



Asia: Tradition and Culture

The focus of this lesson plan is the proposed building of Sky City in Tokyo, Japan.

Subject

Geography

Grade level

6-8

Duration

Three class periods

Objectives

Students will

- review facts about Sky City in Tokyo;
- discuss challenges of designing and building Sky City;
- take an interactive journey into Sky City at Discovery.com and learn about architectural and engineering solutions; and
- write an essay about the advantages and drawbacks of living in Sky City.

Materials

- Computer with Internet access
- Paper, pen or pencil
- *Asia: Tradition and Culture* video and VCR (or DVD and DVD player)

Procedures

1. After viewing *Asia: Tradition and Culture*, discuss what students learned about Sky City. Ask them these questions: What is Sky City? Why is it considered a city? (*A proposed vertical city in an enormous skyscraper where about 35,000 people would live, work, shop, and go to school.*) Where is being planned? (*Tokyo*) Why is this city a good place for this type of venture? (*Tokyo is overcrowded so people spend many hours a day commuting to work.*)
2. Remind students that Sky City would top 3,000 feet and would weigh 6 million tons. Ask students to name challenges of designing and building a skyscraper nearly two-thirds of a mile high. Answers might include the following:
 - Finding and clearing the space to build it

- Creating the materials to build columns for such an enormous structure
 - Strong winds and typhoons
 - Frequent, powerful earthquakes
 - Building on loose, sandy soil
 - Creating transportation to and around the skyscraper
 - Supporting the tremendous weight of the building
 - Preparing for fires
3. Tell students to choose a partner. Explain that they are going to take an interactive journey to learn about solutions architects and engineers have developed in response to Sky City's challenges. Visit this Web site for the interactive feature:
<http://dsc.discovery.com/convergence/engineering/skycity/interactive/interactive.html>
4. Distribute the following questions (without answers) to each pair. Ask students to use what they learned in the video and the interactive feature to answer the questions. One student should answer the first set of questions and the partner should answer the second set of questions.

Designing and Building Sky City

- Describe the overall structure of Sky City. *(Three towers, each 3,300 feet high, are connected by a central control area; each tower has 14 open levels or plateaus.)*
- How would Sky City be constructed to support the tremendous weight? *(by using steel megacolumns)*
- What design elements will help Sky City withstand strong winds and typhoons? *(rounded shape, open cylindrical plateaus, counterweights, dampers)*
- What materials would be used in the construction of Sky City? *(specialized concrete, steel)*
- How would the materials for the enormous supports and building be fabricated? *(Materials will be created at on-site factories.)*
- How will the construction take place? *(Supertrusses, or canopies, allow the columns to be built from the ground up.)*
- How would the size of Sky City compare to other tall structures, such as the Eiffel Tower? *(It would be more than three times the height of the Eiffel Tower.)*
- How would Sky City's effect on the environment be different from other cities? *(It would free areas for greenery, reducing pollution and overall temperatures.)*

Living in Sky City

- Where would people live in Sky City? *(in apartments throughout the structure)*
- How many people would live there? *(35,000)*
- Will people be able to live there while the construction is going on? *(The supertrusses allow people to live on lower levels while construction takes place above them.)*
- What are some ways that people would get to Sky City? *(helicopters and airplanes that land on the central core connecting the towers)*

- How would they move up through Sky City? (*high-speed elevators*)
How would they move around each plateau? (*monorails*)
 - Where would people go for entertainment? (*central stadium*)
 - Describe the natural environments in Sky City. (*Each plateau would have a park with trees, grass, and a pond.*)
 - How is Sky City designed to handle a fire? (*Open construction would allow smoke to escape, and firefighters would use specially equipped helicopters.*)
5. When students have completed their research, give partners time to share what they learned with each other. Discuss the questions as a class, asking each pair to answer one or two of the questions above.
 6. Assign students a brief essay as a homework assignment. How long would they like to visit or live in a structure like Sky City? What would be exciting or convenient about this type of living? What would they miss about the way they live now?

Extensions

For the “Ancient Warriors” segment: Have students use print and online resources to learn more about the life, code, and responsibilities of the ancient samurai. (Begin with these sites: <http://www.samurai-archives.com/index.html> and <http://mcel.pacificu.edu/as/students/bushido/bindex.html>) Have them write a statement about whether they would have liked to be a samurai.

For the “Fire and Water” segment: As a class, discuss the festivals in Thailand featured in the program. What did the festivals celebrate? What were some symbols used in these celebrations? Talk about religious, national, and local festivals. What do these festivals celebrate? What are some unique symbols used in these celebrations and what do they represent?

For “A World of Its Own” segment: Divide the class into five groups and give each group an outline map of Australia. Have each group create a different map of Australia, showing the following

- The borders and locations of the four territories: Western Australia, Northern Territory, South Australia, Queensland, New South Wales, and Victoria
- The capital, Canberra, and other major cities, including Sydney, Melbourne, Brisbane, Perth, Adelaide, and Newcastle
- Locations of different ecosystems, including the rain forest, desert, and the Outback
- Locations of well-known geographic landmarks, including the Great Barrier Reef, Uluru (also known as Ayers Rock), Lake Eyre, Tasmania, the Great Dividing Range, and Mount Kosciuszko
- Bodies of water surrounding Australia, including Timor Sea, Great Australian Bight, Tasman Sea, Pacific Ocean, Gulf of Carpentaria, Bass Strait, Indian Ocean

Evaluation

Use the following three-point rubric to evaluate students’ work during this lesson.

3 points: Students were active in class discussion; showed a strong understanding of the challenges in designing and building Sky City; thoroughly answered the assigned questions; provided complete, detailed answers to the class; wrote a thoughtful essay with several details about living in Sky City.

2 points: Students participated in class discussions; showed satisfactory understanding of the challenges in designing and building Sky City; adequately answered the assigned questions; provided satisfactory answers to the class; wrote a complete essay with some details about living in Sky City.

1 point: Students participated minimally in class discussions; showed minimal understanding of the challenges in designing and building Sky City; gave incomplete answers to the assigned questions; did not provide answers to the class; wrote an incomplete essay with few or no details about living in Sky City.

Vocabulary

damper

Definition: A device that controls the excessive sway of a building

Context: Massive dampers would help diminish the sway of Sky City.

heliport

Definition: An airport for helicopters

Context: The central control area linking the main towers of Sky City could hold a heliport for people traveling to and from the city.

monorail

Definition: A transportation system in which cars travel on a single beam

Context: A monorail would spiral around each plateau of Sky City.

plateau

Definition: A hill or structure with a flat top

Context: Sky City would be made of 14 plateaus.

typhoon

Definition: A tropical storm with violent winds that occurs in the Pacific and Indian Oceans

Context: Sky City would be designed to withstand the strong winds of Pacific typhoons.

Academic Standards

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K–12. To view the standards, visit <http://books.nap.edu>.

This lesson plan addresses the following national standards:

- Science and Technology: Abilities of technological design
- Science in Personal and Social Perspectives: Science and technology in society

The National Council for Geographic Education (NCGE) provides 18 national geography standards that the geographically informed person knows and

understands. To view the standards online, go to www.ncge.org.

This lesson plan addresses the following NCGE standards:

- Environment and Society: How human actions modify the physical environment

Credit

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