

Problem-Solving Method in Life Science Teaching

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The **Problem-Solving Method** is a learner-centred approach in which students learn by identifying a problem, collecting information, proposing solutions, testing them, and arriving at a conclusion. It trains students to think scientifically, reason logically, and apply biological concepts to real-life situations.

This method is especially valuable in Life Science because many biological issues—such as disease control, environmental changes, nutrition, and heredity—require inquiry, analysis, and decision-making.

Meaning

The Problem-Solving Method is a systematic approach to learning where:

- A real or hypothetical problem is presented.
- Students investigate the problem scientifically.
- They apply knowledge and reasoning to find solutions.
- Learning occurs through exploration, analysis, and conclusion.

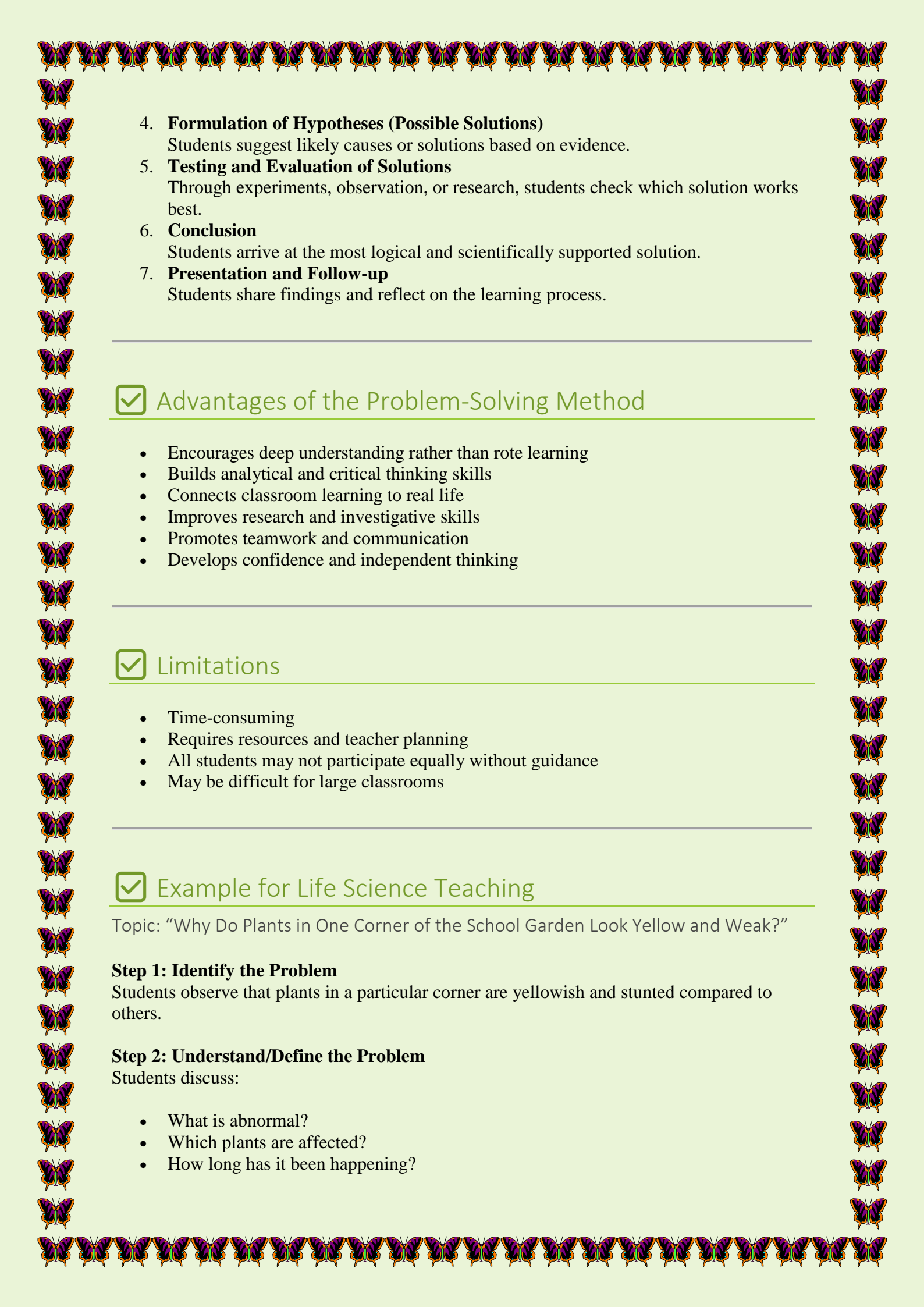
Here, the **teacher acts as a guide or facilitator** rather than a lecturer.

Objectives of the Method

- Develop scientific thinking and reasoning
 - Encourage inquiry and curiosity
 - Apply life science concepts to real-life situations
 - Enhance observation, data analysis, and decision-making skills
 - Promote teamwork and communication
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Steps in the Problem-Solving Method

1. **Identification of the Problem**
A relevant, challenging life science problem is presented.
2. **Understanding and Defining the Problem**
Students discuss what the problem is and why it matters.
3. **Collection of Data/Information**
Students gather facts through books, digital resources, surveys, or experiments.

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4. **Formulation of Hypotheses (Possible Solutions)**
Students suggest likely causes or solutions based on evidence.
 5. **Testing and Evaluation of Solutions**
Through experiments, observation, or research, students check which solution works best.
 6. **Conclusion**
Students arrive at the most logical and scientifically supported solution.
 7. **Presentation and Follow-up**
Students share findings and reflect on the learning process.
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Advantages of the Problem-Solving Method

- Encourages deep understanding rather than rote learning
 - Builds analytical and critical thinking skills
 - Connects classroom learning to real life
 - Improves research and investigative skills
 - Promotes teamwork and communication
 - Develops confidence and independent thinking
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Limitations

- Time-consuming
 - Requires resources and teacher planning
 - All students may not participate equally without guidance
 - May be difficult for large classrooms
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Example for Life Science Teaching

Topic: “Why Do Plants in One Corner of the School Garden Look Yellow and Weak?”

Step 1: Identify the Problem

Students observe that plants in a particular corner are yellowish and stunted compared to others.

Step 2: Understand/Define the Problem

Students discuss:

- What is abnormal?
- Which plants are affected?
- How long has it been happening?



They define the problem: **Poor growth and yellowing (chlorosis).**

Step 3: Collect Information

Students gather data through:

- Observation (sunlight, soil condition, water supply)
- Soil pH or moisture test
- Talking to the gardener
- Referring to books/web resources

Step 4: Formulate Hypotheses

Possible reasons:

1. Lack of sunlight
2. Poor soil nutrients (nitrogen deficiency)
3. Overwatering or waterlogging
4. Pest or disease attack

Step 5: Test the Hypotheses

- Compare sunlight exposure with other areas.
- Conduct simple soil tests or add fertiliser to a sample plot.
- Check soil drainage.
- Examine leaves for pests.

Findings:

The area is poorly drained and waterlogged, causing nutrient deficiency.

Step 6: Conclusion

The poor growth is due to **waterlogging leading to nitrogen deficiency**, which affects chlorophyll formation.

Solution Suggested:

- Improve drainage
- Loosen soil
- Add compost or nitrogen-rich fertiliser

Step 7: Presentation

Students prepare a short report or chart on:

- Problem
- Investigation
- Findings
- Solution

Learning Outcome:

Students understand plant nutrient requirements, chlorosis, soil condition, and the scientific reasoning process—not by memorising, but by solving a real-life biological problem.





Conclusion

The Problem-Solving Method is highly effective in Life Science teaching because it:

- Promotes inquiry and scientific thinking
- Makes learning meaningful and practical
- Helps students become active investigators rather than passive listeners

It prepares learners for real-world biological challenges and nurtures future scientific thinkers.