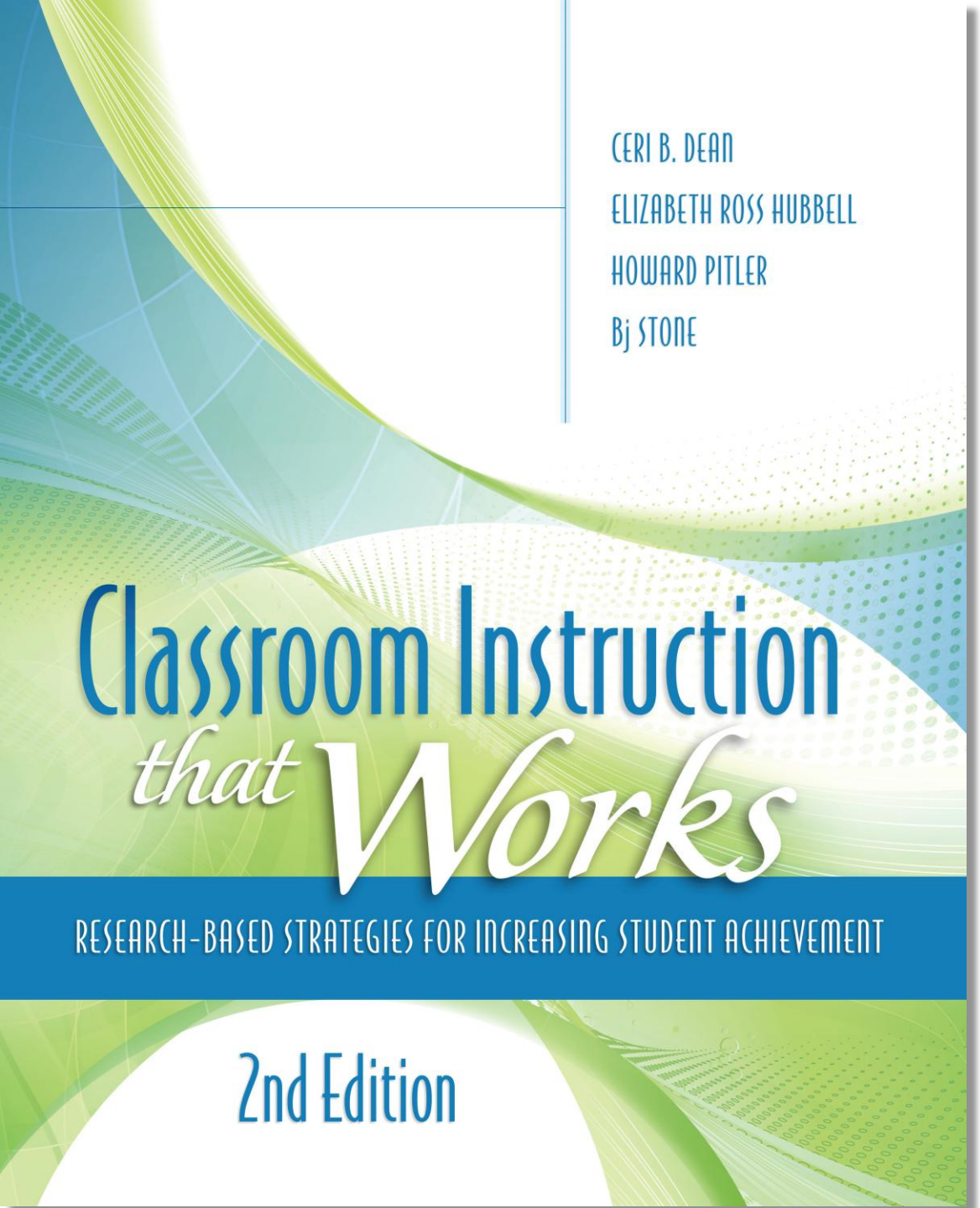

Classroom Instruction that Works

Day One

presented by
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Smoky Hill ESC
www.smokyhill.org

McREL

McREL Mission Statement

Making a difference in the quality of education and learning for all through excellence in applied research, product development, and service.

Today's Agenda

Overview

- New research behind CITW
- Reducing variability

Creating an Environment for Learning

- Setting Objectives & Providing Feedback
- Reinforcing Effort & Providing Recognition
- Cooperative Learning

Review

Reducing variability =

raising student achievement

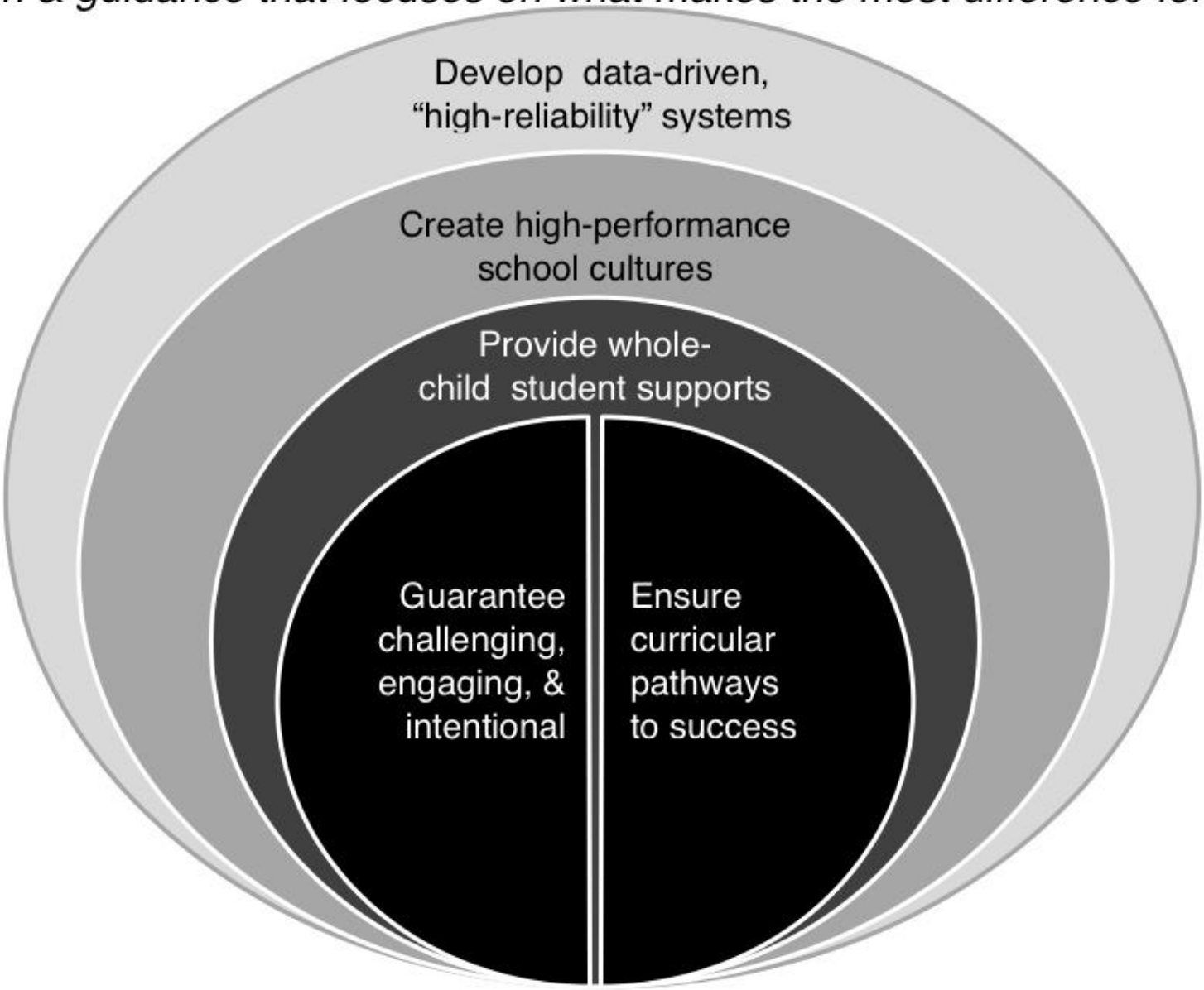
Two questions that students ask every day when they arrive at school…

Will I be accepted?

Can I do the work?

What Matters Most

Research & guidance that focuses on what makes the most difference for students

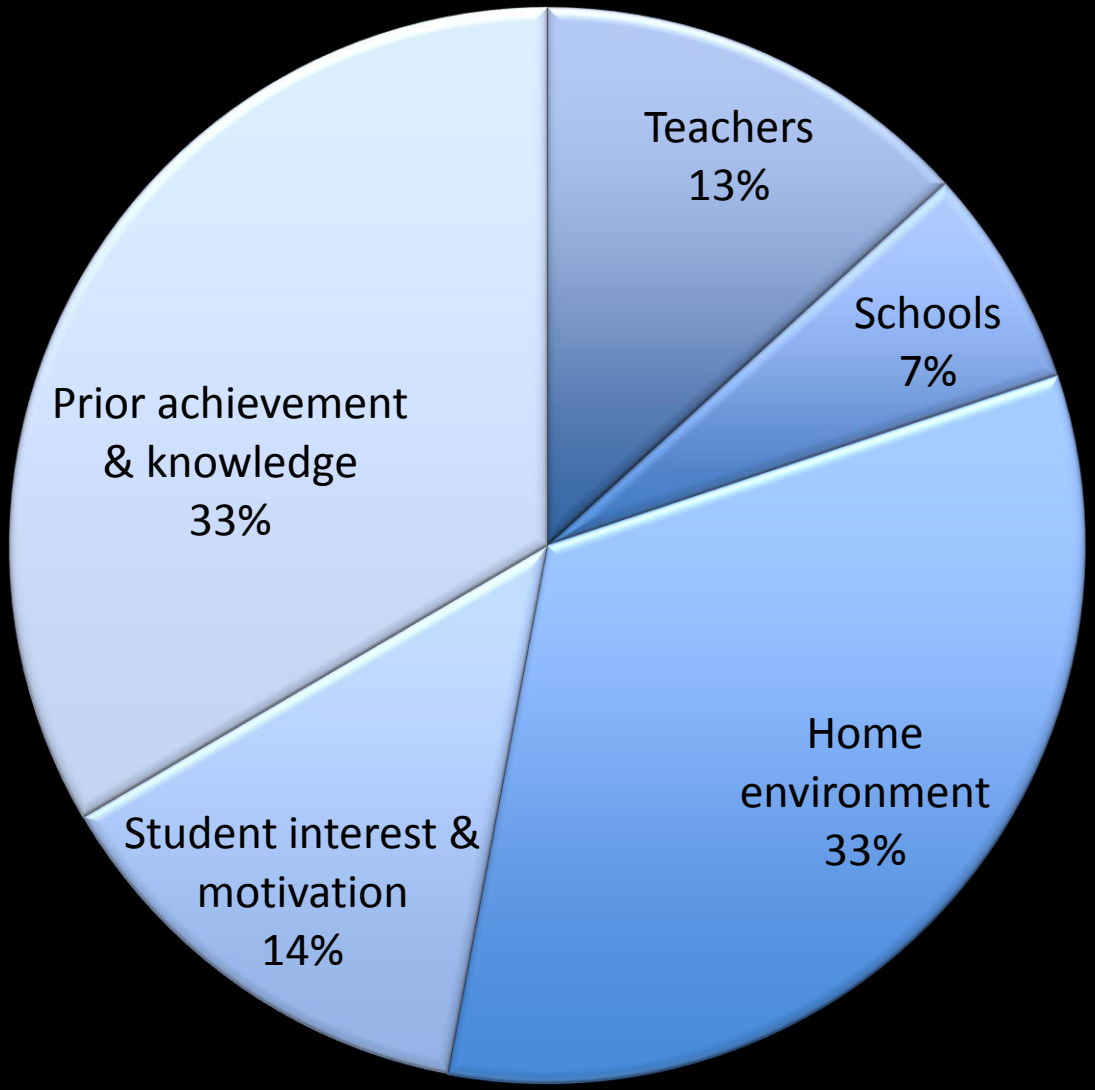


The touchstones

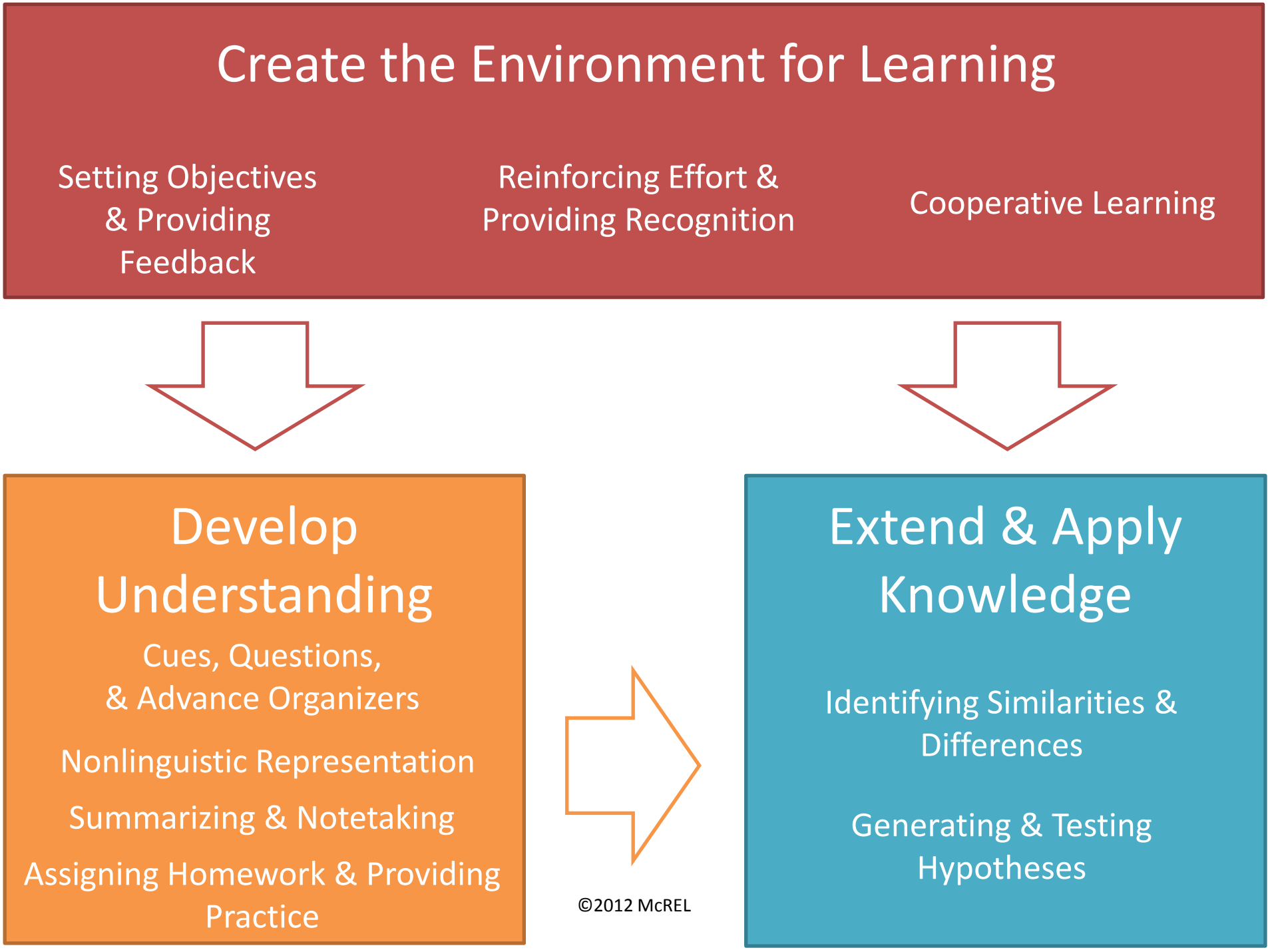
- Setting high expectations and delivering challenging instruction
- Fostering engaging learning environments and meaningful relationships with students
- Intentionally matching instructional strategies to learning objectives

Factors Related to Student Success

(% variance in achievement)



Category	Average Effect Size	Percentile Gain	Number of Studies
Identifying Similarities & Differences	1.61	45	31
Summarizing & Note Taking	1.00	34	179
Reinforcing Effort & Providing Recognition	.80	29	21
Homework & Practice	.77	28	134
Nonlinguistic Representation	.75	27	246
Cooperative Learning	.73	27	122
Setting Objectives & Providing Feedback	.61	23	408
Generating & Testing Hypotheses	.61	23	63
Cues, Questions, & Advance Organizers	.59	22	1251


Create the Environment for Learning
Setting Objectives & Providing Feedback
Reinforcing Effort & Providing Recognition
Cooperative Learning
Develop Understanding
Cues, Questions, & Advance Organizers
Nonlinguistic Representation
Summarizing & Notetaking
Assigning Homework & Providing Practice
Extend & Apply Knowledge
Identifying Similarities & Differences
Generating & Testing Hypotheses
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Learning Objectives
Day One

By the end of the learning session, we will:

- *Know the categories of strategies that comprise the component of Creating the Environment for Learning,*
- *Understand the classroom recommendations for each of the strategies,*
- *Make connections between and among the strategies,*
- *Transfer the learning into specific changes in your pedagogy that you will apply in the next two weeks.*

Personal Learning Goals for the Workshop

- What are **YOUR** goals for this workshop?

- What do you need to do to reach **YOUR** goals?

Discuss

Which strategy do you feel most confident using in your classroom?

How do you know the strategy is working?

Create the Environment for Learning

Setting Objectives & Providing Feedback

Reinforcing Effort & Providing Recognition

Cooperative Learning

Develop Understanding

Cues, Questions, & Advance Organizers

Nonlinguistic Representation

Summarizing & Notetaking

Assigning Homework & Providing Practice

Extend & Apply Knowledge

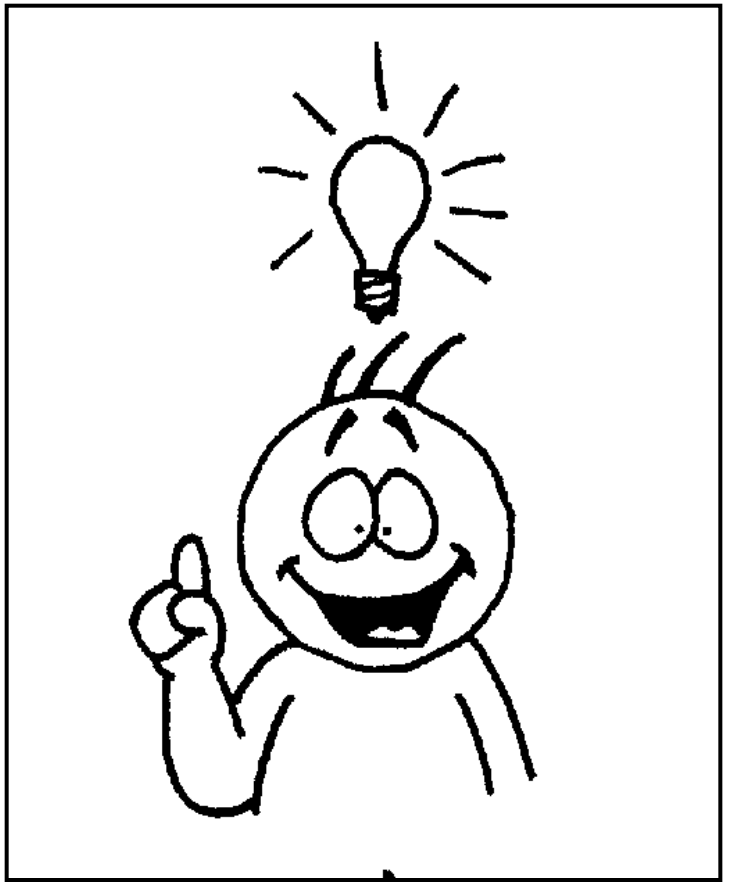
Identifying Similarities & Differences

Generating & Testing Hypotheses

Setting Objectives

Setting Objectives

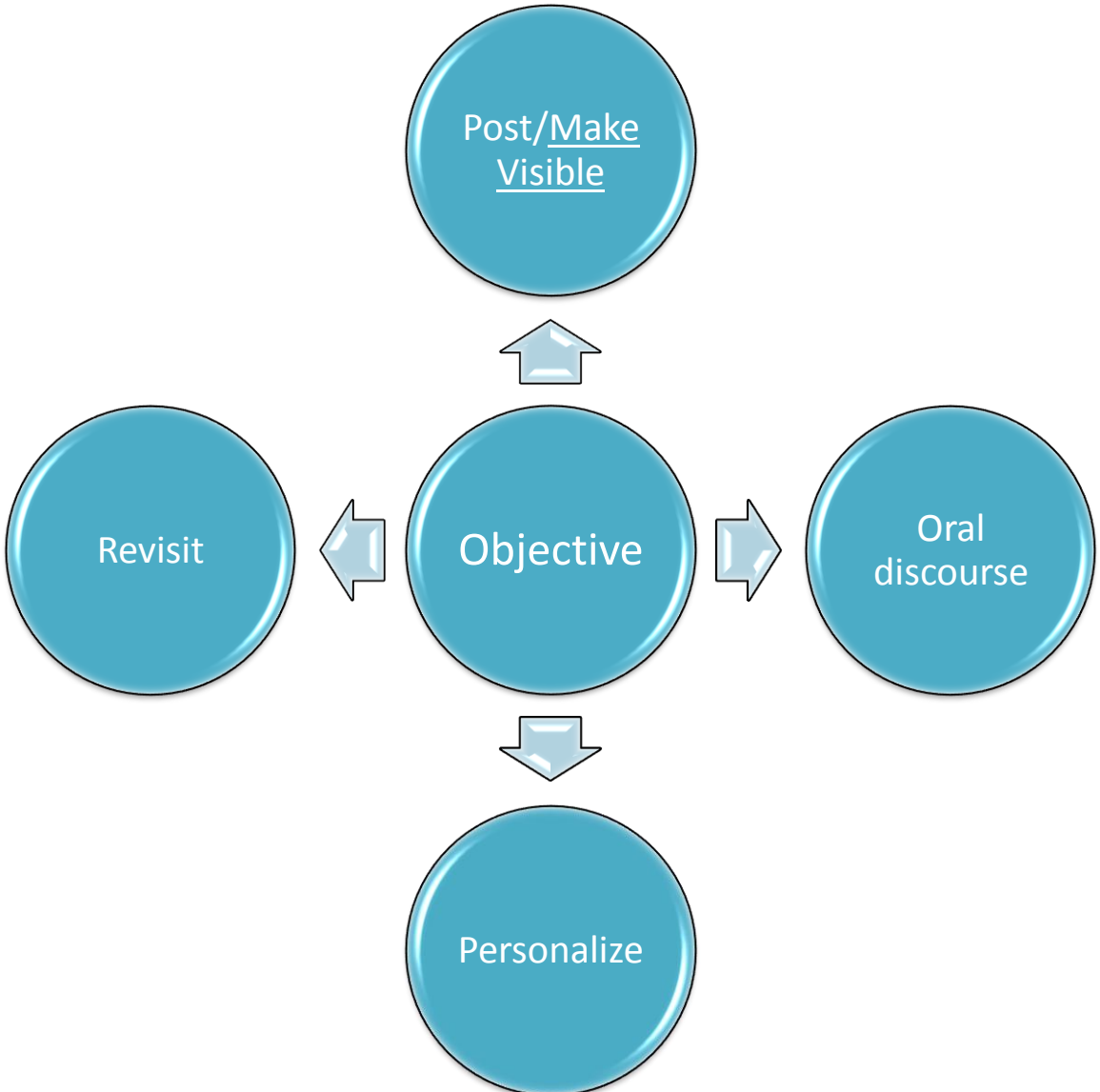
- Gives students clear direction for their learning
- Helps students to identify personal interests within the context of the lesson



Classroom Recommendations

- Set learning objectives that are specific but not restrictive.
- Communicate the learning objectives to students and parents.
- Connect the learning objectives to previous and future learning.
- Engage students in setting personal learning objectives.

Communicate the Learning Objectives to Students…



Physics

$E(r) = \frac{1}{4\pi\varepsilon_0}\frac{Q}{r^2}$ for $r \geq R$

HippoCampus Blog

TUESDAY, JANUARY 17, 2012

AP Physics Challenge Circuits

Learning Objectives

Students will build several circuits using switches and principles of series and parallel circuitry.

Activity Type

This activity would best be used as an introduction to circuits and electricity. No previous experience in electricity or circuits is required

TEACHING PHYSICS BLOG

Email address... Submit

ANDREW VANDEN HEUVEL

Andrew Vanden Heuvel teaches AP physics and astronomy for the Michigan Virtual School. In 2011 he was named a finalist for the National Online Teacher of the Year award.

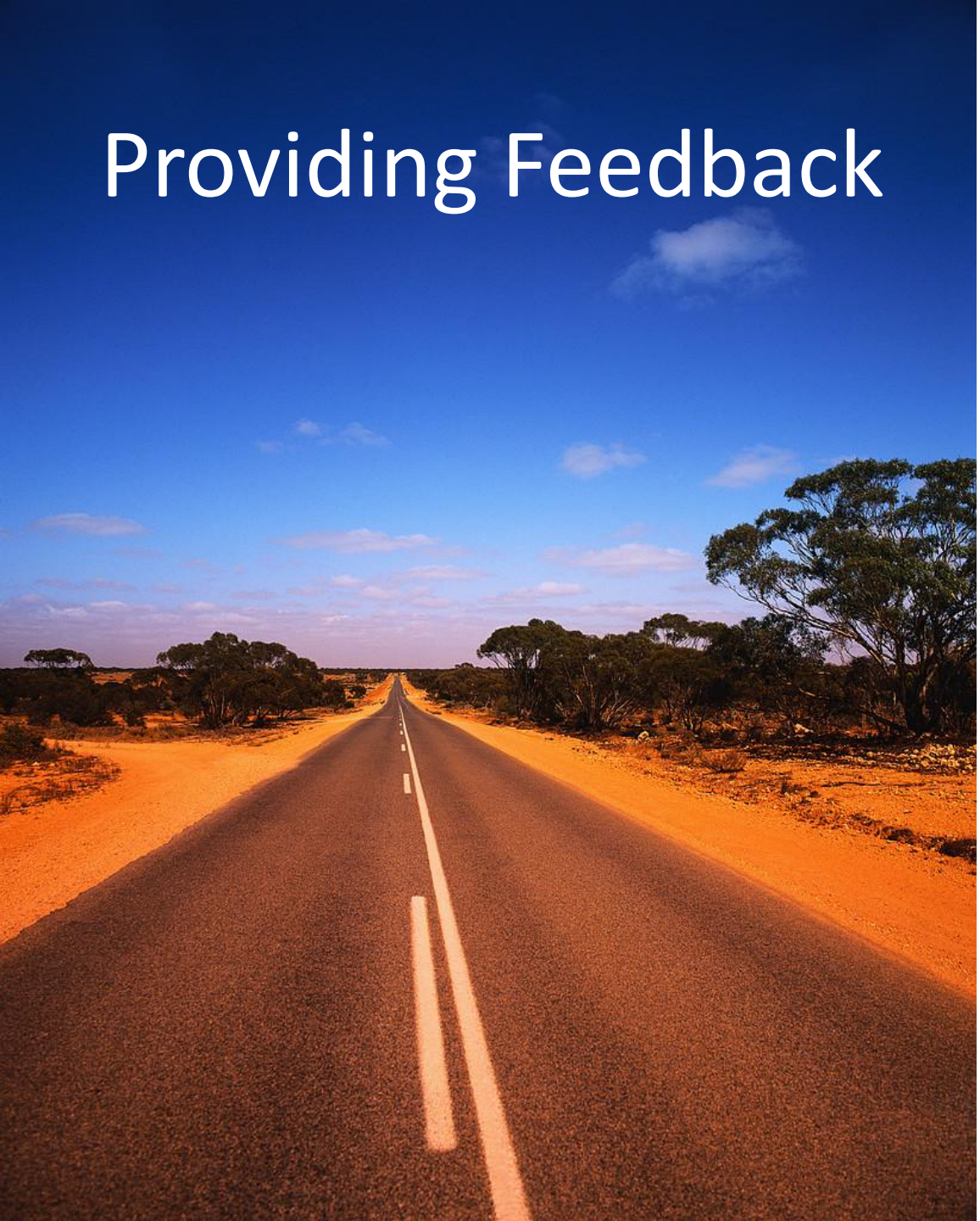
http://hippocampusphysics.blogspot.com/

Assist students as they personalize the objective

1. I want to be a better problem solver in math.
2. I want to know more about linear equations.
3. I want to know how to solve linear equations. I can do this by working with a partner and asking questions when I don't understand.
4. I want to be better at identifying variables.


Setting Objectives
Providing Feedback

Providing Feedback



Providing information about how well students are performing relative to a particular learning objective so that they can improve their performance.

Classroom Recommendations

Provide feedback that addresses what is correct and elaborates on what students need to do next.

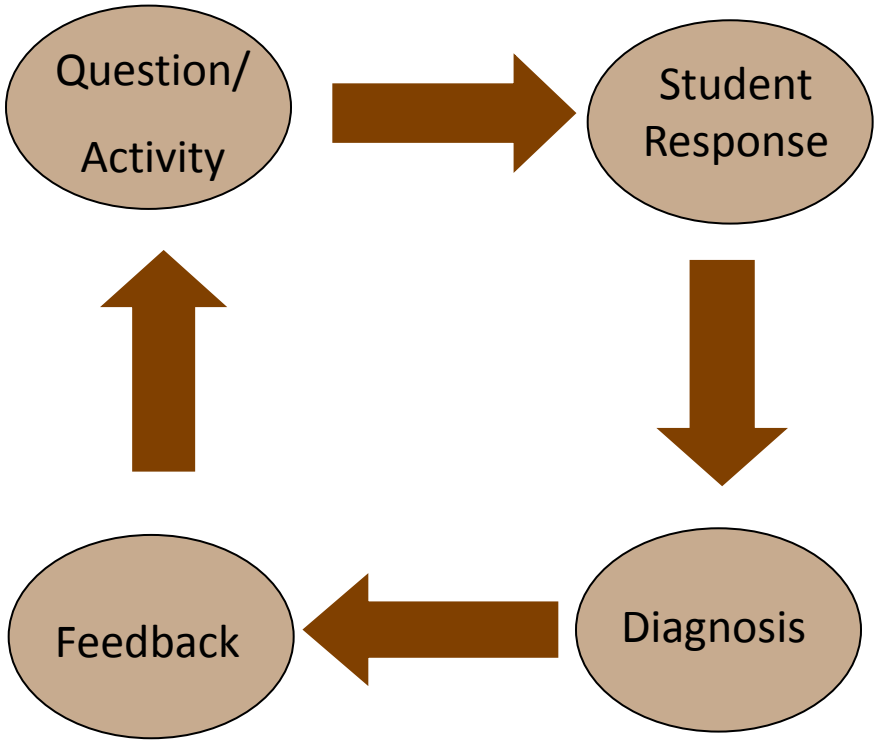
Provide feedback appropriately in time to meet students' needs.

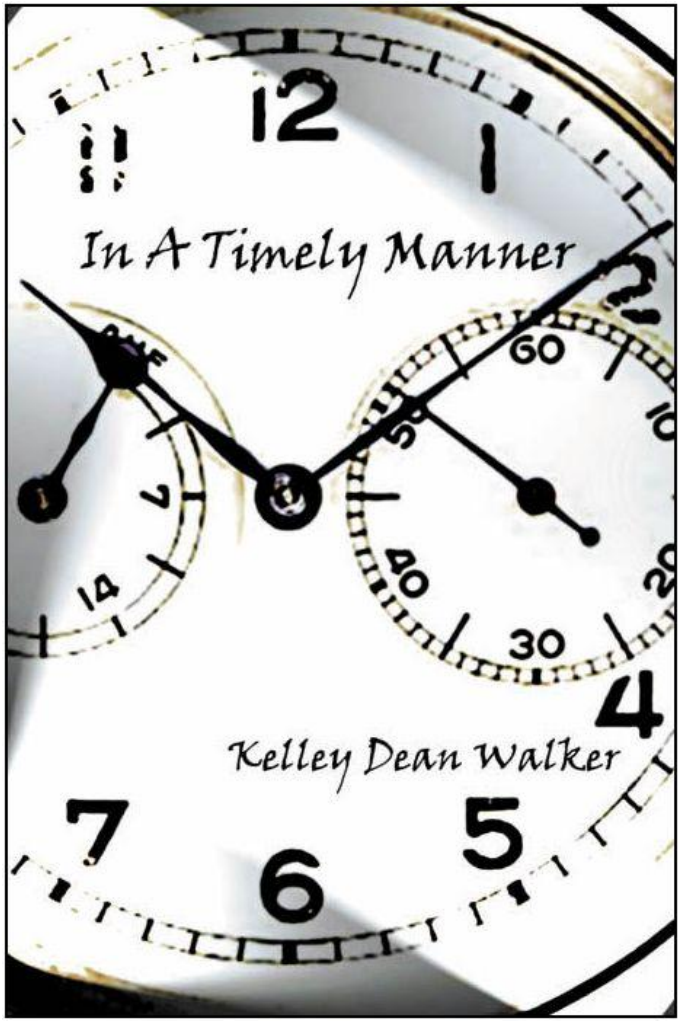
Provide feedback that is criterion-referenced.

Engage students in the feedback process.

Research Results For Corrective Feedback				
Synthesis Study	Focus	# of Studies	Ave. ES	Percentile Gain
Types Of Feedback	Right/wrong answer	6	-.08	-3
	Correct answer	39	.22	9
	Repeat until correct	4	.53	20
	Explanation	9	.53	20

Provide Timely Feedback





The timing of feedback appears to be crucial to its effectiveness. Feedback given *immediately after a test situation* is best. The more delay that occurs in giving feedback, the less improvement there is in achievement.

Research Results For Corrective Feedback				
Synthesis Study	Focus	# of Studies	Ave. ES	Percentile Gain
Timing Of Feedback	Immediately after item	49	.19	7
	Immediately after test	2	.72	26
	Delayed after test	8	.56	21

Provide feedback that is criterion-referenced.

SCORING RUBRIC		
4		Exemplary performance that exceeds the targeted level of performance.
3	Desired Level of Performance	Solid performance that meets the targeted level of performance.
2		Performance that is emerging or developing towards the targeted level of performance.
1		Performance in which an attempt was made but there are some serious misconceptions or errors.
0		No judgment can be made about the student's level of performance.

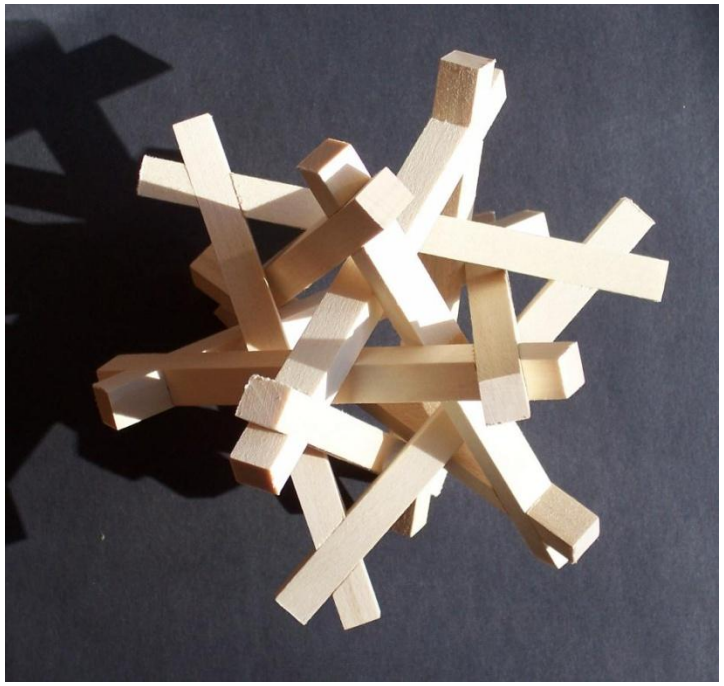
Rubric for a Perfect Cup of Coffee

4	A large, steaming cup of café mocha with fresh whipped cream served in a Royal Daulton china cup by an attractive person on the deck of a private yacht off the coast of Spain.
3	A large cup of Starbuck's Blend coffee with caramel syrup served in a ceramic mug by a waiter in the dining room at my favorite restaurant.
2	A cup of SHESC's coffee with creamer in a paper cup served by me at my desk on a typical day in the office.
1	A cup of cold, two-day old instant coffee with grounds floating on the top in a styrofoam cup.

http://rubistar.4teachers.org

Engage students in the feedback process.

- Peer assessment
- Self-assessment



Discussion

How do I teach my students to use and provide feedback?

What opportunities do I give my students for self-assessment?

What opportunities do I give my students for peer-assessment?

What improvements could I make in these processes?

REINFORCING EFFORT

Enhances students' understanding of the relationship between effort and achievement by addressing students' attitudes and beliefs about learning.

People attribute success to:

- *Ability*
- *Luck*
- *Other People*
- *Effort*

Eccles, Wigfield, & Schiefele, 1998

Classroom Recommendations

Teach students about the relationship between effort and achievement.

Provide students with explicit guidance about what it means to expend effort.

Ask students to keep track of their effort and achievement.

Providing Recognition

Classroom Recommendations

Promote a mastery-goal orientation.

Provide praise that is specific and aligned with expected performance and behaviors.

Use concrete symbols of recognition.

Promote a Mastery-goal Orientation

Emphasize personal mastery instead of competition between students.

Make the learning environment more predictable.

Design learning activities for different levels of learning.

Provide praise that is specific and aligned with expected performance and behaviors.

Be sincere when offering praise.

Link effort to accomplishments and accomplishments to motivation.

Be cognizant of age and culture preferences.

- How did recognition change the motivation of Brian's students?
- In what ways did Brian's students receive recognition from outside of the classroom?
- What's keeping you from doing this?

Offer Concrete Symbols of Recognition

Increase intrinsic motivation by providing tangible rewards when appropriate.

Use rewards to recognize the quality of student work and progress toward the learning objective

Vary the types of rewards you provide.

Cooperative Learning

Provides students with opportunities to interact with each other in groups in ways that enhance their learning.

Classroom Recommendations

- Include elements of positive interdependence and individual accountability.
- Organize groups of two to five students.
- Use cooperative learning consistently and systematically.

Two defining elements of Cooperative Learning

- Positive interdependence
- Individual accountability

Cooperative Learning Rubrics

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Responsibilities					
Fulfills Team Role & Duties	Does not perform any duties of assigned team role	Performs some duties	Performs all duties	Performs all duties & helps others	
Participates in Action Planning	Does not participate in planning even after encouragement	Participates in planning after encouragement	Participates in planning without encouragement	Participates in planning & encourages others	
Shares Responsibilities	Does not fulfill responsibilities & relies on others to do their work	Fulfills some responsibilities	Fulfills responsibilities	Fulfills responsibilities & helps others	
Contributions					
Researches & Gathers Information	Collects information that does not relate to the topic	Collects very little information which relates to the topic	Collects some basic information which mostly relates to the topic	Collects a lot of information that relates to the topic	
Share Information					
Upholds Team Action Plan	Doesn't follow the team action plan	Follows the team action plan some of the time	Follows the team action plan	Follows the team action plan & helps others stay on track	

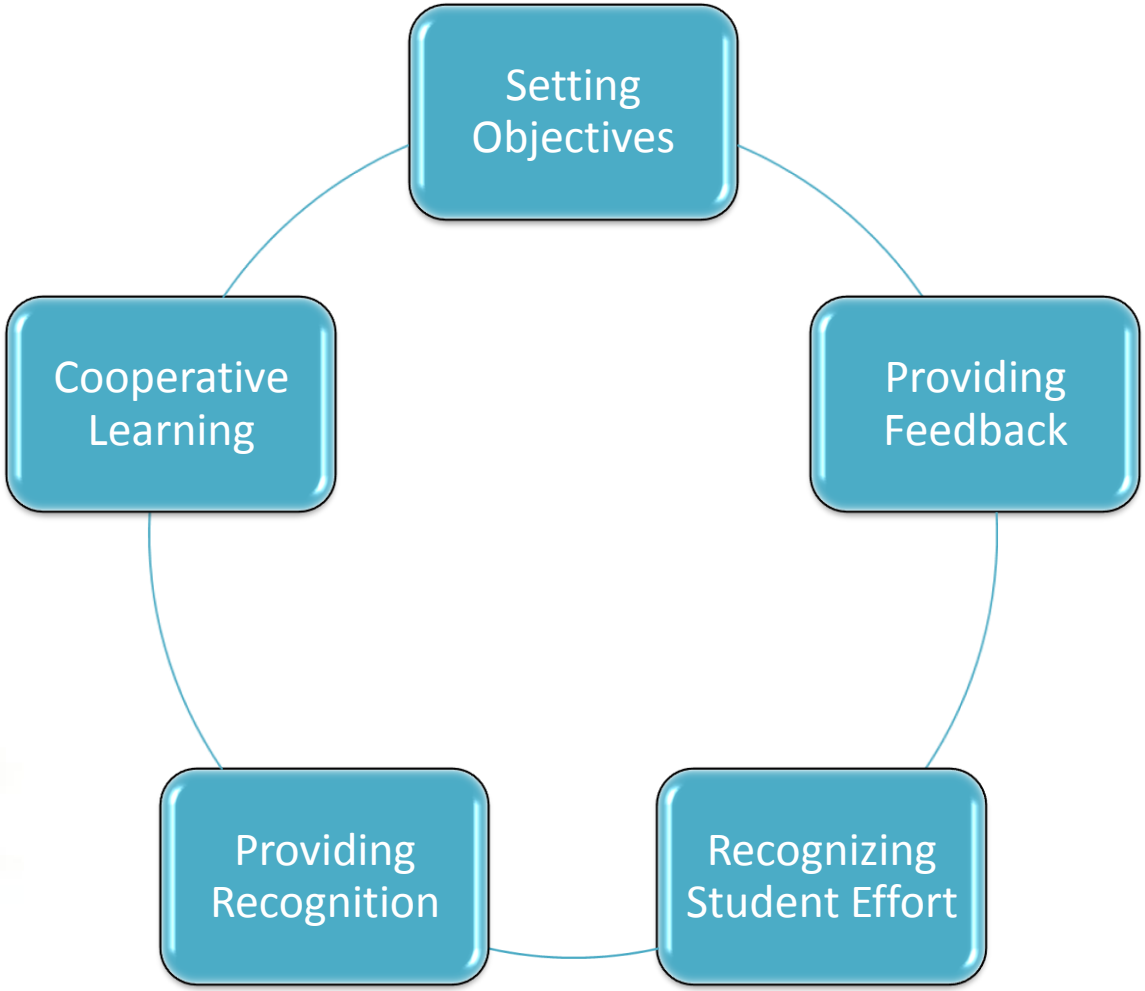
Rubric from NASA Science files

iste International Society for Technology in Education

Partnership for 21st Century Skills

- **Communication and Collaboration**
  - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- **Learning and Innovation**
  - Creativity and Innovation
  - Critical Thinking and Problem Solving
  - Communication and Collaboration

Creating an Environment for Learning



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1

- ***Thank you for a great day!!***

2

- Review your notes and slides.
- Make changes in your classroom.

3

- Complete the Evaluation.