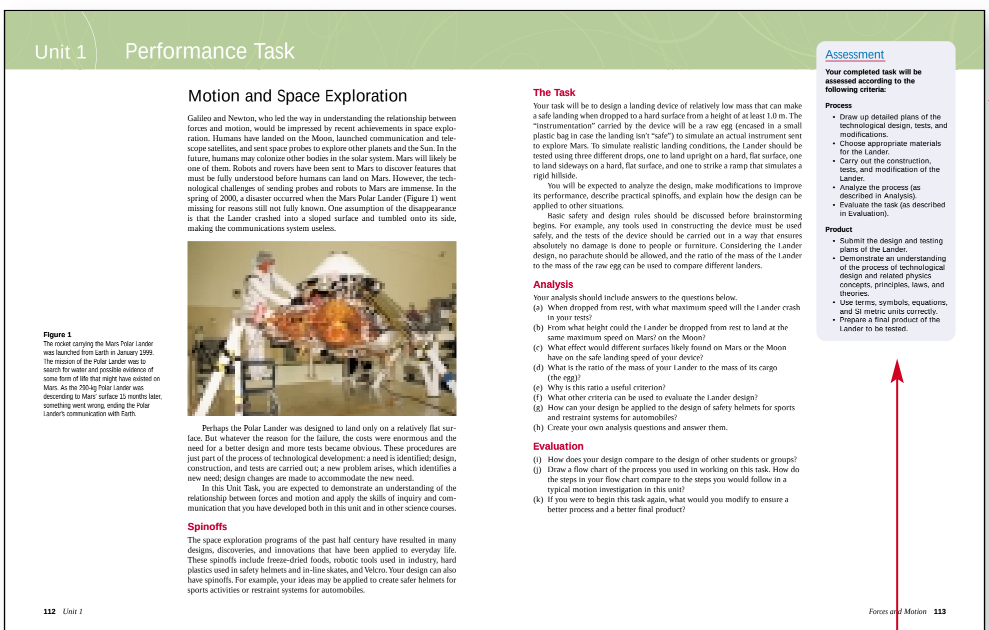


The *Nelson Physics 11 Computerized Assessment Bank* includes 1500 questions, each correlated to a specific expectation(s) in the curriculum and categorized to reflect the Achievement Chart categories.

Are You Ready? and Unit Performance Task

The Are You Ready? section is a diagnostic “pre-test” presented at the beginning of each unit. It can be used by students and teachers to help identify areas where students may have misconceptions about concepts or skills or have forgotten key learnings from earlier grades. In this feature, students are asked questions, usually in a visual format, about prerequisite concepts or skills (including math and lab safety) for each unit.





Unit Performance Task

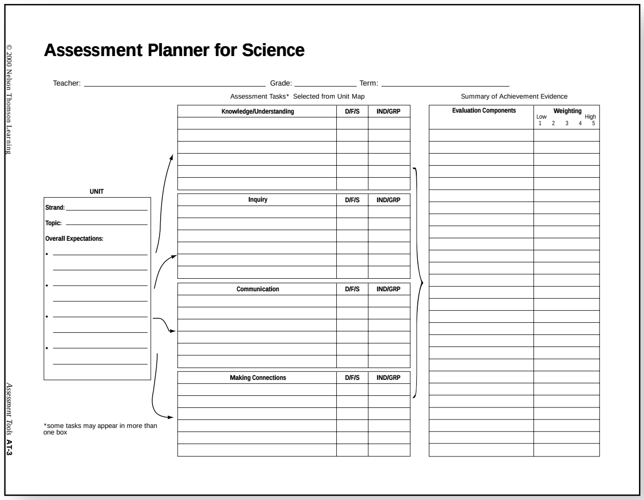
Each unit ends with a performance task that can be used for evaluating a significant “chunk” of the achievement expectations addressed in the unit. It can be a design-and-do investigation; a design-and-build activity; or a case study presenting a real-world process or system with STSE implications.

Clear Criteria

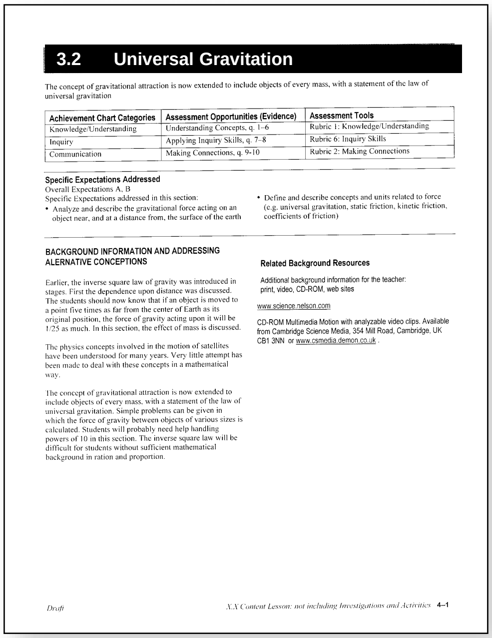
Assessment criteria are clearly indicated so that teachers and students know what is expected in each assessment task.

Assessment Tools and Manageable Strategies

The Assessment Planner is a manageable tool for teachers to use for planning the unit to ensure students have an opportunity to give evidence of learning for each category of the Achievement Levels Chart. The teacher can identify which learning experiences are to be used for diagnostic, formative, and summative assessment purposes, which assists in identifying the tasks that will be used for reporting.



Each Teacher's Resource lesson begins with a chart that lists the specific expectations being developed in the lesson. The evidence of student learning and assessment tools used are referenced here.



The *Nelson Physics 11 Teacher's Resource* includes a variety of assessment tools for diagnostic, formative, and summative evaluation including rubrics, tracking sheets, and self-assessment checklists.