



Rocket Boys Interdisciplinary Unit

By Kris Anderson



Rocket Boys Interdisciplinary Unit

Course Overview:

A novel study integrating core subject areas in an interdisciplinary unit where students will experience the underlying themes of space exploration, following your dreams, literary elements, and mining results in relation to the novel "Rocket Boys."

Text Information:

Rocket Boys by Homer Hickam, Jr.

Publisher: Delacorte Press, Bantam Doubleday Dell Publishing Group, Inc.

Copyright: 1998

Cost: \$6.99 to \$25.95

Unit Goals:

Students will understand...

- * the importance of Sputnik (changes, impacts, etc.)
- * geography, mapping, and scale modeling of Coalwood, W.V.
- * ramifications of coal mining (i.e. diseases, safety, results)
- * how to display the literary elements (i.e. setting, character, plot, climax, resolution, them) via scene acting
- * predicting
- * rocket construction

Students will know...

- * how Sputnik has affected our lives
- * where Coalwood, W.V. is and how location has made life there difficult
- * how coal mining effects the world
- * how to identify literary elements in a non-fictional story, specifically the theme of the story
- * how to make predictions using information from the novel
- * rocket construction, air and water

Objectives (Using Bloom's Taxonomy):

Knowledge

Students will...

- * participate in novel discussions
- * take notes
- * define vocabulary terms
- * define the essential themes of the novel
- * research various terms important to content of the novel
- * define essential themes of the unit
- * research essential themes of the unit

Comprehension

Students will...

- * answer comprehension questions
- * answer quiz questions
- * complete unit tests
- * answer questions on worksheets
- * name chapter titles
- * write description of house
- * write description of Cape Coalwood
- * measure rocket designs
- * measure height and distance traveled by rockets
- * explain how Sputnik/technological changes have impacted society
- * match characters to characteristics



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Application

Students will...

- * apply knowledge of the underlying themes throughout the novel to their lives
- * predict what happens in the novel
- * chart geography maps
- * create a timeline of rocket construction
- * create Homer's house in illustration
- * create pen-pal's home in illustration

Analysis

Students will ...

- * analyze character traits
- * analyze how the character develops throughout the story
- * compare novel to movie using a Venn diagram
- * discuss using literary elements
- * graph mining information
- * graph Hodgkin's Disease information

Synthesis

Students will ...

- * construct an original script displaying their understanding of the major themes
- * create a student-made Power Point presentation
- * create a newspaper reporting on Sputnik
- * create a visual story map
- * create an original poem
- * create an original script
- * create rocket models
- * create a rocket launch area
- * create a poster board display of research topic
- * create a memoir

Evaluation

Students will ...

- * compare the novel with the movie, *October Sky*
- * write a reflection paper evaluating the unit
- * write reflections in journal entries
- * make decisions of rocket material choices
- * write a reflection paper taking a stance on Civic Pride
- * infer and evaluate during their lab practical
- * create a Worldwide summary Web page

Pre-Curriculum Activities

1. Break students up into groups
 - a. brainstorm a space related name for the group
 - will be used to associate with throughout the course of the unit
 - b. have groups do business activity
 - file forms away for later resource
2. Perform a skit (similar to Saturday Night Live)-video tape
 - a. groups can act out different space related ideas (prior to background knowledge)
 - moon walk/life on the moon
 - 50's/60's decade
 - first space flights
 - coal mining
 - b. revisit this concept at the end of the unit and do their skit again
 - see how knowledge has changed their perception



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Language Arts

Text: *Rocket Boys* by Homer Hickam

Suggested Time: 4 weeks

1. Pre-reading Activities
 - a. Opinionnaire
 - b. Vocabulary list
 - i. Provide words
 - ii. Design a word wall
 - c. Brainstorm list of research questions
 - i. Construct note cards for wall
 - ii. Have recorder write down ideas
 - iii. Distribute copy to the class
- II. Chapters 1-6
 - a. Descriptive writing
 - i. Homer's house activity
 - ii. Describe in written form a place of importance to the student
 1. trade/draw from description
 2. match description with picture
 - a. mix up, randomly pass out
 - b. without talking; match them up
 - b. Choose research topic
 - i. Begin researching
 - c. Create a newspaper report on Sputnik
 - d. Quiz
 - e. Predict what will happen next in the book
- III. Chapters 7-14
 - a. Begin designing a visual story map
 - b. Predict what will happen next in the book
 - c. Quiz
- IV. Chapters 15-21
 - a. Name game-matching activity
 - b. Descriptive Writing
 - i. Chose a Rocket Boy or Girl students relates too
 - c. Quiz
- V. Chapters 22-26 & Epilogue
 - a. Note-taking: memoirs
 - b. Write a memoir
 - c. Quiz
- VI. Post -reading
 - a. Watch the movie, "October Sky"
 - b. Test
 - c. Create a Venn diagram illustrating the differences and likenesses between the movie and the novel
 - d. Write a reaction paper responding to the unit
 - e. Web-page
 - f. Display board: Research Project
 - g. Poem
 - h. Script



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Mathematics

Suggested Time: 4 weeks

- I. Mapping & Graphing
 - a. Note-taking
 - i. Scale measurements
 - ii. U.S. Customary and Metric Units
 - b. Interpret different types of maps
 - i. Topographic
 - ii. Infrared
 - iii. Political
 - iv. Thematic
 - v. Relief
 - c. Draw a map representing Coalwood/Cape Coalwood
 - i. Describe what is there in words
 - ii. Design a topographic map
 - d. Design a map of favorite room to scale
 - e. Graph flight path of Sonny's rockets
 - i. Describe in words what happened to his rockets over time
 - f. Provide a world map to show distance from home to pen pals
 - g. Keep a chart with names, homes, distances
 - Use U.S. Customary/Metric-time/distance to travel there by plane, boat, car, etc.
 - h. provide brochure, poster, Power Point presentation, etc. to show information
- II. Diseases
 - a. Coal Mining
 - i. Graphing
 - ii. Note-taking (Dr. Z's website: include)
 - 1. Average amount of dust/year
 - 2. Federal Black Lung Expenditures
 - 3. Dust test results of Patton's Miner Etc.
 - 4. Economic Trends
 - b. Hodgkin's Disease
 - i. What it is
 - ii. Who it affects
 - iii. How it's treated
 - a. Improvements over the years
 - iv. Hodgkin's Disease lesson (see attached)
- III. Rocket Construction
 - a. Design (history information from camp)
 - i. Scientists
 - ii. Significant rockets
 - iii. Important firsts
 - iv. Materials used in construction
 - b. Water Rocket (use space camp lesson)
 - i. Build
 - ii. Draw example
 - iii. Test
 - iv. Modify
 - v. Design graph (i.e. Height vs. Time)
 - c. Air Rocket (use additional information)
 - i. Build
 - ii. Draw example
 - iii. Test
 - iv. Modify
 - v. Design graph (i.e. Height vs. Time)
 - d. Create a chart comparing water and air rockets



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- e. Write an essay on rocket design
 - i. What to include
 - ii. Why include it on your next rocket

Social Science

Suggest Time: 4 weeks

I. Geography

- a. Location
 - i. History/significance of Coalwood
 - use fact finding sheets "Where in the World"
 - teams will work together to find answers
 - 2. how it affects you
- b. Exotic location
 - i. Research interesting places
 - pick one place
 - research geographical and historical information
 - specific facts
 - ii. Pen pal program
 - 1. discover what life is like somewhere else
 - 2. draw location based on pen pal's description
 - 3. exchange pictures
- c. Life in the 50's
 - i. Kids/students
 - ii. Activities
 - iii. Economy
 - iv. Leadership

II. Mining

- a. Note-taking
- b. Importance
- c. Risks/hazards
 - i. Modify/design safety adaptation
- d. Child labor

III. Rockets

- a. Progression of rockets
 - i. Design a timeline
- b. Space Race
- c. Werhner Von Braun
 - i. History
 - ii. Role in space program
 - iii. Huntsville, AL. "Rocket City, USA"

IV. Team Dynamics

- a. Characteristic handout
- b. Groups design business

V. Design a science fair board

- a. Materials



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Science:

Suggested Time: 4 weeks

I. Catalysts

- a. Sputnik
 - i. Discussion of impact
 1. Homer, town, U.S.
 2. Have a family member reflect
 - a. Write response/reflection paper
 - ii. Design a satellite
 1. Uses
 2. Benefits
 3. Impact you, society, world, etc.
- b. Parents
 - i. Mother challenges Sonny to build rockets to prove father wrong
 1. write journal entry
 - a. why is this important
 - b. when have you felt challenged to prove someone wrong
 - c. when have you felt challenged to go after something you want or have dreamed of having/wanting
 - ii. Describe catalysts students have with family, friends, etc.
- c. Fuel for rockets
 - i. Examples/combinations
 - ii. Successes/failures
- d. Importance of catalysts in all endeavors
- e. Text reading
- f. Comprehension questions
- g. Create a catalyst
 - i. Lab-Provide supplies
 - ii. Worksheet

II. Diseases

- a. Note-taking
 - i. Study of different diseases
 1. Coal mining diseases
 - a. examples
 2. Hodgkin's Disease
 - a. facts
 - ii. study of ways to prevent diseases
- b. Disease Study (lesson attached)
 - i. Comprehension questions
 - ii. Quiz
 - iii. Lab activity-cells on slides

III. Rocket Design Activities

- a. Rocket Building
 - i. Note-taking
 - ii. Write list of materials needed
 - iii. Write an expository essay on strategies of constructing a rocket
- b. Create rockets and clinometers
 - i. test trials
 - ii. adaptations/alterations
- c. Design rocket launch site
 - i. launch
 - ii. record results/data



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Additional Subject Areas

Art

- use summaries/exerts to draw pictures
- color/depict a scene

Drama

- interpret a scene/chapter/exert from the book

Health

- compare food we eat to fuel for rockets
- compare how being fit can help you in becoming an astronaut

Home Economics

- make food from Coalwood recipe book

- order book from <http://www.homerhickam.com/gifts.shtml>

A handy cookbook of good old fashioned PRODIGIOUS recipes collected from the good citizens of Coalwood, West Virginia. Mailed to you from the town, stamped with a special Coalwood stamp.

* \$10 each plus \$2 postage, adjusted as needed for multiple orders.

* Checks should be made to: Coalwood United Methodist Church.

Checks should be sent to:

[Mrs. Reba Bolt](#)

HC 31 Box 82

Welch, WV 24801

or

[Mrs. Guylinda Bailey](#)

166 Butternut Drive

Princeton, W. Va. 24740

Industrial Arts

- design/build a scale model of Coalwood/Cape Coalwood, etc.

Physical Education

- take a moon hike
 - give calculations to next destination
 - fast forward to 100 years from now and take the hike
 - describe what you see
 - draw a map
- “Meteor Shower” a.k.a dodge ball
- obstacle course-moons terrain
- design their own games out of specific materials

Technology

- design a pamphlet to coincide with the research activity

Additional Fun

- scavenger hunt
- math-map reading

Assessment

- Overall collection of materials from all subjects.
- Pamphlet and science fair board/presentation



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Exam and Desk Copies

- You can receive one exam/desk copy for every 20 books you purchase.
- Each copy costs \$3.
- Student copies cost \$6.99(softbound) and
- October Sky paperback, 448 pages, 8 pages of photographs:
ISBN: 0-440-23550-2 (\$6.99-U.S., \$9.99-Can.)
- Rocket Boy's paperback, 384 pages, 8 pages of photographs:
ISBN: 0-385-33321-8 (\$12.95-U.S., \$19.95-Can.)
- Rocket Boy's hardcover, 368 pages:
ISBN: (0-440-33387-3 (\$25.95)
- Requests must be made on school letterhead or school address must be included on the email.

Contact Random House at the following addresses or use the website.

In the United States:

Random House	or	High School Teachers @
School & Library Marketing		Random House
1540 Broadway, 19 th Floor		280 Park Ave, 11-1
New York, NY 10036		New York, NY 10017

In Canada:

Random House of Canada
2775 Matheson Blvd. East
Mississauga, Ontario L4W 4P7 Canada

Website:

<http://www.randomhouse.com/teachers/resources/exam.html>

Audio Cassette Information:

Rocket Boys: A Memoir (a.k.a. "October Sky")
-\$19.20 (4 cassettes)
-Shipped within 24 hours
-Homer Hickam, narrated by Beau Bridges/Audio/Simon & Schuster
Audio/Sept. 1998



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Additional Resources

Links & Additional Websites

<http://www.airandspace magazine.com/ASM/Mag/Index/2002/AM/rkbd.html>

Homer's article on how the Barbie doll is perfect for rocket flight.

<http://www.randomhouse.com/highschool/guides/octobersky.html>

Teacher and student reviews on Homer's books.

<http://www.redwoods.cc.ca.us/main/dept/english/boo-year/study.htm>

Study questions for each chapter and epilogue.

<http://www.homerhickam.com/test7.htm>

Test at the 7th grade level.

<http://www.homerhickam.com>

Links for students, teachers, group reads, etc. Offers a wide variety of information to assist in exploring past, present, and future events of Homer Hickam and the Rocket Boy's.

<http://ali.apple.com/events/coalwood/>

Includes a picture of Homer's house. There are also video interviews with the Rocket Boy's and community members.

www.homerhickam.com/rocket.htm

Provides current biographies on all the Rocket Boy's and also includes photographs.

<http://www.inkspell.homestead.com/octsky~ns4.html>

"Dr. Z's Education Website"

This has been an incredible website that has provided this unit with many great tools. There are incredible graphs (great for the math section,) additional assignments, information on black lung disease, October Sky information, rockets, space exploration, Werner Von Braun, vocabulary list, links to the decade of the 50's and 60's, and other additional information.

Themes/Concepts covered:

- hope, passion, confidence, self realization, power of dreams
- dreams are reachable if you work hard and make sacrifices
- character development, career choices, stick to what you believe in
- group work, team dynamics
- provide encouragement of self confidence
- real students with real problems
- way to achieve goals