What Works in Schools

Dr. Robert Marzano

School Improvement Conference
Michigan Department of Education

Lansing Center
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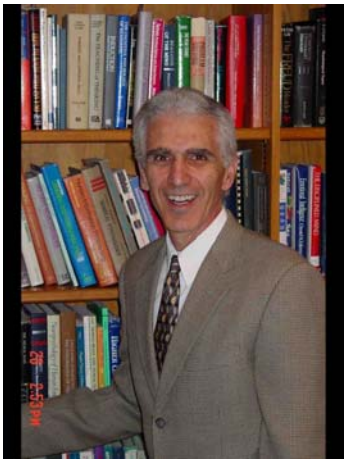


Robert J. Marzano

Robert J. Marzano is a Senior Scholar at Mid-Continent Research for Education and Learning in Aurora, Colorado; an Associate Professor at Cardinal Stritch University in Milwaukee, Wisconsin; Vice President of Pathfinder Education, Inc.; and President of Marzano and Associates a private consulting firm in Centennial, Colorado. He has developed programs and practices used by K-12 classrooms that translate current research and theory in cognition into instructional methods. An internationally known trainer and speaker, Marzano has authored 21 books and more than 150 articles and chapters on topics such as reading and writing instruction, thinking skills, school effectiveness, restructuring, assessment, cognition, and standards implementation. Recent ASCD titles include *Building Background Knowledge for Academic Achievement* (Marzano, 2004), *Classroom Management That Works: Research Based Strategies for Every Teacher* (Marzano, Marzano, & Pickering, 2003), *What Works in Schools: Translating Research into Action* (2003); *A Handbook for Classroom Instruction That Works* (Marzano, Paynter, Pickering, & Gaddy 2001); and *Classroom Instruction That Works: Research -Based Strategies for Increasing Student Achievement* (Marzano, Pickering, Pollack, 2001). Additionally, Marzano headed a team of authors who developed *Dimensions of Learning* (ASCD, 1992). His most recent work is *The Pathfinder Project: Exploring the Power of One* (Pathfinder Educations, Inc. 2003). Marzano received his B.A. in English from Iona College in New York, and M.Ed. in Reading/Language Arts from Seattle University, and a Ph.D. in Curriculum and Instruction from the University of Washington. He can be contacted at 7127 S. Danube Ct. Centennial, CO 80016. Phone: (303)796-7683. E-mail:robertjmarzano@aol.com.

When Schools Account for 20% of Achievement Variance

	Success	Failure
Effective School	72%	28%
Ineffective School	28%	72%

When Schools Account for 50% of Achievement Variance

	Success	Failure
Highly Effective School	85%	15%
Highly Ineffective School	15%	85%

Aspirin Accounts for Less Than 1% of Variance in Heart Attacks (r=.034)

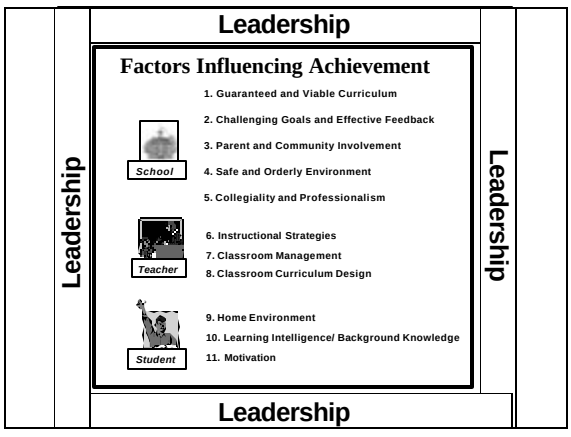
Rosnow & Rosenthal, 1989. American Psychologist. Vol. 44, 1276-1284

	Heart Attack	No Heart Attack
Aspirin	48.3%	51.7%
No Aspirin	51.7%	48.3%

Meta-Analysis of CSR Models

Borman et al, 2003. Review of Educational Research

- Average: d= .15 (P gain = 6)
- Range: -2.13 to +7.83
- 35% of effect sizes were below zero



The average correlation between principal leadership behavior and school achievement is
.25
which means….

The average correlation between principal leadership behavior and school achievement is
.25
which means….

a one standard deviation increase in principal leadership is associated with a 10 percentile point gain in school achievement.

Range of findings	P gain for 1 sd change leadership	Change from P50
High	19	69
Average	10	60
Low	-1	49

Factors Mediating Leadership Behavior

Focus of the change

and

Order of the change

Leadership for Incremental Change

- Emphasize relationships
- Establish strong lines of communication
- Be an advocate for the school
- Provide resources
- Maintain visibility
- Protect teachers from distractions
- Create culture of collaboration
- Look for and celebrate successes

Leadership for Second Order Change

- Shake up the status quo
- Expect some things to seem worse
- Propose new ideas
- Operate from strong beliefs
- Tolerate ambiguity and dissent
- Talk research and theory
- Create explicit goals for change
- Define success in terms of goals

	Percentile Entering	Percentile Leaving
Average School/ Average Teacher	50th	50th
Highly Ineffective School/Highly Ineffective Teacher	50th	3rd
Highly Effective School/ Highly Ineffective Teacher	50th	37th
Highly Ineffective School/ Highly Effective Teacher	50th	63rd
Highly Effective School/ Highly Effective Teacher	50th	96th
Highly Effective School/ Average Teacher	50th	78th

Factors Influencing Achievement

School

1. **Guaranteed and Viable Curriculum**
2. **Challenging Goals and Effective Feedback**
3. **Parent and Community Involvement**
4. **Safe and Orderly Environment**
5. **Collegiality and Professionalism**

Factors Influencing Achievement

School

1.Guaranteed and Viable Curriculum

If you wanted to teach all of the standards in the national documents, you would have to change schooling from K-12 to K-22 .

- 255 standards across 14 subject areas
- 3,500 benchmarks
- 13,000 hours of class time available
- 9,000 hours of instruction available
- 15,500 hours of instruction needed to cover the 3,500 benchmarks

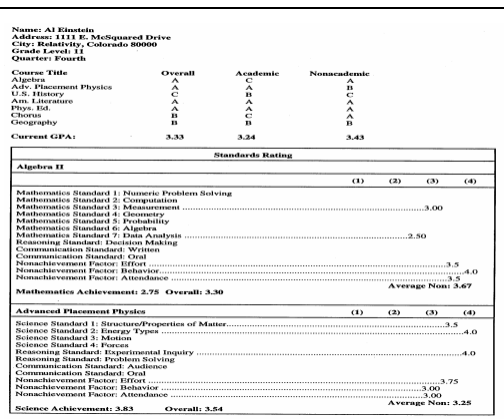
Factors Influencing Achievement

School

2.Challenging Goals & Effective Feedback

Models for Standards-Based Design

- External Assessments
- Core Courses
- Projects, Exhibitions,& Portfolios
- Standards-Based Report Cards



Name: Al Einstein
Address: 1111 E. McSquared Drive
City: Relativity, Colorado 80000
Grade Level: 11
Quarter: Fourth

Course Title	Overall	Academic	Nonacademic
Algebra	A	C	A
Adv. Placement Physics	A	A	B
U.S. History	C	B	C
Am. Literature	A	A	A
Phys. Ed.	A	A	A
Chorus	B	C	A
Geography	B	B	B
Current GPA:	**3.33**	**3.24**	**3.43**

Standards Rating

Algebra II

	(1)	(2)	(3)	(4)
Mathematics Standard 1: Numeric Problem Solving				
Mathematics Standard 2: Computation				
Mathematics Standard 3: Measurement			3.00	
Mathematics Standard 4: Geometry				
Mathematics Standard 5: Probability				
Mathematics Standard 6: Algebra				
Mathematics Standard 7: Data Analysis			2.50	
Reasoning Standard: Decision Making				
Communication Standard: Written				
Communication Standard: Oral				
Nonachievement Factor: Effort				3.5
Nonachievement Factor: Behavior				4.0
Nonachievement Factor: Attendance				3.5
				Average Non: 3.67

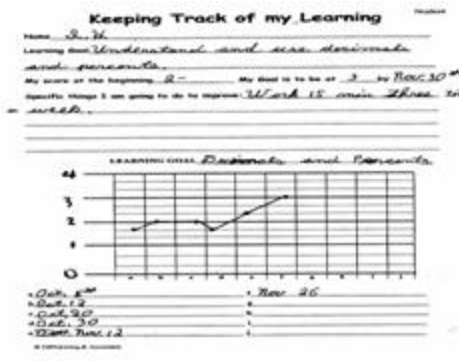
Mathematics Achievement: 2.75 Overall: 3.30

Advanced Placement Physics

	(1)	(2)	(3)	(4)
Science Standard 1: Structure/Properties of Matter				3.5
Science Standard 2: Energy Types				4.0
Science Standard 3: Motion				
Science Standard 4: Forces				
Reasoning Standard: Experimental Inquiry				4.0
Reasoning Standard: Problem Solving				
Communication Standard: Audience				
Communication Standard: Oral				
Nonachievement Factor: Effort				3.75
Nonachievement Factor: Behavior				3.00
Nonachievement Factor: Attendance				3.00
				Average Non: 3.25

Science Achievement: 3.83 Overall: 3.54

Subject and Standards Rated Average	Average Rating	Number of Ratings	Most Recent Rating	Highest Rating	Lowest Rating
Subject: MATHEMATICS					
Standard 1: Numeric Problem Solving	2.4	5	3.75	3.75	1.5
Standard 2: Computation	1.6	4	2.75	2.75	1.0
Standard 3: Measurement	2.7	3	2.75	3.00	2.0
Standard 4: Geometry	1.8	6	2.75	2.75	1.5
Standard 5: Probability	1.7	3	3.75	3.75	1.0
Standard 6: Algebra	2.4	2	3.75	3.75	1.0
Standard 7: Data Analysis	3.0	1	3.00	3.00	3.0
Overall Mathematics	**2.29**	**24**	**3.21**	**3.25**	**1.57**
Subject: SCIENCE					
Standard 1: Structure/Properties of Matter	3.4	4	3.75	3.75	1.25
Standard 2: Energy Types	3.5	6	4.0	4.0	3.25
Standard 3: Motion	3.5	4	3.75	4.0	2.75
Standard 4: Forces	3.75	4	4.0	4.0	3.0
Overall Science	**3.54**	**18**	**3.87**	**3.94**	**2.56**
Subject: HISTORY					
Standard 1: Civilization & Human Society	2.75	4	3.5	3.75	2.25
Standard 2: Exploration & Colonization	3.0	3	3.0	3.25	2.5
Standard 3: Revolution and Conflict	3.75	5	3.5	4.0	3.25
Standard 4: Industry and Commerce	2.7	3	3.25	3.5	1.25
Standard 5: Forms of Government	3.0	2	2.0	4.0	2.0
Overall History	**3.04**	**17**	**3.05**	**3.7**	**2.25**
Subject: GEOGRAPHY					
Standard 1: Places and Regions	2.0	3	1	3.75	1.0
Standard 2: Human Systems	3.75	4	3.25	4.0	3.25
Standard 3: Physical Systems	2.8	4	3.75	3.75	2.0
Standard 4: Uses of Geography	3.5	3	4.0	4.0	3.25
Standard 5: Environment & Society	3.0	3	4	4.0	2.5
Standard 6: The World in Spatial Terms	2.5	2	3.0	3.0	2.0
Overall Geography	**2.93**	**19**	**3.2**	**3.75**	**2.73**



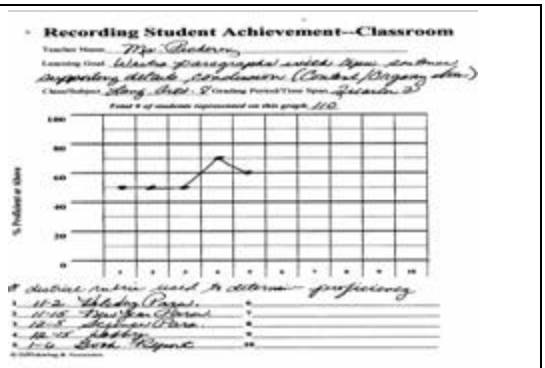


FIGURE 1.1
Percentage of Teachers Reporting Use of
Effort, Behavior, Cooperation, and Attendance in Determining Grades

Grade Level	Effort	Behavior	Cooperation	Attendance
K (n = 79)	31%	7%	4%	8%
1–3 (n = 110)	29%	8%	4%	8%
4–6 (n = 158)	30%	8%	8%	10%
7–9 (n = 142)	36%	10%	8%	18%
10–12 (n = 151)	36%	14%	9%	24%

Source: Marzano (1995b). Copyright © 1995 by McREL Institute. Reprinted with permission.

Assessment Key:

A. Quiz: Sept. 10	F. Unit Test #1: Sept. 22	K. Quiz: Oct. 8
B. Homework: Sept. 10	G. Performance Task: Sept. 24	L. Homework: Oct. 11
C. Homework: Sept. 15	H. Homework: Sept. 29	M. Homework: Oct. 13
D. Homework: Sept. 17	I. Quiz: Oct. 1	N. Quiz: Oct. 15
E. Quiz: Sept. 20	J. Homework: Oct. 6	O. Unit Test-Performance Task: Oct. 6

Standards:		Precipitation	Ocean Currents	Measurement of Temperature	Reading Tables	Estimation	Effort	Behavior	Attendance
Student:									
Carmen Walker	A	1.5		1.0		2.0	2.5	3.0	4.0
	B	2.0			1.5		1.0	3.0	4.0
	C	1.5				2.0	2.5	3.0	4.0
	D	2.0					2.5	2.5	4.0
	E	1.5		1.5		2.0	2.0	3.0	4.0
	F	2.0		1.5	1.5		2.0	3.0	4.0
	G	2.5		1.5	1.5	2.0	1.0	3.5	4.0
	H		2.0				3.0	3.5	4.0
	I		2.0				1.0	3.0	4.0
	J			2.0	1.5		2.0	2.5	4.0
	K		2.0		2.0		2.5	3.0	4.0
	L		2.0				1.0	3.0	4.0
	M		2.5				2.0	3.5	4.0
	N		2.5				2.5	3.5	4.0
	O	2.5	2.5	2.0	2.0		1.0	3.5	4.0
Final Topic Score		2.25	2.5	1.75	1.75	2.0	1.9	3.1	4.0

Figure 5.6. Standards-based Grade Book with Non-Achievement Factors.

Making Standards-Based Reporting Work

- 20 or fewer elements per subject, per grade level, per year
- a residual category for teacher supplemental content
- a uniform way of scoring assessments and assignments that is RIGOROUS

Comprehension Grade 9

- While reading grade level appropriate material the student identifies and articulates major explicit and implicit patterns including:
  - Main idea with multiple levels of supporting detail
  - Arguments with complex systems of support
  - Complex causal relationships
  - Complex plots with multiple story lines

4	In addition to exhibiting level 3 performance, the student's responses demonstrate in-depth inferences and applications that go beyond what was taught in class.
3	The student's responses demonstrate no major errors or omissions regarding any of the information and/or processes
2	The student's responses indicate major errors or omissions regarding the more complex ideas and processes; however they do not indicate major errors or omissions relative to the simpler details and processes
1	The student provides responses that indicate a distinct lack of understanding of the knowledge. However, with help, the student demonstrates partial understanding of some of the knowledge.
0	The student provides little or no response. Even with help the student does not exhibit a partial understanding of the knowledge.

Factors Influencing Achievement

Teacher

6. Instructional Strategies

7. Classroom Management

8. Classroom Curriculum Design

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Factors Influencing Achievement

Teacher

6. Instructional Strategies

Classroom Instruction That Works

Identifying similarities and differences

Summarizing and note taking

Reinforcing effort and providing recognition

Homework and practice

Nonlinguistic Representations

Cooperative Learning

Setting Objectives and Providing Feedback

Generating and Testing Hypotheses

Cues, Questions, and Advance Organizers

Factors Influencing Achievement

Teacher

7. Classroom Management

Factors Influencing Achievement

Teacher

8. Classroom Curriculum Design

Findings from 15 Action Research Projects

	Don't Use	Use
No adjustments	50% pass	55%pass
Ceiling effect adjusted	50% pass	58% pass
Ceiling & outliers adjusted	50% pass	70% pass
Best case	50% pass	84% pass

Focus area:

I'm going to work on the part of question 2 that deals with elaborating on what students have learned using comparison and contrast.

Reaction:

(Nov. 5) This took more time than I thought to get through the comparison activity. It also seemed harder than it should be.
(Nov 7) I'm surprised that the kids remembered what we did 2 days ago about polynomials. This might have worked better than I thought.

Focus area:

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Question 1: What will I do to establish and communicate learning goals, track student progress and celebrate success?

Setting Objectives

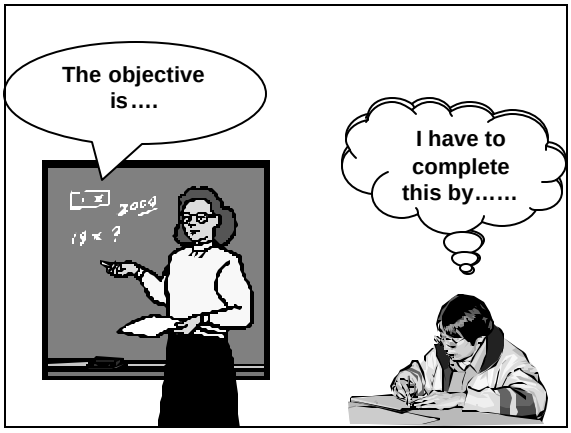
Generalizations from research on Setting Objectives:

1. **Instructional goals narrow students' focus.**
2. **Instructional goals should not be too specific.**
3. **Students should be encouraged to personalize the teacher's goals.**

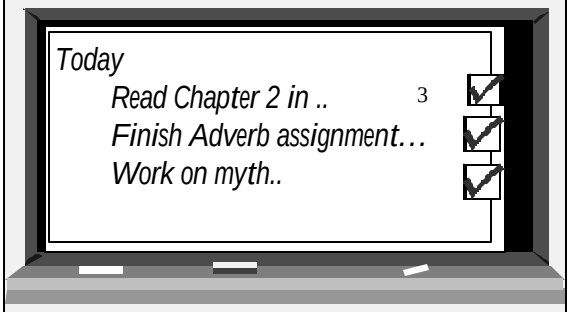
When students know what they are <u>learning</u>, their performance, on average, has been shown to be

<u>27 percentile points higher</u>

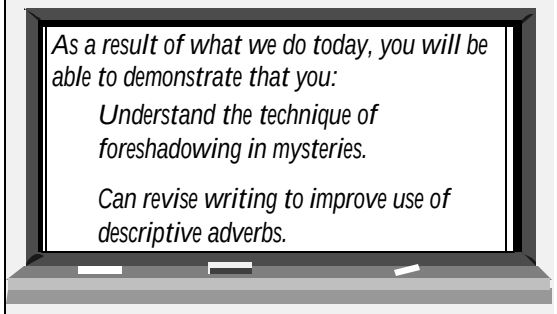
than students who do not know what they are learning.



Activities/Assignments



Learning Goals



Activities/Assignments or Learning Goals?????

- ***Add and subtract fractions.***
- ***Understand the various components of culture.***
- ***Make a travel brochure for a region.***
- ***Make a simple machine.***
- ***Understand the relationship between fractions and decimals***
- ***Write a report on Charles Dickens.***
- ***Design a menu that includes a balance of foods from the food pyramid.***
- ***Know states and their capitals.***

Formats for homework that clarify purpose:

Assignment Notebook

Language Arts	**Assignment:**
Math	**Due:**
Science	**Learning Goal: As a result of doing this assignment, I should**
Social Studies	***Know more about…?*** ***Understand better…?*** ***Be more skilled at…?***

On this writing task, I will be working on, and would like to receive feedback on, **_____.**

_____
_____
_____
_____

In my next writing assignment, I need to work on_____.

How effective am I when I set objectives?

When I set objectives, to what extent do I believe that my students

- ✓ **could describe what they are learning, not just describe what they are doing**
- ✓ **focus more on learning goals than on completing assignments**
- ✓ **personalize the learning goals**

Not at all **To a great extent**

1 2 3 4

Setting Objectives and Providing Feedback

Generalizations from research on Providing Feedback

1. **Feedback should be "corrective" in nature.**
2. **Feedback should be timely.**
3. **Feedback should be specific to a criterion.**
4. **Students can effectively provide their own feedback.**

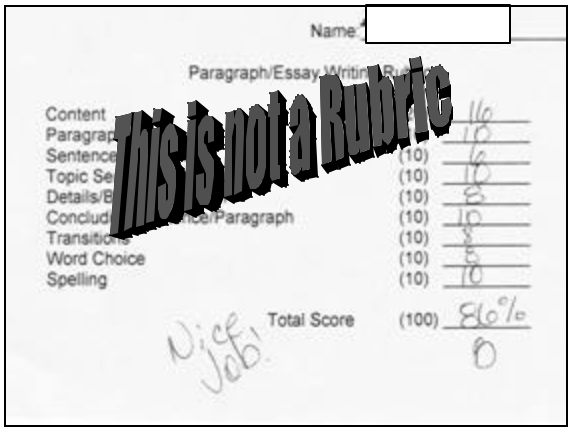
Feedback Research

Students assessed, Group A received feedback, Group B did not; Both groups assessed again

Type of Feedback	# of studies	Group A performance compared to Group B
Right/wrong answers	6	-3
Correct answers	30	+9
Repeat until correct	4	+20
Explain	9	+20

How do you provide feedback in a way that students

- **Know what they are learning and how well the are progressing**
- **Can explain what they need to do to get better.**



Rubrics

•How can they help students learn?

Feedback should be corrective.

Feedback should be specific to a criterion.

What is the focus of the criteria?

4	In addition to exhibiting level 3 performance, the student's responses demonstrate in-depth inferences and applications that go beyond what was taught in class.
3	The student's responses demonstrate no major errors or omissions regarding any of the information and/or processes
2	The student's responses indicate major errors or omissions regarding the more complex ideas and processes; however they do not indicate major errors or omissions relative to the simpler details and processes
1	The student provides responses that indicate a distinct lack of understanding of the knowledge. However, with help, the student demonstrates partial understanding of some of the knowledge.
0	The student provides little or no response. Even with help the student does not exhibit a partial understanding of the knowledge.

On this writing task, I will be working on, and would like to receive feedback on, **_____.**

_____

_____

_____

_____

In my next writing assignment, I will be working on_____.

How effective am I when I provide feedback?

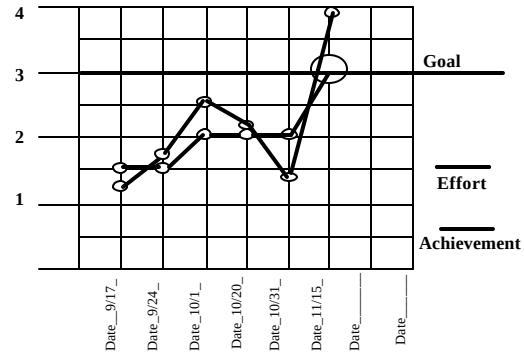
When I provide feedback, to what extent to I believe that my students

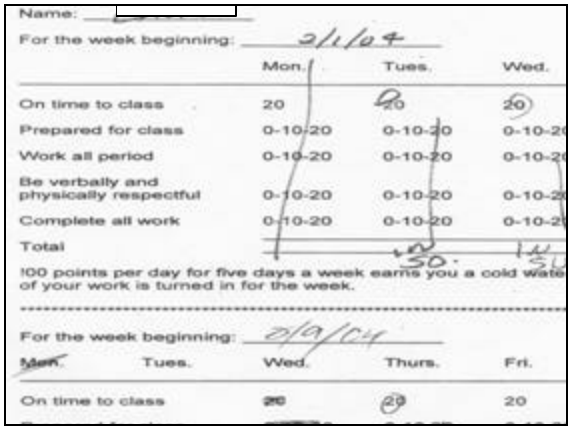
Understand..

- ✓ **How well they are progressing toward specific learning goals when compared to a consistently applied standard,**
- ✓ **How much they have improved over time, *and***
- ✓ **How to improve their performance.**

Not at all **To a great extent**

1 2 3 4





Name: _____

For the week beginning: 2/1/04

	Mon.	Tues.	Wed.
On time to class	20	20	20
Prepared for class	0-10-20	0-10-20	0-10-2
Work all period	0-10-20	0-10-20	0-10-2
Be verbally and physically respectful	0-10-20	0-10-20	0-10-2
Complete all work	0-10-20	0-10-20	0-10-2
Total		30.	

!00 points per day for five days a week earns you a cold wate
of your work is turned in for the week.

For the week beginning: 2/9/04

	Tues.	Wed.	Thurs.	Fri.
On time to class		20	20	20

Question 2: What will I do to help students interact with the new knowledge?

Ensuring Students Interact with the Content

- Preview
- Encode
- Elaborate
- Summarize
- Reflect

Preview

- Ways to see big picture (classroom outline or graphic organizer)
- Questions relating old knowledge to new knowledge
- Direct links between old and new knowledge

Encode

(in pairs, triads, small groups)

- Restate or rephrase
- Identify explicit patterns/relationships
- Nonlinguistic representations

Elaborate

(in pairs, triads, small groups)

- Infer relationships/patterns
- Identify similarities and differences with other content
  - Comparison
  - Classification
  - Metaphors
  - Analogies

Comparing

Identifying and describing similarities and differences among items.

A and B are similar because they both

_____

_____

_____

A and B are different because

A is _____, but B is _____.

A is _____, but B is _____.

A is _____, but B is _____.

Fun and **Enjoyment** are similar because they both

_____.

_____.

_____.

Fun and **Enjoyment** are different because

Fun is ___, but **Enjoyment** is _____.

Fun is____, but **Enjoyment** is _____.

Fun is ____, but **Enjoyment** is _____.

A win and a **victory** are similar because they both

_____.

_____.

_____.

A win and **a victory** are different because

Win is ___, but **Victory** is _____.

Win is ___,but **Victory** is _____.

Win is ___,but **Victory** is _____.

Fractions and **Decimals** are similar because they both _____.

_____.

_____.

Fractions and **Decimals** are different because

Fractions __, but **Decimals** __.

Fractions __, but **Decimals** __.

Fractions __, but **Decimals** __.

A monarchy and a **dictatorship** are similar because they both _____.

_____.

_____.

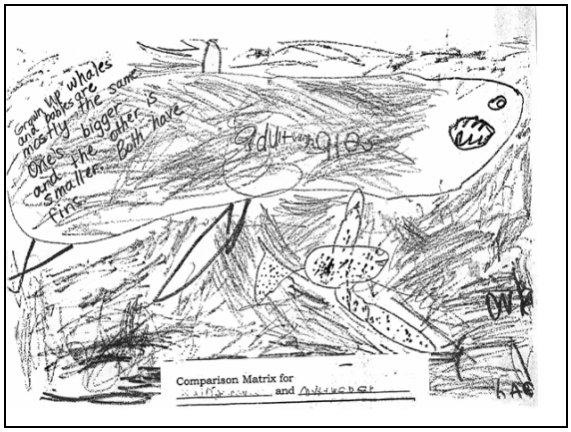
A monarchy and **a dictatorship** are different because

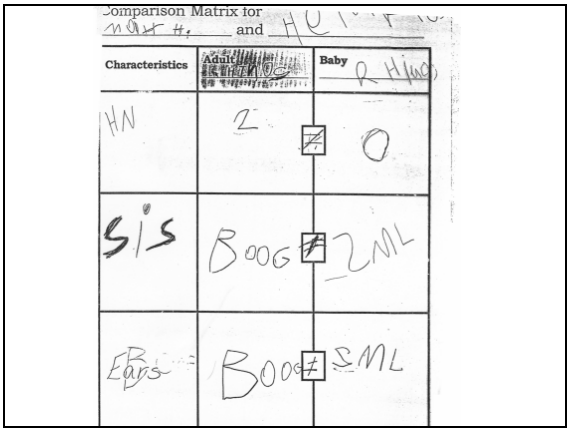
a **monarchy**___, but a **dictatorship**____.

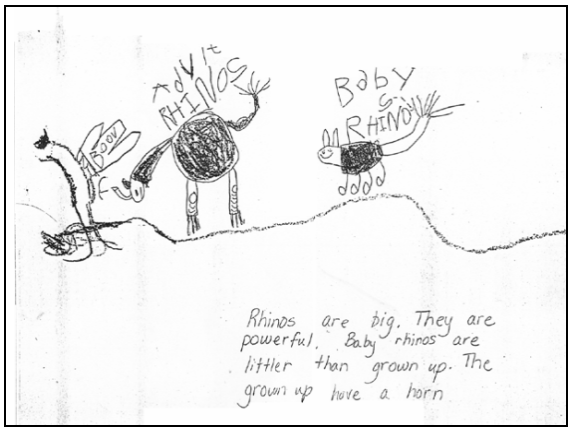
a **monarchy**___, but a **dictatorship**____.

a **monarchy**___, but a **dictatorship**____.

	Item 1	Item 2	Item 3	
Characteristic 1				**Similarities and Differences**
Characteristic 2				**Similarities and Differences**
Characteristic 3				**Similarities and Differences**
Characteristic 4				**Similarities and Differences**







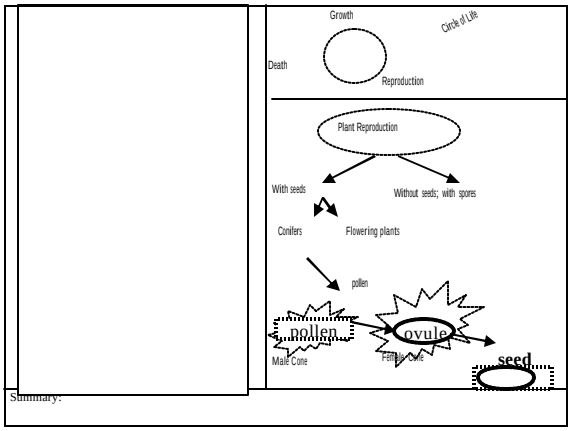
Summarize

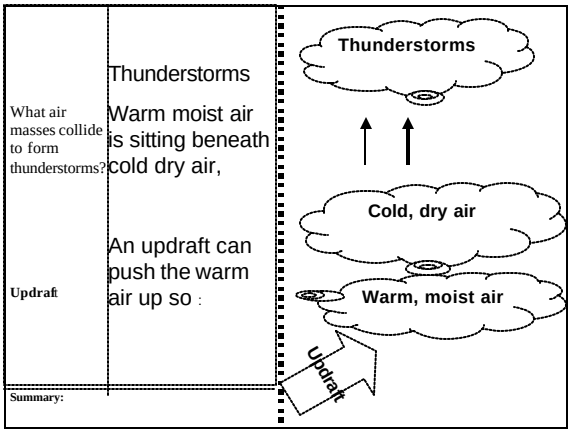
(individually or in pairs, triads, small groups)

- Short oral summaries
- Short written summaries
- Nonlinguistic representations
- Formal notes

Combination Notes

Regular notes	Symbol, picture or graphic
Summary	



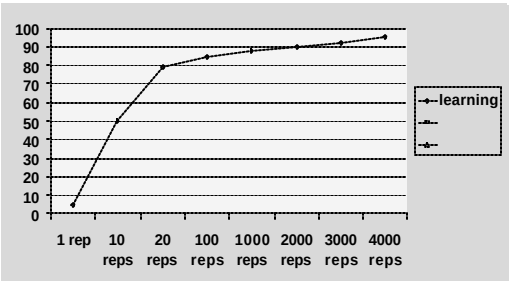


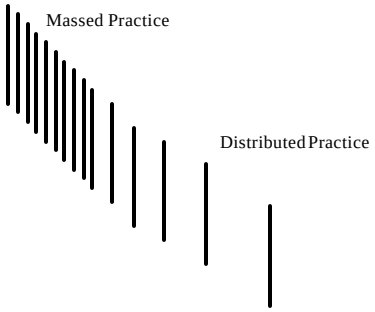
Reflect

- What was new?
- About what was I right/wrong?
- About what am I sure/not sure?

Question 3: What will I do to help students review, revise and practice new content?

Power Law





Question 4: What will I do to help students apply new knowledge?

EXPERIMENTAL INQUIRY

People who were in high school and college during the 1960's are now in their forties and fifties. Consider this population. Some would say that it is interesting that there seems to be no lasting effect of the '60's on these people. One possible explanation for this is that the effect is there, but it is very subtle. Try to determine what effects the experiences of the '60's are having on the lives of these people now. Test your hypothesis and report on…

OR

EXPERIMENTAL INQUIRY---Continued

During the late '80's, there was a renewed interest in the Vietnam War (movies, books, documentaries). Hypothesize a possible explanation for this. Set up an experiment or other activity to test your hypothesis. Report on…

a) your hypothesis and how you tested your hypothesis

b) your findings

c) your conclusions

DECISION MAKING

It is 1969. You are on the Board of *Time* Magazine. For the cover of the December issue, your want to select a "Person of the Decade." Your job is to decide which person should be selected and then justify your decision to the publishers by listing the people that were considered, the criteria you used, and how each person was rated under each criterion. Report on

a) The criteria you used and the importance you placed on each;

b) The individuals you considered and the extent to which they met your criteria; and

c) Your final selection

PROJECTIVE INVESTIGATION

Select a major movement from the '60's that involved civil disobedience. Consider what would have happened if there had been no civil disobedience as part of the movement. Identify a different method of seeking change. Describe

1)how the movement during the decade might have played out differently, and

2)how the present would be different.

if there had been no civil disobedience and, instead, the method of change you identify had been used exclusively.

Problem Solving

1. **Identify the goal you are trying to accomplish**
2. **Describe the barriers or constraints that are preventing you from achieving your goal—that are creating the problem.**
3. **Identify different solutions for overcoming the barriers or constraints and hypothesize which solution is likely to be the most effective.**
4. **Try your solution—either in reality or through a simulation.**
5. **Explain whether your hypothesis was correct. Determine if you want to test another hypothesis, using a different solution.**

Question 5: What will I do to engage students and keep their energy level up?

- Games, puzzles, simulations
- Inconsequential competition
- Friendly controversy
- Possibility of being put on the spot
- Physical movement
- Opportunity to talk about myself
- Unusual information
- Contextual variety

Question 6: What will I do to ensure effective pacing and flow of activities?

Monitor input overload

Use effective transitions

Question 7: What will I do to establish or maintain classroom rules and procedures?

Typical Areas for Rules and Procedures

- General classroom behavior
- Beginning the day or period
- Transitions and interruptions
- Materials and equipment
- Group work
- Seatwork
- Base group behavior

Question 8: What will I do to establish or maintain consequences for not following classroom rules and procedures?

Question 9: What will I do to establish and maintain effective relationships with students?

7. Classroom Management

iii. Maintaining effective teacher-student relationships

<<<<<<<<<<<<<<<<<<<>>>>>>>>>>>>>>>>>>>>>

High Dominance	**High Submission**
Clarity of purpose, strong guidance	*Lack of clarity, purpose, or direction*

<<<<<<<<<<<<<<<<<<<>>>>>>>>>>>>>>>>>>>>>

High Cooperation	**High Opposition**
Concern for needs of others, team member	*Active antagonism, thwart others' goals*

Dominance (guidance & control)

- Assertive message content
- Assertive body language

Behavioral Indicators of Assertiveness

- Eye contact
- Body posture
- Gestures
- Facial expressions
- Voice tone
- Follow-through on agreements
- Message content

Cooperation
(concern and cooperation)

- Flexible learning goals
- Personal interest in students
- Equitable and positive behavior
- Appropriate response to incorrect response
- Practice "being with" people

Question 10: What will I do to maintain an appropriate mental set?

Mental Set

- Withitness
- Emotional objectivity

Mental Set

- Withitness
- Emotional objectivity

Emotional Objectivity

- Acting as if the following statements are true:
  - **"I take nothing that occurs in this classroom personally."**
  - **"Nothing can alter my calm demeanor."**

or

Mastering the art of little discernable reaction.

Factors Influencing Achievement

Student

9. Home Environment

10. Learned Intelligence/ Background Knowledge

11. Motivation

Factors Influencing Achievement

Student

9. Home Environment

9. Home Environment

Socio-Economic Indicators	% of Variance Explained
Income Only	10
Education Only	3
Occupation Only	4
Home Atmosphere Only	33
Income and Education	5

Factors Influencing Achievement

Student

10. Learned Intelligence/ Background Knowledge

Vocabulary Terms & Phrases

Generalizations from Research

1. **Students must encounter words in context more than once to learn them.**
2. **Instruction in new words enhances learning those words in context.**
3. **One of the best ways to learn a new word is to associate an image with it.**
4. **Direct vocabulary instruction works.**
5. **Direct instruction on words that are critical to new content produces the most powerful learning.**

Chances of Learning New Words in Context

	Factor	*Chances of Learning Word*
Ability	**Low**	**8%**
	Medium	**12%**
	High	**19%**
Grade Level	**Grade 4**	**8%**
	Grade 11	**33 %**
Text Density	**1 new/10 words**	**7%**
	1 new/74 words	**14%**
	1 new/150 words	**30%**

Students read new information; comprehension assessed:

If there is some regular vocabulary instruction--

12%ile gain

If the direct instruction is for words in the passage that is being read,

33%ile gain

Vocabulary Terms & Phrases

Classroom Practice:

1. **Identify critical terms and phrases**
2. **Use a research-based process for teaching new terms and phrases**

3rd Grade Mathematics

angle	octagon
area	parallel
average	perimeter
bar graph	product
congruent	rhombus
difference	square
estimation	symmetry
hexagon	triangle
length	vertical
width	horizontal

3rd Grade Science

predict	pitch
compare	food web
observe	life cycle
investigate	living organism
analyze	structure
amplify	inherit
frequency	reproduction
vibration	environment
Newton	characteristics
properties	hypothesis

3rd Language Arts

actor	ending
animation	facial expression
audience	humor
cause & effect	minor character
commercial	main character
conclusion	plot development
cue	role playing
detail	central idea
directions	mood
drama	myth

3rd Social Studies

prairie	Native American
Oregon Trail	legacy
lariat	stampede
oxen	fertile
expedition	wagon trails
territory	cabin
homestead	cattle
settlement	seasonal dwelling
pioneer	plateau
farm/ranch	frontier

A Six-Step Process for Teaching New Terms

Step 1: Provide a description, explanation, or example of the new term.

Step 2: Ask students to restate the description, explanation, or example in their own words.

Step 3: Ask students to construct a picture, symbol, or graphic representing the term or phrase.

Step 4: Engage students periodically in activities that help them add to their knowledge of the terms in their notebooks.

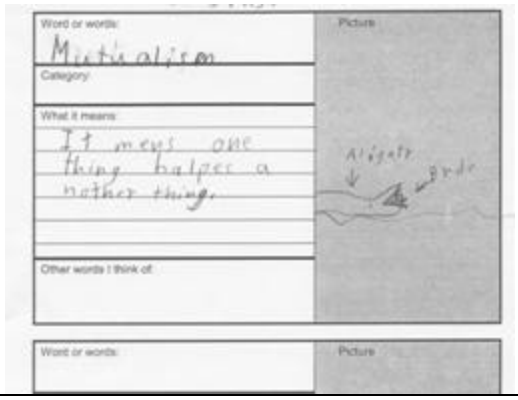
Step 5: Periodically ask students to discuss the terms with one another..

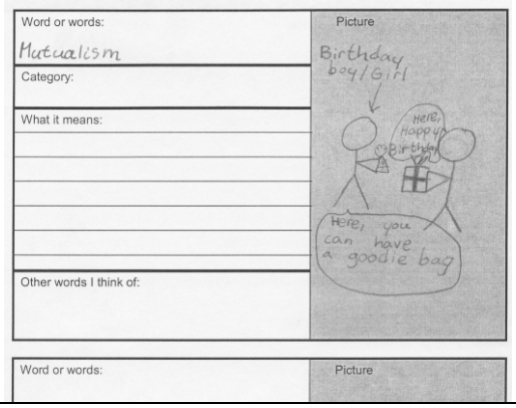
Step 6: Involve students periodically in games that allow them to play with terms.

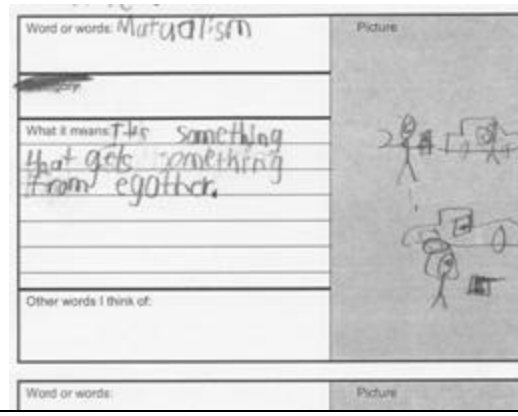
Mutualism

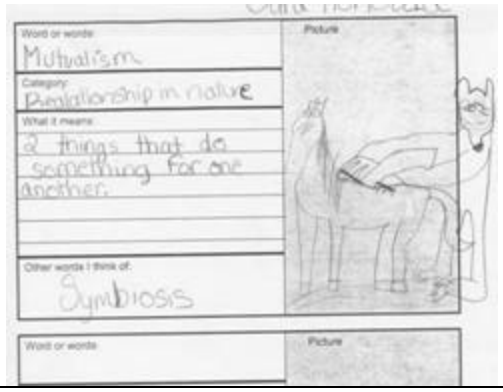
The interaction of organisms within an ecosystem in a manner that significantly benefits both, although the resulting relationship is not critical to the continued existence of either.

Category: *(standard, unit, alphabetical…)*	
Term, phrase	
Description:	Picture/graphic
Related terms, phrases	









Vocabulary Terms & Phrases

•Periodically have students review the explanations and representations?

Establish personal vocabulary records

Have fun with words

Factors Influencing Achievement

Student

9. Motivation

Books Related to This Presentation

- What Works in Schools (ascd.org)
- Building Background Knowledge for Academic Achievement (ascd.org)
- Building Academic Vocabulary Teacher's Manual (ascd.org)
- Classroom Management That Works (ascd.org)
- A Handbook for Classroom Management That Works (ascd.org)
- Classroom Instruction That Works (ascd.org)
- A Handbook for Classroom Instruction That Works (ascd.org)
- The Pathfinder Project (pathfinderusa.com)
- School Leadership That Works (ascd.org)
- Transforming Classroom Grading (ascd.org)
- Excelsiorsoftware.com
- Classroom Assessment and Grading in a Standards-Based System (ascd.org)
- Designing a New Taxonomy of Educational Objectives (Corwinpress.com)