Teacher Preparation Lesson Plan

Subject Area: Science
Unit Title: The Science of Gardening
Grade Level: 5th Grade
Lesson Number: 1 of 10

Duration: 2 hours
Date: March 1, 2023
Teacher: Ms. Johnson
Room: 101

Curriculum Standards Alignment

Content Standards:

- 5.LS1.A: Structure and Function
- 5.LS2.A: Ecosystems: Interactions, Energy, and Dynamics

Skills Standards:

- Scientific and Engineering Practices
- Cross-Cutting Concepts

Cross-Curricular Links:

- Math: Measurement and Data
- English Language Arts: Reading and Writing

Essential Questions & Big Ideas

Essential Questions:

- What are the basic needs of plants?
- How do plants adapt to their environment?

Enduring Understandings:

- Plants have basic needs that must be met in order to survive.
- Plants adapt to their environment in order to survive and thrive.

Student Context Analysis

Class Profile:

- Total Students: 25
- ELL Students: 5
- IEP/504 Plans: 3
- Gifted: 2

Learning Styles Distribution:

- Visual: 40%
- Auditory: 30%
- Kinesthetic: 30%

PLANIT TEACHERS

Teacher Preparation Lesson Plan

Pre-Lesson Preparation

Room Setup:

- Arrange desks in a U-shape
- Set up plant stations with materials

Technology Needs:

- Computer with internet access
- Projector and screen

Materials Preparation:

- Plants and planting materials
- Whiteboard and markers

Safety Considerations:

- Ensure students wash hands before handling plants
- Use gloves when handling sharp objects

Detailed Lesson Flow

Pre-Class Setup (15 mins before)

- Set up room and materials
- Prepare technology

Bell Work / Entry Task (5-7 mins)

- Have students complete a plant-related worksheet
- Review homework and answer questions

Opening/Hook (10 mins)

- Show a video on plant growth
- Ask students to share their experiences with plants

> **Engagement Strategies:**
>
> - Think-pair-share
> - Gallery walk

Direct Instruction (20-25 mins)

- Present information on plant parts and functions
- Use visual aids and diagrams

> **Checking for Understanding:**
>
> - Formative assessments
> - Exit tickets

Guided Practice (25-30 mins)

- Have students work in pairs to label plant parts
- Circulate and provide feedback

> **Scaffolding Strategies:**
>
> - Provide sentence stems
> - Offer one-on-one support

Independent Practice (20-25 mins)

- Have students complete a plant-related project
- Allow students to work independently

Closure (10 mins)

- Review key concepts
- Ask students to reflect on their learning

Differentiation & Support Strategies

For Struggling Learners:

- Provide extra support and scaffolding
- Offer one-on-one instruction

For Advanced Learners:

- Provide additional challenges and extensions
- Encourage independent research

ELL Support Strategies:

- Provide visual aids and diagrams
- Offer bilingual resources

Social-Emotional Learning Integration:

- Encourage self-awareness and self-regulation
- Foster a growth mindset

Assessment & Feedback Plan

Formative Assessment Strategies:

- Quizzes and tests
- Class discussions and participation

Success Criteria:

- Students can identify and describe plant parts and functions
- Students can explain the importance of plants in the ecosystem

Feedback Methods:

- Verbal feedback
- Written feedback

Homework & Extension Activities

Homework Assignment:

Have students research and write about a type of plant

Extension Activities:

- Have students create a plant-related project
- Encourage students to participate in a school garden

Parent/Guardian Connection:

Send a newsletter to parents with updates and resources

Teacher Reflection Space

Pre-Lesson Reflection:

- What challenges do I anticipate?
- Which students might need extra support?
- What backup plans should I have ready?

Post-Lesson Reflection:

- What went well?
- What would I change?
- Next steps for instruction?

Introduction to Gardening

Introduction:

Gardening is the practice of growing and maintaining plants, including flowers, herbs, and vegetables.

Importance of Gardening:

- Provides food and oxygen
- Supports biodiversity
- Promotes physical and mental health

Basic Needs of Plants

Water:

Plants need water to carry out photosynthesis and transport nutrients.

Light:

Plants need light to carry out photosynthesis and grow.

Air:

Plants need air to carry out photosynthesis and grow.

Soil:

Plants need soil to anchor their roots and absorb nutrients.

Plant Parts and Functions

Roots:

Anchor the plant and absorb water and nutrients.

Stems:

Support the plant and transport water and nutrients.

Leaves:

Carry out photosynthesis and produce energy for the plant.

Flowers:

Produce seeds and fruits.

Fruits:

Contain seeds and provide nutrition for animals and humans.

Photosynthesis

Definition:

Photosynthesis is the process by which plants convert light energy into chemical energy.

Importance:

- Provides energy for the plant
- Produces oxygen

Plant Care and Maintenance

Watering:

Plants need regular watering to survive.

Lighting:

Plants need adequate light to carry out photosynthesis.

Fertilization:

Plants need fertilizers to provide essential nutrients.

Pruning:

Plants need pruning to maintain shape and promote healthy growth.

Common Plant Problems

Pests:

Common pests include aphids, whiteflies, and spider mites.

Diseases:

Common diseases include fungal infections and bacterial infections.

Environmental Factors:

Common environmental factors include temperature, humidity, and light.

Conclusion

Summary:

In this unit, students learned about the basics of gardening, including plant parts and functions, photosynthesis, and plant care and maintenance.

Assessment:

- Quizzes and tests
- Class discussions and participation
- Projects and presentations

Assessment Rubric

Criteria:

- Knowledge of plant parts and functions
- Understanding of photosynthesis
- Ability to care for and maintain plants

Levels of Achievement:

- Novice
- Developing
- Proficient
- Advanced

Appendix

Resources:

- Textbooks and online resources
- Plant and gardening materials

Glossary:

- Photosynthesis: the process by which plants convert light energy into chemical energy
- Transpiration: the process by which plants release water vapor into the air

References

Textbooks:

- "Biology" by Campbell and Reece
- "The Plant Book" by Mabberley

Online Resources:

- National Geographic
- Smithsonian Institution

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