Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

"Food for the Future: Sustainable Farms Around the World"

Lesson Plan Guide

by Mia Wenjen, illustrated by Robert Sae-Heng

Unit Overview

Duration: 2-3 weeks

Grade Level: 3-5

Subject Integration: Science, Social Studies, Geography, Environmental Studies, Math

Essential Question: How can we grow food sustainably around the world while protecting our environment and addressing climate change?

Learning Objectives

Students will be able to:

- Understand principles of sustainable agriculture and why they matter
- Identify diverse farming methods from around the world and their adaptations to local conditions
- Explain connections between agriculture, climate change, and environmental health
- Compare and contrast traditional farming wisdom with modern innovations
- Make connections between food consumption and agricultural practices
- Evaluate how different farming methods address sustainability challenges
- Express understanding through research, creative projects, and action plans

WEEK 1: Introduction to Sustainable Agriculture

Day 1: What is Sustainable Farming?

Objective: Build foundational understanding of sustainability in agriculture

Materials: Book introduction, sustainability definition materials, food origin discussion prompts

Opening (10 minutes)

- Quick-write: "Where does your food come from?"
- Partner share responses

Main Activity (30 minutes)

1. **Sustainability Exploration** (15 minutes)
    - Define "sustainable" in the context of farming
    - Discuss: What makes farming practices sustainable vs. unsustainable?
    - Introduce concept of farming for current needs without harming future generations

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

2. **Food System Overview** (15 minutes)
    - Create diagram showing farm to table journey
    - Discuss environmental impacts at different stages
    - Preview the book's global tour approach

Closing (5 minutes)

- Exit ticket: "What does sustainable farming mean?"
- Assign reading: Introduction and first few farming examples

Assessment: Sustainability concept understanding, food system awareness

Day 2: Ancient Agricultural Wisdom

Objective: Understand traditional farming methods and their sustainability

Materials: Traditional farming method examples, historical agriculture information

Opening (10 minutes)

- Think-pair-share: "What farming methods from the book have been used for centuries?"

Main Activity (30 minutes)

1. **Traditional Methods Analysis** (20 minutes)
    - Examine specific traditional practices (terracing, crop rotation, companion planting)
    - Discuss why these methods have survived for so long
    - Explore how indigenous knowledge contributes to sustainability
2. **Respect for Traditional Knowledge** (10 minutes)
    - Discuss importance of learning from traditional practices
    - Connect to cultural preservation and wisdom passing
    - Analyze why "old ways" aren't outdated but often sophisticated

Closing (5 minutes)

- Quick poll: "Which traditional method seems most clever to you?"

Homework: Read sections about modern agricultural innovations

Assessment: Traditional practice understanding, respect for indigenous knowledge

Day 3: Modern Innovations in Farming

Objective: Explore new technologies addressing climate change and sustainability

Materials: Innovation examples from book, technology comparison chart

Opening (5 minutes)

- Quick discussion: "What new farming innovations did you read about?"

Main Activity (35 minutes)

1. **Innovation Exploration** (25 minutes)

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

    - Examine specific innovations (vertical farms, hydroponics, aquaponics, underwater farms)
    - Discuss how each addresses specific challenges
    - Analyze benefits and potential limitations of each
2. **Old Meets New Discussion** (10 minutes)
    - Explore how modern innovations sometimes rediscover ancient principles
    - Discuss combination of traditional wisdom and new technology
    - Consider: What's the best of both approaches?

Closing (5 minutes)

- Exit ticket: "What innovation excites you most and why?"

Assessment: Innovation understanding, critical evaluation of methods

Days 4-5: Global Tour of Sustainable Farms

Objective: Explore diverse farming methods from different regions

Materials: World map, climate zone information, regional farming profiles

Structure for Each Day:

- **Opening** (10 min): Geography review and regional introduction
- **Main Activity** (25 min): Deep dive into 2-3 regional farming examples
- **Closing** (10 min): Comparison discussion and connections

Reading Assignments: Sections covering different global regions **Assessment**: Geographic understanding, regional adaptation recognition

WEEK 2: Deep Dives and Connections

Day 6: Urban Agriculture

Objective: Understand farming in city environments

Materials: Urban farming examples, local urban agriculture information

Opening (10 minutes)

- Brainstorm: "How can you grow food in a city?"

Main Activity (30 minutes)

1. **Urban Farming Exploration** (20 minutes)
    - Examine rooftop gardens, vertical farms, community gardens
    - Discuss benefits: local food, reduced transportation, community building
    - Analyze challenges: space limitations, soil access, costs
2. **Local Connections** (10 minutes)
    - Research urban farming in your area
    - Discuss how students might participate

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

- Plan possible field trip or virtual tour

Closing (5 minutes)

- Share one idea for urban farming you'd like to try

Assessment: Urban agriculture understanding, local application ideas

Day 7: Farms Under the Sea

Objective: Explore ocean-based sustainable farming

Materials: Ocean farming information, seaweed and kelp resources

Opening (5 minutes)

- Poll: "What do you think can be farmed in the ocean?"

Main Activity (35 minutes)

1. **Ocean Agriculture** (25 minutes)
    - Explore seaweed/kelp farming, aquaculture systems
    - Discuss benefits: doesn't use land, absorbs carbon, provides habitat
    - Analyze sustainability of ocean-based food production
2. **Innovation Discussion** (10 minutes)
    - Discuss why ocean farming is important for future
    - Explore how it addresses climate change
    - Consider expansion possibilities

Closing (5 minutes)

- Quick-write: "Would you eat food grown in the ocean? Why or why not?"

Assessment: Ocean farming understanding, environmental connections

Day 8: Climate Change and Agriculture

Objective: Understand connections between farming and climate change

Materials: Climate change impact information, adaptation strategy examples

Opening (10 minutes)

- Discuss: "How does climate change affect farming?"

Main Activity (30 minutes)

1. **Climate Impact Analysis** (20 minutes)
    - Examine specific climate challenges: drought, floods, temperature changes, pests
    - Explore how different farming methods address these challenges
    - Discuss agriculture's role both in causing and fighting climate change
2. **Solutions Focus** (10 minutes)
    - Identify farming practices that help reduce climate change
    - Discuss carbon sequestration in soil
    - Emphasize hope through innovation and adaptation

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

Closing (5 minutes)

- Exit ticket: "Name one way sustainable farming helps with climate change"

Assessment: Climate-agriculture connection understanding, solutions orientation

Day 9: Food Systems and Choices

Objective: Connect sustainable agriculture to personal food choices

Materials: Food label analysis materials, local food system information

Opening (10 minutes)

- Small group discussion: "How do our food choices affect farming?"

Main Activity (30 minutes)

1. **Food System Analysis** (20 minutes)
    - Trace specific foods from farm to table
    - Calculate environmental impacts (transportation, packaging, production)
    - Discuss how consumer choices affect farming practices
2. **Personal Action Planning** (10 minutes)
    - Identify ways students can support sustainable agriculture
    - Brainstorm: eating local, reducing waste, growing food, learning more
    - Create class list of accessible actions

Closing (5 minutes)

- Share one action you'll try

Assessment: Food system understanding, personal connection to choices

Day 10: Biodiversity and Ecosystems

Objective: Understand importance of biodiversity in sustainable farming

Materials: Biodiversity resources, ecosystem health information

Opening (5 minutes)

- Quick discussion: "Why is it important to grow many different crops?"

Main Activity (35 minutes)

1. **Biodiversity Exploration** (25 minutes)
    - Explain monoculture vs. diverse farming
    - Discuss role of pollinators, beneficial insects, soil organisms
    - Explore how biodiversity makes farms more resilient
2. **Ecosystem Services** (10 minutes)
    - Identify ways healthy ecosystems support farming
    - Discuss how sustainable farms protect ecosystems
    - Connect to broader environmental health

Closing (5 minutes)

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

- Exit ticket: "Why does biodiversity matter in farming?"

Assessment: Biodiversity understanding, ecosystem connections

WEEK 3: Research, Projects, and Action

Day 11: Research Project Introduction

Objective: Apply learning to in-depth research or creative projects

Materials: Project guidelines, research resources

Project Options:

1. **Farming Method Deep Dive**: Research one method from book in detail
2. **Local Farm Study**: Investigate sustainable farms in your area
3. **Design Your Own Farm**: Create plan for sustainable farm adapted to specific climate
4. **Food Journey Map**: Track and illustrate journey of specific food from farm to table
5. **Innovation Proposal**: Design new sustainable farming technology or method

Structure:

- **Opening** (10 min): Project explanation and selection
- **Work Time** (30 min): Research planning and initial work
- **Closing** (5 min): Project plan sharing

Assessment: Project plan quality, research focus

Days 12-13: Research and Project Development

Objective: Develop research and creative projects

Materials: Various research resources, art supplies, computers

Structure for Each Day:

- **Opening** (5 min): Progress review and goal-setting
- **Main Activity** (35 min): Independent work with teacher support
- **Closing** (5 min): Progress sharing and problem-solving

Assessment: Research depth, project development

Day 14: Project Presentations

Objective: Share research and celebrate learning

Materials: Presentation equipment, evaluation materials

Opening (5 minutes)**

- Presentation guidelines and audience expectations

Main Activity (35 minutes)**

- Student presentations (4-5 minutes each)
- Audience provides questions and feedback
- Celebrate diversity of projects and learning

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

Closing (5 minutes)**

- Reflection on what we learned from each other

Assessment: Presentation quality, knowledge demonstration

Day 15: Action Planning and Unit Synthesis

Objective: Connect learning to personal and community action

Materials: Action planning worksheets, community resource information

Opening (10 minutes)**

- Think-pair-share: "What's the most important thing you learned?"

Main Activity (30 minutes)**

1. **Unit Synthesis** (15 minutes)
    - Review major concepts and themes
    - Discuss how different farming methods address sustainability
    - Connect to broader environmental and social issues
2. **Personal and Class Action Planning** (15 minutes)
    - Students create personal action plans for supporting sustainable agriculture
    - Develop class project ideas (school garden, farmer's market visit, community partnership)
    - Plan next steps for continued learning

Closing (5 minutes)**

- Unit celebration: acknowledge learning and commitment to action
- Preview ongoing opportunities for engagement

Assessment: Synthesis quality, thoughtful action planning

Assessment Rubric

Content Knowledge (25%)

- **Exceeds**: Demonstrates sophisticated understanding of sustainable agriculture principles and practices
- **Meets**: Shows solid comprehension of key concepts
- **Approaching**: Basic understanding with support
- **Below**: Limited content knowledge

Geographic and Cultural Awareness (25%)

- **Exceeds**: Makes sophisticated connections between geography, culture, and farming practices
- **Meets**: Understands regional variations and adaptations
- **Approaching**: Basic geographic awareness

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

- **Below**: Minimal geographic understanding

Environmental Understanding (25%)

- **Exceeds**: Demonstrates nuanced understanding of agriculture-environment-climate connections
- **Meets**: Grasps basic environmental concepts
- **Approaching**: Simple environmental awareness
- **Below**: Limited environmental understanding

Application and Action (25%)

- **Exceeds**: Makes meaningful personal connections and develops thoughtful action plans
- **Meets**: Shows some application to personal life
- **Approaching**: Basic connection to self
- **Below**: Minimal personal application

Differentiation Strategies

For Advanced Learners:

- Independent research on complex agricultural systems
- Leadership in project presentations
- Mentoring roles in group work
- Extended analysis of environmental science concepts

For Students Needing Support:

- Graphic organizers for complex concepts
- Visual supports for geographic information
- Simplified research options
- Collaborative project opportunities

For English Language Learners:

- Visual supports and illustrations emphasis
- Key vocabulary pre-teaching
- Collaborative discussions
- Multiple ways to demonstrate understanding

For Hands-On Learners:

- Garden-based learning activities
- Building models of farming systems
- Cooking with sustainable ingredients
- Field trips and guest speakers

Materials List

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

- Class set of "Food for the Future"
- World maps and climate zone maps
- Research materials and computers
- Art supplies for projects
- Garden supplies (if applicable)
- Local sustainable farm information

Extension Activities

School Garden Project

- Start or expand school garden using sustainable practices
- Create composting system
- Plant pollinator garden
- Develop farm-to-cafeteria program

Community Connections

- Visit local sustainable farms
- Invite farmers as guest speakers
- Partner with community gardens
- Organize farmer's market field trip

Cross-Curricular Connections

Science:

- Plant biology and growth requirements
- Ecosystem science and food webs
- Climate science and weather patterns
- Soil science and composting

Math:

- Calculate food miles and carbon footprint
- Measure garden plots and plant spacing
- Graph growing data over time
- Budget for garden or farm projects

Social Studies:

- Study agricultural history across cultures
- Explore how geography affects food production
- Discuss food security and global hunger
- Examine local vs. global food systems

Email: bridget@paperdragonreads.com **Phone:** (407) 212-7759

Geography:

- Map global farming regions
- Study climate zones and their characteristics
- Explore how terrain affects farming
- Analyze water systems and irrigation

Real-World Applications

Personal Action:

- Growing food at home or school
- Making sustainable food choices
- Reducing food waste
- Supporting local farmers

Community Engagement:

- Participating in community gardens
- Volunteering at farms or gardens
- Advocating for sustainable practices
- Educating others about sustainable agriculture

Career Exploration:

- Agricultural scientist
- Farmer or urban farmer
- Environmental engineer
- Food systems planner
- Agricultural educator