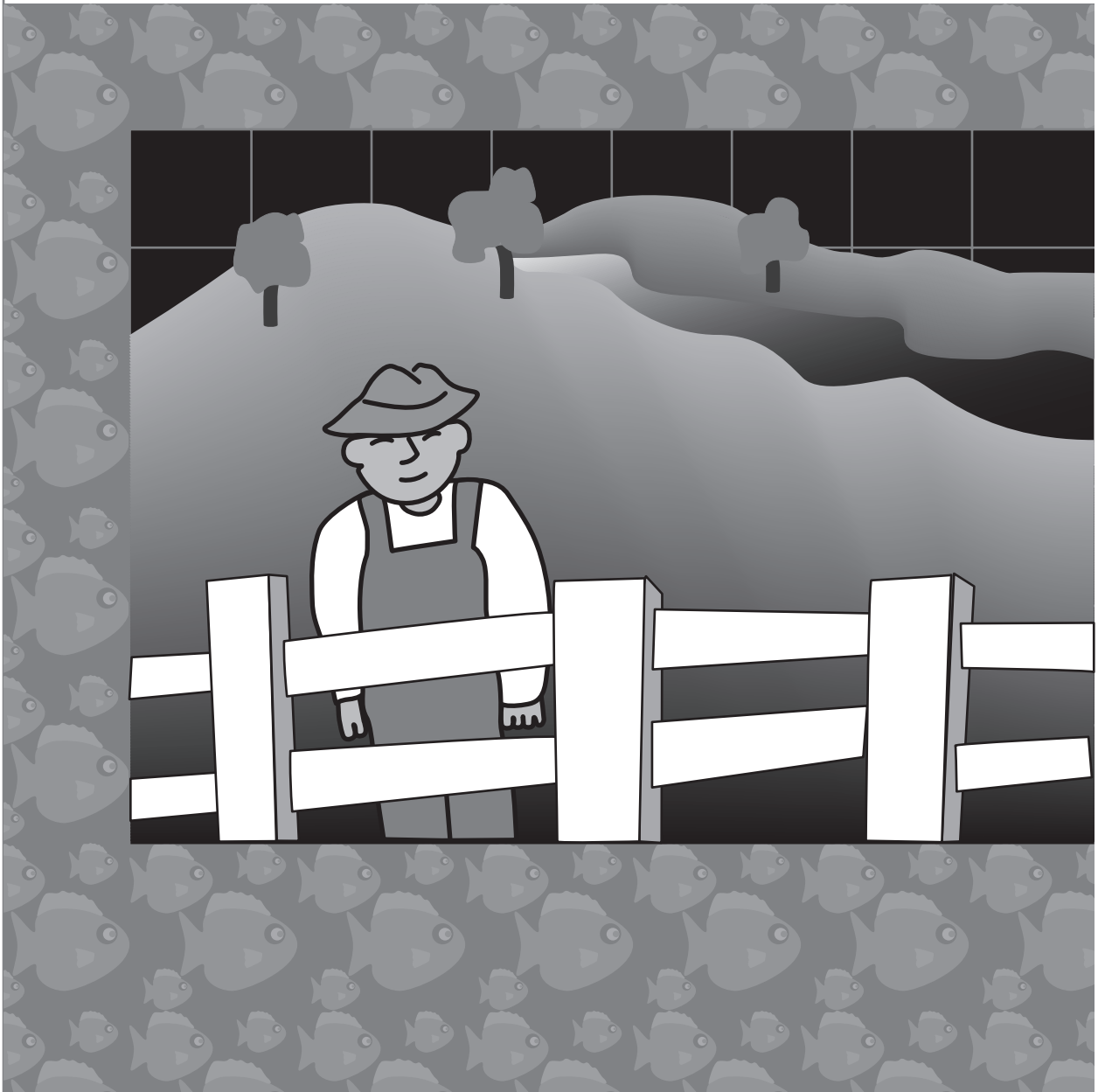


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GRANDPA'S RIVER



© A Computer Integrated Cross-Curricular Simulation That Exposes Students to a Mystery Involving River Ecology

WELCOME



11+ Hours of Instruction

Overview A computer integrated cross-curricular simulation that exposes students to a mystery involving river ecology. Students become certified water pollution experts as they work to solve a river pollution problem in the town of Rising Sun. Through science research and investigation, students draw conclusions to solve the mystery.

Your students will:

- Enhance their literacy, note-taking and computer skills
- Complete reading comprehension and map-skill activities
- Research aspects of water pollution
- Conduct a scientific investigation and present their findings
- Understand the impact of industry on a small town

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ICONS KEY When you see these icons...



Answer Key
For student activities with specific objective responses, this icon directs you to the answer key.



Learning Tip
Found in the Student Guide. This directs your students to important procedures or directions.



Teaching Tip
In the margins of your Teacher Guide, these tips clarify materials or procedures.



Read or Tell
This is important information your students need for the activity. Be sure to read the passage or clearly instruct your students as stated in your Teacher Guide.



Grouping
This shows if your students work independently, in partners or in cooperative groups for each activity.



Reproducible
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Timing
Many activities vary in length. Use this icon to help plan your teaching time.

GRANDPA'S RIVER

A computer integrated cross-curricular simulation that exposes students to a mystery involving river ecology

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Copyright © 2001 Interact
10200 Jefferson Boulevard
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(800) 359-0961 • www.teachinteract.com
ISBN# 1-57336-347-2

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The nationwide movement for high standards has not only determined what students should learn, but also has mandated that students demonstrate what they know. GRANDPA'S RIVER is a standards-based simulation addressing National English Language Arts Standards, National History Standards, National Geography Standards, National Science Standards, and National Technology Standards. This unit addresses Applied Learning Standards when students work cooperatively to complete the various activities.

National English Language Arts Standards

Standard 1: Uses the general skills and strategies of the writing process

- **Prewriting:** Uses prewriting strategies to plan written work (e.g., uses graphic organizers, story maps, and webs; groups relate ideas; take notes; brainstorm ideas)
- **Drafting and Revising:** Uses strategies to draft and revise written work (e.g., rereads, writes with attention to audience)
- **Editing and Publishing:** Uses strategies to edit and publish written work (e.g., proofreads using a dictionary and other resources; shares finished work)

Standard 2: Uses the stylistic and rhetorical aspects of writing

- Uses descriptive language that clarifies and enhances ideas

Standard 3: Uses grammatical and mechanical conventions in written compositions

- Uses complete sentences
- Uses nouns, pronouns, verbs, adjectives, adverbs in written compositions
- Uses conventions of spelling, capitalization, punctuation in written compositions

Standard 5: Uses the general skills and strategies of the reading process

- Understands level-appropriate sight words and reading vocabulary
- Establishes a purpose for reading (e.g., for information, for pleasure, to understand specific information)
- Uses word reference materials (e.g., glossary, dictionary) to determine the meaning, pronunciation, and derivations of unknown words
- Understands the author's purpose (e.g., to persuade, to inform)

Standard 7: Uses reading skills and strategies to understand and interpret a variety of informational texts

- Uses reading skills and strategies to understand a variety of informational texts (e.g., text books, written directions, procedures)
- Summarizes information found in texts
- Uses prior knowledge and experience to understand and respond to new information

Standard 8: Uses listening and speaking strategies for different purposes

- Makes contributions in class and group discussions
- Asks and responds to questions
- Uses level-appropriate vocabulary in speech

STANDARDS

National History Standards

Topic 1 Living and Working Together in Families and Communities Now and Long Ago

Standard 1: Understands family life now and in the past and family life in various places long ago

- Knows a family history through two generations
- Understands family life in a community of the past and life in a community of the present (e.g., roles, jobs, technology)

National Geography Standards

Standard 1: Understands the characteristics and uses of maps, globes, and other geographic tools and technologies

- Knows the basic elements of maps and globes (e.g., title, legend, cardinal directions)

Standard 4: Understands the physical and human characteristics of places

- Knows that places can be defined in terms of their predominant human and physical characteristics
- Knows how the characteristics of places are shaped by physical and human processes (e.g., effects of agriculture on changing land use and vegetation)

Standard 14: Understands how human activities modify the physical environment

- Knows ways in which people depend on the physical environment (e.g., food, clean air, water, mineral resources)
- Knows the ways people alter the physical environment (e.g., building roads, clearing land to make room for housing, shops, businesses)
- Knows the ways in which the physical environment is stressed by human activities (e.g., air pollution, water pollution)

Standard 18: Understands global development and environmental issues

- Knows the ways in which resources can be managed and why it is important to do so (e.g., soil conservation practices)
- Knows human-induced changes that are taking place in different regions and the possible future impacts of these changes

National Science Standards

Standard 6: Understands relationships among organisms and their physical environment

- Knows that plants and animals need certain resources for energy and growth
- Knows that changes in the environment can have different effects on different organisms (e.g., some organisms move in, others move out; some organisms survive and reproduce, others die)
- Knows that all organisms (including humans) cause changes in their environments, and these changes can be beneficial or detrimental

Standard 11: Understands the nature of scientific knowledge

- Knows that good scientific explanations are based on evidence (observations) and scientific knowledge

Standard 12: Understand the nature of scientific inquiry

- Knows that learning can come from careful observations and simple experiments
- Plans and conducts simple investigations (e.g., formulate a testable question, makes systematic observations, develops logical conclusions)

National Technology Standards**Standard 1: Knows the characteristics and uses of computer hardware and operating systems**

- Knows basic computer hardware
- Knows the basic functions of hardware

Standard 2: Knows the characteristics and uses of computer software programs

- Uses menu options and commands

California Applied Learning Standards

Standard 6. Students will understand how to apply communication skills and techniques. Students will demonstrate ability to communicate orally and in writing.

Standard 8. Students will understand the importance of teamwork. Students will work on teams to achieve project objectives.

STANDARDS

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CONTENTS

GRANDPA'S RIVER

Grandpa's River is a computer integrated cross-curricular simulation unit. Your students become certified water pollution experts as they work to solve a river pollution problem. After enjoying the Story of Grandpa's River (where they learn the history of Rising Sun), students complete a series of map activities which help them to get to know the town even better. Through science research and investigation, students draw conclusions to solve the pollution problem in the river and share their results with the citizens of Rising Sun. Specifically your students will gain the following knowledge and skills:

Reading/Writing

- Read for literary experience
- Read to be informed
- Read to perform a task
- Write to inform by developing and organizing facts to convey information

Science

- Observe and explore the characteristics of the environment
- Interpret and explain information generated from the scientific process
- Demonstrate ability to observe, compare, predict, and collect evidence
- Communicate findings through describing, drawing pictures, and telling others
- Demonstrate the ability to apply science in problem-solving and decision-making which affects individuals, society, and the environment

Library Media Skills

- Demonstrate the ability to learn and apply study, research, reference, and critical thinking skills to organize information
- Use research skills to evaluate, select, record, and reorganize information
- Use a variety of sources to acquire information
- Process and evaluate content from a variety of sources by applying comprehension skills

Social Studies

- Describe ways in which individuals and groups bring about civic improvement
- Summarize the main points of a current event
- Locate features of a community by interpreting maps using cardinal directions and symbols explained in a legend (key)
- Examine environmental concerns in the community
- Explain the relationship between the physical setting of a community and its ability to satisfy the wants and needs of its people
- Demonstrate ability as an individual and as a group to gather information and solve problems to facilitate responsible decision-making and generate new ideas
- Obtain and use relevant information by reading, observing, and listening
- Obtain and use print and non-print sources for information
- Interact with others in groups to achieve common goals

In addition your students will develop the following attitudes:

- Developing and valuing a sense of teamwork
- Increasing confidence in applying the scientific process
- Feeling positive about learning
- Realizing the necessity of protecting the delicate balance of natural resources and human needs

PURPOSE

OVERVIEW

GRANDPA'S RIVER

OVERVIEW

Many students enjoy solving a mystery. In doing so, they learn to take pieces of information and see how they fit together. GRANDPA'S RIVER is a computer integrated cross-curricular simulation that exposes your students to a mystery involving river ecology. This unit will engage, challenge, and excite your students as they become involved with the scientific process. Students will work individually and in small cooperative groups. As they proceed through the unit your students will work with information gained via the computer and their Student Books.

GRANDPA'S RIVER is divided into nine Parts.

- **Part I: Welcome to Grandpa's River**

Students are divided into mixed ability cooperative groups with a maximum of six students per group. The simulation begins with an introduction to the water pollution problem which has developed in a town called Rising Sun. Students brainstorm and create a class word web about water pollution and filtration as well as discuss their initial reactions and predictions for the work ahead.

- **Part II: Introduce Yourself**

Through the computer program, students introduce themselves to Zach and his Grandpa, the characters of GRANDPA'S RIVER. The students then hear the story of "Grandpa's River" which sets the scene for the rest of the unit.

- **Part III: Checking for Understanding**

Students complete a comprehension activity based on the story of "Grandpa's River."

- **Part IV: Map of Rising Sun**

In this section, students will repair a damaged map of Rising Sun by following a series of written directions. Using their knowledge of cardinal directions (N,S,E,W), students will help Zach go for a walk around his town (taking them on a tour). Of course, Zach will need their help in writing a note for his dad before he leaves his house.

- **Part V: The Problem**

Students focus on the river pollution problem that is affecting the town of Rising Sun. Through class discussion, students begin the thinking process about what is happening to the river.

- **Part VI: The Town Library**

Students begin to focus their thinking with a keyword pre-reading activity where they discuss and predict how a selection of words and phrases are related to the pollution problem and possible solutions. Students gain important information through reading reference materials and taking notes.

- **Part VII: Pollution Test**

Students use the information they collect at the Town Library to complete the Pollution Test and become Certified Water Pollution Experts.

- **Part VIII: Science Lab**

In their small cooperative groups, students complete a science investigation to determine which type of filter is most effective at stopping pollution. Students make hypotheses, prepare the investigation, collect and analyze data, and draw conclusions.

- **Part IX: Town Meeting**

The purpose of this section is to pull together all of the information that the students have collected in order to present their final ideas to the Mayor and the town of Rising Sun at the Town Meeting. For the big meeting, students will prepare a science board which outlines their investigation, vote for the best filter, and write a letter to inform the Mayor and the citizens of Rising Sun about filtration and the best filter. In conclusion, students will receive a letter of appreciation from the Mayor.

- **Culminating Activity (Optional)**

Based on the interests and abilities of your students and the time available, decide whether you wish to extend the learning of the simulation through a culminating activity. Students can prepare a role-play of the key parts of the unit and present to others. Students can invite parents, other relatives, your administrator, and students from younger classes. You may wish to incorporate awards for students' individual and/or group role-plays.

OVERVIEW