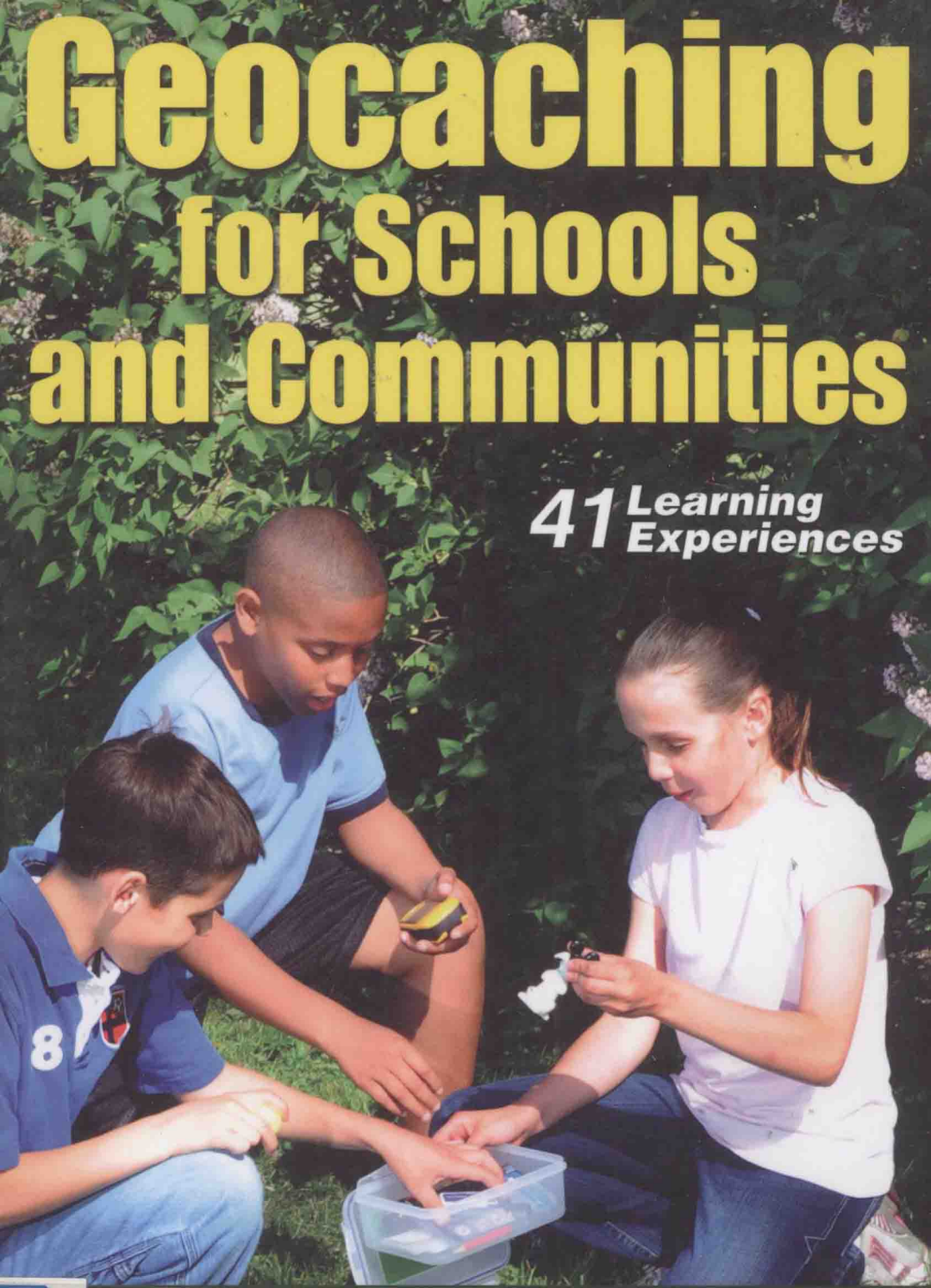
Geocaching for Schools and Communities

41 Learning Experiences



J. Kevin Taylor • DuAnn Kremer
Katherine Pebworth • Peter Werner

GEOCACHING for Schools and Communities

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Human Kinetics

Library of Congress Cataloging-in-Publication Data

Taylor, J. Kevin, 1965-
Geocaching for schools and communities / J. Kevin Taylor ... [et al.].
p. cm.
Includes bibliographical references.
ISBN-13: 978-0-7360-8331-7 (soft cover)
ISBN-10: 0-7360-8331-6 (soft cover)
1. Geocaching (Game)--Study and teaching. I. Title.
GV1202.G46T39 2010
796.1'4--dc22

2010010170

ISBN-10: 0-7360-8331-6
ISBN-13: 978-0-7360-8331-7

The Web addresses cited in this text were current as of June 2010, unless otherwise noted.

Acquisitions Editor: Gayle Kassing, PhD; **Developmental Editor:** Ray Vallese; **Assistant Editors:** Derek Campbell and Elizabeth Evans; **Copyeditor:** Patrick Connolly; **Permission Manager:** Dalene Reeder; **Graphic Designer:** Bob Reuther; **Graphic Artist:** Angela K. Snyder; **Cover Designer:** Keith Blomberg; **Photographer (cover):** Neil Bernstein; **Photographer (interior):** Photos courtesy of the following, unless otherwise noted: J. Kevin Taylor (chapters 1, 3, and 8, and photo on p. 89); DuAnn Kremer (chapter 5, and photo on p. 21); Katherine Pebworth (chapters 2 and 4, and photo on p. 15); Peter Werner (photos on pp. 19, 35, and 41). Photo on p. 4 by Jack Phelan; photo on p. 5 by Lauren Hastings; photo on p. 83 by Neil Bernstein; photo on p. 116 by Mary Werner; **Photo Asset Manager:** Laura Fitch; **Visual Production Assistant:** Joyce Brumfield; **Photo Production Manager:** Jason Allen; **Art Manager:** Kelly Hendren; **Associate Art Manager:** Alan L. Wilborn; **Illustrator:** TwoJay!; **Printer:** Versa Press

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

The paper in this book is certified under a sustainable forestry program.

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E4823

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Science	Sunrise, Sunset	Beginning	130
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Social studies (geography)	Rocking on the Road	Beginning	132
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PREFACE

In May of 2000, President Clinton authorized the use of the Global Positioning System (GPS) satellite system by the general public. Previously, the system had been for military use only, but it was seen as having great potential for civilian applications, along with great commercial possibilities. Being a person who believes in keeping up with new technological development, I soon purchased a GPS receiver and primarily used it for marking good fishing sites and for traveling. It came in handy for route selection and for finding restaurants, accommodations, attractions, and gas stations.

Early in 2001, my children and their husbands informed me of a new sport called geocaching. I was intrigued and went online to find out all about it. I located a listing for a cache in Columbia, South Carolina, near the river walk. I marked the waypoints and went on a hunt with family and friends. Much to our dismay, we were not able to find the cache because some muggles had found it and destroyed the site. (In the world of geocaching, the term *muggle* is used to identify a person who doesn't participate in the sport.) However, I was hooked by the excitement of the hunt for a hidden treasure.

At the national AAHPERD convention in Philadelphia in 2003, I took Kevin Taylor—a former graduate student, fellow adventurer, and colleague—on a geocache hunt for the world's largest cookie factory (Girl Scout Cookies). We found it and then started thinking about the possibility of sharing ideas about this activity with fellow physical education teachers and recreators. In the meantime, I introduced Katherine Pebworth, a graduate student in pedagogy at the University of South Carolina, to geocaching. She quickly became enthused and began helping me teach geocaching to undergraduate students at USC. In the spring of 2003, the three of us wrote a proposal to present two sessions on geocaching at the national AAHPERD convention in New Orleans. One session was to teach those in attendance about the new sport of geocaching. The second session was to go out into the city of New Orleans and find some geocaches. Both proposals were accepted.

During the same period, DuAnn Kremer, an associate professor of exercise physiology at Lander University (Greenwood, South Carolina) and a pedagogy colleague from the same institution, conducted a session on geocaching at the South Carolina AAHPERD convention in the fall of

2003. I attended the session and was impressed with her knowledge and enthusiasm. Eventually, I asked DuAnn to join our group in presenting sessions on geocaching in New Orleans. She accepted and thus our group of four was formed.

Each of us has moved on with our careers. Kevin Taylor moved from the University of Northern Colorado to Cal Poly at San Luis Obispo where he conducts the pedagogy program and also teaches adapted physical activity. DuAnn Kremer moved from Lander University to Lynchburg College where she teaches exercise physiology. Katherine Pebworth graduated from the University of South Carolina and is currently at Lincoln Memorial University where she is in charge of the pedagogy program. I retired from the University of South Carolina and moved to the mountains of North Carolina where I continue to be active professionally by serving as a visiting professor, consultant, and writer. Yet all of us have one thing in common—geocaching.

Over the years, we have conducted numerous sessions on geocaching. Either individually, in pairs, or as a whole group, we have conducted sessions at several state conventions, district conventions, and regional conventions as well as at five national AAHPERD conventions from 2003 to 2008. We have also written journal articles on geocaching and information about geocaching that appears in two books—*Seminar in Physical Education* (2007) and *Interdisciplinary Elementary Physical Education* (2009).

We all share a passion for geocaching. Collectively, we have logged over 1,000 caches representing many states and at least six countries. Caching has allowed us to develop new friendships, to share our zeal for adventure with others, to learn information about people and places we have visited, and to lead active lifestyles. The benefits we derived from geocaching led us to the thought of writing a book about geocaching. But what would we write about? Several trade books on how to hide and seek caches and how to use GPS units have already emerged. We settled on the fact that we are all educators and that our backgrounds in health, physical education, and recreation would allow us to make a unique contribution. That contribution would focus on how geocaching can be used to enhance the school curriculum and promote active, healthy lifestyles from childhood through older adulthood.

Geocaching for Schools and Communities raises awareness of the potential benefits that geocaching can provide when included in physical education and physical activity programs. The book introduces public school teachers to the potential that geocaching has to offer for instructional content, including the potential for cross-curricular integration. To help readers apply the content presented, throughout the book you will find tales from many of the trails that the authors have traversed over their years of geocaching. These "Trail Tales" are interesting stories that illustrate some of the ideas and concepts covered in the text. These stories may also stimulate your

imagination and creative thinking as you design your own geocache lessons, sessions, and programs. Careful attention has been paid to selecting real-world examples that are valuable to professionals in all of the diverse settings where geocaching might be used.

The first four chapters of *Geocaching for Schools and Communities* make up part I. This part of the book introduces the basics of geocaching. Part II, which includes the last four chapters, is about implementing the use of geocaching in schools and communities through an integrated approach to curriculum and leading active, healthy lifestyles.

Chapter 1 introduces geocaching and provides a definition as well as a history of this activity. The chapter also identifies potential participants and includes a discussion of the values and benefits of geocaching. Chapter 2 covers the equipment needed for geocaching and some other common applications of technology that can be used in geocaching, such as route guidance systems. Some teachers may be prevented from introducing their students to geocaching because of the expense of GPS units, so chapter 3 explores ways to introduce and teach the principles of geocaching using map and compass work. Chapter 4 explains the different types of caches, how they are typically set, and which type would be most appropriate for use in a variety of educational contexts.

Chapter 5 focuses on the various ways that geocaching can be used to entice people into being more physically active. Geocaching involves being physically active and hence provides physical educators and recreation leaders with another way to motivate people into increasing their levels of physical activity. Chapters 6 and 7 introduce you to the wealth of possibilities that exist for incorporating content from all aspects of the school curriculum into physical education through the activity of geocaching. These chapters provide lesson plans for how you can incorporate geocaching into the curriculum. Two lesson plans are provided from each of the following areas at both the elementary and secondary levels: language arts, mathematics, science, and social studies. Additional ideas for lesson plans in language arts, mathematics, science, and social studies are also included. Chapter 8 helps people who are inspired by the content of this book to take the first brave step toward implementation of a program. Geocaching can be expensive because of the need to purchase GPS devices. This chapter provides suggestions for raising the funds needed for buying a set of GPS devices. It also provides ideas on how geocaching can be used outside the school setting in more recreation-oriented programs.

This book is for public school teachers and university professors who are looking to train their students in the use of geocaching. The book is also for practicing health and physical education teachers, physical activity specialists, and youth and community recreation leaders. The book will appeal to people with a broad range of backgrounds and experience. People who are new to geocaching will get a thorough introduction, including

the history and development of the activity. They will learn how the many forms of geocaching evolved. People with some experience in geocaching will receive materials that will help them apply their knowledge in an instructional setting. This book is practitioner oriented. It contains ideas and suggestions for practical application. Examples are provided along with lessons learned from the authors' accumulated experiences.

The motto of geocaching is "The sport where you are the search engine." We hope you will learn to share the joy of discovering the hidden treasures out there in the world. Spread the word. Get involved. Don't be a muggle anymore!

Peter Werner

ACKNOWLEDGMENTS

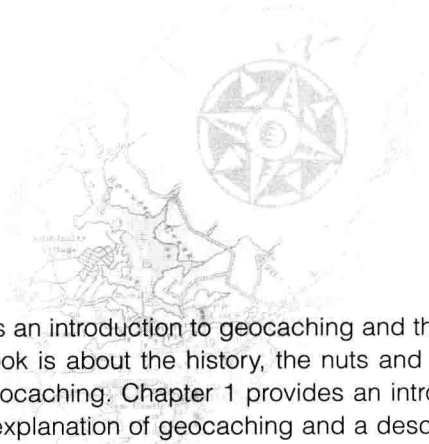
Writing a book requires help and support from many people. We, the authors, thank the many participants in the workshops we have conducted. We thank them for questioning our ideas and inspiring new ways to view things and an unending desire to try new technology in different ways. We thank John Howell from Garmin and Martha Garcia from Magellan for providing GPS units from their respective companies for use in our workshops. In addition, the editorial staff at Human Kinetics has been most helpful in their dealings with us during the proposal and manuscript preparation phases of this publication. For many years, Scott Wikgren has provided us with encouragement for innovative ideas regarding the use of technology in school and recreational or community settings. Gayle Kassing and Ray Vallese have supported our efforts throughout the proposal and writing process. Thanks also go to the photographers and illustrators whose work brings clarity and excitement to many of our examples and learning experiences.

Finally, we are indebted to our extended families for supporting us through our caching and writing efforts. These people include mothers and fathers, children, grandchildren, in-laws, special friends, and, yes, even pets. We appreciate their kindness, wisdom, and enduring patience. We also appreciate their sense of adventure that has been brought out through an ever-expanding world of geocaching.

CONTENTS

PART I

All About Geocaching



Part I provides an introduction to geocaching and the use of GPS units. This part of the book is about the history, the nuts and bolts, and the technical aspects of geocaching. Chapter 1 provides an introduction to geocaching, including an explanation of geocaching and a description of caching terminology. The chapter then describes the history of geocaching. From an early history of letterboxing in Victorian England to the use of Global Positioning Systems (GPS), geocaching has rapidly expanded in the years since May of 2000 to a worldwide interest. Chapter 1 also includes a discussion of the people who are attracted to geocaching. Geocaching is a great activity for individuals, parents, children, families, and groups or clubs. The values and benefits of geocaching are also covered in this chapter, focusing on the areas of educational, ecological, physical, social, and family outcomes.

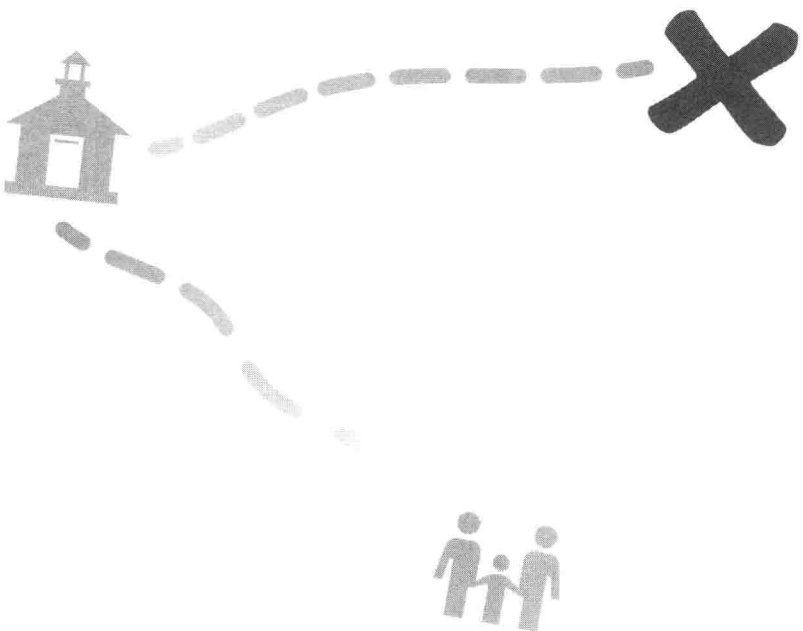
Chapter 2 is all about high-tech geocaching. It includes a discussion of GPS units and the basic features of a GPS receiver. You'll also learn about satellites and the triangulation necessary for locating latitude and longitude coordinates. The use of a computer and the Internet for geocaching is also discussed.

Chapter 3 describes low-tech alternatives that can be used with participants who are too young for high-tech geocaching. These alternatives can also be used by people who want to try out geocaching before investing in a GPS unit. Map and compass skills are discussed in this chapter, along with activities such as letterboxing and urban and landmark orienteering.

Part I finishes with the basics of caching in chapter 4. The chapter starts with a definition of a cache. It then describes items commonly placed in a cache and proper geocaching etiquette. The various types of caches are discussed, and the chapter provides a step-by-step guide to finding and logging a cache.

chapter 1

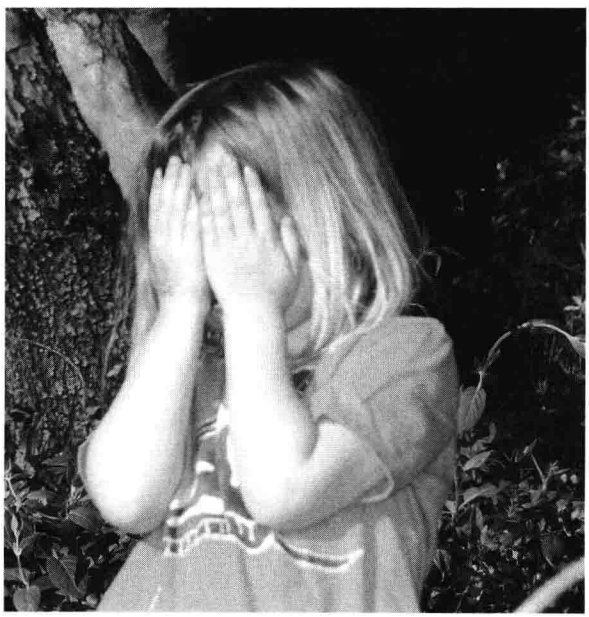
INTRODUCTION TO GEOCACHING



Looking for things can be fun. That's why hide-and-seek has been an enduring love among children for generations. Childhood fantasies about treasure hunting are driven by the fun of looking for things that other people have lost or tried to hide; treasure hunting is full of adventure, thrills, and challenges. Geocaching is a modern-day high-tech means of looking for treasure in the form of inexpensive trinkets that others have hidden. It is filled with a sense of adventure and challenge but is also a safe activity that people of all ages and abilities can participate in together. Geocaching is a relatively new activity that started in 2000 when then-President Clinton removed the selective availability restrictions on the Global Positioning System (GPS). Removing the selective availability restrictions made the GPS system available and feasible for use by the general public. Before the removal of these restrictions, GPS satellites could only be used with any accuracy by the military.

Geocaching Explained

A **geocache**, pronounced "geo-cash," is a hidden store of trinkets. The word *geocache* comes from *geo*, meaning "of the earth," and *cache*, which is French for hiding place or hidden store. Simply stated, geocaching involves someone hiding a box of trinkets and posting the coordinates of the box's location on the Internet; other people reference the coordinates and then



✖ Children love hide-and-seek because looking for things is fun. Geocaching follows the same principle but with a high-tech twist.

go hunting for the trinkets. People who go geocaching are called **geocachers** (often abbreviated to *cachers*). If you want to go geocaching, you look up the coordinates of a cache, plug them into your GPS unit, and try to find the cache. A cache is normally well hidden so that people who are not actually looking for it don't find it by mistake; therefore, along with the coordinates, the person who hid the cache will usually post a short clue to help people locate the cache once they are within a few feet of the location.

So, you track down the location using your GPS and the posted coordinates, you solve the clue that was posted, and you find the cache. Now what? At a traditional geocache, most geocachers like to swap a trinket—that is, they take something from the cache and leave something in its place. Trinkets can be any small item worth no more than $2. Some creative cachers leave the same trinket every time, and this becomes a calling card of sorts. After finding a cache, most geocachers will log their cache online. They will also track the number of caches they have found. You don't have to log your cache if you prefer not to; some dedicated geocachers simply enjoy the thrill of hunting for a cache. Those who do log their find also sometimes leave comments for the person who set the cache. Geocachers may leave comments to thank the person for setting the cache, to compliment the person on a well-hidden cache, or to report any problems with the cache. An example of a reported problem might be that the cache wasn't properly hidden after the last find. When reporting this problem, the geocacher may include a request for future geocachers to be careful in rehiding the cache more thoroughly. More details on the intricacies of geocaching are covered throughout the book.

✖ A traditional geocache contains trinkets that geocachers trade.

Although more than one Web site is available for looking up and logging a geocache, the most popular site by far is www.geocaching.com. To use the geocaching.com Web site, you set up an account with a user name and password of your choice. A basic account is free and gives you everything needed to start caching. Frequent reference will be made to this Web site as we explore the many intricacies and complexities that have been added to the basic concept of geocaching. Throughout this text, any further mention of logging a cache or looking up a cache on the Internet refers to the geocaching.com Web site unless stated otherwise.

History of Geocaching

Geocaching is dependent on using a **Global Positioning System (GPS)**, so geocaching really began with the opening of GPS satellites to the general public in 2000. Before the year 2000, GPS signals were available but were intentionally degraded through a process known as **selective availability (SA)**, which had been in place to restrict the accurate use of GPS to the U.S. military. As the accuracy of GPS continued to increase, scientists and policy makers began to realize the potential benefits of this technology for civilian use in addition to military applications. With potential civilian applications in mind—along with the huge commercial possibilities that would be available with GPS—U.S. President Bill Clinton announced in 1996 that selective availability would end in 2000. He also announced that an Interagency GPS Executive Board would be created to oversee the use of GPS technology in the United States. The Interagency GPS Executive Board was superseded in 2004 with the creation of the National Executive Committee for Space-Based Positioning, Navigation, and Timing.

Since the end of SA, the use of GPS technology has become remarkably commonplace. This technology is being used for everything from turn-by-turn directions in a car to keeping track of pets. A GPS unit is a very high-tech compass that takes bearings to establish its position in relation to a number of GPS satellites before calculating (through a process of triangulation) where in the world it is located. The calculations involved in determining precise

Trail Tale

Kevin

Geocachers have always been concerned with minimizing the impact of geocaching on the environment and cleaning up areas where people like to geocache. I carefully explained this to my two sons before taking them out to find their first geocache. Later, I was quite impressed when my oldest son, Christopher, chastised me for treading on some weeds around the cache site! Now, after finding a cache, we always discuss the relative merits of the cache in terms of how easy it is to find without damaging the environment around the site.