



Lion Taming 101: Reaching and Teaching Young Adolescents

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The Learning Cycle

Debbie Silver, Ed.D.

Why Use the Learning Cycle?

- **Students learn through concrete experiences**
- **All students are given common experience from which concepts are developed.**
- **Students develop thinking skills**
- **Students generalize their learning to new situations**
- **Students share responsibility for learning**

There are several variations of the Learning Cycle, but most use a three-phase approach to teaching the lesson objectives. The purpose of the Learning Cycle is to develop learning situations that provide students with concrete experiences prior to the introduction of vocabulary or concepts. After students have been guided to construct the intended concepts, they apply their new knowledge in new situations. This allows them to generalize their learning and reinforces the newly developed mental structures.

A detailed explanation of each phase as well as a lesson plan based on the Learning Cycle follows.

Exploration Phase

In the Exploration Phase students are presented with a problem that requires them to use process skills to gather and organize data. During this motivational phase students are encouraged to manipulate materials and explore ideas without specific outcomes designated by the teacher. The teacher closely monitors group activities and guides students through the use of open-ended questions addressed to individuals and groups. The exploration phase provides common experiences from which all students can draw during the more directed phases that follow.

The Teacher's Role

During this phase the teacher sets up experiences that will motivate the learners. She facilitates interaction between the learner and the lesson materials. She facilitates by questioning, clarifying procedures, and monitoring interactions. Questioning should be done using the open-ended format so that students are provided the opportunity to explore the concept and come up with their own answers.

The Students' Role

The students pursue activity questions utilizing process skills to gather and organize data. Students compare their answers with those of others.

The Classroom Arrangement

Usually exploration activities are best conducted by students in small groups (using cooperative learning). Motivational open-ended questions to the large group may precede small group activities.

Exploration Phase

The Teacher:

- Motivates the learners
- Facilitates with open-ended
- Clarifies procedures
- Monitors behavior

The Students:

- Develop interest
- Develop common experiences questions
- Gather and organize data
- Begin to explain concepts in their own words

Concept Development Phase

The Concept Development Phase of the cycle focuses on patterns that students find in the data they have collected and in the observations they have made. Students are guided to create explanations, classifications, or hypotheses. Based on the experiences of the students during the Exploration stage, teachers provide appropriate terminology and vocabulary as they give information and guide whole class discussions. Although teachers traditionally use "mini-lectures" in explaining concepts, materials such as textbooks, supplemental readings, audio-visual aids, and other resources can be used to clarify ideas.

Students are more likely to listen to and retain concepts presented in the Concept Development Phase because it follows the Exploration Phase where they have discovered its relevance. Students can communicate more easily with one another and with the teacher during the Concept Development Phase because of their shared experiences in the Exploration Phase.

The Teacher's Role

During this phase the teacher provides direct instruction for clarifying ideas and concepts to explain student experiences. She helps the students develop appropriate vocabulary and poses questions to clarify understanding.

The Students' Role

The students describe and compare their observations from data collected in the Exploration Phase. They begin to look for patterns that emerge. They present and share interpretations while drawing conclusions. They construct scientific concepts based on their experiences and the new information provided through lecture, discussion, reading, or other methods. They should begin using appropriate terminology and vocabulary related to the scientific principles involved.

The Classroom Arrangement

Whole class instruction can be used to introduce vocabulary, clarify concepts, and provide explanations. Instruction can vary from "mini-lecture" to videos, textbooks, or other instructional materials.

Concept Development Phase

The Teacher:

- Provides information
- Develops the concepts
- Clarifies the explanations
- Directs whole group discussions

The Students:

- Look for emerging patterns in collected data
- Share interpretations of experiences with other students
- Construct scientific concepts
- Begin to use appropriate terminology

Concept Application Phase

The Concept Application Phase extends the discoveries made by the students in the Exploration Phase and the knowledge obtained in the Concept Development Phase by requiring students to explore in more depth through additional experimentation and/or discussion. They are encouraged to apply the concepts they have learned to "real world" situations. This phase serves as a connection between broad scientific constructs and students' daily lives. The Concept Application Phase can also introduce a new, related topic that can become the Exploration Phase of the next lesson.

The Teacher's Role

During this phase the teacher poses new situations or problems that can be solved using concepts developed during the previous phases. She provides indirect instruction by posing divergent questions. The teacher acts as observer and facilitator rather than as "impartor of knowledge." She monitors students closely as they are actively engaged in the learning process.

The Students' Role

Students interact with one another as they compare ideas and explanations. They are involved in active learning as they use their newly acquired skills and understandings to construct deeper meanings and broader applications of their discoveries. They apply their new knowledge to new, preferably "real life," situations.

The Classroom Arrangement

Cooperative learning in small groups enables students to share ideas and remain actively engaged in the learning process. Close teacher monitoring is essential to ensure student participation and understanding.

Concept Application

The Teacher:

- Poses new situations and divergent questions for newly learned concepts
- Closely observes and monitors student interactions

The Students:

- Apply newly learned concepts to new situations
- Become involved in deeper meanings and extended implications of concepts

Discussion

Our observations have shown that using the Learning Cycle's "discovery approach" is a very effective way to teach. It provides preliminary concrete experiences that give all learners a more even starting point from which to construct the science concepts. Vocabulary and concepts are linked to common prior experience. Students are encouraged to become active rather than passive learners.

It should be noted that the model is cyclical. At any point students can move from one phase to another. Often they will move from one phase to another several times during the lesson. Exploration will lead to concept development that will require concept application which may lead to another exploration, and so on.

At all times during the learning cycle evaluation and discussion are integral parts of the process. Evaluation by the teacher as well as by the students is ongoing.

The Learning Cycle can be incorporated into most teaching situations with very little modification of classroom arrangement. It does not require extensive changes in traditional teaching materials. It primarily involves a re-ordering of the traditional elements of a lesson. Teachers become facilitators of learning rather than "tellers of facts." Students are encouraged to find their own answers within their own experiences so that the knowledge they acquire becomes meaningful to their lives. Students think about what they are learning and learn about how to think.

Teachers of all grade levels and all subjects can use the Learning Cycle to provide meaningful, positive learning experiences for their students.



ESSENTIAL EIGHT

Name- _____

The purpose of this “get acquainted” activity is to start thinking about the different areas of intelligence. Participants are to mix freely and try to get seven different people to sign the blanks (each participant may sign her/his own sheet once). In order to record a name in the blank, the person signing must actually perform the task (not just say that she/he can do it).

Find Someone Who Can:

_____ recite a poem from memory.

_____ finish this numerical sequence: 16, 2, 14, 4, 12, 6, 10 _____, and explain the logic behind it.

_____ within 30 seconds name 4 ways to sort rocks into categories.

_____ recall at least one dream from the last 3 weeks.

_____ with hands on head stand on one foot with eyes closed for at least 8 seconds.

_____ hum the first line of *Silent Night* on key.

_____ name 6 strengths or talents he/she has in less than 30 seconds.

_____ name five very close friends in less than 20 seconds.

Checklists for Assessing “How Students Are Smart”

Adapted by Debbie Silver

from *Multiple Intelligences in the Classroom* by Thomas Armstrong

Name of Student- _____

Check all the items that apply:

Linguistic Intelligence (Word Smart)

- 1. Is a good reader.
- 2. Enjoys word games.
- 3. Is a good joke teller/ storyteller.
- 4. Has a good vocabulary for age.
- 5. Enjoys listening activities.
- 6. Likes to write stories and/or poems
- 7. Communicates with others in a highly verbal way.
- 8. Appreciates rhymes, puns, and/or nonsense words.
- 9. Has a good memory for words, stories, details.

Other linguistic strengths:

Logical-Mathematical Intelligence (Number Smart)

- 1. Asks a lot of questions about how things work.
- 2. Has a good sense of cause and effect.
- 3. Finds math games interesting.
- 4. Can see and repeat patterns easily.
- 5. Enjoys working puzzles and brain teasers.
- 6. Understands computer programming.
- 7. Is a logical thinker.
- 8. Can estimate things involving numbers with relative ease.
- 9. Can work math concepts in head.

Other logical-mathematical strengths:

Visual-Spatial Intelligence (Picture Smart)

- 1. Reports clear, visual images (or dreams).
- 2. Can envision objects from more than one perspective.
- 3. Daydreams more than peers.
- 4. Likes to draw and/or create art projects.
- 5. Has a good eye for detail and color.
- 6. Is good at spatial games like chess and Tetris.
- 7. Likes movies, slides, or other visual presentations.
- 8. Can move between 2-dimensional and 3 dimensional representations with ease.
- 9. Can read and/or create maps.

Other visual-spatial strengths:

Bodily-Kinesthetic Intelligence (Body Smart)

- 1. Is very coordinated.
- 2. Exceptionally mobile: moves, twitches, fidgets, taps when seated for long.
- 3. Enjoys working with clay, fingerpaint, and other tactile media.
- 4. Can mimic others' gestures, posture, and movements
- 5. Must touch anything new or interesting.
- 6. Loves to take things apart and put them back together.
- 7. Uses dramatic body movements for self-expression.
- 8. Enjoys running, hopping, climbing, wrestling, or similar activities.
- 9. Exhibits fine motor control (crafts, painting, etc.).

Other bodily-kinesthetic strengths:

Musical Intelligence (Music Smart)

- 1. Can detect music that is off-key, off-beat, or disturbing in some way.
- 2. Remembers melodies of songs.
- 3. Taps rhythmically as he/she works or plays.
- 4. Sensitive to environmental noise (rain on the windows, etc.).
- 5. Plays a musical instrument and/or sings in a choir.
- 6. Has a good singing voice.
- 7. Responds favorably when music is played.
- 8. Sings songs that he/she has learned.
- 9. Unconsciously hums much of the time.

Other musical strengths:

Interpersonal Communications Intelligence (People Smart)

- 1. Establishes meaningful peer relationships.
- 2. Seems to be a natural leader.
- 3. Empathizes with others.
- 4. Likes to play with others.
- 5. Shows good teamwork skills.
- 6. Others seek this student's company.
- 7. Has two or more close friends.
- 8. Frequently acts as a mediator and/or peace maker.
- 9. Enjoys teaching others.

Other interpersonal communication strengths:

Intra-personal Awareness Intelligence (Self Smart)

- 1. Displays a sense of strong will.
- 2. Enjoys playing or working alone.
- 3. Has high self-esteem.
- 4. Has a good sense of self-direction.
- 5. Does not mind being different from others.
- 6. Has a realistic view of his/her strengths and weaknesses.
- 7. Is able to deal effectively with successes and failures.
- 8. Has an interest or talent that is not readily shared with others.
- 9. Seems to “march to the beat of a different drummer.”

Other intra-personal awareness strengths

Naturalistic Intelligence (Nature Smart)

- 1. Likes to identify and classify living and nonliving things in nature.
- 2. Cares for pets or animals.
- 3. Understands repeating patterns in nature and the universe.
- 4. Seems more “in tune with nature” than peers.
- 5. Would rather be outside than inside.
- 6. Has a demonstrated appreciation for a part of the natural world (i.e. dinosaurs, clouds, rocks, etc.)
- 7. Likes to garden and/or appreciates plants.
- 8. Understands and appreciates the environment.
- 9. Loves to collect things from nature.

Other naturalistic strengths

Logical Analytical/Linguistic

Science Fact Sense

_____ = Number of _____

Example: 93 = Number of M M from the E to the S
93 = Number of Million Miles from the Earth to the Sun

- a. 4 = Number of S in a Y
- b. 7 = Number of C in the R
- c. 206 = Number of B in the AS
- d. 8 = N of L on a S
- e. 3 = Number of B P on an I
- f. 4 = Number of C in the H H
- g. 3 = Number of A in a WM
- h. 9 = Number of P in S S
- j. 6 = Number of S on a S

Make up your own:

Topic: _____

Cartesian Diver

Introduction:

The Cartesian Diver was made popular in the 1800's by the philosopher Rene Descartes. It is commonly found in science classrooms or perhaps you have seen the *Diving Tony* toy distributed in boxes of Frosted Flakes. The Cartesian diver offers an eloquent demonstration of the most unique property of a gas, its compressibility.

Materials:

- One 2-liter plastic bottle with cap
- One glass eyedropper

Procedure:

- 1) Fill the bottle with water.
- 2) Fill a glass with water.
- 3) Draw water into the dropper until it is 2/3 full.
- 4) Place the dropper into the glass of water. If it sinks, adjust the water level until the dropper floats.
- 5) Place the dropper into the 2-liter bottle and screw the cap tightly in place.

Activity:

Hold the bottle in one hand and squeeze. What do you observe? Release the pressure with your hand and observe again.

Questions:

Why does the dropper sink when you apply pressure to the bottle?

As you squeeze the bottle the pressure inside increases. Liquids are not compressible but gases are. Therefore, the air in the dropper compresses and allows more water to flow into the dropper. This increases the weight of the dropper. As the weight increases, the density increases until it becomes greater than the density of water. Objects that have a density greater than water will sink.

Why are gases compressible and liquids not?

In gases the molecules are very far apart compared to their size. In other words, gases are mostly empty space. When put under increased pressure, the gas molecules can move closer together and the gas will occupy less volume.

On the other hands, in liquids the molecules are already crowded very close together. Since there is no empty space between the molecules, an increase in pressure cannot cause a decrease in volume.

Remote Control Cartesian Diver

By Dr. Bill Deese, Louisiana Tech University

You can amaze your students by operating your Cartesian Diver by "remote control." Start with the standard Cartesian Diver set-up. Drill a hole in the bottle top just large enough to accommodate a piece of aquarium tubing. Use another bottle (any size, but smaller is usually more convenient). Drill a hole in its cap also large enough to accommodate the aquarium tubing. Fill the second bottle with water and insert a piece of aquarium tubing 3 or more feet long inside each bottle.

By squeezing the small bottle, you will increase the pressure in it. The increased pressure in the small bottle will result in an identical increase in pressure in the large bottle, thus sending the Cartesian Diver to the bottom of the large bottle by a "remote control" device.

Some sneaky teachers we know even hide the "remote control" so that they can seemingly command the Cartesian Diver to dive by voice control alone. We highly recommend this procedure! It really causes the students to think about what is happening.

This activity demonstrates the principle that pressure is the same throughout a fluid.

BARFS/NOT BARFS

These Are Barfs:

These Are NOT Barfs:



Which of These Are Barfs?



These Are Barfs

**These Are Not
Barfs**

Rhode Island

Texas

Maryland

Maine

Massachusetts

California

New York

Nebraska

Which of These Are Barfs?

Virginia

South Dakota

Wyoming

Montana

South Carolina

Georgia

Mississippi

Pennsylvania

New Jersey

Delaware

These Are Barfs:

**These Are NOT
Barfs:**

Speedily

Spacious

Gracefully

Grapefruit

Twice

Quest

Finally

Comply

Which of These Are Barfs?

Scholarly

Quickly

To

Fly

Under

Quite

Matter

Often

Skateboard

Really

Critical Thinking and the Magic Tube

By William Deese
Louisiana Tech University

Description: A large cylinder with cords protruding from four holes is shown to the audience. When each cord is pulled, sometimes surprising results are obtained. The audience is challenged to explain how the magic tube is constructed.

Materials: 2-foot section of 2-inch PVC pipe
(2) 2-inch caps for the PVC pipe
7-foot section of 1/4-inch cord
(1) 1-inch metal ring

Construction:

- 1) Drill a 1/4 inch hole in the tube 3 inches from one end. Rotate the tube 180 degrees and drill another hole exactly opposite to the first one.
- 2) Drill two holes at the other end in analogous positions.
- 3) Cut the cord into 4-foot and 3-foot lengths.
- 4) Thread the 4-foot cord through a hole, through the metal ring, and out the hole on the opposite side.
- 5) Tie knots near each end of the cord.
- 6) Position the ring in line with the holes at the other end of the tube and thread the 3-foot cord through both holes and the ring.
- 7) Tie knots about 3 inches from each end of the second cord.
- 8) Pull one end of the long cord out and cut about 12 inches off. Tie knots about 3 inches from each end.

Procedure:

- 1) Display the magic tube to your audience and pull one of the Cords. Then pull the end exactly opposite the first one you pulled.
- 2) Now pull one of the cords at the other end and observe.
- 3) Continue to pull various ends of the cords while your audience tries to figure out how the magic tube works.
- 4) If your audience is a class, ask them to design their own tubes. There may be more than one design that works.

Hazards: Be careful when drilling the holes in the PVC pipe.

Reference: A hand-out by Bruce Hogue, Dustan Middle School

Ways to Manage Your Differentiated Classroom (from Betty Hollas, 2005)

- **Build relationships with students.**
- **Open pathways for students to construct meaning from the content you teach.**
- **Structure students' interactions with one another.**
- **Encourage students to interact with the information they are learning in ways that challenge, engage, and actively involve them.**



Diffierentiating Instruction

CONTENT:

- 1. Use reading materials at varying readability levels.**
- 2. Put text materials on tape.**
- 3. Use spelling and/or vocabulary lists at readiness levels of students.**
- 4. Present ideas through both auditory and visual means.**
- 5. Use reading buddies.**
- 6. Meet with small groups to re-teach an idea or skill for struggling learners or to extend the thinking or skills of advanced learners.**

PROCESS:

- 1. Use tiered activities through which all learners work with the same important understandings and skills but proceed with different levels of support.**
- 2. Provide interest centers that encourage students to explore subsets of the class topic or particular interest to them.**
- 3. Develop personal agendas to be completed either during a specified agenda time or as students complete work early.**
- 4. Offer manipulatives or other hands-on supports for students who need them.**
- 5. Vary the length of time a student may take to complete a task in order to provide additional support for a struggling learner or to encourage an advanced learner to pursue a topic in greater depth.**

PRODUCT:

Different Ways to Find Out What Students Understand

| | | |
|--|--|-----------------------------------|
| Make a chart or diagram | Do a demonstration | Create a dance |
| Write a letter to the editor | Make a scrapbook | Design a Web Quest |
| Conduct a discussion | Participate in a debate | Create a puppet show |
| Create an advertisement | Make an editorial video | Keep a journal log |
| Write an essay | Design a structure | Create a report |
| Participate in a simulation | Develop a collection | Make a plan |
| Create a poem | Write and do a rap | Make a mural |
| Do a photo essay | Design a game | Create a new product |
| Create an invention | Present a news report | Do an experiment |
| Teach someone else | Judge an event | Make a model |
| Write an analogy | Conduct an interview | Develop a rubric |
| Participate in a mock trial | Create cartoons | Write a book |
| Design and teach a class | Create a flow chart | Make a learning center |
| Devise a new recipe | Give a performance | Draw a blueprint |
| Write a monologue | Defend a theory | Do a self-assessment |
| Illustrate a math concept | Create a brochure | Solve a mystery |
| Do a multimedia presentation | Develop an exhibit | Critique a book |
| Write a diary from the perspective of someone else | Set up a system of checks and balances | Do a Gallery Walk (Carousel Walk) |

Learning Centers

Learning Center Plan

Topic or Subject:

Standards:

Essential Ideas:

Activities:

Materials:

Location:

Assessment:

Teacher Comments:

Learning Centers

- 1. Make directions clear.**
- 2. Make directions comprehensive.**
- 3. Provide incentives and reinforcements.**

TIPS:

- A. Laminate everything.**
- B. Number & label pieces for easy pick-up & storage.**
- C. Use "blogs" and/or interactive journals.**
- D. Use sign-in sheets, logs, charts, etc. for record keeping.**
- E. Monitor frequently and give feed-back.**
- F. Change centers often.**
- G. Encourage students to help create, add to, and improve centers.**
- H. Use center monitors when appropriate.**
- I. Use volunteers to create and monitor centers.**

Common Principles of Differentiated Instruction

Flexible grouping: matching students to skill work by virtue of readiness, not with the assumption that all need the same task, computation skill, writing assignment, etc. Movement among groups is common, based on readiness on a given skill and growth in that skill.

Tiered instruction: using varied levels of activities to ensure that students explore ideas at a level that builds on their prior knowledge and prompts continued growth. Student groups use varied approaches to exploration of essential ideas.

Source:

<http://www.mcps.k12.md.us/DEPARTMENTS/Ell/gr/eiihomebutton.jpg>

Tiered Assignments

Rationale:

- Blends assessment and instruction
- Allows students to begin learning from where they are
- Allows students to work with appropriately challenging tasks
- Allows for reinforcement or extension of concepts and principles based on student readiness
- Allows modification of working conditions based on learning style
- Avoids work that is anxiety-producing (too hard) or boredom-producing (too easy)
- Promotes success and is therefore motivating

Guidelines for Use:

1. Be sure the task is focused on a key concept or generalization essential to the study.
2. Use a variety of resource materials at differing levels of complexity and associated with different learning modes.
3. Adjust the task by complexity, abstractness, number of steps, concreteness, and independence to ensure appropriate challenge
4. Be certain there are clear criteria for quality and success

(Tomlinson, 2001, p. 101)

Designing a Tiered Assignment

1. Determine student levels of readiness and ability.
2. Identify essential skills and/or knowledge needed.
3. Establish the number and range of tiers (could be as few as 2 or as many as 5).
4. Select appropriate learning strategies or activities that target desired outcomes for skills and knowledge.
5. Modify the strategies for each designated tier. (Modifications can include levels of support, choices, supplemental materials, etc.).
6. Decide how to assess each tier (design rubrics ahead of time).

Low Prep Tiering:

- Choices of reading material and/or reading buddies
- Number of steps involved
- Time Allotment
- Supplemental materials (calculator, dictionary, note cards, etc.)
- Mini-teacher led workshops to teach or re-teach skills
- Varied levels of questions (Bloom's Taxonomy)
- Others? _____

Higher Prep Tiering:

- Learning/Interest centers
- Audio/visual resources
- Cubing
- Project/portfolio assignments
- Varied levels of knowledge demonstration (Bloom's Taxonomy)
- Others? _____

Tiered Activities To Vary the Level of a Lesson

Subject Area:

Grade Level:

| Outcome/ Performance Indicators | | | |
|--|--|--|--|
| Assessment | | | |
| Instruction/ Learning Activity | | | |
| Resources | | | |
| Assignments | | | |

Pre-assessment:

Flexible Grouping

Rationale:

- Allows both for quick mastery of information/ideas and need for additional exploration by students needing more time for mastery
- Allows both collaborative and independent work
- Gives students and teachers a voice in work arrangements
- Allows students to work with a wide variety of peers
- Encourages teachers to “try out” students in a variety of work settings
- Keeps students from being “pegged” as advanced or struggling
- Keeps students from being cast as those in need of help and those who are helpers

Guidelines for Use:

1. Ensure that all students have opportunities to work both with students most like themselves and with students dissimilar from themselves in readiness and interest
2. Teacher assigns work groups when task is designed to match individual readiness/interest based on pre-assessment or teach knowledge
3. Teacher assigns work groups when desirable to ensure that students work with a variety of classmates
4. Students select groups when task is well-suited for peer selection
5. Alternate purposeful assignment to groups with teacher/student selection
6. Ensure that all students learn to work cooperatively, collaboratively, and independently
7. Be sure there are clear guidelines for group functioning that are taught in advance of group work and consistently reinforced

(Tomlinson, 2001, p. 102)

Anchor Activities: on-going assignments tied to the curriculum and for which students are accountable that can be worked on independently throughout a grading period or longer.



Purpose of Anchor Activities:

1. To provide *meaningful* work for students when they finish an assignment or project, when they first enter the class or when they are “stumped.”
2. To provide *ongoing* tasks that tie to the content and instruction.
3. To free up the classroom teacher to work with other groups of students or individuals.

Ideas for Anchor Activities



- | | |
|------------------------------------|-----------------------------|
| Silent reading (content related) | Learning packets |
| Listening stations | Class project |
| “Brain Challenges” | Commercial kits & materials |
| Researching question | Web Quest |
| Vocabulary work | Learning/Interest centers |
| Journal writing | Work on portfolio |
| Investigations | Learning logs |
| Skill practice | Personal agendas |
| Games (content related) | Individual project |
| Creating learning center materials | Writing book, poem, story, |
| Illustrating work | Working with manipulatives |



Other Ideas for Anchor Activities:

Performance Assessment

Performance tasks are often used in science to assess a student's ability to manipulate materials or apparatus as well as apply knowledge to solving real life problems. For example, a student might be asked to measure the volume of an irregular object with the use of an overflow can, a graduated cylinder, and water. Students can demonstrate successful performance by applying their knowledge and skills to a new situation or in a new way.

The assessment developer should have in mind a clear picture of what a successful performance would "look like." Development of the criteria (rubric) by which the performance will be assessed can involve both the assessor and the assesses. Clear standards must be communicated to the assesses beforehand so that they fully understand what is expected of them. The best assessments are woven into the instructional strategies and serve to reinforce the concepts expected to be mastered.

Demonstration Assessment

Because performance assessments are sometimes limited by the amount of time and supplies a teacher is able to devote to them, a satisfactory alternative is that of a demonstration assessment. For this assessment students watch their teacher or another performer make a presentation that incorporates their prior knowledge but forces them to apply it in a new way or to a new situation. After observing the occurrence, the student is required to bring together understanding of processes, procedures, and concepts in order to explain the phenomena. Generally students are asked to describe observations, use appropriate vocabulary, make appropriate inferences. A demonstration assessment requires a pre-determined general rubric and should be clearly communicated to students before the actual assessment.

Presentation of Selected Novel

Assessment Goals:

- Describe the major characters in the novel.
- Identify the setting including both time and place(s).
- Summarize the key theme of the novel.
- Highlight a climatic scene from the novel and explain its importance.
- Discuss what kinds of audiences would most benefit from reading this novel.

Date- _____ Title- _____

Group Member(s): _____

PRESENTATION OR MODEL (25 points)- _____

- Described the major characters in the novel.
5 4 3 2 1
- Identified the setting including both time and place(s).
5 4 3 2 1
- Summarized the key theme of the novel.
5 4 3 2 1
- Highlighted a climatic scene from the novel and explained its importance.
5 4 3 2 1
- Discussed what kinds of audiences would most benefit from reading this novel.
5 4 3 2 1

TEACHING METHOD: (15) - _____

- Activity taught the concepts correctly.
5 4 3 2 1
- Activity promoted learning .
5 4 3 2 1
- Activity demonstrated an understanding of the novel.
5 4 3 2 1

ORAL PRESENTATION: (20) - _____

- Each group member had a part.
5 4 3 2 1
- Parts were clearly stated (not read).
5 4 3 2 1
- Parts were equitably divided among group members.
5 4 3 2 1
- Information was accurate and thoroughly presented.
5 4 3 2 1

TOTAL SCORE - _____

COMMENTS: -

GALLERY WALK

Imagine that you are a bright orange butterfly. A predator moves into your habitat that preys on bright orange butterflies. *What could you do so that the population of bright orange butterflies survives?*

1. Start coming out at night when predators can't distinguish color very well.
2. Sit with wings folded up tight so color can't be seen.
3. SIT UNDERNEATH LEAVES WHERE THEY ARE LESS LIKELY TO BE SEEN.
4. Spend time in fields of bright orange flowers where they would be hard to see.
5. Migrate to an area where other bright orange colored butterflies contain a poison and predators avoid all brightly colored butterflies.
6. Move to a place where there are no predators.

COOPERATIVE LEARNING

What is Cooperative Learning?

Cooperative learning is an instructional strategy that uses small groups of students working together and helping one another on specific learning tasks with an emphasis on group members supporting one another.

It is characterized by activities that:

1. **Require students to depend on one another for success.** Having students sit side by side working on something they could just as easily do by themselves in *not* cooperative learning. Students must be required to share materials, knowledge, time, talents, and effort (or any combination of these).
2. **Provide for individual accountability.** Group members share jobs and make group presentations. Group members are tested individually and/or as a group to ensure that each person has mastered the required learning.
3. **Utilizes face-to-face interaction among students.** For all group work students are arranged in close proximity of each other. They can be at tables, in desks or chairs pushed together, on the floor, or virtually anywhere they can do the task at hand separated from other groups.
4. **Focus on interpersonal and group skills.** Tasks are designed to include components of positive interpersonal communication skills such as active listening, building consensus, sharing, supporting, restating, using appropriate eye contact and gestures, and encouraging. Teams learn to stay on task and check each other for understanding.
- 5.

| Traditional Classroom | Cooperative Classroom |
|----------------------------------|-------------------------------------|
| Learners are passive | Learners are active |
| Students work alone | Students work with 1 to 4 partners |
| Teacher directs work | Students direct work |
| Silence is valued | Learning noise is appropriate |
| Teacher initiates discussion | Students initiate discussion |
| Some students do not participate | All students participate |
| Individual accountability | Individual and group accountability |
| Independent learners | Interdependent learners |
| Affirmations come from teacher | Affirmations come from peers |
| Individual materials needed | Shared materials |

Effective Use of Cooperative Learning Can:

1. Increase achievement (at all ability levels)
2. Empower students to take responsibility for their own learning
3. Improve retention
4. Generate more positive feelings towards the subject matter
5. Provide more active learning
6. Focus more time on learning
7. Lower frustration and anxiety among students
8. Enhance a sense of community among students
9. Promote inter-personal communication skills
10. Boost feelings of self-worth

How To Use Cooperative Learning:

Middle School Learners

In working with middle school learners it is important to remember that:

- Group members are responsible for the performance of each individual learner.
- Group members are individually accountable and must be able to report on or explain the team's results.
- The groups are to be assigned by the teacher. Their make-up should be heterogeneous with respect to sex, race, socioeconomic status, ability/learning styles, cliques, and other important factors.
- Leadership is shared on a rotating basis. Each team member has a job and responsibilities.
- The teacher is a resource; students are in charge of their own learning.
- Time must be allowed for group processing and self-evaluation.

The job assignments I use for traditional grouping are these:

Group Leader

1. Reads all directions to group
2. Leads the discussions
3. Checks the data sheet
4. Helps with clean-up
5. Is the only one who can ask a question of the teacher

Materials Manager

1. Is responsible for collecting and returning all materials & supplies to the appropriate place(s)
2. Is the only one who can get up for materials and supplies
3. Makes sure the everyone in the group has equal access to the materials and supplies
4. Checks the data sheet
5. Helps with clean-up

Time Keeper

1. Holds the team stopwatch (or watches the clock)
2. Keeps group on task and reminds them about time
3. Is responsible for getting the group to finish on time
4. Checks the data sheet
5. Helps with clean-up

Data Collector

1. Collects the data for the activity
2. Records data on the appropriate form or sheet
3. Returns data sheet to teacher and/or records group data on class data sheet
4. Makes sure all other team members check the data sheet
5. Helps with clean-up

Since this is not a perfect world, and all class populations are not divisible by four, I have a fifth job that can be assigned in a group:

Encourager

1. Monitors other team members to make sure they do their own jobs
2. Takes responsibility for praising and affirming jobs that are well done
3. Records comments and actions that show positive interpersonal communication
4. Reports recorded data to group at de-briefing session
5. Helps with clean-up

If a group of four has one member absent, two of the jobs can be combined for that day.

Part of the group's participation grade is based on how well each team member performs her/his job. Points are deducted if one team member does another team member's assigned responsibility.

| Group Participation Number Line | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|
| Date: _____ | | | | | | | | | | | | | | | | | | | | |
| Group Number: _____ | | | | | | | | | | | | | | | | | | | | |
| Group Members Present: _____ | | | | | | | | | | | | | | | | | | | | |
| _____ | | | | | | | | | | | | | | | | | | | | |
| _____ | | | | | | | | | | | | | | | | | | | | |
| 100 | 95 | 90 | 85 | 80 | 75 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 0 |
| Participation Points Earned: _____ | | | | | | | | | | | | | | | | | | | | |

There is nothing chaotic about cooperative learning that is well-planned and well-managed. Teachers should plan activities that are challenging and yet doable if the group members work together. Tasks should require the concentrated efforts of all team members doing their jobs and working with in the allotted time. Materials and supplies should be out and sorted before students arrive. During the cooperative learning activity it is the responsibility of the teacher to monitor the students and:

- Give immediate feedback and reinforcement for learning
- Re-teach certain concepts if necessary
- Clarify directions
- Encourage oral elaboration
- Affirm positive interactions and efforts
- Informally assess student learning and collaboration

Another way to ensure that the cooperative learning activity is organized and has a smooth closure is to allow time after clean up and whole group information sharing to ask the groups to evaluate how they interacted with one another. Either verbally or in their journals students can answer questions like these:

- Tell how involved each of your team members was in the decisions your group made.
- How do you feel about the work your group did today?
Why?
- What would you would like to tell your teammates about how you felt during today's activity or the way you feel now?

- What could your team do to improve the way you get along and/or work together?
- What is your favorite thing about being on this team?

Teachers need to keep a close watch on the personal interactions going on within groups. Happy well-functioning groups matched with appropriate tasks and given adequate time constraints run smoothly.

Alternative Ways to Use Cooperative Learning

1. **Within a lecture or presentation:**
The teacher is discussing, modeling, or explaining something. S/he pauses to ask small groups to summarize, categorize, debate, describe, or otherwise react to the presented material.
2. **With higher level questioning:**
The teacher asks small groups to come up with a team consensus on something to do with analysis, synthesis, or evaluation of the concept being discussed.
3. **As practice reinforcement:**
The teacher asks students to get with their groups to practice, memorize, or review the given concepts.
4. **Decision-making/problem solving:**
The group is to reach a decision or solve a problem presented by the teacher. The teacher is leading a class discussion on the separation of church and state in the United States Constitution. She asks small groups to meet and decide whether or not to include the words, "Under God" in the Pledge of Allegiance. Groups are to figure out a way for students to say the Pledge without violating the spirit of the law.
5. **As a review:**
The teacher asks a question. Team members put their heads together to discuss the answer. The teacher calls out a color, and the person who has that color dot will answer the question as the teacher whips through the groups.
6. **In a tournament or game format:**
There are several models for using cooperative learning in a tournament or game format. Student Teams-Achievement Divisions (STAD) and Teams-Games-Tournament (TGT) are two of the more popular ones.
7. **With peer editing:**
Team members proofread each other's work and offer suggestions for improvement. This practice helps both the "corrector" and the "correctee."
8. **As an assessment:**
A Gallery Walk (sometimes called Carousel Walk) is a way to assess students in groups. The teacher puts large pieces of newsprint around the room. On the top of each is a question for which there are several answers. Student groups are given different colored markers and asked to write one correct answer to each question. Answers cannot be repeated on a page. The teacher can informally assess student learning by listening to them as they "think out loud" in

their groups (Slavin calls this *oral elaboration*). Or teachers can more formally assess the answers by noting the flow of answers used by each colored group.

9. Research projects or group investigations:

Group work on projects can promote sharing of the load and commitment to a time line. Often times students who are procrastinators when it comes to doing their own work will get motivated by their peers to finish their part of the assignment.

10. Checking homework:

Even though homework is for independent practice, many teachers have limited time for checking and correcting it during a rushed day. Group members can check each other's work for accuracy.

For more information on the specific techniques mentioned in this chapter or for lessons designed around particular age groups and subject areas consult your local bookstore or the Internet. Cooperative learning strategies abound. Using small group interactions is a powerful teaching tool that can be used to enhance the learning cycle and most other effective teaching strategies. Different marchers hearing different songs still need to learn to work successfully in groups when the need arises. Learning interpersonal communication skills helps students to become better citizens. Working in groups helps students "get better together."



How To Begin Differentiated Instruction

(Carol Ann Tomlinson. Differentiation of Instruction in the Elementary Grades. ERIC Digest . Retrieved from www.ericdigests.org/2001-2/elementary.html)

- Frequently reflect on the match between your classroom and the philosophy of teaching and learning you want to practice. Look for matches and mismatches, and use both to guide you.
- Create a mental image of what you want your classroom to look like, and use it to help plan and assess changes.
- Prepare students and parents for a differentiated classroom so that they are your partners in making it a good fit for everyone. Be sure to talk often with students about the classroom – why it is the way it is, how it is working, and what everyone can do to help.
- Begin to change at a pace that pushes you a little bit beyond your comfort zone – neither totally duplicating past practice nor trying change everything overnight.

You might begin with just one subject, just one time of the day, or just one curricular element (content, process, product, or learning environment).

- Think carefully about management routines – for example, giving directions, making sure students know how to move about the room, and making sure students know where to put work when they finish it.
- Teach the routines to students carefully, monitor the effectiveness of the routines, discuss results with students, and fine tune together.
- Take time off from change to regain your energy and to assess how things are going.
- Build a support system of other educators. Let administrators know how they can support you. Ask specialists (e.g. in gifted education, special education, second language instruction) to co-teach with you from time to time so you have a second pair of hands and eyes. Form study groups on differentiation with like-minded peers. Plan and share differentiated materials with colleagues.
- Enjoy your own growth. One of the great joys of teaching is recognizing that the teacher always has more to learn than the students and that learning is no less empowering for adults than for students.

Internet Sites for Differentiated Instruction

Teach-Nology the Web Portal for Educators:

http://www.teach-nology.com/currenttrends/alternative_assessment/

CEC Information Center on Disabilities and Gifted Education:

<http://ericec.org/faq/gt-nurt.html>

Multiple Intelligence Resources for Teachers:

<http://www.proteacher.com/040009.shtml>

Tiered Curriculum Project

http://www.doe.state.in.us/exceptional/gt/tiered_curriculum/welcome.html

Adapt Lessons to Reach All Students

<http://www.teachervision.fen.com/teaching-methods/special-education/3759.html>

Enhance Learning With Technology

<http://www.enhancelearning.ca>

Applying Bloom's Taxonomy in the Classroom

<http://www.teachers.ash.org.au/researchskills/dalton.htm>

Tiered Instruction Examples

<http://wblrd.sk.ca/~bestpractice/tiered/examples2.html>

CAST Differentiated Instruction

http://www.cast.org/publications/ncac/ncac_diffinstruc.html

LIST OF RELATED CITATIONS
LION TAMING 101 – REACHING AND TEACHING YOUNG
ADOLESCENTS
PRESENTED BY DR. DEBBIE SILVER

Armstrong, T. (1998). *Awakening Genius in the Classroom*. Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

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Tomlinson, C.A. (2001). *How to Differentiate Instruction in Mixed-Ability Classrooms*. 2nd ed. Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Other Good Resources:

NOTES