INTRODUCTION

The Man Who Went to the Far Side of the Moon is an adventure story, a biography, and a reference book about space exploration and the moon combined into one volume. In this adventure book the author and illustrator, Bea Uusma Schyffert, using both text and graphic illustration, managed to combine an incredible amount of factual information about the U.S. space program along with an intriguing story of what it feels like to be “alone in space” with the lives of two men in your hands. From the jacket summary by Ms. Schyffert: “This book is about what Michael Collins did, saw, and thought about in space. It’s also about how the astronauts prepared for their historic journey, what they brought with them, and what they left behind on the moon.”

Set up as a scrapbook of this historic exploration, the book takes the reader along for the ride. Students from upper elementary through the middle school grades will feel like they are one of the astronauts that made the historic trip to the moon. They could have been the first to step foot on the surface of this spinning satellite, or orbited fourteen times around the sphere like Michael Collins did as the commander of the command module Columbia.

This guide will help teachers explore this book as a resource for activities in science, language arts, and social studies, along with art. Many of the activities in this guide can be integrated into many disciplines and many areas of exploration. With Schyffert’s ingenious illustrations and her incredible attention to detail, this book can be used as a springboard into the very nature of how and why we explore and what we feel like when we discover new worlds.
GENERAL OVERVIEW

THIS TEACHERS GUIDE CONTAINS:

Seven Pre-Planned Activities For Students

1. Science
2. Language Arts
3. Language Arts and Social Studies
4. Social Studies
5. Language Arts, Social Studies and Visual Arts
6. Mathematics

A QUICK GUIDE TO HOW THESE ACTIVITIES MEET THE FOLLOWING EDUCATIONAL STANDARDS:

- SCIENCE CONTENT STANDARD D
- SCIENCE CONTENT STANDARD F
- STANDARDS FOR THE ENGLISH LANGUAGE ARTS
- NATIONAL COUNCIL FOR THE SOCIAL STUDIES NATIONAL STANDARDS
- NATIONAL STANDARDS FOR ARTS EDUCATION: VISUAL ARTS
- NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS STANDARDS
To the Moon and Beyond

"I think, long term, we find for the first time that man has the flexibility or the option of either walking this planet or some other planet, be it the Moon or Mars, or I don’t know where," stated Michael Collins in the post Apollo 11 mission interview, August 11, 1969. In The Man Who Went to the Far Side of the Moon, Bea Uusma Schyffert sets the stage for the historic trip to the moon by the Apollo 11 crew by discussing the rocket and the route it will be traveling during its 3 day trip to its moon orbit. As Collins said in his post mission interview—now humans can decide to visit other space destinations including other planets in our solar system. Students may not have a good working knowledge of the structure of our solar system and the relation that our moon has to the other planets, not to mention how it relates to our own planet Earth. This is a perfect springboard for a look at the size and structure of the solar system. After students read the book they can be instructed to study the pictures of the moon and to think about where the moon is located in relation to the Earth. Next, take the students on a longer space journey by exploring the rest of the solar system. Use the many resources on the Internet that will allow the students to go on a virtual voyage of the solar system. Have them plan the trip much like Collins, Aldrin, and Armstrong planned their voyage to the moon. They can use the book as a guide for planning their Grand Space Adventure. See the web sites listed below for virtual solar system explorations.

Web References
- http://www.nationalgeographic.com/solarsystem/
- http://space.jpl.nasa.gov/
- http://www.solarviews.com/noflash.html
- http://www.nineplanets.org/

What's A Moon Like? The Lunar Environment

“Mr. Collins, now that you’ve seen the far side of the moon and returned to Earth, can you tell me what it’s like?” “What does it feel like to be a scientist that travels through space?” After reading The Man Who Went to the Far Side of the Moon, your students might just want to ask Michael Collins these questions. Why not make this question the centerpiece of an activity in which your students use the information in the book as well as information they can obtain from the library or the Internet to describe what the moon’s environment is like compared to our own planet Earth or another planet. They can complete the following chart with information they collect.

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>MOON</th>
<th>EARTH</th>
<th>OTHER PLANET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outside Temperature (Day)</td>
<td>+250°F (+120°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside Temperature (Night)</td>
<td>-250°F (-180°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance From Earth</td>
<td>242000 Miles (390000km)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Ghostly white</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smell</td>
<td>Wet Ashes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Composition</td>
<td>Rocky Dusty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(From Book)

1a SCIENCE CONTENT STANDARD D (Earth and Space Science):
As a result of their activities in grades 5-8, all students should develop an understanding of:

- Structure of the earth system
- Earth’s history
- Earth in the solar system
  - The earth is the third planet from the sun in a system that includes the moon, the sun, eight other planets and their moons, and smaller objects, such as asteroids and comets. The sun, an average star, is the central and largest body in the solar system.
  - Most objects in the solar system are in regular and predictable motion. Those motions explain such phenomena as the day, the year, phases of the moon, and eclipses.
  - Gravity is the force that keeps planets in orbit around the sun and governs the rest of the motion in the solar system. Gravity alone holds us to the earth’s surface and explains the phenomena of the tides.
- Landforms are the result of a combination of constructive and destructive forces. Constructive forces include crustal deformation, volcanic eruption, and deposition of sediment, while destructive forces include weathering and erosion.
- Some changes in the solid earth can be described as the “rock cycle.” Old rocks at the earth’s surface weather, forming sediments that are buried, then compacted, heated, and often recrystallized into new rock. Eventually, those new rocks may be brought to the surface by the forces that drive plate motions, and the rock cycle continues.
- Soil consists of weathered rocks and decomposed organic material from dead plants, animals, and bacteria. Soils are often found in layers, with each having a different chemical composition and texture.
How Did You Do That? Or “The Fourth Passenger”
A Look At Technical Writing

As Ms. Schyffert writes, “The astronauts don’t do anything without first looking it up on their checklists. They call the lists the ‘Fourth Passenger.’ The lists describe what they should do and when they should do it…The checklists are the result of years of training…Together, Michael, Buzz and Neil have brought with them 20 pounds (9 kilograms) of lists.” Obviously, this sort of technical writing has become important in all of our lives. As we moved into the “information age” we have all increased our need to be able not only read technical documents, but also to create them.

The Man Who Went to the Far Side of the Moon is an ideal vehicle for teachers to use to practice the skills needed for technical writing. In fact, the National Council of Teachers of English has emphasized these skills in their National Standards for the English Language Arts. Have your students look back at the checklist on pages 32 and 33 after they have read the book. Have them look at the detail in the list for dumping their urine, or even for draining waste water. How would your students do in following these instructions? Or writing them? Pair your students and have each pair pick a simple process or task, such as:
- Tie your shoe
- Brush your teeth
- Get up and get ready for school
- Prepare breakfast
- Make a peanut butter and jelly sandwich

Have each member of the pair create a checklist for the same process. When they are finished, have them switch checklists. Next they should do the task as described on their partner’s checklist. (This can also be done in front of the class as a demonstration.)

What was missing? What worked? What didn’t work? What steps needed to be added? Have them look back at the checklists in the book. Notice that Collins even corrected his lists while traveling to the moon.

What Did You Eat?

“It’s quiet in the capsule on the dark side of the moon. The only noises are the fans humming and a faint crackling from the radio. Michael Collins prepares his dinner. Looks out the window.” One of the most frequent questions asked of astronauts is “What (or how) did you eat in space?” This question can be the start of an activity that will allow the students to discover just what astronauts eat. How does their diet compare to what the students themselves eat?

Have the students research what Collins ate while on the far side of the moon. (Refer to page 65 of the book.) Next, have them keep a personal food diary for one or two days. Don’t forget to have them record how much they ate too. They can even discuss how their food was prepared compared to how the astronauts prepared their food in space. For advanced students have them calculate the nutrient levels of the two diets. How many calories did the astronauts get? How much protein, etc. How about the students? The following web sites might be helpful in compiling this information and for seeing what astronaut food is like today.


1c SCIENCE CONTENT STANDARD F:
As a result of activities in grades 5-8, all students should develop understanding of personal health
- Food provides energy and nutrients for growth and development. Nutrition requirements vary with body weight, age, sex, activity, and body functioning.

2 STANDARDS FOR THE ENGLISH LANGUAGE ARTS:
- Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
- Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
Journaling Your Way To the Moon

Journaling is another popular language arts activity that fits into this book. Throughout the book the thoughts and reflections of Michael Collins are recorded. Students can be instructed to journal a trip they are taking (virtual or real) or some other activity like a daily reflection of their school environment or their life at home. The students can then compare their journalistic style with that of Collins. How do they differ? How are they the same?

How Do You Become An Astronaut?
Career Awareness and Interviewing Skills

What's it take to be an astronaut?
How much do they make?
What do they actually do?

These are questions that students may want to ask an astronaut if they could. Well, they can. Ms. Schyffert makes this possible by including enough data about each of the three astronauts that students can get many of the answers to their most critical questions. On pages 17 through 21 the students can gather all the information they require. Of course much of this has changed for current space travelers. Students can even research today's astronaut data and compare it with the information in the book. An activity that can be developed from this is to have your students create an interview. Have them write interview questions that can be answered from the information that is included in the book. They can then pair up with other students and actually conduct their interviews. It is important for students to develop the research skills necessary to gather the information for the interview questions, and they will learn how to participate in many different kinds of intercommunications. Learning how to answer interview questions is an important part of career awareness.

STANDARDS FOR THE ENGLISH LANGUAGE ARTS:

• Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

• Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes

NATIONAL COUNCIL FOR THE SOCIAL STUDIES NATIONAL STANDARDS:

• Social studies programs should include experiences that provide for the study of individual development and identity.
Exploring: What Would You Take on a Trip Like This?
What to Take and What To Leave? That Is the Question.

When Darwin traveled on the HMS Beagle on his famous five
year voyage around the southern oceans he was housed in
a space that was 6 feet. long, 2 feet. wide, and 4 1/2 feet.
high. This space was underneath the bunk of a cabinmate,
and it accommodated him (in his bunk at night) and all his
belongings. In his journal and correspondence, Darwin listed
only 14 or 15 personal items that he brought with him on his
extended voyage. In her book, Schyffert discusses the same
predicament of space limitations on a much more distant
(but shorter in duration) voyage to the moon. The Apollo 11
capsule was tiny and the amount of personal gear that each
astronaut could take was very limited.

Have your students study the lists made by the three Apollo
11 astronauts on page 36. Have each student make their
own list of what they would bring with them on a journey
to explore the moon. Next, have them write a short essay
justifying or explaining their items. You may even have them
make their own PPK (Personal Preference Kit) to help them
visualize the contents of their lists. To conclude this activity
the students can be formed into groups to discuss their own
PPK’s and to develop a group list of Personal Preferences.

If This Is Sunday, July 20, 1969, Then I Must Be on the
Moon: Making A Travel Brochure

Students love to learn about travel. The wonders of distant
lands and the exotic people and places that can be found
while traveling is always of interest to students. This book
takes the students on the most distant foreign travel adven-
ture that humans have ever experienced. An activity that
includes social studies topics, language arts concepts, and
topics in the fine arts can be developed with travel in mind.
Go to a travel agency and ask to have a collection of travel
brochures to distant lands. Even old, out-of-date brochures
can be used for this activity. Show your students what a travel
brochure looks like. What kind of information is included in
the typical brochure? Then ask them individually or in groups
to create a travel brochure for a trip to the moon. What are
the special requirements for this trip? What will the traveler
actually see? What will the accommodations be like? What
precautions should be taken? They can design their brochure
with a variety of art elements. Many of the illustrations in the
book can be used as examples of pictures the students can
create. They can get images from the Internet as well. The
students can show their travel brochures to the entire class
while describing their own trip to the far side of the moon.

An alternate activity that can connect these three curriculum
areas (Language Arts, Social Studies, and Fine Arts) is to
have the students create a scrapbook of a journey they have
taken (or would like to take) modeled on the format used by
Schyffert. This scrapbook of Michael Collins’ trip to the far
side of the moon can be a model for the students to remember
and to use while they analyze trips of their own.

**NATIONAL COUNCIL FOR THE SOCIAL STUDIES NATIONAL
STANDARDS:**
- Time, Continuity and Change—Social studies programs should include
  experiences that provide for the study of the ways human beings view
  themselves in and over time.
- Science, Technology and Society—Social studies programs should
  include experiences that provide for the study of relationships among
  science, technology, and society.

**NATIONAL STANDARDS FOR ARTS EDUCATION: VISUAL ARTS**
- Content Standard 1: Understanding and applying media, techniques,
  and processes
- Content Standard 4: Understanding the visual arts in relation to his-
  tory and cultures
- Content Standard 5: Reflecting upon and assessing the characteris-
  tics and merits of their work and the work of others
- Content Standard 6: Making connections between visual arts and
  other disciplines
MATHEMATICS ACTIVITY

Two Hundred and Fifty Degrees In the Shade—This Must Be The Moon! Making Measurements In Space

250°F, 120°C, 242,000 miles, 390,000 kilometers. Michael Collins’ trip around the moon was filled with measurements. Schyffert adds dimension to all aspects of her story of space travel. How much does the space suit weigh? How fast did they travel? How much money does an astronaut make? Numbers are all around us just as they were all around the Apollo 11 astronauts. Have your students conduct a mathematics scavenger hunt in The Man Who Went to the Far Side of the Moon. Create a table like the one shown below for your students or have them create a numbers table for themselves. The measurements in this book are shown in both English and Metric units and should be included in any measurement list that the students create. The list or table can be divided into distance, mass (or weight), temperature, speed, and so on. It is important for students to see how measurements and numbers are included in all aspects of life. In addition, students will begin to develop a feeling for the relationships between English and metric units of measurement. This activity will help them understand how measurements can increase our understanding of the world around us (or the moon around us as the case may be.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Type of Measurement</th>
<th>Metric Unit</th>
<th>English Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature of the moon-Day</td>
<td>Temperature</td>
<td>120°C Celsius</td>
<td>250°F Fahrenheit</td>
</tr>
<tr>
<td>Distance from the Earth to the moon</td>
<td>Distance</td>
<td>242,000 miles</td>
<td>390,000 kilometers</td>
</tr>
<tr>
<td>Weight of moon rocks and dust brought back</td>
<td>Mass (Weight)</td>
<td>48 pounds</td>
<td>22 kilograms</td>
</tr>
</tbody>
</table>

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS STANDARDS: MEASUREMENT

- Understand measurable attributes of objects and the units, systems, and processes of measurement
- Understand such attributes as length, area, weight, volume, and size of angle and select the appropriate type of unit for measuring each attribute
- Understand the need for measuring with standard units and become familiar with standard units in the customary and metric systems
- Carry out simple unit conversions, such as from centimeters to meters, within a system of measurement
- Understand that measurements are approximations and how differences in units affect precision

ABOUT THE AUTHOR

Bea Uusma Schyffert received her education at the National College of Arts and Design in Stockholm and did her MFA studies as a Fulbright grantee at School of Visual Arts in New York. She has illustrated more than ten books. The Man Who Went to the Far Side of the Moon is the first book she’s both illustrated and written. It received the prestigious Swedish Book Art Award as well as an award at the 2002 International Book Art Competition featuring the best designed books from around the world.

AWARDS AND HONORS FOR THE MAN WHO WENT TO THE FAR SIDE OF THE MOON

- ALA Batchelder Honor Book
- ALA Notable Books for Children
- Boston Globe-Horn Book Honor Book, Nonfiction
- School Library Journal’s “Best Books 2003”
- School Library Journal, Starred Review
- AIGA 50 Books/50 Covers of 2003, Outstanding Design
- Cooperative Children’s Book Center (CCBC) Choices
- Louisiana Young Readers’ Choice Award Nomination (2006)
- Children’s Literature Association of Utah Beehive Award Nomination (2005-2006)
- Washington Library Media Association’s Sasquatch Reading Award Nomination (2006)

ABOUT THE AUTHOR OF THIS GUIDE

This guide was prepared by Richard Benz, science educational consultant and science teacher at Wickliffe High School, Wickliffe, Ohio.