THE SECRET LIVES OF PUBLIC SPACES

INTERDISCIPLINARY

2

GRADE 2

This guide links *The Secret Lives of Public Spaces* unit to the Texas Essential Knowledge and Skills (TEKS) for second graders. *The Secret Lives of Public Spaces* is an interdisciplinary unit that allows students to study a local public space such as a park or public square from a variety of angles—history and civics, mathematics, natural sciences, and English Language Arts and Reading (ELAR). For example, students will compose original texts and engage in persuasive writing, as outlined in the ELAR TEKS; identify ways in which people have modified the physical environment, as described in the Social Studies TEKS; apply mathematics to problems arising in everyday life, society, and the workplace, as outlined in the Mathematics TEKS; and plan and conduct descriptive investigations, as described in the Science TEKS. The following document includes the applicable TEKS and the details of *The Secret Lives of Public Spaces* unit. The final section of this document presents the applicable Texas College and Career Readiness Standards adopted by the Texas Higher Education Coordinating Board (THECB) on January 24, 2008.

Description of Unit

In this task, students will explore the history behind a local park or public space. Students investigate the design of the space, examine its significance historically, understand its usage by community participants, and propose additions or modifications to encourage further awareness or use of the space. Students learn about key contributions by citizens and governmental representatives and identify to whom to address a persuasive letter suggesting their changes. Students work as a team to design improvements, depict them in a brochure, and craft a letter to send to the appropriate city official. Individuals within each small group then build on this research to develop interdisciplinary products aligned with their interest. For instance, students interested in English Language Arts and Reading might create original works of fiction, students interested in mathematics might conduct data analysis and make projections, students interested in science might design and environmental impact study, and students interested in social studies might create a campaign for a public celebration of the space.

Goals

Students will meet these goals in their explorations:

- Gain an awareness of the differences between public and private spaces and how the actions of individuals contribute to public spaces for community use
- Understand that public spaces are often a combination of manmade/designed environments and natural environments
- Uncover the history and significance of a local public space and identify the individuals who helped shape that space
- Design a program of improvements to increase public awareness, celebration, or general use of the space
- Develop the essential skills of communicating, creative problem solving, and logical thinking
- Make connections across disciplines and present learning through various modes of creative expression

Phase I. Learning Experiences

1. Introduce students to the concept of shared, public spaces. Hold a discussion on the differences between public and private spaces such as parks and public squares versus private homes and lands. You may want to share some clips from the PBS documentary, *History of the National Parks* at http://www.pbs.org/nationalparks/history/. On the board, or on a large sheet of chart paper, create five columns. In the first column, generate a list of the public spaces in the local area. Ask students how they have used public spaces such as parks over the course of their lives. Write the answers in the second column. Ask students what other activities and events might happen in these places and write these responses in the third column. In the fourth column ask students if they know how these parks/public spaces came into being. (Most likely students will now know these answers yet — add a question mark to signify this as an area for research.) In the final column, ask students how they might improve upon the space (again, this most likely will not yet be known).

2. Divide students into small groups and give each a KWL chart. In collaboration with the school or local librarian, conduct research on one of the local parks or public spaces. Each small group should focus their research on the history of the location and associated events and individuals.

3. Invite a speaker from the city parks department or local historical society to give a press-conference presentation to the class on the history and future projections for the space. Ask students to form interview questions and gather information from the speaker for their KWL charts. Possible questions might include:
   - Who provided the land for the park or public space?
   - What contributions to the park or public space resulted from actions by concerned citizens?
   - What local groups or governmental agencies help to maintain the space?
   - How many individuals visit the space and how do they use its resources?
   - What challenges in maintaining the space does the city face?

- What obstacles or barriers to use exist for various populations who might wish to access the space?
- What hazards or dangers exist in the space?
- How does the space accommodate natural plants and animals?
- What materials compose the manmade structures and why were these materials selected?

4. Create a timeline depicting the history of the park/public space.

5. Take a field trip to the space. Collect measurements, observe natural and manmade structures, postulate hypothesis on the natural organisms and food chains within the space, and list possible additions or changes that might improve the space. Depict these findings through maps, diagrams and sketches.

6. Conduct interviews and focus groups with family and neighbors to gather their perspectives on the current uses of the park/public space and ascertain the effectiveness of suggested alterations, interventions, or modifications to the space.

7. Create a proposal for a new feature or program for improving the park/public space. Write a persuasive letter to the city council, parks department head, or mayor. Create a brochure depicting your proposed solution to include with the letter.

During the product development in Phase II: Independent Research, students will work independently to extend their small group findings by creating interdisciplinary products highlighting their learning. For instance, a student interested in natural sciences may augment his/her group's proposal by studying the food chain in the environment and suggesting ways to increase natural habitats. A student with interests in English Language Arts and Reading might create an original work of fiction, depicting the story of the park, told from the point of view of the park as a character or told from a character who encounters the park as part of the story's setting.

Phase II. Independent Research

A. Research process

1. Selecting a topic. As each student reflects on the findings from the small group research projects, he/she should determine which final product best aligns with his/her interests. For example, students who have interests in English Language Arts and Reading might choose to write a work of historical fiction based on the group's findings.

2. Asking guiding questions. Each student must determine if the information the group collected is sufficient to inform his/her original composition or study. The student should refer back to the group KWL chart and pose additional questions such as:
   - What other sources might I need to contact to find additional information related to my individual project?
   - How will I gather the necessary data?
   - In what ways will I organize my work to create the final product?

3. Creating a research proposal. Brainstorm with students how to find the answers to the questions in their *W* column. Since each student may pursue a different interdisciplinary area for his/her final product, possible sources of information will vary from conducting field experiments, to collecting quantitative data from archived records, to conducting interviews and holding focus groups.

4. Conducting the research. Students should conduct their research to support their interdisciplinary project. Collaboration with librarians and/or parent volunteers for scientific field research may be required for some projects.

5. Sharing findings. Each student presents their findings to the class following the small group presentations on the history and proposed alterations of the space.

B. The product

Students demonstrate their learning through the development of **one** of the following products depending upon individual interests:

1. The creation of a short work of fiction based on the research—either told from the point of view of the park/public space as a character, or depicting a plot that unfolds within the park/public space as a setting
2. A natural habitat impact study resulting in a proposal for a conservation program in the public space
3. A study on the usage patterns of the public space presented through numerical data using charts and graphs. Students pursuing this project should make projections based on their data for how the proposed alterations to the space might impact the usage numbers
4. A poster campaign inviting people to attend a celebration of history of the park or public space. Posters should include information depicting the events of the day, a map of where activities will occur within the park/public space, and program dates and times

C. Communication

Each group will present their proposals for improvements to the park or public space. Individual students within the group will then present their interdisciplinary original works. An informal Q&A session will be held following each presentation.

D. A completed project consists of:

1. KWL chart
2. Historical timeline and map of the space
3. Persuasive letter for proposed changes
4. Brochure illustrating suggested modifications and summarizing small group research
5. Individual composition or study extending the group research across disciplines
6. Video or audio of the classroom presentations and Q&A sessions

Internet Resources

http://www.pbs.org/nationalparks/history/
http://www.fws.gov/chesapeakebay/schoolyd.html
http://www.nature.nps.gov/
http://www.epa.gov/students/communityservice.html
www.pps.org
http://www.planetizen.com/toppublicspaces

Texas Essential Knowledge and Skills

The unit may address the following TEKS:

English Language Arts and Reading:	
2.1	Understands how English is written and printed
2.3	Comprehends a variety of texts drawing on useful strategies as needed
2.4	Reads grade-level text with fluency and comprehension
2.5	Understands new vocabulary and uses it when reading and writing
2.6	Analyzes, makes inferences and draws conclusions about theme and genre in different cultural, historical, and contemporary contexts and provides evidence from the text to support their understanding
2.14	Analyzes, makes inferences and draws conclusions about and understand expository text and provides evidence from text to support their understanding
2.16	Uses comprehension skills to analyze how words, images, graphics, and sounds work together in various forms to impact meaning
2.17	Uses elements of the writing process (planning, drafting, revising, editing, and publishing) to compose text
2.19	Writes expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes
2.20	Writes persuasive texts to influence the attitudes or actions of a specific audience on specific issues
2.21	Understands the function of and uses the conventions of academic language when speaking and writing
2.22	Writes legibly and uses appropriate capitalization and punctuation conventions in their compositions
2.23	Spells correctly
2.24	Asks open-ended research questions and develops a plan for answering them
2.25	Determines, locates, and explores the full range of relevant sources addressing a research question and systematically record the information they gather
2.26	Clarifies research questions and evaluates and synthesizes collected information
2.27	Organizes and presents their ideas and information according to the purpose of the research and their audience

2.28	Uses comprehension skills to listen attentively to others in formal and informal settings
2.29	Speaks clearly and to the point, using the conventions of language
2.30	Works productively with others in teams

Mathematics:

2.1	Uses mathematical processes to acquire and demonstrate mathematical understanding
2.2	Applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value
2.3	Applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole
2.4	Applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy
2.6	Applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares
2.8	Applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties
2.9	Applies mathematical process standards to select and use units to describe length, area, and time
2.10	Applies mathematical process standards to organize data to make it useful for interpreting information and solving problems
2.11	Applies mathematical process standards to manage one's financial resources effectively for lifetime financial security

Science:

2.1	Conducts classroom and outdoor investigations following home and school safety procedures
2.2	Develops abilities necessary to do scientific inquiry in classroom and outdoor investigations
2.3	Knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions
2.4	Uses age-appropriate tools and models to investigate the natural world
2.5	Knows that matter has physical properties and those properties determine how it is described, classified, changed, and used
2.6	Knows that forces cause change and energy exists in many forms
2.7	Knows that the natural world includes earth materials
2.8	Knows that there are recognizable patterns in the natural world and among objects in the sky
2.9	Knows that living organisms have basic needs that must be met for them to survive within their environment

Social Studies:

2.1	Understands the historical significance of landmarks and celebrations in the community, state, and nation

2.2	Understands the concepts of time and chronology
2.3	Understands how various sources provide information about the past and present
2.4	Understands how historical figures, patriots, and good citizens helped shape the community, state, and nation
2.5	Uses simple geographic tools such as maps and globes
2.6	Understands the locations and characteristics of places and regions in the community, state, and nation
2.7	Understands how physical characteristics of places and regions affect people's activities and settlement patterns
2.8	Understands how humans use and modify the physical environment
2.10	Understands the roles of producers and consumers in the production of goods and services
2.11	Understands the purpose of governments
2.12	Understands the role of public officials
2.13	Understands characteristics of good citizenship as exemplified by historical figures and other individuals
2.14	Identifies customs, symbols, and celebrations that represent American beliefs and principles that contribute to our national identity
2.15	Understands the significance of works of art in the local community
2.17	Understands how science and technology have affected life, past and present
2.18	Applies critical-thinking skills to organize and use information acquired from a variety of valid sources, including electronic technology
2.19	Communicates in written, oral, and visual forms
2.20	Uses problem-solving and decision-making skills, working independently and with others, in a variety of settings

Texas College and Career Readiness Standards

This unit may address the following Texas College and Career Readiness Standards:

English Language Arts:	
I.A.1	Determines effective approaches, forms, and rhetorical techniques that demonstrate understanding of the writer's purpose and audience
I.A.2	Generates ideas and gathers information relevant to the topic and purpose, keeping careful records of outside sources
I.A.3	Evaluates relevance, quality, sufficiency, and depth of preliminary ideas and information, organizes material generated, and formulates thesis
I.A.4	Recognizes the importance of revision as the key to effective writing

I.A.5	Edits writing for proper voice, tense, and syntax, assuring that it conforms to standard English, when appropriate
II.A.9	Identifies and analyzes the audience, purpose, and message of an informational or persuasive text
II.A.10	Identifies and analyzes how an author's use of language appeals to the senses, creates imagery, and suggests mood
II.A.11	Identifies, analyzes, and evaluates similarities and differences in how multiple texts present information, argue a position, or relate a theme
II.C.3	Analyzes works of literature for what they suggest about the historical period and cultural contexts in which they were written
II.C.4	Analyzes and compares the use of language in literary works from a variety of world cultures
III.A.1	Understands how style and content of spoken language varies in different contexts and influences the listener's understanding
III.A.2	Adjusts presentation (delivery, vocabulary, length) to particular audiences and purposes
III.B.1	Participates actively and effectively in one-on-one oral communication situations
III.B.2	Participates actively and effectively in group discussions
III.B.3	Plans and delivers focused and coherent presentations that convey clear and distinct perspectives and demonstrates solid reasoning
IV.A.1	Analyzes and evaluates the effectiveness of a public presentation
IV.A.2	Interprets a speaker's message; identifies the position taken and the evidence in support of that position
IV.A.3	Uses a variety of strategies to enhance listening comprehension
IV.B.1	Listens critically and responds appropriately to presentations
IV.B.2	Listens actively and effectively in one-on-one communication situations
IV.B.3	Listens actively and effectively in group discussions
V.A.1	Formulates research questions
V.A.2	Explores a research topic
V.A.3	Refines research topic and devises a timeline for completing work
V.B.1	Gathers relevant sources
V.B.2	Evaluates the validity and reliability of sources
V.B.3	Synthesizes and organizes information effectively
V.C.1	Designs and presents an effective product
V.C.2	Uses source material ethically

Mathematics:

I.A.1	Compares real numbers
I.A.2	Defines and gives examples of complex numbers
I.B.1	Performs computations with real and complex numbers
II.D.1	Interprets multiple representations of equations and relationships

II.D.2	Translates among multiple representations of equations and relationships
III.C.1	Makes connections between geometry and algebra
III.C.2	Makes connections between geometry, statistics, and probability
III.C.3	Makes connections between geometry and measurement
IV.A.1	Selects or uses the appropriate type of unit for the attribute being measured
IV.B.1	Converts from one measurement system to another
IV.B.2	Converts within a single measurement system
IV.C.1	Finds the perimeter and area of two-dimensional figure
IV.C.2	Determines the surface area and volume of three-dimensional figure
IV.C.3	Determines indirect measurements of figures using scale drawings, similar figure, the Pythagorean Theorem, and basic trigonometry
IV.D.1	Computes and uses measures of center and spread to describe data
IV.D.2	Applies probabilistic measures to practical situations to make an informed decision
V.B.1	Computes and interprets the probability of an event and its complement
V.B.2	Computes and interprets the probability of conditional and compound events
VI.A.1	Plans a study
VI.B.1	Determines types of data
VI.B.2	Selects and applies appropriate visual representations of data
VI.B.3	Computes and describes summary statistics of data
VI.B.4	Describes patterns and departure from patterns in a set of data
VI.C.1	Makes predictions and draws inferences using summary statistics
VI.C.2	Analyzes data sets using graphs and summary statistics
VI.C.3	Analyzes relationships between paired data using spreadsheets, graphing calculators, or statistical software
VI.C.4	Recognizes reliability of statistical results
VIII.A.1	Analyzes given information
VIII.A.2	Formulates a plan or strategy
VIII.A.3	Determines a solution
VIII.A.5	Evaluates the problem-solving process
VIII.B.1	Develops and evaluates convincing arguments
VIII.B.2	Uses various types of reasoning
VIII.C.1	Formulates a solution to a real world situation based on the solution to a mathematic problem
VIII.C.2	Uses a function to model a real-world situation
VIII.C.3	Evaluates the problem solving process
IX.A.2	Uses mathematical language to represent and communicate the mathematical concepts in a problem
IX.A.3	Uses mathematics as a language for reasoning, problem solving, making connections, and generalizing

IX.B.1	Models and interprets mathematical ideas and concepts using multiple representations
IX.B.2	Summarizes and interprets mathematical information provided orally, visually, or in written form within the given context
IX.C.1	Communicates mathematical ideas, reasoning, and their implications using symbols, diagrams, graphs, and words
IX.C.2	Creates and uses representations to organize, record, and communicate mathematical ideas
IX.C.3	Explains, displays, or justifies mathematical ideas and arguments using precise mathematical language in written or oral communications
X.A.1	Connects and uses multiple strands of mathematics in situations and problems
X.A.2	Connects mathematics to the study of other disciplines
X.B.1	Uses multiple representations to demonstrate links between mathematical and real-world situations
X.B.2	Understands and uses appropriate mathematical models in the natural, physical, and social sciences
X.B.3	Knows and understands the use of mathematics in a variety of careers and professions
Science:	
I.B.1	Designs and conducts scientific investigations in which hypotheses are formulated and tested
I.C.1	Collaborates on joint projects
I.C.2	Understands and applies safe procedures in the laboratory and field, including chemical, electrical, and fire safety and safe handling of live or preserved organisms
I.C.3	Demonstrates skill in the safe use of a wide variety of apparatuses, equipment, techniques, and procedures
I.D.1	Demonstrates literacy in computer use
I.D.2	Uses computer models, applications, and simulations
I.D.3	Demonstrates appropriate use of a wide variety of apparatuses, equipment, techniques, and procedures for collecting quantitative and qualitative data
I.E.1	Uses several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic
I.E.2	Uses essential vocabulary of the discipline being studied
II.A.3	Understands ratios, proportions, percentages, and decimal fractions, and translates from any form to any other
II.A.4	Uses proportional reasoning to solve problems
II.A.6	Estimates results to evaluate whether a calculated result is reasonable
II.A.7	Uses calculators, spreadsheets, computers, etc., in data analysis
II.C.4	Understands basic geometric principles
II.D.1	Uses dimensional analysis in problem solving
II.E.1	Understands descriptive statistics
III.B.3	Recognizes scientific and technical vocabulary in the field of study and uses this vocabulary to enhance clarity of communication

III.B.4	Lists, uses and gives examples of specific strategies before, during, and after reading to improve comprehension
III.C.1	Prepares and represents scientific/technical information in appropriate formats for various audiences
III.D.1	Uses search engines, databases, and other digital electronic tools effectively to locate information
III.D.2	Evaluates quality, accuracy, completeness, reliability, and currency of information from any source
IV.B.1	Understands how scientific research and technology have an impact on ethical and legal practices
IV.B.2	Understands how commonly held ethical beliefs impact scientific research
IV.C.1	Understands the historical development of major theories in science
IV.C.2	Recognizes the role of people in important contributions to scientific knowledge
V.C.1	Recognizes patterns of change
V.D.1	Understands that scientists categorize things according to similarities and differences
V.E.1	Uses models to make predictions
V.E.2	Uses scale to relate models and structures
X.C.1	Recognizes variations in population sizes, including human population and extinction, and describe mechanisms and conditions that produce these variations
X.D.2	Understands the types, uses and regulations of the various natural resources
X.E.1	Describes the different uses for land
X.E.4	Understands land and water usage and management practices
X.E.5	Understands how human practices affect air, water, and soil quality

Social Studies:

I.A.1	Uses the tools and concepts of geography appropriately and accurately
I.A.2	Analyzes the interaction between human communities and the environment
I.A.3	Analyzes how physical and cultural processes have shaped human communities over time
I.A.6	Analyzes the relationship between geography and the development of human communities
I.B.2	Identifies and evaluates sources and patterns of change and continuity across time and place
I.C.1	Evaluates different governmental systems and functions
I.C.2	Evaluates changes in the functions and structures of government across time
I.C.3	Explains and analyzes the importance of civic engagement
I.E.3	Analyzes how social institutions function and meet the needs of society
I.F.1	Uses a variety of research and analytical tools to explore questions or issues thoroughly and fairly
I.F.2	Analyzes ethical issues in historical, cultural, and social contexts
III.A.2	Connects regional or local developments to global ones
IV.A.1	Identifies and analyzes the main idea(s) and point(s) of view in sources
IV.A.2	Situates an informational source in its appropriate contexts

IV.A.3	Evaluates sources from multiple perspectives
IV.A.4	Understands the differences between a primary and secondary source and uses each appropriately to conduct research and construct arguments
IV.A.5	Reads narrative texts critically
IV.A.6	Reads research data critically
IV.B.1	Uses established research methodologies
IV.B.3	Gathers, organizes, and displays the results of data and research
IV.B.4	Identifies and collects sources
IV.C.1	Understands/interprets presentations critically
IV.D.1	Constructs a thesis that is supported by evidence
IV.D.2	Recognizes and evaluates counter-arguments
V.A.1	Uses appropriate oral communication techniques depending on the context or nature of the interaction
V.A.2	Uses conventions of standard written English
V.B.1	Attributes ideas and information to source materials and authors

Cross-Disciplinary Standards:

I.A.1	Engages in scholarly inquiry and dialogue
I.A.2	Accepts constructive criticism and revises personal views when valid evidence warrants
I.B.1	Considers arguments and conclusions of self and others
I.B.2	Constructs well-reasoned arguments to explain phenomena, validate conjectures, or support positions
I.B.3	Gathers evidence to support arguments, findings, or lines of reasoning
I.C.1	Analyzes a situation to identify a problem to be solved
I.C.2	Develops and applies multiple strategies to solving a problem
I.C.3	Collects evidence and data systematically and directly related to solving a problem
I.D.1	Self-monitors learning needs and seeks assistance when needed
I.D.2	Uses study habits necessary to manage academic pursuits and requirements
I.D.3	Strives for accuracy and precision
I.D.4	Perseveres to complete and master tasks
I.E.1	Works independently
I.E.2	Works collaboratively
I.F.1	Attributes ideas and information to source materials and people
I.F.2	Evaluates sources for quality of content, validity, credibility, and relevance
I.F.3	Includes the ideas of others and the complexities of the debate, issue, or problem
I.F.4	Understands and adheres to ethical codes of conduct
II.A.3	Identifies the intended purpose and audience of the text
II.A.4	Identifies the key information and supporting details
II.A.5	Analyzes textual information critically

II.A.6	Annotates, summarizes, paraphrases, and outlines texts when appropriate
II.A.7	Adapts reading strategies according to structure of texts
II.A.8	Connects reading to historical and current events and personal interest
II.B.1	Writes clearly and coherently using standard writing conventions
II.B.2	Writes in a variety of forms for various audiences and purposes
II.B.3	Composes and revises drafts
II.C.1	Understands which topics or questions are to be investigated
II.C.2	Explores a research topic
II.C.3	Refines research topic based on preliminary research and devises a timeline for completing work
II.C.5	Synthesizes and organizes information effectively
II.C.6	Designs and presents an effective product
II.C.7	Integrates source material
II.C.8	Presents final product
II.D.1	Identifies patterns or departures from patterns among data
II.D.2	Uses statistical and probabilistic skills necessary for planning an investigation, and collecting, analyzing, and interpreting data
II.D.3	Presents analyzed data and communicates findings in a variety of formats
II.E.1	Uses technology to gather information
II.E.2	Uses technology to organize, manage, and analyze information
II.E.3	Uses technology to communicate and display findings in a clear and coherent manner
II.E.4	Uses technology appropriately