

**A paper supporting
AN IMAGINAL EDUCATION CURRICULUM**

**For an
"Algebra I Class Demonstration"**

**Developed for Mrs. Rhonda Bird
North-East Coordinator of the Central Kansas Cooperative in Education**

Submitted in agreement for Continuing Education Hours

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CLASS MOTTO:

THE CLASS WINS

**As we care for each other by helping each other
PREPARE FOR THE CHOCOLATE FACTORY!**

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Chapter One

MAKING A CASE FOR IMAGINAL EDUCATION

INTRODUCTION

In a recent conversation with Mrs. Leah Hollen, the lead teacher for the Behavior Disorder (BD) students at Salina Central High School, she observed that Central HS does a good job of educating the top 13% of our students. But what of the lower 87%, and where does this leave the BD students? This was a perceptive statement and continues to haunt me as a Para-Professional dedicated to working with these students.

With this problem in mind, it is my recommendation to Mrs. Hollen, and to Mrs. Rhonda Bird, the North East Coordinator of the Central Kansas Cooperative In Education, that the dynamics of **Imaginal Education (IM)** could change this situation. The methods of Imaginal Education address the operating images of students through which they draw their self-perceptions that regulate their behavior. When these images change, then their behavior changes.

First Semester: 2009

To present the dynamics of such a curriculum to Mrs. Bird, and to meet the yearly continuing education hours needed as a para-educator, I drew up a document that summarized the activities of IM. Added to this document was an appeal that my personal work of learning the Algebra I text book so that I could effectively work with my assigned students be used to meet the Continuing Education credits necessary for the first half of the school year. During the Fall Semester, every hour of classroom presentation began with two to three hours of home preparation. Such preparation has continued for the Spring Semester.

The illustrations provided were from the work of the Institute of Cultural Affairs (ICA) and their work in the 5th City area of the Chicago ghetto--begun in the 1950's--and then spread throughout the world that continues today. My wife, Beverly, and I have been associated with the ICA since 1968; I am a First Teacher for the ICA.

Second Semester: 2010—

This document is prepared in order to both meet the continuing education requirement as well as to illustrate the dimensions of an Imaginal Education Curriculum. Also included is a statement on recommended next steps to seriously address the behavioral changes desired in the students in our division.

To this end this document briefly notes the following: I - Illuminating the Imperative; II - Pointing to a Solution; and III - Demonstrating an IM lesson plan. A short list of Resources and a brief Bibliography is added.

ILLUMINATING THE IMPERATIVE

Our youth live in a broken society---

In recent correspondence with Mrs. Hollen, I quoted from a paper written by Bruce E. Levine, *Surviving America's Depression Epidemic: How to Find Morale, Energy, and Community in a World Gone Crazy* (Chelsea Green Publishing, 2007), a clinical psychologist in private practice, observes the following:

. . . a school is nothing less than a miniature society. What young people experience in schools is the chief means of creating our future society. Schools are routinely places where kids, through fear, learn to comply with authorities for whom they often have no respect and to regurgitate material they often find meaningless.

Levine goes on to add,

Oppositional Defiant Disorder (ODD) is an increasingly popular diagnosis for children and teenagers. The official symptoms of ODD include, "often actively defies or refuses to comply with adult requests or rules," and "often argues with adults."

Then he concludes with the following information,

. . . virtually all children diagnosed with ADHD will pay attention to activities that they actually enjoy or that they have chosen. In other words, when ADHD-labeled kids are having a good time and in control, the "disease" goes away. (Embolding is my emphasis.)

Changing worldviews---

My correspondence with Mrs. Hollen observed, "From my own association with the international work doing 'Third World Redevelopment emphasizing the Human Factors in Human Development' there is extensive research done over the last 60 years to provide a substantive analysis on the global collapse of the Modern Worldview that encompasses the Cultural/Symbolic, Economic and Political processes."

The Modern Worldview begun in Newtonian physics and supported by the Renaissance, the Reformation and Industrialization. One hundred years ago, with Einstein's invention of the new physics of Relativity, the death of the Modern Worldview began and the birth of a new Post-Modern Worldview began. Our global society, represented by our youth, is on the cusp of a new way to look at Reality. Note: reality does not change, but we are given new tools that change the prescriptive lenses through which we view the same reality that never changes.

The response of contemporary Industrial society---

Concerning our contemporary students, Levin notes that the response of contemporary psychiatry is to calm them, so that they can be put through the system without making so many waves. Our school systems, based on the old worldview industrial models of authority, obedience and production are dying if not dead. It is my contention that many of our youth are rebelling against such an industrial box that can not tolerate independent activity. The consequence is that the "system" applies an ever-smaller box until compliance and manageability are achieved. As the boxes get tighter some of our youth only get madder.

What about those who are acting out their frustration at the system because it doesn't understand their post-modern needs? All of our charges are acting out their frustration at the break down of family life, the anticipation of a horrendous college debt and a meaningless symbol system, e.g. as in the disrespect given to the morning Pledge of Allegiance.

The final question is not how do we change our kids, but rather how do we change the educational system to meet their needs?

Soren Kierkegaard writes in *Sickness Unto Death* that the "Defiant" are closer to awakening than those who live out of "Immediacy" or "Circumspection." The defiant are angry because they see the possibility of being meaningfully engaged, and they are frustrated that they have no way to be heard. They know something is wrong, but they may not know exactly what it is, yet they are demanding their needs be met. As Levin notes above, when their needs are met, and when they are meaningfully engaged, all of their acting-out is reduced.

Somewhere among all of our defiant youth can be a Madam Curie, an Einstein, an Obama or a Hillary Clinton. This is what is worth salvaging. The tools to meet such goals are the instruments of Imaginal Education. What can be done?

My preliminary analysis---

The experience I have as a professional staff member walking the halls at Salina Central HS is that our high school youth are profoundly depressed. What they are experiencing is the collapsing structure of global society that began when Einstein first wrote down the equation $E=MC^2$. In general the ways in which our youth dress, or undress, say much about their interior perception of themselves: ragged clothing, sweater-hoodies behind which they hide, the boys pull their pants down low while pulling down long undershirts over their exposed areas; the girls wear tops to reveal as much of their breasts as can be considered legal; they all walk the halls as zombies all the while running to clutch at each other in hugs and kisses. This says nothing about their forms of suggestive dancing. This is not a moral analysis but a description of their state of being demonstrating the condition of their interior selfhood.

In particular the BD students are kept in structural boxes, and the more they act out the tighter the box until they rebel. It is a so-called vicious circle. Some students give up and give in to this organization/industrial structure. But it is the true rebels about whom I am more concerned.

A case point is Miss H. She is a Senior, assigned by the courts to the BD program and lives in a group home. She is pleasant, smart, sensitive to the Fine Arts, loves ironic jokes, and can rebel against the box with a withering verbal attack.

It is interesting to note that when these students are engaged in something that really interests them, their demeanor changes. For instance, in Art Class when they are first introduced to a new concept or method that involves the physical handling of materials (clay, for instance), then the students are deeply engaged. They are quiet, respectful of each other and their teachers. This change in attitude can be sustained for some time. After the newness disappears and it becomes more like work, or they do not have an early success, then their attitude changes. However, for a few moments they have entered Nirvana, and they experience a deep sense of humane engagement.

POINTING TO A SOLUTION

Again in my correspondence with Mrs. Hollen: How can we set these people free?

We can participate in the reformation of the educational system in order to touch the lives of our future through awakening our youth using the tools they will need themselves. These tools are useful to those who teach now, and their teaching can be a demonstration of the tools an awakened generation can use into the future. To do this we can provide a forum where an experimental curriculum with teachers and staff are given the instruments to develop the environment for the release and fulfillment of our youth.

A Movemental Consciousness---

(Note: see Attached # 1) Teachers need to be inspired through a "movemental consciousness." The chart clearly sets out the necessary principles. What we have in education is an "industrial or institutional consciousness." When we have the creation of a corps of teachers that are dedicated movementally, they become inspired to survive until success is achieved; they are dedicated come hell or high water, and they are dedicated for life; they are committed to perform the necessary deed. (*The Movemental Consciousness is spelled out in a paper developed by Dr. Patricia Porter Scott, "The ICA as a Learning Organization."*)

A curriculum of Imaginal Education (IM):

The Imaginal Education curriculum is based on the work of Kenneth Boulding's book, *The Image*. The educational philosophy is that each individual has operating images forged out of her or his culture, race, language, family structure (or the lack of it), and personal experiences. (This point is clearly revealed in the youth with which we work!) These screens filter all information and life experiences. It is these screens that color and flavor all of their daily activities and attitudes. These operating images can be changed by creating an *environment* where the *choices* students make help them to participate in something larger and more meaningful that is worthwhile and worthy of their attention. Why not substitute learning the skills necessary to solve any number of social, political and environmental problems instead of the goal of just meeting school credits for graduation. When the context changes, then the purpose of learning transforms the student. An inspiring *esprit de corps* teaches people that it is the story out of which they live that changes their contextual purpose. The result is their operating images are transformed.

Interestingly, the operating images of the teaching staff colors their perceptions as well. This is why the shift to a movemental consciousness is so important.

The need for heroes---

In recent conversations, Mrs. Hollen mentioned the need for heroes. In the Salina Journal, (Sunday, March 14, 2010, Section B, p. B1) carried a featured article on Brian Kinnaird, a 1984 graduate of Salina South High School, who went on to become a professor of criminal justice and to write the book *Parallel Universe* in order, "to rekindle a love affair with things that were once good."

The Journal article notes, "In his research and experience, finding one's heroic impulse comes down to people wanting to become something bigger than themselves, or other than themselves, Kinnaird said, "In my opinion, super heroes are the most potent and strongest mythological translators of heroism in the modern age," he said. "It really started with the first Superman comic book in 1938 and continues on," with the superhero movies of today."

Kinnaird concludes, "We have to acknowledge human greatness as a value," he said. "We have to surround ourselves with appropriate mentors and role models to help us grow up and become who we really are."

There is no better illustration of the power of Imaginal Education. As Bruce Levin in his paper concludes, "... people who have become demoralized do not need analysis, pontification, and the prevailing psychology. Rather the immobilized need morale, healing, and a liberating psychology." Again, this is the work of Imaginal Education.

Where are the male-model heroes our youth need today? What heroines are needed for our young women? Actually, these heroes are here, and it is our responsibility as educators to identify them and promote them in healthy ways in and out of the classroom.

Chapter Two

DEMONSTRATING THE PRINCIPLES OF IMAGINAL EDUCATION

The application of the book, Math Jive:

My daughter, Jana, is a pre-school teacher and a teacher substitute at Macksville High School. During a session of Continuing Education she bought a book by Wendy M. Hill, *Math Jive*. Since my interest in math has been piqued by the work I'm doing to keep prepared to teach Algebra I to a couple of Freshmen BD students, I opened the pages with great delight for two reasons. First, the uniqueness of the presentation is firmly in the IM family. Second, Mrs. Hill lives in Lakin, Kansas which is the location of my final employment as a United Methodist pastor. The coincidence is remarkable.

Math Jive presents a "Visual Vocabulary for Mathematics and Other Great Teaching Strategies." The book was published in 2009 and printed at Newton, KS by the Mennonite Press, Inc. One of the processes she used she describes in the following:

Of course after teaching this lesson (*on the difference between a translation and a reflection*), I move out the desks in my room and have the students lie on the floor while I give them different transformations to perform. They love it and it is so good for the bodily kinesthetic learner.

The curriculum I propose to use incorporates several of the activities the author suggests.

Some principles of the book, Math Jive—

Wendy Hill lays out the following principles that I've summarized as:

a. Kinesthetic Learning:

In most cases desks and chairs are taken out of the classroom. In some cases, work tables are provided around which students stand. The emphasis here is keeping the students moving, standing, sitting/laying on the floor, using the white boards, etc. Desks and chairs can be appropriate at test times and on other occasions helpful to the learning event.

The author's point is, "I prefer to teach students in a way that gets them physically involved because learning takes place when the students are actively engaged, and I stress **actively**."

b. Appropriate competition:

The author emphasizes the role of competition to stimulate attention. Her qualifying adjective is the word "appropriate." This kind of competition never pits the best against less than the best. For instance, the teacher chooses two relay teams to stand in rows. Those first in line write down the problem as the teacher reads it to them. Those second in line compete to do the first step while those in succession do the third and fourth steps. The team to finish first with the correct answer wins points. Then it is on to the next problem.

c. Active bulletin boards:

The author suggests that all time is learning time. She makes hallway Word Search posters to engage students while they wait for classes to start. Bulletin Boards are teaching tools and can actively engage and challenge participation.

d. Focused Field Trips:

Before field trips are taken, Mrs. Hill recommends the preparation of both the students, sponsors, volunteers, and parents. In addition it can be useful

to prepare those who will be visited. Every trip ends with the opportunity for all to reflect on what has been experienced and learned.

e. Visual Environment

The classroom environment teaches as much as the content of the lesson plan. When the environment is treated as a lesson tool the students are quickly drawn into the lesson by addressing their unconsciousness and intuitions. Every lesson needs to use the teaching space to enhance the lesson.

My treatment of the book, *Math Jive*:

A visual chart of the five chapters and forty-nine pages of the book are included with this report. The chart gives a visual presentation of the entire book at a glance. The bottom three boxes present us with a relationship of the pages to the number of paragraphs on these pages and a brief summary statement of the content in these paragraphs. The top three boxes represent my reflective statements; this is my dialogue with the author as I make broader summary statements as the boxes rise and include increasingly larger amounts of pages and paragraphs.

There is a rhyme to illustrate the significance of Charting:

One, Two, Three Four,
Four by Four.
Four by Four.
We can order chaos,
We can order chaos.
Four by Four.
Four by Four.

The methods of Imaginal Education presented in this paper:

A variety of the teaching methods presented in this paper are inspired by the tools of Imaginal Education. A list of these methods will help to draw the reader's attention to them.

1. Class Glue: The Class Motto:" The importance of the group—

This motto is important in helping to change the students' operating images from an image of their own self-importance to an appreciation that the students live in a learning community. This motto that is repeated at the beginning and the end of every class rehearses for the students that their well being depends not only on their individual success but on the success of the group as well.

2. Class Glue: The Class Theme: The motivation for the group---

Another important part of the glue that holds the class together and motivates them to work beyond their own individual interests is the semester-long theme. In this instance the reward is a trip to the Russell Stover candy factory near Abilene. Please note that this project also is a learning event that involves the administration at Russell Stovers. It is intended that the class will divide into learning groups to work with company representatives in applying algebraic principles to living/working situations.

3. A Second Semester Plan: "Real Life Math"

While the first semester is aimed at a reward type event, it can be anticipated that the second semester's Theme could be aimed at what the author of the book, *Math Jive*, calls "Real Life Math." This is a project aimed at applying algebraic principles to what it actually costs to live independently from parents.

4. **Scholar Stoles**

This is pure Imaginal Education at work.

These stoles identify each student's role in her or his own education.

The purpose of the stoles is to associate each student with the task of education and honors each student with the identification with superior work.

The stoles to be used in the class as chocolate colored to emphasize the semester theme.

Chapter three

THE ONE-PAGE LESSON PLAN

Demonstrating an Imaginal Education Class in Action

Demonstration Model		Chocolate Point Day Solving Multi-Step Equations		Freshman Algebra I
Date		Teacher: Dr. Salmon		
Time	Style	Rational Objective (To be learned)	Existential Aim (To be experienced)	Product
	Open Space Work tables	Grounding 2-step problems	Learning can engage all of me with all of us	Souvenir Lessons to put In notebook Choco-Pts for field trip
80 Min.				
O R C E S T R A T I O N				
PRELUDE	I	II	III	POSTLUDE
**S. T. E. P. S. prep DISTRACTING EVENT Sing: "Head and Shoulders, Knees and Toes" (faster and faster) Assuming three to four students. (Curriculum can be spiraled up or down as necessary.) Students put cell phones and ipods in personal storage boxes. EACH STUDENT PUTS ON THEIR CHOCOLATE COLORED "SCHOLARS STOLE" Hand out: Context of lesson (place in Algebra section of notebooks) Begin with "Class Motto"	<u>Teams of two</u> Work together on "Quick Warm Up" problems solving for "X" <i>Each team has two problems to solve and they work together.</i> Emphasize neatness and completeness of work. Each Team makes a report of one problem they solved by putting the problem on the board and demonstrating the solution	Introduce multi-step problems Use white board Students sit on floor and are challenged to identify each subsequent step Chocolate BREAK TIME – 5 min Class called back by reprise on "Head and Shoulder's Knees and Toes" song	Two Relay Teams compete to solve problems Each individual team member solves one step and passes the marker on to the next in line. The race is to solve each problem while working at the white board Each time the Winning team earns Chocolate Points Individual work on problems. They can choose to work alone or with someone. Place work in Notebooks	Class reflection on what they learned about doing Multi-Step Problems Everyone sits on the floor Use: Depth Drilling Format Push to ground process Distribute "Process Summary Study Sheets" to be placed in each notebook Distribute candy pieces and note total "Chocolate Points" for each student
Tools Notebooks Context sheets Stapler and hole punch as necessary	Set of problems for each student White Board and markers Pencils and paper Calculator	White Board and markers Hot/Cold Chocolate milk and snacks	White Board & markers Teacher's set of problems and key Pencils and paper Calculator	Process Summary Study Sheets. Stapler and hole punch as necessary Choco Pts. Summary Candy pieces
Time 10 min. 5 min. exercise 5 min. context	10 and 10 min. 20 min.	10 and 5 min. 15 min.	15 and 15 min. 30 min.	5 min.

Chapter Four

DEMONSTRATION CURRICULUM

"The Lesson Plan explained"

It is important that the team of teachers is able to see at a glance what and where the class is going. Also, this provides a picture of where the class needs to dwell instead of getting stuck at any one point along the way. Again, this is one way to "order chaos."

The top part of the Lesson Plan is crucial to the process.

Style/Time:

Every lesson is taught as much by the classroom environment as by the content of the lesson. The teaching staff will want to carefully consider their use of the space in light of the time allowed.

Product/Souvenir:

Every lesson (and every meeting) needs an anticipated product. Without naming this product then the lesson (or meeting) drifts off into irrelevance. While the product is named this does not preclude that serendipity can change the end result.

Rational Objective/Existential Aim:

These two statements are crucial preparation for the teaching staff. Unless a summary statement is written for both the objective of the lesson, as well as the emotional tone of the lesson, then the lesson is experienced by the students and the staff as existing without purpose.

The orchestration of the lesson plan:

The methods of Imaginal Education find it helpful to break any lesson into five segments. While any five grouping are sufficient, IM recommends the traditional Art Form of the theatre and of the formal symphony of a Prelude, Three Acts, and a Postlude. Again, this is another way to "order chaos."

The advantage to this plan is the help it provides in pre-determining where the emphasis of the lesson falls. In this lesson plan it is in the 30-minute segments of the "Relay Team" competition that is followed by a period of individual work.

One instrumental note:

My lesson plan provides a method for the collection of all electronic gear as the students enter. Private boxes are containers for this equipment. Individual Coat Racks are provided so that all hats, caps and hoodies are cared for before the class begins, and computers are removed or disabled.

Tools and Time boxes:

For each step, the Tool category provides assurance that each lesson has what it needs to get the task done prior to the class starting.

The Time category provides assurance that each lesson is given its *appropriate amount of time, and it prevents the lesson from stalling at a less important moment.*

4 The class "reflection" time: The Depth Drilling Conversation Format

During the **Postlude** section of the Lesson Plan a time is provided to gather the students together (on the floor, in this instance) and lead them in a reflective conversation. I call this time "Learning their Learn." Few lesson plans provide for this time and these plans are diminished by it. This can be considered the best of the Imaginal Education learning methods.

You'll note in the orchestration sheet provided as a part of the Lesson Plan that a unique conversational form is provided as "The Depth Drilling

Conversation Format.” This format is useful under almost all circumstances at any time in the learning process. On its own it can be used as the lesson itself. In this lesson plan it is used in less than four minutes; yet the job is accomplished.

The Depth Drilling Conversation Format has four levels---

THE OBJECTIVE LEVEL

Almost all reflective lessons begin at the wrong level. This is evident in our common greeting of “Hello! **How are you?**” No one really is interested in answering this question; it becomes an “objective level” question asked in a “Reflective level” way. Every conversation needs to start with objective information. The African-American culture uses, “Wass-up.”

Because of the time constraint, this lesson plan begins by asking each student to name one thing we’ve done since they walked into the room. Not only does this honor each person who can answer the question without fear of being wrong, it gives them a chance to hear their own voice that affirms their presence.

THE REFLECTIVE LEVEL

This level always can be associated with our emotions. The questions serve to begin the depth drilling. It works best to start with a more objective emotional level and then move to the feelings of the group.

In this brief reflective lesson the two questions are: What did you enjoy the most? *Where did you struggle?*

INTERPRETIVE LEVEL

This is the level where the real depth begins as students are given the opportunity to think through the significance of what the lesson addresses. When time allows, much time can be given to pushing the insights to greater levels of perception.

In this lesson, because of the short time provided, the teacher will distribute the “Process Summary Sheets” while noting a quick review of the necessary steps. Then the students are asked to put their copy of the “Summary Study Sheet” in their own notebooks for future reference.

DECISIONAL LEVEL

There is no more fun than leading any group into a decision level conversation. At this level the conversation includes the profound significance of what has been accomplished. Then the conversation can be turned to “Future Directions” on the importance of the task of mathematics and these principles are applied to everyday situations.

At this level each student can be asked to “name” the meaning of the day for them.

To close this particular lesson, the class is asked to stand and recite together the Class Motto.

This demonstration lesson---

Meets the revised standards (July 2003) set by the Kansas State Board of Education. (See the "Attachments" at the end of this material).

The Cognitive Goal of this paper is to rehearse the Algebraic multi-step principles of working with equations with variables on both sides. This lesson is a part of the material in Section 3, chapter 3 of the text books, Algebra I: "Teacher's Edition," 2002 and 2007.

The Existential Aim of this paper is for each student to be awakened so that *learning can be fun while experiencing a variety of teaching methods using both the student's intuitions and understandings in order to grasp the necessary patterns to solve problems and apply principles.*

The Semester-Long" Theme

"THE CHOCOLATE FACTORY"

In order to provide motivation for the class to participate in their Algebra Lessons the theme of "The Chocolate Factory" is presented to the students. During this semester the students will be given "**Choco-Points**" for performance, neatness of work, and their attitude expressed during class. It is suggested that a goal of 1,000 points per student be the goal.

At the end of the semester a field trip is planned to visit the Russell Stover Candy Company near Abilene. The trip serves as a celebrative moment for the class as well as a time for the practical application of algebra to the problems of running a factory.

The administration of the factory will be participants in this process. Prior to the beginning of school, the Lead Teacher (or teachers) will meet with the factory administration to prepare them for this visit. The various departments will be alerted to our visit so they can be prepared to demonstrate how algebraic equations are useful in various departments. For instance,

Shipping and Distribution can demonstrate cost per shipments and demonstrations of the time of delivery for two trucks traveling the same distance at two different speeds.

The **Business Office** can demonstrate how to determine the number of hours per employee can be calculated.

Other divisions can provide a number of ways to make use of algebra. It is recommended that the class be divided into 4 or 5 groups to visit an assigned office in order to learn the lesson.

Parents and class volunteers also will be alerted to prepare for learning opportunities.

Afterward, the entire class could make a tour of the facility and receive any gifts from the factory if offered.

During the initial exploratory trip, the factory could be asked to donate sufficient candy to be used during the school semester for snacks and/or additional motivation.

Choco-Points Poster

To keep track of the point system, it is recommended that a large poster be created with the names of each student listed down the side. Across the top are various categories, such as:

SPECIAL EVENT GOALS When <u>EACH PERSON</u> in the <u>ENTIRE CLASS</u> reaches these goals--			
300 pts. per person First:: Candy Piece Special Chocolate Treat	600 pts. per person Second: Candy Box Movie: "The Chocolate Factory"	900 pts. per person Third: Candy Vat Treat! Chocolate Fountain Marshmallows and Strawberries	1000 pts. per person Factory Trip Russell Stover Chocolate Factory near Abilene

Choco-Points tracking poster

Student Name	Daily Score <i>Ave. 12 per day</i>	Weekly Total <i>Ave. 90 per wk.</i>	Monthly Total <i>Ave. 360 per mo.</i>	I GO on the Field Trip! <i>1,000 pts!</i>	WE GO on the Field Trip <i>Total of all students To date!</i>

Chocolate Décor

During the first day of school, the students in Algebra I class are asked to create posters reflecting their love of **CHOCOLATE**. These posters form the core of the room decorations for the semester,

Additional items can be added as things come up that are appropriate.

CLASS MOTTO (Also is put on a poster as part of the class décor)

This class begins and ends by standing to repeat together the Class Motto. The purpose of the motto is to rehearse the Imaginal Educational principle that the class is more important than any of the individual students. Another way to state this purpose is that each student dedicates themselves to something that is bigger than any one person. The goal is to prepare the class through its curriculum to win a trip to the Russell Stover Chocolate factory near Abilene.

THE CLASS WINS
as we care for each other by helping each other.
PREPARE FOR THE CHOCOLATE FACTORY!

THE SCHOLAR'S STOLE

Each class period begins as the students put their cell phones and ipods in their own individual storage box. Caps and hoodies are to be left in lockers and not brought into the classroom. The students pick up their own chocolate colored SCHOLAR'S STOLE to wear during the entire class period. At the end of class, and after saying the Class Motto, the stoles are left with the teacher when the students pick up their electronic gear.

Demonstration Curriculum

S. T. E. P. S. WORKSHEET

Teacher: Dr.

Salmon

S P A C E	<p>The classroom space is the most overlooked aspect of any teaching plan. Each lesson can be a new environment appropriate to the goal to be achieved. In this demonstration lesson all the desks and chairs have been removed and replaced with two or three work tables. The presentations take place at these tables while students stand. Other activities take place at the White Board. During the Postlude section the students are sitting on the floor. <i>The décor of the room emphasizes the "Chocolate Factory" theme.</i></p>
T I M E	<p>This is an 80 minute lesson plan. The place where the lesson is grounded is in Section III of the Orchestration where the Team Relays (15 minutes) and their Individual Work (15 minutes) takes place. The teacher who works this plan will want to keep to the time allowed so that the Learning Activity gets deeply grounded. The other place where teaching plans get short shrift is orchestrating a "Class Reflection" time. No lesson is complete until an opportunity is given to "learn the learning." The orchestrating teacher needs to save time for this step at all costs.</p>
E V E N T F U N D S	<p>This Teaching Plan depends on its theme to motivate the students to learn. Everything the plan does supports the theme of "The Chocolate Factory." Eventually, the concluding event will be a Field Trip to the Russell Stover candy factory at Abilene. Each day the students earn "Choco Points" to reward behavior and achievement. During the break refreshments follow this theme. The goal here is to make THE CLASS win.</p> <p>A Distracting Event begins every class. This could be a surprise visit by the music department troubadours, the principle doing a card trick or clanging a large gong, or in this case, beginning with a simple exercise song that is quick to learn and easy to execute; the result is to <i>change the context of the moment and wake up the students.</i></p> <p>The students can sit, lie down or stand as they see necessary. Working groups and teams are chosen by the teacher.</p>
P R O D U C T	<p>There is a "learning" product and a "physical product" for this lesson. It is crucial that every lesson has these two goals. The learning curve is like going on an adventure. When we take vacations we like to bring back souvenirs to remind us of where we've been. The souvenirs for this lesson are the chocolate refreshments and two worksheets that each student keeps. The first is the "Lesson Context" and the final souvenir is a "Summary Sheet" of today's lesson. These notebooks are a meaningful part of the student's grade.</p> <p>The <u>Learning product</u> is the practice each student, and the class itself, experience about working algebraic problems.</p>
S T Y L E	<p>The learning style. Because there are no desks or chairs, the students and teacher stand and move as necessary. The relay game at the White Board is played standing. During the time for individual work, the students are encouraged to stand, sit or lay on the floor; the choice is theirs to make.</p> <p><i>No computers are available in the room. All cell phones and ipods are collected by the teacher at the beginning of the school day. No caps, or hoodies are worn during the class time. This lesson is learned very early in the first couple of days of the school year and forms one of the <u>covenant items</u> agreed to at the beginning of school.</i></p> <p>Each class member is given a "Scholar's Stole" to wear during class.</p>

Chapter Five
DEMONSTRATION CURRICULUM: "Step-by-Step"

PRELUDE

Total section time: 10 minutes

"Distracting Event"

Allow 5 minutes

The purpose of the Distracting Event is to give the students a time to break their *thought patterns and to help them re-focus on what is to come. This step always is in the lesson plan.* Unless this is done there is no way for the students to break away from what they've been doing intellectually and in their behavior.

As the last student arrives, announce that we'll have 5-minutes of physical exercise. Have them scatter out to give themselves room to move. Walk through each of the movements:

Hands on head, then shoulder, followed by knees and toes.

Eyes and ears and mouth and nose,

Head and shoulders, knees and toes.

Repeat.

Next, teach the rhyme:

Head and shoulders, knees and toes; knees and toes.

Head and shoulders, knees and toes; knees and toes, and

Eyes and ears and mouth and nose.

Head and shoulders, knees and toes; knees and toes.

Repeat each time getting faster.

Allow time for students to put cell phones and idpods in their personal storage boxes. These can be used briefly during Class Breaks and then returned to their box. Hat, caps and hoodies and placed on a personal coat hook for the class duration.

Contexting the lesson

Allow 5 minutes

PLACE ON THE BOARD PRIOR TO THE CLASS MEETING

$$4X - 2 = 3X + 4$$

Distribute the material on the next page that is to be placed in the Algebra Section of the student's notebooks.

Review whole Lesson Plan concerning Multi-Step Algebra Problems

Note that they will work in teams of two on a "Quick Warm Up"

Neatness and completeness of work earns "Choco Points"

Each team will demonstrate the problem of their choice

The teacher introduces how to work Multi-Step problems

Break Time

Two relay teams will compete for "Choco Points" while solving problems at the
White Board

Time is allowed for some individual work

The class closes with a traditional "Learning our Learn" evaluation time.

Ask students to put this contexting page in their own notebooks.

DEMONSTRATION CURRICULUM: "Step-by-Step"

PRELUDE

"Contexting the Lesson on Multi-Step Algebra Problems"

Distribution of Context Sheet to each student

Stand to repeat the CLASS MOTTO

THE CLASS WINS,
as we care for each other by helping each other.
PREPARE FOR THE CHOCOLATE FACTORY!

Today's Date
Statement

Contexting

What we do today adds to the possibility of a
Field Trip to the Abilene Chocolate Factory.

Today the class learns how to solve problems like this:

$$4X - 2 = 3X + 4$$

How many X's are there? On what sides of the equal sign do you find them?

To learn how to process this information we will:

- Work in teams of two on a "Quick Warm Up"
Neatness and completeness of work earns "Choco Points"
Each team demonstrates one problem to the whole group

The teacher will walk you through the Multi-Step system.

- Break Time is 5 minutes
- Two relay teams will compete for "Choco Points" while solving problems
- Time is allowed for some individual work
- The class closes with a traditional "Learning our Learn" evaluation time

Please place this sheet in your Notebooks in the Algebra section.

DEMONSTRATION CURRICULUM: "Step-by-Step"

Total section time: 20 minutes

ORCHESTRATION – I

"Working in teams of two"

Allow 10 minutes

Quick Warm Up Problems -- **See handout next page**

Divide class into pairs and assign each a part of a Working Table

Distribute pencils with erasers and calculators

Distribute two problems to each team

Problem Sheets are provided on the following pages

Team demonstrations to whole class

Allow 10 minutes

Each team selects one of their problems to put on the White Board and to solve or teach the whole group

The choice is theirs to make.

The reward is "Choco Points" for each person

Choco-Points win PRIZES FOR THE ENTIRE CLASS TO TAKE A FIELD TRIP

DEMONSTRATION CURRICULUM: "Step-by-Step"

Total section time: 30 minutes

ORCHESTRATION --- I

"Individual Study Time"

Allow 15 minutes

Write any solutions, if necessary as fractions

Student copy

$3M + 4.5M = 15$	$3.5 = 12S - 5S$
$8Y - (2Y - 3) = 9$	$\frac{2}{3} - Y = \frac{3}{4}$
$2 + \frac{A}{-4} = \frac{3}{5}$	$X + 3X - 7 = 29$
$4X + 3.6 + X = 1.2$	$2(1.5C + 4) = -1$
$4N - 2N = 18$	$26 = 6(5 - A)$

If you are not finished, that's OK. Turn in your paper and we'll finish this work during our next class.

Selected Problems, *Editors*, Algebra 1: "Teacher's Edition", USA: Holt, Rinehart and Winston, p. 129 – 130, 2002. ISBN: 0-03-066049-1

DEMONSTRATION CURRICULUM: "Step-by-Step"

Total section time: 30 minutes

ORCHESTRATION --- I

"Individual Study Time"

Allow 15 minutes

Write any solutions, if necessary as fractions

Teacher's Key

$3M + 4.5M = 15$ $M = 2$	$3.5 = 12S - 5S$ $0.5 = S$
$8Y - (2Y - 3) = 9$ $Y = 1$	$\frac{2}{3} - Y = \frac{3}{4}$ $Y = \frac{1}{12}$
$2 + A/-4 = 3/5$ $A = 5 \frac{3}{5}$	$X + 3X - 7 = 29$ $X = 9$
$4X + 3.6 + X = 1.2$ $X = -0.48$	$2(1.5C + 4) = -1$ $C = -3$
$4N - 2N = 18$ $A = 9$	$26 = 6(5 - A)$ $A = \frac{2}{3}$

If you are not finished, that's OK. Turn in your paper and we'll finish this work during our next class.

Selected Problems, *Editors*, *Algebra 1: "Teacher's Edition"*, USA: Holt, Rinehart and Winston, p. 129 – 130, 2002. ISBN: 0-03-066049-1

DEMONSTRATION CURRICULUM: "Step-by-Step"

Total section time: 15 minutes
This includes a 5 minute Class Break

ORCHESTRATION – II

"Teacher's introduction of the Multi-Step Process"

Allow 10 minutes

Use the White Board and Markers

Students sit on the floor and are challenged to identify each next step

Teacher does the following:

Remind the students of the Algebraic Order Poster on the wall

The ALGEBRAIC ORDER		
P E M D A S		
Parenthesis	()	[()]
Exponents		
Multiply		
Divide		
Add		
Subtract		

Lesson on Multi-Step Equations

Students are standing near the board

Problem to solve: $4X - 2 = 3X + 4$

Write on board

1. First step is to note where the Variables are located.

2. What is the plan to do next?

Isolate the Variables on one side and the Whole Numbers on the other side

Somebody come up and isolate the Variables

Move the 3X under the 4X

Note that the + 3X changes to a - 3X

Somebody come up and isolate the Whole Numbers

Move the -2 under the +4

Note that the -2 changes to a +2

3. What is the next step?

Someone come up to SUBTRACT -- which side?

Someone come up to ADD -- which side?

If time allows: Proof check the problem

Can someone come to the board and proof check the problem?

In place of the X's write in the number 6

$$4(6) - 2 = 3(6) + 4$$

Multiply $24 - 2 = 18 + 4$

$$22 = 22$$

CLASS BREAK

Allow 5 minutes Provide Hot/Cold Chocolate Milk and/or Choco-snacks

DEMONSTRATION CURRICULUM: "Step-by-Step"

Total section time: 30 minutes

ORCHESTRATION – III

"Relay Teams" Allow 15 minutes for the game

The first person in line writes the problem. Then, as quickly as possible each succeeding student comes to the board to **do only the next step**.

In the event the student has trouble, her/his teammates can offer verbal help.

The first team with the correct answer is given "**Choco Points**," Give points for each person in the team. (The number of points to be determined.) The Teacher keeps score.

Problems to be assigned to Teams of 2 – **Relay Game – Teacher's Copy**

$2X - 2 = 4X + 6$ $X = -4$	$3X + 5 = 2X + 2$ $X = -3$
$4X + 3 = 5X - 4$ $X = 7$	$2X - 5 = 4X - 1$ $X = -2$
$1.8X + 2.8 = 2.5X + 2.1$ $X = 1$	$3A - 8 = A/2 + 2$ $A = 4$
$W/2 + 7 = W/3 + 9$ $W = 12$	$6 - T/4 = 8/ + T/2$ $T = 8/3$
$X + 5/8 + 3X/4 = 2/3 + 5X$ $X = -1/78$	$5h - 7 = 2h + 2$ $H = 3$

Selected Problems: Algebra 1: "Teacher's Edition", Boston: Pearce, Prentice Hall, p. 139. 2007. ISBN: 0-13-134004-2.

ORCHESTRATION --- III

"Individual Study Time"

Allow 15 minutes

Continued

Write any solutions, if necessary as fractions

Student's copy

$4K = 3 = 3K + 4$	$2Y - 3 = 2y + 12$
$6B + 14 = -7 - B$	Telephone Service: One telephone company charges \$16.95 per month and \$.05 per minutes for local calls. Another company charges \$22.95 per month and \$.02 per minute. For what number of minutes of local calls per month is the cost of the plans the same?
$8 - X = 2X - 1$	$2N - 5 = 8N + 7$
Error Analysis: Find the mistake in the solution of this equation. Explain the mistake and solve the equation correctly. Use the margins for your figures! $2X = 11X + 45$ $2X - 11X = 11X - 11X + 45$ $9X = 45$ $9X/9 = 45/9$ $X = 5$	$3A - 4 = A + 18$
$5M - 3 = 3M + 9$	$6X - 2 = X - 13$

Selected Problems: Algebra 1: "Teacher's Edition." Boston: Pearson, Prentice Hall, pp. 136 - 139. 2007. ISBN: 0-13-134004-2.

ORCHESTRATION --- III

"Individual Study Time"

Allow 15 minutes

Continued

If necessary write any solutions as fractions

Teacher's Key

$4K = 3 = 3K + 4$ $K = 7$	$2Y - 3 = 2y + 12$ $Y = 5$
$6B + 14 = -7 - B$ $B = -3$	<p>Telephone Service: One telephone company charges \$16.95 per month and \$.05 per minutes for local calls. Another company charges \$22.95 per month and \$.02 per minute. For what number of minutes of local calls per month is the cost of the plans the same?</p> $\frac{16.95}{.05} - \frac{22.95}{.02} = \frac{6.00}{.03} \quad 200 \text{ minutes}$
$8 - X = 2X - 1$ $X = 3$	$2N - 5 = 8N + 7$ $N = -2$
<p>Error Analysis: Find the mistake in the solution of this equation. Explain the mistake and solve the equation correctly. Use the margins for your figures!</p> $2X = 11X + 45$ $2X - 11X = 11X - 11X + 45$ $9X = 45$ $9X/9 = 45/9$ $X = 5$ <p>9 X is negative. - X = 5. Corrected: X = -5</p>	$3A - 4 = A + 18$ $A = 7$
$5M - 3 = 3M + 9$ $M = 3$	$6X - 2 = X - 13$ $X = B - 3$

Selected Problems: Algebra 1: "Teacher's Edition." Boston: Pearson, Prentice Hall, pp. 136 --139. 2007. ISBN: 0-13-134004-2.

DEMONSTRATION CURRICULUM: "Step-by-Step"

Total section time: 5 minutes

POSTLUDE

Class Reflection over what they have learned

Everyone sits on the floor

Quick conversation using the **DEPTH DRILLING FORMAT** (A DEEP journey)

OBJECTIVE LEVEL

Around the circle of students. Everyone answers.

1. From the time you stepped into the classroom, **LIST** some things we did today?

REFLECTIVE LEVEL

1. What did you enjoy the most?
2. Where did you struggle?

INTERPRETIVE LEVEL

1. Distribute "Process Summary Sheets"
Quickly review the Algebraic Order for solving Multi-Step Equations

DECISIONAL LEVEL

1. Repeat together the Class Motto

THE CLASS WINS
as we care for each other by helping each other
PREPARE FOR THE CHOCOLATE FACTORY!

2. Students put their "Summary Sheet" in their notebook

DISTRIBUTE CHOCOLATE CANDY PIECES

Students return their SCHOLAR'S STOLEs to their coat hooks and recapture their electronic equipment and clothing to wait for the class dismissal.

DEMONSTRATION CURRICULUM: "Step-by-Step"

"Summary Study Sheet" for student's notebooks

Lesson on Multi-Step Equations

Problem to solve: $4X - 2 = 3X + 4$

- First, note where the Variables are located.
- What is the plan to do next?
Isolate the Variables on one side and the Whole Numbers on the other side
Somebody come up and isolate the Variables
Move the $3X$ under the $4X$
Note that the $+ 3X$ changes to a $- 3X$
Somebody come up and isolate the Whole Numbers
Move the -2 under the $+4$
Note that the -2 changes to a $+2$
- What is the next step?
Someone come up to SUBTRACT -- which side?
Someone come up to ADD -- which side?
Someone finish the problem: ($X = 6$)

If time allows: Proof check the problem

Can someone come to the board and proof check the problem

In place of the X's write in the number 6

$$4(6) - 2 = 3(6) + 4$$

Multiply $24 - 2 = 18 + 4$
 $22 = 22$

Be certain to **MULTIPLY** any part of the equation within the PARENTHESIS.

(For instance)

$$18 - 6K = 6(1 + 3K)$$

$$6 \times 1 = 6 \quad 6 \times 3K = 18K$$

Rewrite the problem

$$\begin{array}{rcl} -18 - 6K & = & 6 + 18K \\ - 6 & + & 6K \quad \text{Note positive to minus sign shift} \\ \hline -24 & = & 24K \quad \text{Note adding two negative numbers remain negative} \\ \text{div. } 24 & & \\ -1 & = & K \end{array}$$

FRACTIONS: Be certain to **MULTIPLY BOTH SIDES** by the lowest common denominator.

(For instance)

$$6 - T/4 = 8 + T/2$$

Re-write

$$4(6 - T/4 = 8 + T/2) \quad 4$$

$$4 \times 6 - 4 \times T/4 = 4 \times 8 + 4 \times T/2$$

$$24 - T = 32 + 2T \quad \text{Div. 4 by 2 = 2 Move}$$

variable and whole number $-2T = -24$ Note minus shift of the whole #

$$\begin{array}{rcl} \text{Add and subtract} & -2T & = -24 \\ & -3T & = +8 \\ & & -3 \end{array}$$

$$-T = -2 \frac{2}{3}$$

Note transfer of minus variable to positive

$$T = 2 \frac{2}{3}$$

DEMONSTRATION CURRICULUM

Charting of Math Jive

Charting is a powerful study tool and a unique demonstration of the principles of Imaginal Education.

There are two ways to read—

The common way is lineral where words and phrases are added together into sentences, paragraphs and pages. In the middle of this exercise the telephone rings. What happens? When students return to reading they must re-read or assume they remember *what they've read*.

The Imaginal Education way is spatial. Actually, this is the normal way we ingest our environment. At first entry into a room we take in the big picture of the room, and the longer we are in the room the more details we take in our consciousness. Why not study the same way.

Charting has the potential for four levels of attentionality. The first is an OBJECTIVE level. On the chart are triple boxes for each paragraph to be studied. The bottom box is the page number. The second box is the paragraph number, and the larger top box is a space to write a brief two to four word description of each paragraph. Previously each paragraph is numbered in the reading material. Visual cues are helpful: italicized, emboldened, and underlined words/phrases are good summarizing statements. Written clues such as "next," "again," "in conclusion" are helpful hints on what material hangs together.

The next level up is the REFLECTIVE level. This is the place where the student and the author start a dialogue. After each paragraph box is noted, the students begin to ask a series of questions such as, "Which of these boxes are related?" After marking the chart the student writes a brief summarizing reflective statement that holds each set of paragraphs together. This process continues up the paper until one statement summarizes the student's reflections on all of the author's material.

Under most circumstances this is all that is necessary. In some circumstances, such as the need to teach the material to others, it may be useful to replicate the chart underneath the page numbers to provide a format to do INTERPRETIVE STATEMENTS.

In unusual circumstances, the student may want to run the lessons learned through their own human or emotional experience. Again, going still lower on the chart the student can begin DECISIONAL, FUTURE DIRECTIONS, and/or THEOLOGICAL reflections.

After a four-level chart has been completed it can be affirmed that the student knows as much as, if not more than, the author; the student knows what the author knows and knows the significance of the paper for his or her own life.

Is charting time consuming? Actually, an experienced charter can chart almost as fast as just reading. The obvious advantage is that this is not reading. A person can chart in any distracting environment (*I've charted during Basketball games!*) because the real learning takes place when the reflective process begins.

The value added gift comes when it is necessary to find a reference for a term paper. Instead of trying to remember, the chart makes the exact paragraph and page number clear.

My chart of Wendy Hill's book illustrates something about a four-level chart. As I've written above, two-level charts are the most common format.

**THIS IS AN UNFINISHED DEMONSTRATION
OF A FOUR-LEVEL CHART FOR ILLUSTRATION PURPOSES.
EACH PARAGRAPH HAS ITS OWN BOX!**

SUN
REVIEW

VISUAL VOCABULARY

HELPING

MOTIVATE

STU

CHAPTER 1: VISUAL VOCABULARY
pp. 1-10

CHAPTER 2: MOTIVATION
pp. 11-20

CHAPTER 3: ACTIVE
BULLETIN BOARDS
pp. 21-24

ILLUSTRATIONS OF RESPONDING TO A
TEACHING PROBLEM

A KINETHESITIC CLASSROOM

MAKING USE OF
"OFF TASK TIME"

Strategic Responses

Demonstrations and Examples

Introduction of Organized Games
and the results of such activities

"Sponge Time"

The Problem	Teaching Strategy	Practical Demonstrations and examples	Fraction Examples for Teaching	Hand Signs and Methods for Correcting Students	Healthy Competition	Football Games	Basketball	Goals achieved by competition	Intro of the Referee and the Yellow Flag	FB and BB modifications	Use of the Popcorn machine	Cooperative learning and coupons	Checkbooks	How money is used	Use of "Off Task Time"	Activities and Purposes Achieved	Student Interest
Paragraphs 1-2	3-6	7-12	13-17	18-26	Paragraphs 1-2	3-7	8-9	10-11	12-14	15-18	17-20	21-24	25-28	29-30	Paragraphs 1	2-4	5
Pages 1	2-3	3-4	4-6	6-10	Pages 11	12-13	13-14	14	15	15-18	16-17	17	17-19	19-20	Pages 21	21-23	24
NOT RECALL MEANING	KNOW TIME	SEE THE LESSON	Picture the words	VISUAL VOCAB													

USE OF EARS, EYE
AN FINGER TO TEACH

USE OF APPROPRIATE
COMPETITION

A UNIQUE WAY TO
INVOLVE THE WHOLE
PERSON

STUDENTS NOT GRASP THE
MEANING OF MATH

THIS BOOK ILLUSTRATES A UNIQUE VISUAL TEACHING METHOD

THIS MATERIAL QUICKLY GROUNDSTHE TEACHING METHODS TO INVOL

VISUAL HAND SIGNALS
GROUND THE PROCESS

THE IDEA OF A BUSY CLASSROOM IS ON TARGET!

I CAN REFEREE AS A METHOD
TO DIFFUSE MY ROLE

ALL TIME IS
LEAVING TIME!!

INTERPRETIVE OBJECTIVE REFLECTIVE

DECISIONAL

A Demonstration of Charting: An activity of Imaginal Education

EACH CHAPTER CHART IS ONE MORE STEP DOWN IN DETAIL!

A book written by Wendy Hill

ENTS BY INVOLVING THE WHOLE PERSON

[illegible]

DEMONSTRATION CURRICULUM

"The Chart of the book, Math Jive
Author's permission granted 3/27/2010

ATTACHMENTS

1 --- Chart: "Movemental Consciousness"

Scott, Dr. Patricia Porter, "The ICA as a Learning Organization."

MAINSTREAM ORGANIZATION: ESTABLISHMENT CONSCIOUSNESS	TWO CONSCIOUSNESSES	MOVEMENTAL ORGANIZATION: TRANS-ESTABLISHMENT CONSCIOUSNESS
Traditional Management (Textbook)	PREVAILING ATTITUDE	Experimental/ Inventive
Salary for Work/Overtime Pay	FINANCIAL ARRANGEMENT	Maintenance Pay/Benefits
Structured Hierarchy	ORGANIZATIONAL DESIGN	Organic/Dynamic/Flexible/Mutable
Contribute Products/Services	MOTIVATION	Revolutionary Change/Cause Oriented
Rewards for Performance Pay for Expertise/Performance	ACCOUNTABILITY	Execute the Mission/Performance Assumed/Work matched to ability.
9-to-5/Specified Time Limits	TIME COMMITMENT	All time is Assigned Time until the Mission is done.
Shift Work/8-Hour Shifts/ Vacation/Overtime Pay	TIME DESIGN	Week 1 and Week 2 13-Week Quarters/ 5-Weeks Reflection/Discontinuity
Committees Hierarchy/Managers Executives/Democracy	DECISION MAKING	Consensus/Collegiums Power is at the Center of the Table.
Departments/Individual Tasks Some Teamwork	WORK GROUPS	Teams - almost exclusively
Contractual	COMMITMENT	Covenantal
Work Ethic	ROOTS	Ontological Deeps
Job Description/Qualification Education/Credentialing	WORK DEFINITION	Assignment - Do whatever it takes to get the job done.
From Within/Outside Expert	PROMOTIONS	15-Minutes of Fame
Forms/Regulations/Red Tape	OPERATING PROCEDURES	Low Bureaucracy/Minimal Forms
Ordinary/Conventional In House Shorthand	LANGUAGE	Specialized Jargon - Purposefully different to force question raising.
Company Picnic/ 25-Year Pen Employee of the Month/Gold Watch	WORK LIFE RITUALS	Daily Singing/Daily Office Meal Conversations/Fasting Guinea Pigs in our own Programs.

ATTACHMENTS

2 --- "Kansas Curricular Standards for Mathematics," Kansas Board of Education.
Revised, January 31, 2004 for the School Years 2005 – 2006.

9/10-7 Applicable Indicators

January 31, 2004

▲ – Assessed Indicator

■ – Assessed Indicator on the Optional Response Assessment

N – Noncalculator

(S) – Financial Literacy THESE STANDARDS ARE ALIGNED ONLY TO THE ASSESSMENTS THAT WILL BEGIN DURING THE 2005-06 SCHOOL YEAR.

Standard 1: Number and Computation NINTH AND TENTH GRADES

Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.

Benchmark 4: Computation – The student models, performs, and explains computation with real numbers and polynomials in a variety of situations.

Ninth and Tenth Grades Knowledge Base Indicators Ninth and Tenth Grades Application Indicators

The student...

1. computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (2.4.K1a) (S).

2. performs and explains these computational procedures (2.4.K1a):

a. N addition, subtraction, multiplication, and division using the order of operations

b. multiplication or division to find (S):

i. a percent of a number, e.g., what is 0.5% of 10?

ii. percent of increase and decrease, e.g., a college raises its tuition from \$1,320 per year to \$1,425 per year. What percent is the change in tuition?

iii. percent one number is of another number, e.g., 89 is what percent of 82?

iv. a number when a percent of the number is given, e.g., 80 is 32% of what number?

c. manipulation of variable quantities within an equation or inequality (2.4.K1d), e.g., $5x - 3y = 20$ could be written as $5x - 20 = 3y$ or $5x(2x + 3) = 8$ could be written as $8/(5x) = 2x + 3$;

d. simplification of radical expressions (without rationalizing denominators) including square roots of perfect square monomials and cube roots of perfect cubic monomials;

e. simplification or evaluation of real numbers and algebraic monomial expressions raised to a whole number power and algebraic binomial expressions squared or cubed;

f. simplification of products and quotients of real number and algebraic monomial expressions using the properties of exponents;

The student...

1. generates and/or solves multi-step real-world problems with real numbers and algebraic expressions using computational procedures (addition, subtraction, multiplication, division, roots, and powers excluding logarithms), and mathematical concepts with (S):

a. ▲ applications from business, chemistry, and physics that involve addition, subtraction, multiplication, division, squares, and square roots when the formulae are given as part of the problem and variables are defined (2.4.A1a) (S), e.g., given $F = ma$, where F = force in newtons, m = mass in kilograms, a = acceleration in meters per second squared. Find the acceleration if a force of 20 newtons is applied to a mass of 3 kilograms.

b. ▲ volume and surface area given the measurement formulas of rectangular solids and cylinders (2.4.A1f), e.g., a silo has a diameter of 8 feet and a height of 20 feet. How many cubic feet of grain can it store?

c. probabilities (2.4.A1h), e.g., if the probability of getting a defective light bulb is 2%, and you buy 150 light bulbs, how many would you expect to be defective?

d. ▲ ■ application of percents (2.4.A1a), e.g., given the formula $A = P(1 + r)^{nt}$, A = amount, P = principal, r = annual interest, n = number of compounding periods per year, t = number of years. If \$1,000 is placed in a savings account with a 6% annual interest rate and is compounded semiannually, how much money will be in the account at the end of 2 years?

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(Editor's note: This is a paper written in preparation for Patricia Scott's doctoral degree. Dr. Scott deceased in 2009. It was sent to me from the ICA, February 2010.)

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