

TITLE | USING THE LEARNING CYCLE TO WRITE OUTDOOR SCIENCE LESSONS

CATEGORY | Program

SUB-CATEGORY | Lesson Planning Resources

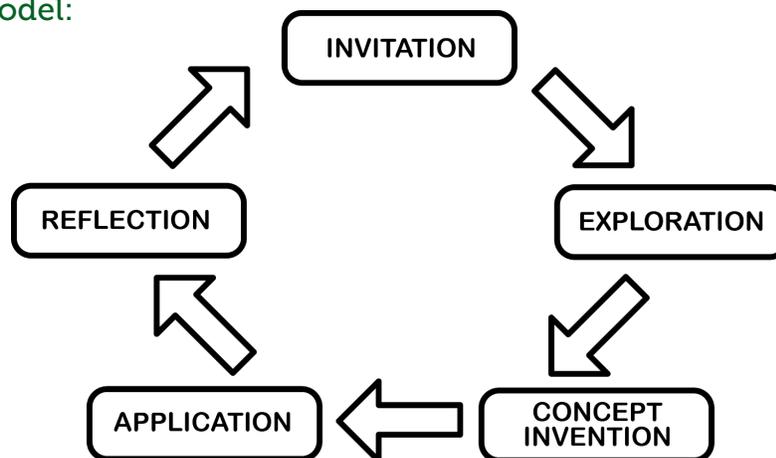
OVERVIEW | This document briefly outlines some of the main steps to write an outdoor science lesson plan based on the Learning Cycle.

.....

Introduction:

The Learning Cycle follows five steps that support inquiry and discovery-based learning, as shown below¹. Many of the lessons in the *Education Outside Curriculum* are written based on this Learning Cycle, and Education Outside encouraged garden educators to use this model when writing lessons of their own. The outline below provides a brief step-by-step guide for developing a Learning Cycle framework for a lesson. Additional information on the Learning Cycle from the BEETLES Project at the Lawrence Hall of Science is available in the reference below¹.

The Learning Cycle Model:



1. Start by asking yourself: **What is inherently interesting about this topic?** What might students be excited to take away?

- For example: *Why do flowers smell good? Why do plants make flowers? Why do flowers have petals? Why do bees visit flowers? Why are there so many colors?*

2. **Relate one of these questions to an NGSS cross-cutting concept** (structure and function, cause and effect, patterns) when writing your objective.

- Keep it simple. Use language that students will understand and define key terms

- For example: *Students will understand the structure (parts) and function (what the parts do) of flowers.*

.....

3. **Write your guiding or essential question.** What questions do you want students to be asking? How will you get students to be curious about the objective? **Use this as a brainstorming method for creating an invitation and exploration.**

- For example: *What structures (parts) of the flower help plants make seeds? OR What patterns in structure (parts) can we see between different kinds of flowers?*

4. **Write your concept invention: How can I explain the concept in an engaging way?**

- Incorporate different learning modalities: visuals, chants, songs, skits, games, books, stories, etc.

- Cater to your audience. What language is developmentally appropriate?

- Include what's relevant and interesting. Don't get too bogged down in complexities or unnecessary vocabulary.

- For Example: *Read a book, make a chart with flower parts/similarities, or perform a skit.*

5. **Think about how students will apply the knowledge.** How can students apply their new knowledge in an activity that reinforces what they've learned?

- Applications can be short and should check for understanding.

- For Example: *Have students complete a worksheet, build a model, explain to a friend, etc.*

6. **Create a short reflection.** What are the takeaways I want students to remember? How can I deepen their understanding or curiosity?

- Ask students to recall what they've just learned or ask new questions that deepen their knowledge.

- For Example: *Why do plants have flowers? What would happen if flowers didn't have petals? Could a plant make seeds without being visited by a pollinator?*

References:

1. Lawrence Hall of Science, BEETLES Project (2015). The Learning Cycle Explain. [PDF file]. Retrieved from <http://beetlesproject.org/resources/for-program-leaders/teaching-and-learning/the-learning-cycle-explained-3/> on June 4th, 2019.