High Impact Instruction

for Developing 21st Century Skills

How to Reach Every Student Every Day

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Types of Learners

There are several different 'models' for identifying different learning styles. You may use any you choose, or consider different models and use a variety. The chart below is based on the **4MAT** System by Bernice McCarthy.

Types	Prefer to learn by:	Interested in:	Favorite question	Teachers need to:
1 *Imaginative Learners*	sensing/feeling and watching	personal learning	Why?	Create a reason.
2 *Analytical Learners*	watching and thinking through concepts	the facts	What?	Give them the facts.
3 *Common Sense Learners*	thinking through concepts and doing it themselves	how things work	How?	Let them try it.
4 *Dynamic Learners*	doing it themselves and sensing/feeling	self-discovery	What if?	Let them teach it to themselves and others.

Based on 4MAT System by Bernice McCarthy. Adapted from handout by Eileen Pracek, FDLRS/TECH. Used with permission.

DISCOVER THE USA

I have eaten a Washington Red Delicious apple	**I have picked a bitter root flower**	**I have seen a sunflower on the prairie**	**I have tasted Vermont maple syrup**
I have walked through a California Giant Redwood	**I have eaten an Idaho potato**	**I have smelled a magnolia flower**	**I have toured the White House**
I have visited the Sierra Nevada Mountain Range	**I have crossed the Continental Divide**	**I have visited the Alamo in San Antonio, Texas**	**I have seen a White Pine tree**
I have been in a California poppy field	**I have walked through the "Arches"**	**I have crossed the Mississippi River**	**I have driven through the Great Smoky Mountains**
I have waded the Pacific Ocean	**I have traveled through Four Corners**	**I have danced in the streets at Mardi Gras**	**I have traveled through the Florida Everglades**

Ways of Learning
"I Need----------"

Books, tapes, writing tools, paper, diaries, dialogue, discussion, debates, stories **LINGUISTIC**	Sing-along time, trips to concerts, music playing at home and school, musical instruments **MUSICAL**
Materials to experiment with, science materials, manipulatives, trips to the planetarium and science museum **LOGICAL-MATHEMATICAL**	Friends, group games, social gatherings, community events, clubs, mentors/apprenticeships **INTERPERSONAL**
Art, LEGOs, video, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museums **SPATIAL**	Secret places, time alone, self-paced projects, choices **INTRAPERSONAL**
Role play, drama, movement, things, to build, sports and physical games, tactile experiences, hands-on learning **BODILY-KINESTHETIC**	Access to nature, opportunities for interacting with animals, tools for investigation nature (e.g. magnifying glass, binoculars) **NATURALIST**

Adapted from Multiple intelligences in the Classroom, Thomas Armstrong, Association of Supervision and Curriculum Development, 2000, pg.22.

A Variety of Animals from Environments
in **The United States**

Western Meadow-lark	Grizzly Bear	Barking Tree Frog	Desert Tortoise	Wood Duck
Robin	Armadillo	Chickadee	Black Racer Snake	Gold Finch
Cardinal	Gray Squirrel	**Environmental Preserve (Protected Space)**	Alligator	Blue Hen Chicken
Road-runner	White-tailed deer	Red Hills Salamander	Box Turtle	Yellow-hammer
Bluebird	Buffalo	Coyote	Horned Lizard	Mocking-bird

Writing Clear Learning Goals

Level of Thinking/Doing	Definition	Verbs That Demonstrate
Create	Create something new from the learning	Imagine, Create, Design, Invent, Compose, Plan, Reorganize, Derive
Evaluate	Make a judgment based on evidence	Judge, Justify, Rate, Predict, Criticize, Select, Assess
Analyze	Break learning down, see parts and whole	Deduce, Formulate, Diagram, Compare, Examine
Apply	Use the learning in a new or expanded way	Apply, Use, Generalize, Demonstrate, Illustrate, Classify, Dramatize
Understand	To understand or make sense of the learning	Explain, Infer, Express, Discuss, Paraphrase, Locate, Tell
Remember	Recall Information	List, Recite, Label, Memorize, Define, Name, Record

Derived from....Bloom's Taxonomy of Thinking Skills
Benjamin Bloom, University of Chicago.
LCS--Creating the Learning-centered School.

QTL™ Theories & Strategies

The Impact on Student Achievement

QTL™ for K-12 incorporates educational theories and practices that have been shown to have a significant impact on student achievement. The table below describes the impact on student achievement when teachers use these strategies in their classroom. Teachers need a repertoire of instructional practices to apply in different instructional situations; therefore, **QTL™ for K-12** provides an overview of many of the most effective strategies.

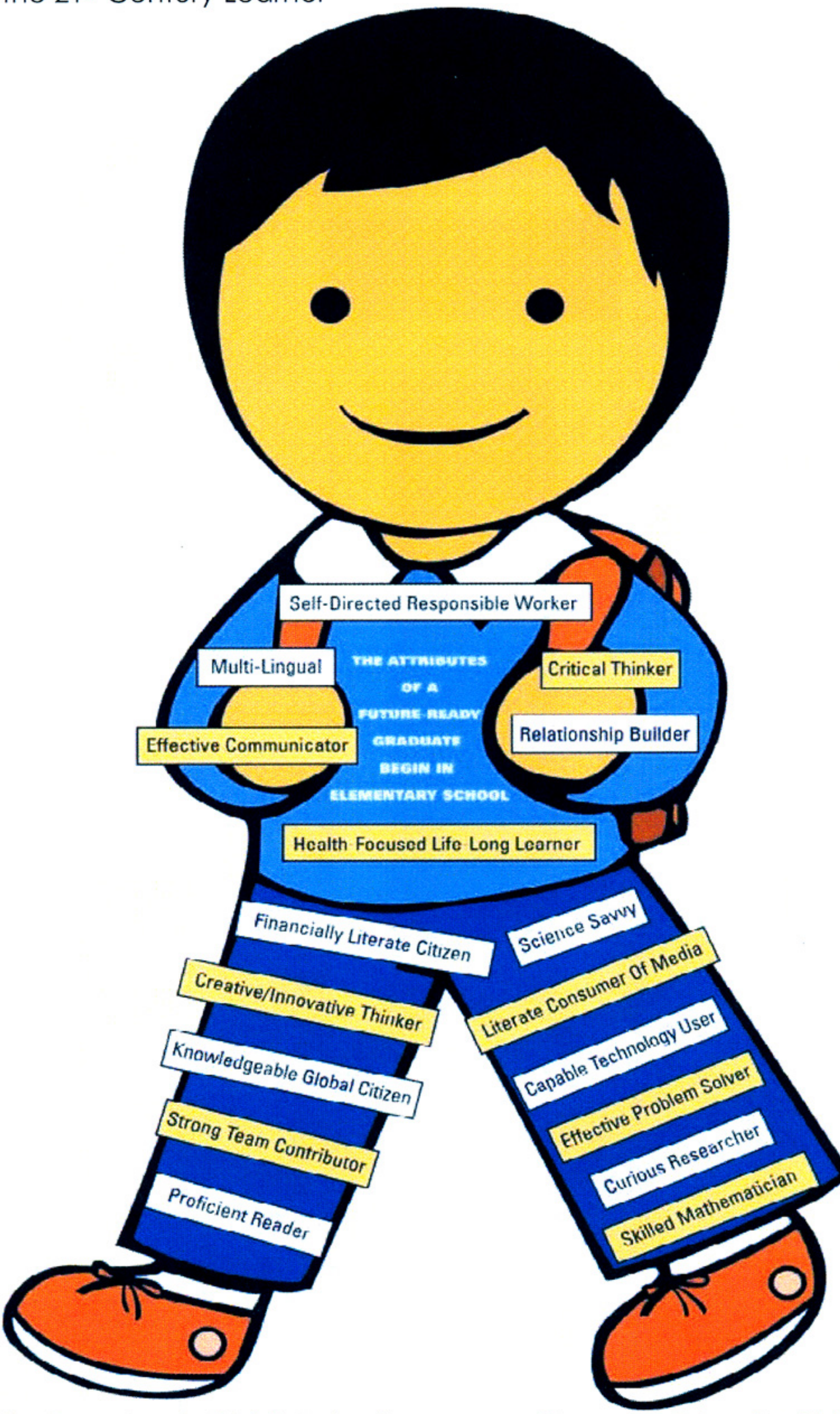
Educational Theory/Practice Incorporated in QTL™	***Research on Impact on Student Achievement***	***Examples of QTL™ Activities***
Cooperative Learning: Small groups of students working together through interactive instructional procedures.	Students working together in groups showed average gains of **28 percentile points** compared to students working on individual projects (*Marzano, Pickering, and Pollock, 2001*).	❑ Majority of **QTL™** activities have participants working in groups of 2 or more ❑ Management strategies to organize cooperative learning. ❑ Final collaborative project as a group.
Brain-based Learning: Learning theory that uses neurological research on how students receive, process, and interpret information to change the way learning is structured for students.	Helping students make connections to previous learning through cues, questions, and advance organizers improves student achievement by **22 percentile points**. Using non-linguistic representation, such as graphic organizers, shows an increase of **27 percentile points**. Also demonstrating increased student achievement is helping students organize their thoughts through summarizing and note-taking (**34 percentile point gain**) and identifying similarities and differences (**45 percentile point gain**) *(Marzano, Pickering, and Pollock, 2001*).	❑ Software program used several times to organize thinking in advance of activities ❑ Analysis of a narrative using graphic organizers, including comparing similarities and differences ❑ Various examples of note-taking strategies used when watching a video ❑ Effective questioning strategies are modeled throughout
Constructivism: A theory arguing that learning occurs when students build on existing knowledge and actively construct knowledge in authentic situations.	Use of hands-on activities in the classroom is associated with higher student achievement (*Wenglinsky, 2002*). Helping students make connections to previous learning through cues, questions, and advance organizers improves student achievement by **22 percentile points** (*Marzano, Pickering, and Pollock, 2001*).	❑ Participants actively engage in all activities ❑ Software program used several times to organize thinking in advance of activities ❑ Student choice built into activities

Educational Theory/Practice Incorporated in QTL™	***Research on Impact on Student Achievement***	***Examples of QTL™ Activities***
Differentiation: A responsive classroom environment that actively engages individual student similarities and differences in reading, personal interests, cultural diversity, and real-world experiences.	Professional development in working with diverse populations is associated with higher student achievement (*Wenglinsky, 2002*).	❑ Famous Person Trading Card ❑ Memory Quilt ❑ Using technology to create a product
Diversity: The variety of intellectual, physical, and cultural aspects brought to the classroom by the students.	Professional development in working with diverse populations is associated with higher student achievement (*Wenglinsky, 2002*).	❑ Famous Person Trading Card ❑ Memory Quilt
Ongoing Assessment: A variety of measures used to assess students' learning and guide teachers' instruction.	"The most powerful single modification that enhances achievement is feedback" (*Hattie, 1992*). Feedback has the highest impact on student achievement (**20 percentile points**) when it is immediate and when it includes an explanation of what students have done correctly or incorrectly (*Bangert-Downs, Kulik, Kulik, and Morgan, 1991*).	❑ Different types of assessments are modeled throughout the five days ❑ Participants develop appropriate measures to assess collaborative project
Inquiry: An approach that encourages the learner to ask questions, explore, and experiment to uncover relationships.	Having students generate and test hypotheses is associated with a percentile gain of **26 points** (*Ross, 1988*).	❑ Environmental research activity
Project-based Instruction: A comprehensive instructional method that uses complex, real-life projects to motivate learning and provide learning experiences.	Studies of the Co-nect program (which uses technology and project-based learning) showed most schools exhibiting increases in student achievement (*NCCSR, 2002*).	❑ Field study ❑ Literature or Bio-Cube ❑ Constructing a website
Technology-Enriched Environment: The seamless integration of technology into a classroom, where technology is used to achieve specific learning outcomes.	Computer-assisted instruction has a positive impact on student achievement (*Kulik, 1994*). Students in technology-rich environments outscored students in normal environments in all subject areas, although the impact depends on the use of technology (*Sivin-Kachala, 1998*). Higher-order uses of technology are associated with gains in achievement (*Wenglinsky, 1998*).	❑ Technology incorporated throughout the seven days. Participants use: age-appropriate software, scanner, digital microscope, document camera, digital camera.
Classroom Management Strategies: Strategies used to organize and manage the learning environment, student behaviors, and classroom instruction	Effective classroom management is the strongest predictor of achievement (*Wang, Haertel, and Walberg, 1993/94*).	❑ Effective classroom management strategies are modeled throughout, including *Been There/Done That* chart, various attention-getting techniques, etc.

QTL's Connection with Marzano's *Classroom Instruction That Works*

Instructional Practices that Work (Marzano)	*Examples of the Practice in Action*
Cooperative learning: Students working together in groups showed average gains of 27 percentile points compared to students working on individual projects.	❑ The majority of QTL activities have participants working in groups of 2 or more. ❑ Instructors use management strategies to organize cooperative learning. ❑ Participants complete a final collaborative project as a group.
Summarizing and Note-taking: Helping students organize their thoughts through summarizing and note-taking results in a 34 percentile point gain.	❑ Participants use various examples of note-taking strategies when watching a video and doing several research-based activities. ❑ Participants use their notes to create products.
Cues, Questions, and Advance Organizers: Helping students make connections to previous learning through cues, questions, and advance organizers improves student achievement by 22 percentile points.	❑ Participants use graphic organizer software to organize thinking. ❑ Instructors model strategies such as the K-W-L chart as an advance organizer.
Identifying Similarities and Differences: Student achievement increases 45 percentile points when they engage in activities identifying similarities and differences between content.	❑ Many activities, such as an analysis of a narrative, incorporate identification of similarities and differences.
Reinforcing Effort and Providing Recognition: Acknowledging and encouraging student effort and quality student work results in achievement gains of 29 percentile points.	❑ The QTL instructor models various examples of positive reinforcement include verbal acknowledgement, sharing of successful products, and occasional rewards.
Non-linguistic Representation: Using non-linguistic representation, such as graphic organizers or concrete or pictorial representations, shows an increase of 27 percentile points.	❑ Participants use graphic organizer software to organize thinking. ❑ Participants make physical models of the concepts they have learned, including a kinesthetic model of a graph.
Homework and Practice: Assigning homework and providing practice that reinforces skills already taught results in gains of 28 percentile points.	❑ Participants practice all the skills and activities in QTL. They also shape their own learning during this practice time by making connections to their classrooms. ❑ Participants received daily homework assignments that allow them to do more in-depth research on a topic covered during the day.
Generating and Testing Hypotheses: Having students generate and test hypotheses is associated with a percentile gain of 23 points.	❑ An environmental research activity incorporates inquiry learning.
Setting Objectives and Providing Feedback: Setting specific goals for learning and providing useful and timely feedback relative to those goals result in a 23 percentile point gain in achievement.	❑ Instructors share goals for learning activities with participants. ❑ Participants develop a collaborative project tied to specific learning goals. ❑ Instructors model different types of assessments throughout the five days. ❑ Participants develop appropriate measures to assess the collaborative project.

Nicky the 21st Century Learner



North Carolina Department of Public Instruction
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Elementary Education Division

The Collaboration Cycle

An Instructional Conversation Focusing on Student Learning Needs

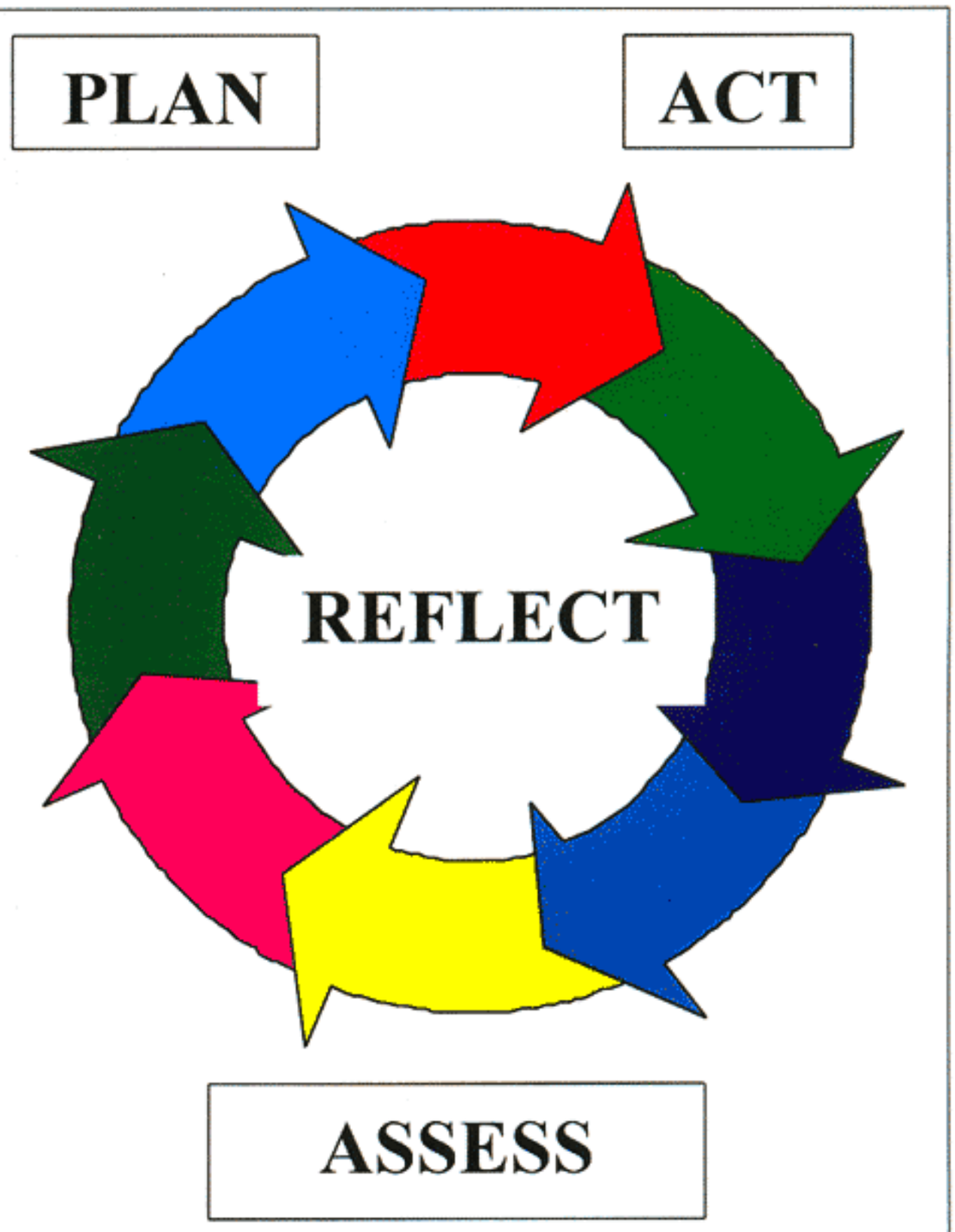
Implementation of the Action Research Cycle

ACTION RESEARCH is what teachers consistently <u>learn</u> and <u>do</u> to meet student needs.

- ***Action Research is disciplined inquiry which leads to changes in practice and improved student performance***
- ***Teacher engages in action research around student needs.***

<u>Action Research Cycle</u>

- ***Assess Student Need***
- ***Establish Baseline & Targets***
- ***Research Student Need & Best Practice Strategies***
- ***Plan Implementation of Strategies***
- ***Implement & Reflect***
- ***Look at Student Work/Data***
- ***Gather Follow-up data on Student Need***
- ***Repeat cycle***



Based on Carlene Murphy's Whole Faculty Study Groups