

End-User Review-Round 1 Formative Evaluation of a Key Idea Within an NSTA Science Content Object

Thank you for agreeing to serve an end-user reviewer for this NSTA Science Object: *Force and Motion*. Your expertise and critical review will help to provide feedback on the overall effectiveness for the series of Key Idea that comprises this Science Content Object. Your objective is to complete the questions asked in this document and use the feedback buttons located within the web page to comment on appropriate sections of content in the Key Idea being reviewed. E-mail this document to Steve Rapp (srapp@nsta.org) by August 12, 2004

Overall Purpose of End-User Review:

This evaluation will gather your feedback in the following critical areas for the Science Content Object you are reviewing:

1. Pacing
2. Sequencing
3. Motivational Potential
4. Learning Effectiveness

What is a Science Content Object?

Science Content Objects help educators learn core science content tied to the *Atlas of Scientific Literacy* (Benchmarks) and the *National Science Education Standards*. Each Science Content Object will include 5 (\pm 2) Key Ideas. The Key Ideas are chunks of content that are self-paced, and drill down to facilitate learner understanding through the use of online simulations, hands-on activities, embedded questions, and discussion with other educator colleagues. Each Key Idea will be explored through the following sections: Engage, Explore, Explain, Elaborate, and Evaluate.

In addition to just-in-time learning, where the learner can control the place, pace, and time of learning, Science Content Objects will address common misconceptions related to the content at hand. They also allow educators to assess their understanding of a concept by engaging in quizzes after each Key Idea in the Object.

Upon completion of the Science Content Object, NSTA will provide certification through a final graded post assessment. A typical Science Content Object may take anywhere from 4-14 hours to complete if explored in one or two uninterrupted sessions.

Steps to complete the review:

1. Read the Key Idea and Evidences of Understanding section in this document to get the “big picture” overview.
2. Read through the formative evaluation questions on this form and bear them in mind as you review the Key Idea.
3. Go to the Science Content Object Development site at:
http://institute.nsta.org/ev_dev/index.htm
4. Log in using the Member ID and Password you should have received (or will shortly).
5. Click on the name of the Object or the plus sign (+) next to it. Then click the name of the Key Idea you are reviewing.

- Review all of the Key idea by navigating and reading through each page and section. Skip over the add review comment button on your first pass, going through as a typical learner would. (Bear in mind the simulations and animations are only Static mockups at this point. Read the “what the viewer will see section and try to envision how it will work and how you might improve on the idea.)
- Answer the questions that begin on the following pages pertaining to the Key Idea as a whole.
- Go back through the Key Idea to use the “add review comment” button on any and all sections where you would like to make a comment, ask a question, or make a suggestion on regarding the four critical areas (again--Pacing, Sequencing, Motivational Potential, Learning Effectiveness).
- Return the form with your answers and comments to Steve Rapp (srapp@nsta.org) by the date mentioned above.

HELP: If you have any questions on how to conduct the review, or how to access the proper Key Idea of the Science Content Object or the pages here, please contact Steve Rapp at 703-312-9229 or E-mail: srapp@nsta.org.

Review Process Screen Snapshots

Below you will see three images that show you how to conduct the review within the web page for the *Key Idea* under consideration.

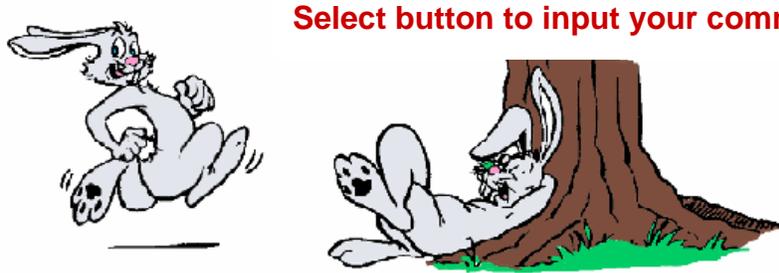
The screenshot shows a web browser window titled "Development Portal - Microsoft Internet Explorer" with the address bar showing "http://institute.nsta.org/ev_dev/index.htm". The page header includes the NSTA Science Modules logo and the text "Building Content & Skills". The main content area is divided into two columns. The left column, titled "Personal Information", displays a welcome message for "std_content_expert", the last visit date and time (8/3/04 at 10:37 AM), and learning object status (Available: 1, Visited: 1). The right column, titled "Task Monitor", contains a "Table of Contents" section. Below this, there is a table with columns for "Module", "Completion", and "Last Accessed". The table lists "Force and Motion" and "Position, Motion, and Changes". The "Position, Motion, and Changes" module is highlighted with a red box, and a red text overlay reads: "Expand Force and Motion Science Content Object and select Key Idea to review".

Module	Completion	Last Accessed
Force and Motion	●	8/3/04 10:37 AM
Position, Motion, and Changes	●	8/3/04 10:36 AM

How in the world did the hare lose? He shouldn't have, after all. He was much faster, and faster is good when racing. The tortoise, however, was slow. He just kept on moving at a slow and steady speed. He never varied that speed, just plodding along. Of course the hare speeded along, took naps, ran back to the tortoise to gloat (actually not part of the fable but good for our purpose), and was generally erratic in his motion. So how did the tortoise win, and more importantly, can we describe the motion of the tortoise and the hare sufficiently to explain why the tortoise won? Yep, I thought that was foremost in your mind.

Add Review Comment

Select button to input your comment



The image contains two cartoon illustrations of a hare. On the left, the hare is running quickly. On the right, the hare is lying down and resting under the shade of a large tree trunk.

Add Review Comment - Microsoft Internet Explorer

NSTA Science Modules Building Content & S

00065BF1B6260A74CE3A010100000C91

Priority:

Problem Type Media Text Technical

Previous Comments

Enter your comments in box below regarding your "Problem Type" selection above and its level of "Priority"

Enter Comments

Input your comments for the "Text" and/or "Media" regarding your impression of the content or how it might be improved to make it more engaging. |

Key Ideas and Evidences of Understanding

Key Ideas are specific statements of the knowledge or skills that the learner should have after having gone through the Science Content Object. The “Key Ideas” are derived from the standards and benchmarks. While the Key Ideas may not include all of the knowledge or skills described in those goals, they will reflect the spirit and recommendations of these documents. The Key Ideas are “atomized” to increase clarity and to suggest the sequence and structure of the Science Content Object. Each of these ideas should be used to drive the development of the separate “Key Ideas” that will together comprise the Science Content Object.

Evidences of Understanding define performances by the learner that demonstrate that they have acquired the knowledge or skill described in the Key Idea. These evidences may provide a range of difficulty (reveal a range of cognitive depth) for each Key Idea, but should not be limited to simple recall or other low-difficulty performances.

Key Idea being addressed: Position, Motion, and Changes

“The position of an object must be described relative to some other object. The motion of an object can be described by its direction and speed. Velocity is a measure of both an object’s speed and its direction (and can be described by vectors). Constant motion means that the direction and speed remain the same. Changes in motion (direction or speed) are called accelerations.”

Evidences of Understanding for Position, Motion and Changes:

- The learner will be able to identify the position of one object relative to the position of another object by providing the approximate distance and angles between the objects, the angles being measured from some reference line.
- The learner will be able to define the concepts of speed and velocity, and will be able to determine the average speed of an object given necessary information.
- The learner will be able to describe, draw, or otherwise detail the velocity of an object given magnitude and direction.
- The learner will be able to define acceleration, recognize examples of acceleration, and develop his or her own examples of acceleration.
- The learner will know that the term acceleration means a change in velocity, be that speeding up, slowing down, or changing direction.
- The learner will be able to distinguish between constant and changing motion.
- The learner will distinguish increasing speed from increasing acceleration.
- The learner will recognize that the state of rest is a state of zero speed (rather than as something fundamentally different than motion).

Formative Evaluation Questions to Answer

Pacing				
	Excellent	Good	Fair	Poor
1. How would you rate the pacing and described amount of interactivity provided across this content for our intended audience (educators)?				
2. Interactivity entails the end-user answering embedded questions, making observations of animations, conducting hands-on activities, and utilizing simulations. How well did this Key Idea provide these types of interactivities? Provide recommendations as appropriate.				
Overall Comments/Impressions/Recommendations for Improvement:				

Sequencing				
	Excellent	Good	Fair	Poor
1. How would you rate the sequencing of the content with respect to it fostering your understanding and interest of the content as presented?				
2. What would you like to see more or less of to keep the content compelling as you advance through the screens in their existing sequence? Provide recommendations as appropriate.				
Overall Comments/Impressions/Recommendations for Improvement:				

Motivation				
	Excellent	Good	Fair	Poor
1. How motivationally engaging and visually stimulating do you believe this content is (with described simulations and proposed/existing graphics)?				
2. If you think it is not very motivationally engaging/stimulating, what changes would you recommend?				
Overall Comments/Impressions/Recommendations for Improvement:				

Effectiveness				
	Great	Good	Fair	Poor
1. How well do you think the content presented will help you learn the Key Idea and evidences of understanding for the Key Idea?				
Overall Comments/Impressions/Recommendations for Improvement:				

End-User Review Round 2 Formative Evaluation of an NSTA Science Module

Thank you for agreeing to serve as an end-user reviewer for this NSTA Science Module: (title of science module). Your contributions and critical review will help to ensure that our science modules will be provided the best pace of delivery, be engaging and effective at helping you learn the desired learning outcomes. Your objective is to complete the questions asked in this document and use the feedback buttons within the Evolution tool to comment on each section of content on the learning object being reviewed. Please return this document to NSTA after reading the content contained in the attachment (title of science module).

This expert review will collect your comments in the following critical areas of the content:

5. Learner Appeal
6. Learning Effectiveness
7. Ease of Use
8. Sequencing and Completeness of Content

Overall Purpose of Content End User Review:

Formative “End-User Review” evaluations are conducted to collect data and information used to *improve* the instructional effectiveness of a product and to determine the instruction’s strengths and weaknesses. An end-user review is conducted before the product is completed or finalized and analyzes various components for their level of engagement, appeal and effectiveness. We hope you will be able to help us identify areas for improvement across the topical areas enumerated above. Ultimately you’ll assist NSTA in creating a “to do” list in revising the instruction.

What is a Science Module?

Science modules are online chunks of learning that help educators learn core science content tied to the Atlas of Scientific Literacy (Benchmarks). We have attached the K-12 strand scope document this science module is supposed to cover. These chunks of content are self-paced, and drill down in scope to facilitate learner understanding through the use of online simulations, easy-to-recreate hands-on activities, and moderated discussion with other educator colleagues (as related to pedagogical implications only). Subject matter experts are available via an email link for targeted content related questions.

In addition to just-in-time learning, where the learner can control the place, pace and time of learning, science modules will address common misconceptions related to the content at hand, and allow educators to assess their understanding of a concept by engaging in the science module quizzes after each learning object in the module. NSTA will provide certification upon completion of the science module and through both a final post assessment and portfolio tool, allow the learner to demonstrate their understanding of the science module content. A typical science module may take anywhere from 6-18 hours to complete if consumed in a continuous fashion.

Steps to complete the review:

10. Read the Scope document titled: _____ to get the “big picture” overview of what content, topics and outcomes the science module hopes to achieve.
11. Read the Design document titled: _____ while answering the questions below.
12. Read the storyboard titled: _____ and provide a critique of the content. The storyboard shows screen snapshots of the content and how it will be sequenced on the page and attempt to engage learner interaction with the content.
13. Please review the embedded quiz and final assessment items for their level of difficulty.

Questions:

Document being reviewed: (Title of document).

Appeal of Content		
The content is presented in an appealing fashion. The style of writing is entertaining; the reading level is appropriate for the adult learner. The graphics, layout, and proposed simulations within the content are aesthetic, interesting and draw you into the content with a desire to know more. Please comments on areas that could be improved.	Yes	No
Comments:		

Learning Effectiveness of Content		
The content is structured in a way that facilitates learning for the adult educator. Adequate opportunities exist for exploration and practice. The practice and quiz questions provide an adequate challenge and alignment to the desired key ideas and provide worthwhile feedback and remediation if I do not get the correct answer.	Yes	No
Comments: Please identify questions or content areas that could be improved or provide recommendations for interactivity that might better improve the effectiveness of the content.		

Please proceed to page 3

Ease of Use		
Navigating through the module is straightforward and self-explanatory after reading the "Navigation" tab on the intro page (later orientation module). Instructions within the module are clear, concise and easy to understand.	Yes	No
Comments: If challenges exist, please identify where and provide recommendations for improving the material.		

Sequencing and Completeness of Content		
The content is sequenced in a way that facilitates acquisition, understanding, and application of desired conceptual knowledge. Concepts allow adequate exploration and explanations and practice areas are of sufficient depth to facilitate learning.	Yes	No
Comments: Please identify sequencing challenges that are confusing, or topic/concpet areas that do not provide sufficient information to facilitate learning.		

Overall Attitude Regarding Science Module				
Please provide us with your overall rating of your perceived effectiveness of this science module.	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The content would assist an educator in learning the desired outcomes				
2. The content is motivational for the adult educator				

Overall Comments/Impressions: