

Book Evaluation Form

Science and Mathematics

This form is part of a battery of tools developed by Prof. Ibrahim A. Halloun for ascertaining methods and means of learning and instruction of science and mathematics. The form is meant to evaluate various books/components at any grade level. It is conceived in seven dimensions, each consisting of a set of features to be evaluated on a 5-point ordinal scale as explained below. If necessary, the observer-evaluator may include additional comments at the end of every dimension.

The same form is used for all books/components in a given grade level in order to facilitate cross-component evaluation. These components typically include the *Students' Edition* (referred to as STDT in the attached table), the *Laboratory or Practice Workbook* (WKBK), and the *Teacher's Edition* (TCHR).

For any information or feedback about this form, please visit www.halloun.net or send an email to: Prof.Halloun@idm.net.lb.

INSTRUCTIONS:

Some terms used in this form have specific meaning for the purpose of the target evaluation. In the following are some of these terms and their meanings.

Conception = Concept, principle, theorem or any other conceptual element covered in instruction.

Lesson = The smallest textbook unit that is typically covered in one or two periods of instruction.

Materials = The content of a lesson.

Approach = The way materials are presented and expected to be learned, taught and deployed.

Discipline = The branch of science or mathematics that is the object of instruction (e.g., any physical science or life science; arithmetic, algebra, or geometry in mathematics).

Profile = The comprehensive set of conceptions (or content knowledge), processes/skills (or procedural knowledge), and dispositions that individual students are expected to develop by the end of the course.

Learning cycle = A systematic instructional approach following consistent, well-defined stages.

Transparent = Issues are discussed explicitly enough for students to understand; they are not left out so vague and implicit in presented materials that students can hardly reveal.

SCORE:

A 5-point rating scale is used for ascertaining each feature. Please record one of the following scores for rating any applicable feature of each component you have at hand (Students' Edition, Practice Workbook, or Teacher's Edition):

4 = Excellent

3 = Good

2 = Fair

1 = Poor

0 = Missing; the book did not treat this component while it should have done so.

N/A = Not Applicable. Please indicate instead of "0", if you deem that the feature in question could not, or should not, be treated in the book.

DIMENSION	FEATURE	SCORE		
		STDT	WKBK	TCHR
CONTENT KNOWLEDGE	C1 Materials are original and relevant to contemporary life			
	C2 Materials are presented in a variety of familiar and culturally accepted contexts			
	C3 Materials arouse student interest			
	C4 Every conception is adequately treated (what it is about, how it can be used and under what conditions, how related to other conceptions, etc.)			
	C5 Adequate balance is maintained between details pertaining to individual conceptions and the big picture that relate various conceptions in coherent ways			
	C6 Various conceptions are adequately sequenced and coherently related within and across lessons			
	C7 Materials are presented helicoidally: critical conceptions are revisited with increasing complexity throughout consecutive lessons			
	C8 Breadth (scope and amount) and depth (quality details) of covered materials are adequate and well-balanced			
	C9 Materials are accurate and flaws-free			
	C10 Materials can be entirely covered within the academic year			
	Additional comments:			
PROCESSES / COMPETENCES	P1 Comparison and classification norms and criteria, especially for pattern recognition and deployment, are adequately promoted			
	P2 Semantics of individual expressions and other depictions (pictures, diagrams, and various mathematical representations) are explicit, and various depictions of the same conception are adequately developed and coordinated			
	P3 Discourse with scientific/mathematical language and logic is adequately promoted			
	P4 Hypothesis formulation and evaluation (in light of empirical evidence), and subsequent inference making are adequately promoted in science, or so are conjecturing, reasoning and proof in mathematics			
	P5 Critical thinking through various analysis modes and normative (criterial) evaluation is adequately promoted			
	P6 Decision making is systematically promoted through appropriate problem solving strategies			
	P7 Model construction and deployment are adequately promoted			
	P8 Rules governing implementation and coordination of various operations are explicitly developed			
	P9 Synthesis is required periodically to help students recap materials in a given lesson, and relate them to each other and to previous lessons			
	P10 Extrapolation beyond, and transfer outside, the immediate domain of materials at hand takes place to help connect the discipline at hand to other disciplines			
	Additional comments:			

DIMENSION / FEATURE		SCORE		
		STDT	WKBK	TCHR
DISPOSITIONS	D1 Students relate covered materials to their everyday life, and enhance their social/cultural awareness			
	D2 Positive learning attitudes are promoted including confidence, perseverance, autonomy, awareness that it takes effort far more than talent to learn the discipline			
	D3 Objectivity, precision and concision, as well as coherence and consistency in thought, discourse and judgment, are appreciated within and outside the discipline			
	D4 Creativity is more appreciated than mere recall of information and reproduction of operational routines			
	D5 Positive social attitudes are promoted including open mindedness, collaboration, respect and tolerance of others			
	D6 Bias is not promoted in any form (gender, ethnic, cultural...)			
	Additional comments:			
ASSESSMENT	A1 Assessment is adequately carried out in multiple forms (oral discussion and written composition, questions and problems, closed and open-ended...) that complement each other			
	A2 Assessment rubrics provide insights into student profile			
	A3 Potential students' errors are conveniently described and their treatment adequately prescribed	N/A		N/A
	A4 Assessment adequately covers all salient aspects of covered conceptions			
	A5 Assessment adequately covers all major competences of scientific thought, discourse and inquiry			
	A6 Assessment adequately accounts for promoted dispositions			
	A7 Assessment within and across various lessons allow students to relate things to each other and develop the big picture			
	A8 Assessment is reiterative: Students are afforded more than one chance to evaluate specific aspects of their profile			
	A9 Assessment engages students in insightful self-evaluation and self-regulation			
	A10 Assessment promotes meaningful rather than rote learning			
	A11 Assessment is transparent and user-friendly: The state and evolution of individual students can be easily monitored			
Additional comments:				

DIMENSION	FEATURE	SCORE		
		STDT	WKBK	TCHR
PEDAGOGY	E1 Lesson materials are adequately organized			
	E2 Materials are gradually developed within a given lesson and across consecutive lessons			
	E3 The approach is transparent and instructions are clear and helpful			
	E4 Various types of activities (problem solving, game play, case studies, projects...) are adequately distributed to complement each other and enhance learning			
	E5 Activities promote meaningful learning of conceptions while allowing competence development			
	E6 Activities are adequately distributed between individual and team work			
	E7 Home activities engage the family in ways to enhance student understanding of covered materials			
	E8 Pedagogical aids (transparencies, posters, charts, tapes/CDs...) adequately support textbook materials and enhance the learning process			
	E9 Multiple learning styles (visual, auditory, kinesthetic...) are attended to in ways to allow every student learns materials following the style that suits her/him best			
	E10 Recall and meaningful learning are adequately balanced through appropriate activities			
	E11 The book is adequately connected to other components and resources (posters, tapes/CDs, etc.)			
	E12 Connections of the discipline at hand to other disciplines are established in ways to help students realize the utility of that discipline in various scientific/mathematical fields			
	E13 Materials adequately cover all three dimensions of student profile: conceptions, processes and dispositions			
	E14 The instructional approach consistently follows a learning cycle that can be efficiently implemented using the book materials			
	E15 Materials and approach are consistent with, and reveal, the nature of the discipline			
	E16 Materials and approach match students' age and cognitive level			
	E17 Approach is flexible to account for student cognitive differences			
	E18 Approach is feasible within the appropriate classroom settings			
	E19 Materials and approach are original and follow modern educational theory			
	E20 Materials and approach are aligned with the national curriculum			
	Additional comments:			

DIMENSION / FEATURE		SCORE		
		STDT	WKBK	TCHR
FORMAT	F1 Overall book design, from preface and table of contents to various units and lessons, is adequate and user-friendly			
	F2 Text layout (font type and size, spacing, paragraph design...) is attractive and matches student needs			
	F3 Illustrations are clear, attractive, and culturally adequate			
	F4 Materials are efficiently readable (clear, concise, precise, etc.)			
	F5 Various presentation forms (text and illustrations) are consistent with each other			
	F6 Due space is provided to each presentation form			
	F7 Materials' repartition is consistent across various parts of the book			
	F8 Layout is consistent across various parts of the book			
	F9 Text is free of typographical or spelling mistakes			
	F10 Paper and binding quality is appropriate to students' age			
	Additional comments:			
STAKEHOLDERS' NEEDS	N1 The book efficiently meets students' needs: It helps them develop the target profile with just the right effort.			
	N2 Extra materials and activities figuring only in the Practice workbook meet needs not covered in the main student textbook	N/A		N/A
	N3 The book efficiently meets teachers' needs: Everything is clearly laid out so that they know when and how to intervene to help students develop the target profile			
	N4 Extra materials and activities figuring only in the Teacher's Edition meet needs not covered in student components	N/A	N/A	
	N5 The book efficiently meets parents' needs: Everything is clearly laid out so that they can help their children develop the target profile with just the right effort			N/A
	N6 The book efficiently meets administrators' needs: The outcomes of learning and instruction can be ascertained so as to evaluate the book and reflect on the curriculum.			
	Additional comments:			