1. Record Nr. UNINA9910789644603321

Autore	Adam John A
Titolo	A mathematical nature walk [[electronic resource] /] / John A. Adam
Pubbl/distr/stampa	Princeton, : Princeton University Press, c2009
ISBN	1-283-24617-1 9786613246172 1-4008-3290-X
Edizione	[Course Book]
Descrizione fisica	1 online resource (272 p.)
Disciplina	510
Soggetti	Mathematics in nature Mathematical analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Fifth printing, and first paperback printing, 2011.
Nota di bibliografia	Includes bibliographical references (p. [243]-246) and index.
Nota di contenuto	Introduction -- At the beginning ... -- In the "playground" -- In the garden -- In the neighborhood -- In the shadows -- In the sky -- In the nest -- In (or on) the water -- In the forest -- In the national park -- In the night sky -- At the end ... -- Appendix 1: A very short glossary of mathematical terms and functions -- Appendix 2: Answers to questions 1-15 -- Appendix 3: Newton's law of cooling -- Appendix 4: More mathematical patterns in nature.
Sommario/riassunto	How heavy is that cloud? Why can you see farther in rain than in fog? Why are the droplets on that spider web spaced apart so evenly? If you have ever asked questions like these while outdoors, and wondered how you might figure out the answers, this is a book for you. An entertaining and informative collection of fascinating puzzles from the natural world around us, A Mathematical Nature Walk will delight anyone who loves nature or math or both. John Adam presents ninety-six questions about many common natural phenomena--and a few uncommon ones--and then shows how to answer them using mostly basic mathematics. Can you weigh a pumpkin just by carefully looking at it? Why can you see farther in rain than in fog? What causes the variations in the colors of butterfly wings, bird feathers, and oil slicks? And why are large haystacks prone to spontaneous combustion? These are just a few of the questions you'll find inside. Many of the problems

are illustrated with photos and drawings, and the book also has answers, a glossary of terms, and a list of some of the patterns found in nature. About a quarter of the questions can be answered with arithmetic, and many of the rest require only precalculus. But regardless of math background, readers will learn from the informal descriptions of the problems and gain a new appreciation of the beauty of nature and the mathematics that lies behind it.