Learning Cycle Lesson Plan Format

Lesson Title:

Contributor Name and School:

Abstract: *(include grade level, concept addressed and recommended time needed for lesson)*

Standards addressed in this lesson
National:
State (Science Content - B, C, D):
State (Inquiry & Process, Technology, Culture, History and Nature of Science – A, E, F, G):
ASD Science Frameworks:

Materials Needed: **New Vocabulary:**

Gear Up: *(Include activities and assessments as applicable)*

Activity	Materials
Timeline:	

Exploration: *(Include activities and assessments as applicable)*

Activity	Materials
Timeline:	

Concept Introduction: *(Include questioning strategies as applicable)*

Activity	Materials
Timeline:	

Concept Application: *(Include activities and assessments as applicable)*

Activity	Materials
Timeline:	

Additional Information for teachers: *(Extensions, differentiation, interdisciplinary suggestions)*

Learning Cycle Model

Gear-Up

Elicit students' preconceptions and mentally engage and motivate students via questions, discrepant events, challenges, etc.

Teacher Behaviors

- Present a stimulating experience that will engage the students' interests and helps them to refocus on this instructional moment
- Assess and document students' preconceptions ("taps into" what the students know or think they know about the topic)
- Affirm students' current understandings
- Provide for transition into explorations

Student Behaviors

- Engage in activities
- Verbalize or show evidence of preconceptions
- Accept others preconceptions as valid

Examples

- Discrepant Events
- Concept Maps (webbing)
- Puzzles
- Current Events
- Mysteries
- Poems, Readings, Movies
- Environmental Issues
- Invention/Design Challenges
- "What We Know / What We Want To Learn" charts
- Riddles
- Journals

Exploration Phase

Engaging hands-on activities that provide an opportunity for student discovery

Teacher Behaviors

- Provide activities that start with students' current levels of understanding (may involve multiple starting points for a wide range of students)
- Act as a facilitator in a variety of activities that target skills and concept(s)
- Observe and listen to students as they interact.
- Encourage varied observations and conjectures
- Ask inquiry-oriented questions
- Provide time for students to think and to reflect
- Encourage cooperative learning
- Document successes for authentic assessment

Student Behaviors

- Ask clarifying questions
- Use a variety of methods to interact with the subject
- Work cooperatively with peers and gains insights from their activities.
- Make careful observations, recordings, measurements, and classifications.
- Identify and seek to expand personal understanding of the concept or phenomena.
- Share conjectures and suspend judgment while discussing tentative alternatives

Examples

- Materials-based, open-ended manipulations
- Guided discoveries
- Simulations; creative drama
- I-Search or other library research
- Journaling
- Concept mapping
- Sketching
- Experimentation

Concept Introduction Phase

Students internalize and communicate their new discoveries and identify underlying principles.

Teacher Behaviors

- Use questions to encourage students to explain their observations and findings in their own words
- Provide definitions, new words, and explanations after students develop a need for the technical terms and definitions
- Listen and encourage students to discuss ideas among themselves
- Ask for clarification and justification
- Help students compare their new understandings to their original preconceptions
- Document new understandings of concepts (conceptual growth)
- Determine if additional time should be spent exploring
- Assist students in refining their testable questions if/when moving into the experiment phase

Student Behaviors

- Interact in a positive, supportive manner
- Describe their observations and discoveries
- Listen and question other students' ideas
- Distinguish between observations and inferences
- Identify other questions that arose during the explorations
- Note-taking and note-making

Examples

- Revisit concept maps
- Use convergent questions to help students verbalize their newly-discovered concepts
- Make "What We Found Out" charts
- Identify testable questions
- Lectures
- Round table/Small group instructions

Concept Application Phase

Students apply the newly learned concept through activities designed to help the students to recognize the universal nature of the concept and its real-life applications

Teacher Behaviors

- Provide opportunities for students to apply new concepts and skills and to extend them to other contexts
- Provide opportunities for students to use new terms and definitions
- Document students ability to use concept outside of original context; determine if additional explorations and generalizing sessions are needed

Student Behaviors

- Use previous information to probe, to ask questions and to make reasonable judgments
- Connect concepts to new applications
- Apply new knowledge in a manner that will benefit society

Examples

- Inventions
- Apply concept in new context
- Write a story that includes/illustrates the concept
- Role-play/Dramatize the concept
- Relate experimental results to the concept
- Community projects
- Home applications
- Public presentations
- Experimentation