

2011
Saskatchewan
Core Learning Resources

Foundations of Mathematics

20



Foundations of Mathematics 20:

Core Learning Resources

Prepared by:

Curriculum and E-Learning Branch

Ministry of Education

2011

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Foreword

This list of learning resources identifies high-quality resources that have been recommended by the Ministry of Education to support the curriculum, *Foundations of Mathematics 20*. This list will be updated as new resources are recommended and older ones are no longer available. A list of additional learning resources can be found on the Ministry of Education website.

(CAN) indicates that a Canadian contributed to the development of the resource and/or that it includes Canadian content. (SK) indicates that a Saskatchewan person contributed to the development of the resource and/or that it includes Saskatchewan content. (FNMI) indicates that a First Nations, Métis, or Inuit person contributed to the development of the resource and/or that it includes First Nations, Métis, or Inuit content. Resources evaluated and recommended as support for the Western and Northern Canadian Protocol curriculum frameworks and Saskatchewan's provincial curricula have the designation (WNCP) before the annotation.

Other resources beyond those recommended in this list may effectively support the curriculum, *Foundations of Mathematics 20*. It remains the responsibility of educators to preview and select materials that align with the curriculum and best meet the needs of their school or community. Educators should choose resources in accordance with their school division's learning resources selection policy.

Pricing of the learning resources in this document is subject to change without notice.

Manipulatives are an essential component of an effective mathematics program, leading to the development of deeper understanding of mathematical concepts. Included are charts outlining the types of manipulatives needed, the suggested uses, and the suggested quantity recommended (where appropriate). Some manipulatives may be collected; others may be constructed; and many may be purchased. The main distributors for these materials are Exclusive Educational Products at www.exclusiveeducational.ca and Spectrum Nasco Educational Supplies Ltd. at <https://education.spectrum-nasco.ca/>. Please consult these companies' catalogues for purchasing information.

The Ministry of Education expresses its appreciation to publishers, producers, and distributors who have provided learning resources for evaluation, and gratefully acknowledges the contributions made by educators who served as evaluators.

Manipulatives

Item	Suggested Quantity
3-D objects, including spheres, right cones, cylinders, prisms, and pyramids	- 1 set per small group (plastic with detachable lid works well for volume and for capacity)
Alge-tiles	- 1 small set per pair of students
Callipers	- Metric and imperial - 1 per student (packages of 6 manual plastic at about \$2.00 each) - 1 or 2 digital per classroom
Clinometers	- 1 per small group (can be constructed by students as an activity)
Congruent small square tiles	- 100 per small group
Dynamic geometric software (such as Geometric Supposer or Geogebra)	
Empty containers	- A variety per small group - Different shapes and sizes for capacity, volume, and/or surface area
Graphing calculator and/or software	- 1 per student
Linking cubes	- 100 per small group or pairs
Metre stick and yard sticks	- 1 per small group of students
Protractors and other tools for measuring angles	- 1 protractor per student - Small assortment of a variety of tools used to measure angles (can be purchased as full circle or semi-circle)
Rulers	- 1 per student (imperial and metric) - Small assortment of rulers available for carpentry, sewing, etc.
Scientific calculators	- 1 per student
Tape measures (imperial and metric)	
Scissors, string, rope, rice or sand (commercial beads for measurement capacity), drinking straws, needle and thread, small washers or weights, oranges, etc.	

Print, Audio-visual, and Other Resources

Constructive Assessment in Mathematics: Practical Steps for Classroom Teachers

Author: Clarke, David

Annotation

(CORE) Reinforcing the central purpose for assessing students, the three parts of this resource expand upon how assessment can foster student learning by valuing students' strengths and identifying concepts not yet mastered. *Constructive Assessment in Mathematics* addresses integrating assessment into teaching and instruction, the selection and implementation of assessment strategies, and communicating assessment information to educational partners. This resource demonstrates the constructive and integral approach to assessment described in the curriculum.

K	1	2	3	4	5	6	7	8	9	10	11	12
										√	√	√

Suggested Use

Professional Resource

Publisher

Key Curriculum Press

Distributor

Spectrum Educational Supplies Ltd.

150 Pony Dr

NEWMARKET ON L3Y 7B6

(800) 668-0600

(905) 898-0031

Fax: (800) 668-0602

Email: customerservice@spectrumed.com

Website: <https://education.spectrum-nasco.ca/>

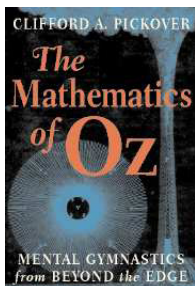
Price: \$23.65 pbk.

Pagination: 87 p.

ISBN: 978-1-55953-201-7

Copyright: 1997

Year Recommended: 2004



The Mathematics of Oz: Mental Gymnastics From Beyond the Edge

Author: Pickover, Clifford A.

Annotation

(CORE) Dorothy is again uprooted from her home! In *The Mathematics of Oz: Mental Gymnastics from Beyond the Edge*, Dorothy must solve an array of brainteasers in order to escape the clutches of her abductors, a group of mathematically obsessed aliens. Each short chapter is a mathematical adventure in which Dorothy is presented with a mystery, a puzzle, or a problem to solve. The author rates the problems in terms of difficulty. One does not have to complete all of the chapters or complete the chapters sequentially. Quotes from *The Wizard of Oz* and cartoon diagrams add appeal to the resource.

K	1	2	3	4	5	6	7	8	9	10	11	12
										√	√	√

Suggested Use

Professional Resource

Publisher/Distributor

Cambridge University Press

66 Pine St

PORT HOPE ON L1A 3G1

(800) 87-7423

Fax: (905) 885-9332

Email: orders@cambridge.org

Website: www.cambridge.org

Price: \$20.95 hdc.

Pagination: 351 p.

ISBN: 978-0-521-70084-9

Copyright: 2007

Year Recommended: 2008



Mathematics Teacher

Annotation

(CORE) Published nine times a year, this journal from the National Council of Teachers of Mathematics (NCTM) provides a range of in-depth articles and features including practical lesson ideas, teaching strategies, and problems to investigate with students. These features and articles offer an important source of professional development to readers.

K	1	2	3	4	5	6	7	8	9	10	11	12
										√	√	√

Suggested Use

Professional Resource

Publisher/Distributor

National Council of Teachers of Mathematics
1906 Association Dr

RESTON VA 20191-1502

(800) 235-7566

(703) 620-9840

Fax: (703) 476-2970

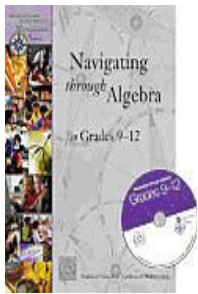
Email: orders@nctm.org

Website: www.nctm.org

Price: \$78.00 U.S. for NCTM membership

ISSN: 1075-5836

Year Recommended: 2010



Navigations Series

Editor: House, Peggy A.

Annotation

(CORE) These activity-based learning resources introduce, develop, and extend student thinking and reasoning in various mathematical concepts. Several related activities suited to the developmental stages of students are provided.

Accompanying the interactive investigations is a CD-ROM containing blackline masters, professional readings, and applets for the students to manipulate.

K	1	2	3	4	5	6	7	8	9	10	11	12
									√	√	√	√

Suggested Use

Student Resource

Publisher/Distributor

National Council of Teachers of Mathematics

1906 Association Dr

RESTON VA 20191-1502

(800) 235-7566

(703) 620-9840

Fax: (703) 476-2970

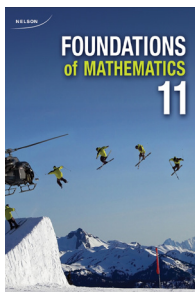
Email: orders@nctm.org

Website: www.nctm.org

Copyright: 2004

Year Recommended: 2005

Title	ISBN	Price
<i>Navigating through Algebra in Grades 9-12</i>	978-0-87353-502-1	\$33.95 U.S. pbk.
<i>Navigating through Data Analysis and Probability in Grades 9-12</i>	978-0-87353-524-3	\$39.95 U.S. pbk.
<i>Navigating through Geometry in Grades 9-12</i>	978-0-87353-514-4	\$39.95 U.S. pbk.
<i>Navigating through Measurement in Grades 9-12</i>	978-0-87353-546-0	\$13.00 U.S. pbk.
<i>Navigating through Number and Operations in Grades 9-12</i>	978-0-87353-585-5	\$13.00 U.S. pbk.
<i>Navigating through Probability in Grades 9-12</i>	978-0-87353-525-1	\$13.00 U.S. pbk.



Nelson Foundations of Mathematics 11

Authors: Canavan-McGrath, Cathy; Reinbold, Hank; Shaw, Carol; and, Trufyn, Darin

Annotation

(CORE, CAN, WNCP) *Nelson Foundations of Mathematics 11* provides opportunities for all students to engage, connect, and succeed in mathematics. Students learn through investigation and solved examples. The key ideas are summarized in each lesson with ample opportunity to practise the new concepts.

The student text includes a table of contents, a technology appendix, a glossary, an answer key, and an index.

The teacher resource includes an overview of the chapter and planning notes. There is an investigation for students to explore concepts. Suggestions are included for assessment and for ways that teachers can address students' individual needs. There are digital and editable masters for teacher use.

K	1	2	3	4	5	6	7	8	9	10	11	12
											√	

Suggested Uses

Student Resource
Teacher Resource

Publisher/Distributor

Nelson Education
1120 Birchmount Rd
SCARBOROUGH ON M1K 5G4
(800) 268-2222
(416) 752-9100
Fax: (800) 430-4445
Email: www.nelson.com/order/forms/orders.html
Website: www.nelson.com

Copyright: 2011

Year Recommended: 2011

Title	ISBN	Price
Student Textbook	978-0-17-650270-6	\$79.95 hdc.
Teacher's Resource with Teacher eSource	978-0-17-650411-3	\$299.95
Computerized Assessment Bank	978-0-17-632221-2	\$299.95
Solutions Manual	978-0-17-632218-2	\$299.95
e-Solutions Manual (CD-ROM)	978-0-17-632219-9	\$299.95

Problem Solving Strategies: Crossing the River with Dogs and Other Mathematical Adventures. 2nd ed.

Authors: Johnson, Ken and Herr, Ted

Annotation

(CORE) This resource is designed to demonstrate various methods that can be used to solve the same problem. Each chapter concentrates on the application of a particular strategy. The corresponding sets of problems provide a multitude of authentic applications for this strategy. The importance of students communicating their different solutions and their logical reasonings are stressed throughout this resource.

An instructor's resource book that includes an answer key supplements this resource.

Please note that this resource contains imperial measurements.

K	1	2	3	4	5	6	7	8	9	10	11	12
										√	√	√

Suggested Use

Professional Resource

Publisher

Key Curriculum Press

Distributor

Spectrum Educational Supplies Ltd.

150 Pony Dr

NEWMARKET ON L3Y 7B6

(800) 668-0600

(905) 898-0031

Fax: (800) 668-0602

Email: customerservice@spectrumed.com

Website: <https://education.spectrum-nasco.ca/>

Copyright: 2001

Year Recommended: 2003

Title	ISBN	Price
<i>Problem Solving Strategies</i>	978-1-55953-370-6	\$51.95 hdc.
<i>Instructor's Resource Book</i>	978-1-55953-371-4	\$49.95 pbk.

Out of Print but Still Useful Resources



Changing the Faces of Mathematics: Perspectives on Indigenous People of North America

Editors: Hanks, Judith Elaine and Fast, Gerald R.

Annotation

(CORE, FNMI) This resource is a collection of essays related to teaching mathematics in a culturally relevant way to North American Aboriginal people. It discusses ways of helping Aboriginal students make meaningful connections between school mathematics and their culture. The authors stress the need to present mathematical concepts within the context of daily life scenarios, and they illustrate ways to involve students in culturally related mathematical activities. Examples include suggestions for teaching numbers and operations concepts using traditional games, and introducing students to a variety of number systems specific to North American Aboriginal people. Many geometrical concepts and patterns are immersed in arts and crafts associated with the culture. Some activities lend themselves to co-operative group or partner work, while others are better structured as independent study. A section on portfolios and the paradigm shift in mathematics assessment is included.

Note: Because this is an American resource, some terminology is inconsistent with what is culturally appropriate in Canada. For example, the term *Eskimo* rather than *Inuit* appears in one of the essays. Also, many of the pedagogical principles presented in this essay apply to all students across cultures.

This title is currently out of print, but it may be available in school libraries or on www.amazon.com or www.ABE.com.

K	1	2	3	4	5	6	7	8	9	10	11	12
									√	√	√	√

Suggested Use

Professional Resource

Publisher

National Council of Teachers of Mathematics

Pagination: 238 p.

ISBN: 978-0-87353-506-9

Copyright: 2002

Year Recommended: 2005

Digital Resources

The Ministry of Education is planning to post recommended websites on its new website, *Saskatchewan Curriculum – Education: The Future within Us*.

Current Internet sites that provide information for mathematics educators follow:

Devlin’s Angle at www.maa.org/devlin/devangle.html

(CORE) Keith Devlin’s monthly rant/column examines mathematics topics. In each rant or column, Devlin provides mathematics educators with the opportunity to reflect on practice and current thinking on mathematics.

GeoGebra at www.geogebra.org/cms/

(CORE) *GeoGebra* provides free mathematics software for learning and teaching. Included on the website are tutorials, applets, an online instruction book, and a wiki.

InfoTrac at www.education.gov.sk.ca/Databases-for-schools

(CORE) *InfoTrac* contains electronic databases of more than 2,300 full-text magazines, journals, and reference sources. Examples of databases include Junior Edition, Student Edition, General Reference Centre Gold, and CPI.Q (Canadian Periodicals).

Math Central at <http://mathcentral.uregina.ca/index.php>

(CORE) *Math Central* is a clearinghouse of mathematical resources for students and teachers.

National Council of Teachers of Mathematics at www.nctm.org

(CORE) The National Council of Teachers of Mathematics (NCTM) is committed to promoting excellence and innovation in mathematics teaching and learning for all. It publishes the journals *Teaching Children Mathematics*, *Mathematics: Teaching in the Middle School*, and *Mathematics Teacher*.

National Library of Virtual Manipulatives at <http://nlvm.usu.edu/en/nav/vLibrary.html>

(CORE) This website provides educators with electronic resources to augment student learning in the areas of shape and space, number, algebra, measurement, data analysis, and probability.