

Aligned with
ISTE
Standards

Google Earth™ & GPS **Science** Classroom Activities

by Jim Holland & Susan Anderson

Intermediate Grades 5–8



PUBLISHER OF QUALITY EDUCATIONAL PRODUCTS

Ready-to-use lessons and ideas for your science classroom! Includes CD with customizable templates and completed activities.

Ready-to-use lessons and ideas for your science classroom!

Google Earth™ & GPS

Science Classroom Activities

Aligned to
ISTE and NSES
standards

Includes CD
with customizable
templates and
completed activities.

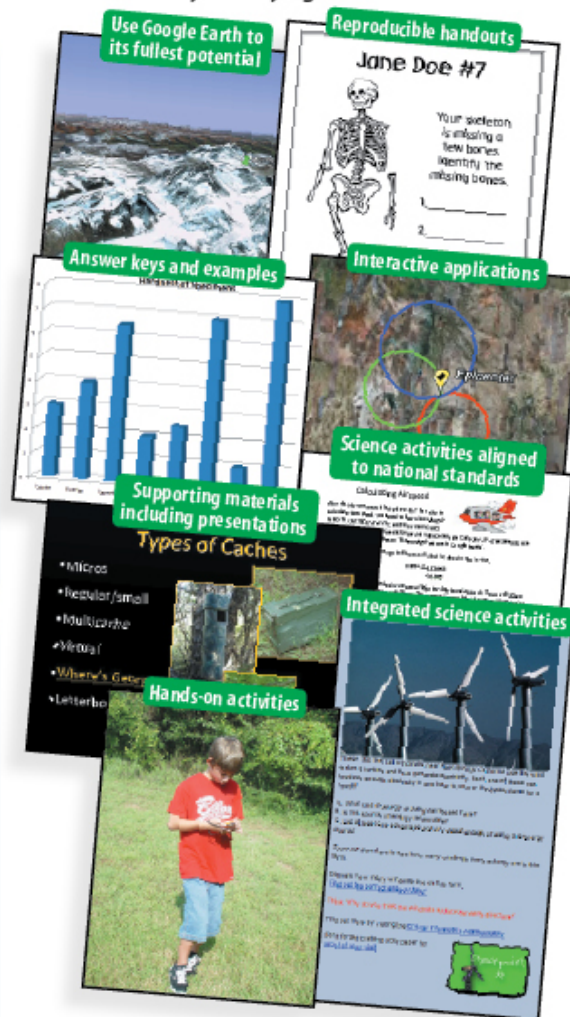
Based on Google Earth and Geocaching (the exciting GPS adventure where players find real-life, hidden "treasures"), the innovative activities in this book will introduce, reinforce, and enrich concepts taught in life, earth, and physical sciences. Lessons include teaching procedures, standards alignments, student activity sheets, product samples, answer keys, and lesson extensions. Each lesson is customizable by modifying the files on the included CD-ROM. **Grades 5-8**

Benefits:

- Motivate your students with real-life, problem solving scenarios
- Bring the sights, sounds, and information of the world to your students
- Students travel the world, collecting and analyzing information to solve real-world problems
- Engage students in highly motivating "treasure" hunts to acquire science skills and knowledge
- Invigorate your lessons with trips around the world
- Tap into billion dollar military satellite technology to teach your students science concepts

Topics:

- Scientific tools, methods, and safety
- Skeletal and digestive systems
- Biomes, population density, and food webs
- Rocks and minerals, earthquakes, landforms, continental divide, watersheds, and volcanoes
- Cellular organelles and DNA structure
- Energy sources
- Heart rate investigation
- Velocity and speed
- Many others in all branches of science



Wildcatter Oil & Gas needs you to determine the best site for drilling by conducting field tests...

Amendola Laboratories is counting on you to recover the DNA of an over-zealous scientist when his multi-million dollar experiment goes awry...

The USGS computers have crashed-they now need your help to triangulate the epicenter of a recent earthquake...

Features:

- Multimedia resources
- Interactive Geocaching activities
- Customized Google Earth files
- Comprehensive teacher instructions
- Lesson plan extensions
- Answer keys and sample student projects



Jim Holland

After graduating with a B.S. in Biology from the University of Texas at Arlington, Jim began his teaching career in 1994 in Arlington, Texas where he taught junior high science and industrial technology. He now serves the Arlington ISD as an instructional technology specialist, facilitating the integration of technology into all curricular areas at all levels, PK-12. Jim's areas of focus include desktop publishing, databases, audio editing, podcasting, GPS, and more. He holds a M.S. degree in Computer Education and Cognitive Systems from the University of North Texas and has presented many sessions at state and area conferences since 2001.



Susan Anderson

Susan, also a native Texan, graduated from Georgia Southern University with a BS in Education. Like Jim, she taught in Arlington at the junior high level. She joined the instructional technology staff of Arlington ISD in 2001 and continues to serve AISD employees with technology integration needs. She teaches several classes including Photoshop, Photo Editing, GPS in Education, Google Earth, and others. She received her M.S. degree in Applied Technology, Training & Development from the University of North Texas.



PUBLISHER OF QUALITY EDUCATIONAL PRODUCTS
800.877.0858 • FAX 541.349.0944
P.O. Box 70479 • Eugene, OR 97401

Visit us at www.toolsforteachers.com

Also available from Visions:



ISBN 978-1-58912-721-0



Google Science: National

Google Earth[®] and GPS Activities

for Intermediate Science
Grades 5-8

Jim Holland
Susan Anderson

National Edition



About the Authors

Jim Holland

After graduating with a B.S. in Biology from the University of Texas at Arlington, Jim began his teaching career in 1994 in Arlington, Texas where he taught junior high science and industrial technology. He now serves the Arlington ISD as an instructional technology specialist, facilitating the integration of technology into all curricular areas at all levels, PK-12. Jim's areas of focus include desktop publishing, databases, audio editing, podcasting, GPS, and more. He holds a M.S. degree in Computer Education and Cognitive Systems from the University of North Texas and has presented many sessions at state and area conferences since 2001.

Susan Anderson

Susan, also a native Texan, graduated from Georgia Southern University with a BS in Education. Like Jim, she taught in Arlington at the junior high level. She joined the instructional technology staff of Arlington ISD in 2001 and continues to serve AISD employees with technology integration needs. She teaches several classes including Photoshop, Photo Editing, GPS in Education, Google Earth, and others. She received her M.S. degree in Applied Technology, Training & Development from the University of North Texas.

Table of Contents

Introduction	v
CD-ROM Information	vi
Background	
History of Google Earth.....	1
Geochaching for Teachers	2
Mini-Lessons	
Creating a Placemark in Google Earth.....	7
Creating a Tour in Google Earth	9
Searching in Google Earth	11
Sharing Placemarks with Others	13
Measuring Distance in Google Earth.....	15
All About Me.....	17
Using Sky in Google Earth	19
Introduction to Geochaching	21
How GPS Works	29
Using a GPS Receiver	33
General Science Lessons	
Stepping Through the Scientific Method.....	39
Observations and Inferences	45
‘Tools of Science’ Scavenger Hunt	47
Lab Safety Rules.....	51
Estimating and Measuring Density.....	55

Human Body Lessons

Heart Rate Investigation.....	59
Bone Collectors.....	63
Digestive Organs.....	77

Cell Biology Lessons

Identifying Cellular Organelles	85
DNA Disaster	95

Ecology Lessons

Population Density	101
Food Web.....	105
Biomes	111
Animal Rescue	113
Animal Adaptations	115
Evidence of Deforestation	119

Geology, Landforms and Earth Structure Lessons

Labeling Earth.....	123
Rock and Mineral Identification	127
Continental Divide.....	131
Starlight Starbright	137

Plate Tectonics Lessons

Volcano Classification	139
Earth Forces.....	145
Epicenters of Earthquakes	147

Energy and Motion Lessons

Energy Sources.....	153
Calculating Air Speed.....	159

Chemistry Lesson

Atomic Structure	165
------------------------	-----

Weather and Erosion Lesson

What Happened Here? (Natural Disasters).....	169
--	-----