

DIFFERENTIATION DIAMOND

C. 2012

**FACETS OF DIFFERENTIATION
WITHIN A PRAGMATIC
INSTRUCTIONAL MODEL**

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DIAMOND OVERLAP

Bell Curve

**Stanines
Percentiles**

**CORE
&
Differentiation**

**Brain
Research**

**Bloom's
Taxonomy**

DIFFERENTIATION DIAMOND

THE COMPLETE MODEL

STANINE	1	2	3	4	5	6	7	8	9
Percentile	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
% Class	15. 75		68.2					15. 75	

15-20 Min. PRIME-TIME1

15-20 CORE-DIFF

Min. PRACTICE IND STUD

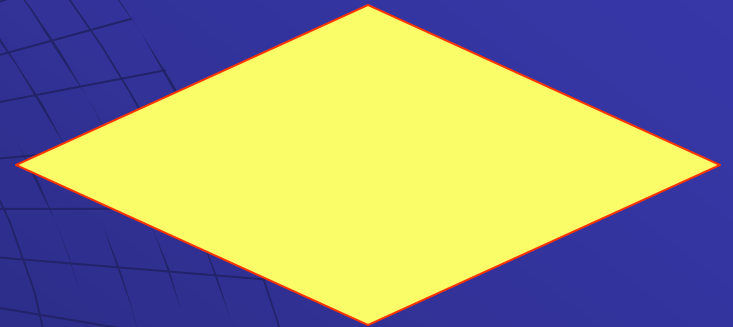
Bloom TAX RTI Know Comp Appl Appl Anal Anal Syn Eval

5 Min. PRIME-TIME2

CONSTRUCTING THE DIAMOND MODEL

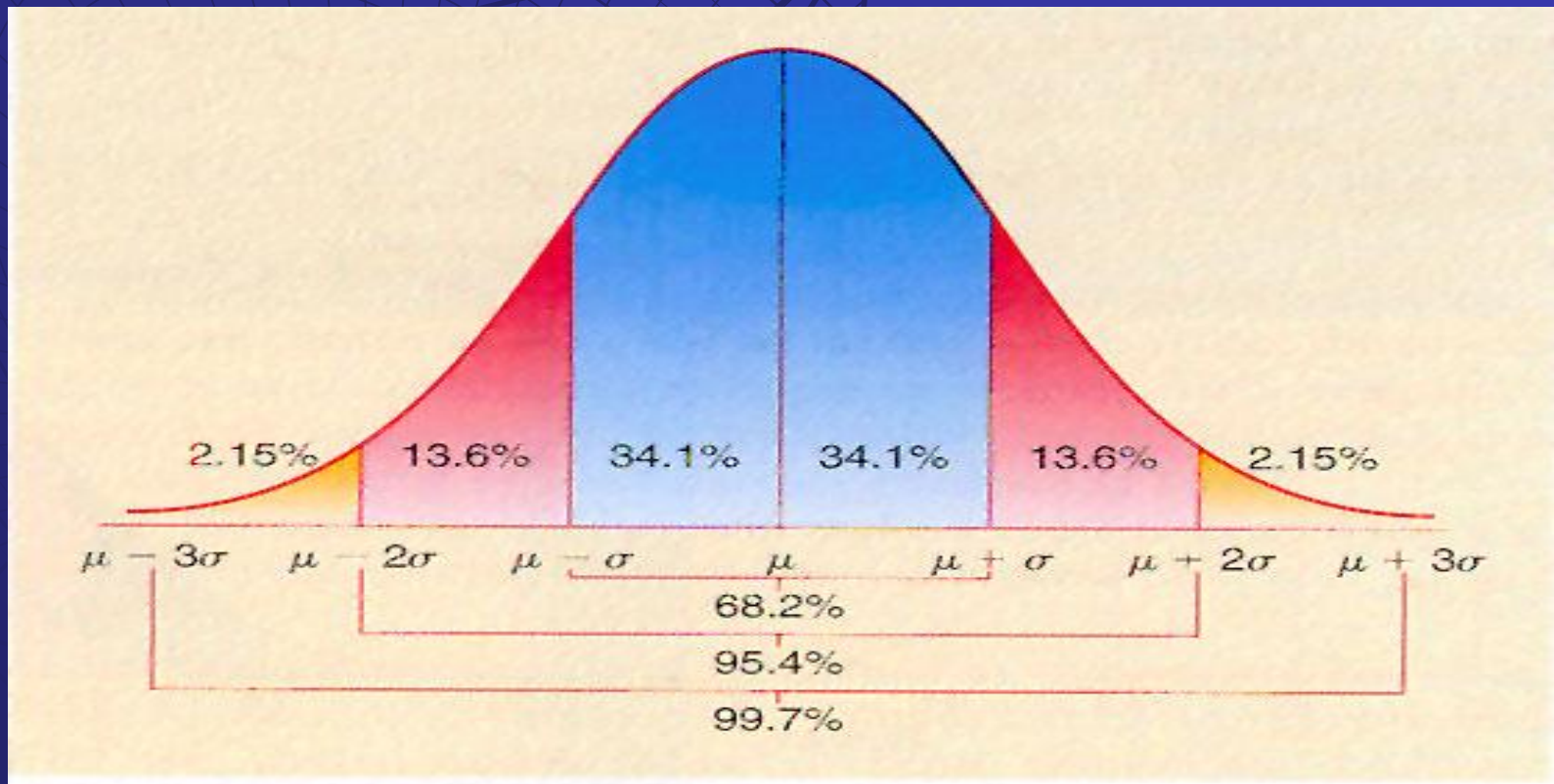
Overlapping the **DIAMOND** with the **BELL CURVE DISTRIBUTION**

- ◆ **Stanines**
- ◆ **Percentiles**
- ◆ **CORE – Average**
- ◆ **Below Average/RTI**
- ◆ **Above Average/Gifted**



BELL CURVE Distribution

Mid/CORE	68.2%	(14 in class of 20)
High & Gifted	15.75%	(3 in Class of 20)
Low and RTI	15.75%	(3 in Class of 20)



DEGREES OF GIFTEDNESS

Gagne (2003)

TOP 10% LEVEL	GIFTED LABEL	Ratio in Population	IQ Equivalent
1	Mildly	1 in 10 90%	120 125
2	Moderately	1 in 100 99%	130 135
3	Highly	1 in 1,000	145
4	Exceptional	1 in 10,000	155
5	Extremely (Profound)	1 in 100,000	165

DIFFERENTIATION DIAMOND

Balancing Whole Group with
 Data-Based Small Group Instruction
 (Sample Ability Distribution Based on Class of 20)

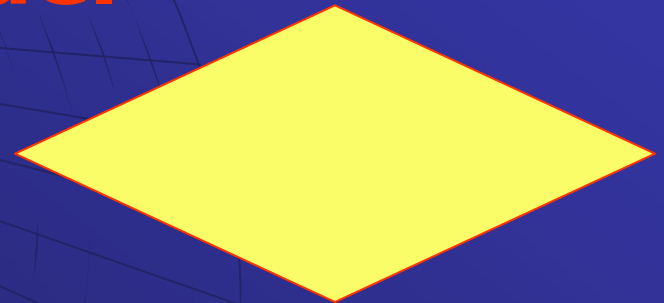
STANINE	1	2	3	4	5	6	7	8	9
Percentile	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Example: CLASS OF 20 Students	16 % 3 Stud.		68% 14 Students					16 % 3 Stud.	
	R.T.I.	Remediate	B Belong	A All	S Student	I In	C Class	Talent	G/T

CONSTRUCTING THE DIAMOND MODEL

OVERLAPPING DIAMOND WITH
INSTRUCTION BASED ON

BRAIN RESEARCH

- ◆ **Primary-Recency Model**
- ◆ **Learning Styles**
- ◆ **Novelty**



BRAIN RESEARCH INSTRUCTIONAL MODEL (Sousa)

		<p>Prime Time-1</p> <p>CORE - NEW</p> <p>15 MIN.</p>		
RTI	Guided Practice	<p>DIFFERENTIATED</p> <p>CORE PRACTICE</p> <p>20 Min.</p>	Independent Practice	Indep Study
		<p>Prime Time-2</p> <p>CORE CLOSURE</p> <p>5 MIN.</p>		

DAILY LESSON DESIGN

(Sousa 2006)

- ◆ **Anticipatory Set**
- ◆ **Learning Objective**
- ◆ **Purpose**
- ◆ **Input**
- ◆ **Modeling**

- ◆ **Check for Understanding**
- ◆ **Guided Practice**
- ◆ **Closure**
- ◆ **Independent Practice**

Average Retention of Material After 24 Hours (Sousa 2006)

VERBAL	Lecture	5%
PROCESSING	Reading	10%
VERBAL &	Audiovisual	20%
VISUAL	Demonstration	30%
PROCESSING	Discussion Group	50%
	Practice By Doing	75%
DOING	Teach Others Immediate Use Learning	90%

INSTRUCTIONAL METHODS

(Sousa 2006)

- ◆ **Direct Teaching**
- ◆ **Demonstration**
- ◆ **Concept Attainment by Compare/ Contrast**
- ◆ **Socratic Method**
- ◆ **Cooperative Learning**

- ◆ **Simulations & Games**
- ◆ **Individualized Instruction**
- ◆ **Drill and Practice**
- ◆ **OTHER**

Working Memory Capacity With Age

(Sousa 2006)

AGE in Years	GRADE	MIN	MAX	AVG
Younger than 5	Pre	1	3	2
Between 5 - 14	K - 8	3	7	5
14 and Older	9 - 12	5	9	7

AUTOMATICITY (Abadzi 2006)

- ◆ **Automaticity is needed to overcome working memory limitations.** (Abadzi 2006)
- ◆ **Automatizing basic math skills helps students perform intermediate and advanced calculations.**
- ◆ **Fluency in reading is needed to process large amounts of text quickly.**

Primary-Recency Effect in the Classroom

(Sousa 2006)

- ◆ We tend to remember best that which comes first (Prime-Time-1)
- ◆ We tend to remember second best that which comes last (Prime-Time-2)
- ◆ We tend to remember least that which comes just past the middle (down-time)

Prime- and Down-Times

(Sousa 2006)

	PRIME-	TIMES	DOWN-	TIMES
Min.	Number Min.	% Total Time	Number Min.	% Total Time
20	18	90%	2	10
40	30	75%	10	25
80	50	62%	30	38

Applying the Primary-Recency Effect (Sousa 2006)

- ◆ **Teach new material first.** Also good time to reteach.
- ◆ **Avoid** at beginning asking if students know anything.
- ◆ **Avoid** using prime-time for classroom management tasks.
- ◆ **Use** down-time for student practice, discussion.

- ◆ **Do** closure during prime-time-2.
- ◆ **If you review,** do it before closure.
- ◆ **Doing** review instead of closure is of little value to retention.
- ◆ **Try** to package lesson objectives or **sublearnings** in teaching episodes of about **20** minutes.

Use Novelty in Lessons (Sousa 2006)

- ◆ Humor
- ◆ Movement – Students sit too much in classrooms
- ◆ Multi-Sensory Instruction
- ◆ Interesting, colorful visuals
- ◆ Walk around & talk about learning
- ◆ Quiz Games – Underutilized in secondary schools
- ◆ Music – Some benefits



**BUILDING
DATA-BASED
Differentiation
INTO
CORE PRACTICE**



MULTIPLE STRATEGIES

7+ MULTIPLE INTELLIGENCES

◆ **Verbal-
Linguistic**

◆ **Logical-
Mathematical**

◆ Visual-Spatial

◆ Body-
Kinesthetic

◆ Musical-
Rhythmic

◆ Interpersonal

◆ Intrapersonal

◆ Naturalist

(Sousa 2008)

LEARNING MODALITIES

AS ABSTRACT SEQUENTIAL	AR ABSTRACT RANDOM	AUDITORY (Hear)
LEARNING STYLES (Gregorc Model)		VISUAL (See)
CS CONCRETE SEQUENTIAL	CR CONCRETE RANDOM	KINESTHETIC (Touch/Move)

VERTICAL / HORIZONTAL

◆ ACCELERATION

- ◆ MATH
- ◆ READING SKILLS
- ◆ SPELLING
- ◆ MUSICAL INSTRUMENT

◆ ENRICHMENT

- ◆ SCIENCE
- ◆ SOCIAL STUDIES
- ◆ 6 TRAITS WRITING
- ◆ DEEPER STUDY
- ◆ INDEP. RESEARCH
- ◆ CREATIVE Projects
- ◆ EXTENSIONS

Revisiting BLOOM's Taxonomy

(Sousa 2006)

Original Version (1956)	Revised Version (2001)
EVALUATION	CREATE
SYNTHESIS	EVALUATE
ANALYSIS	ANALYZE
APPLICATION	APPLY
COMPREHENSION	UNDERSTAND
KNOWLEDGE	REMEMBER

INSTRUCTIONAL MODEL & Bloom's Taxonomy (Sousa 2006)

		Prime Time-1 CORE - NEW 15 MIN.	Complexity	
R T I	Guided Practice	DIFFERENTIATED CORE PRACTICE	Independent Practice	Indep Study
	Remember		Understand Apply Analyze	Evaluate
		Prime Time-2 CORE CLOSURE 5 MIN.		

GROUPING Strategies

- ◆ INCLUSION in Regular Classroom
- ◆ HETEROGENEOUS GROUPING
- ◆ **CLUSTER** GROUPING
- ◆ **FLEXIBLE** GROUPING
- ◆ ABILITY GROUPING
- ◆ CURRICULUM **COMPACTING**
- ◆ DIFFERENTIATION of INSTRUCTION
- ◆ **CREATIVITY** / CREATIVE THINKING
- ◆ INDEPENDENT RESEARCH/**INTERESTS**

DIFFERENTIATION Strategies

- ◆ **CONTENT – PROCESS – PRODUCT**
- ◆ **BLOOM'S TAXONOMY - Evaluation**
- ◆ **Pre-Assessment – KWL - Compacting**
- ◆ **RUBRICS**
- ◆ **Technology**
- ◆ **Classroom Centers**
- ◆ **Independent Study – Resident Expert**
- ◆ **Tiered Learning Assignments**
- ◆ **Sequential Packets**
- ◆ **Choice – Options – Tic Tac Toe**

MAP READING DATA

Advanced RIT Ranges (NWEA)

READING GOAL STRAND	GRADE 6	GRADE 7	GRADE 8
Strategies & Comprehension	Above 230	231-240	241-250
Word Analysis & Vocabulary Skills	Above 240	241-250	251+
Literature: Literary Elements & Techniques	231-240	241-250	251+
Variety of Literary Works	Above 220	241-250	251+

Reading Guidelines (Sousa 2006)

- ◆ **Use direct instruction to identify important concepts (core).**
- ◆ **Conquer Vocabulary - Define before reading**
- ◆ **Help with comprehension – scan for key words and phrases.**
- ◆ **Talk, Talk and Talk some more – Questioning, Cooperative Learning**
- ◆ **Use Graphic Organizers.**
- ◆ **Add Novelty.**
- ◆ **Incorporate supplemental textbooks.**
- ◆ **Establish in-class vertical files of magazine & newspaper articles.**
- ◆ **Use audiovisual aids.**

CURRICULUM COMPACTING

- ◆ **PRE-ASSESSMENT – Test - KWL**
- ◆ **STUDENT COMPACTOR FORM**
- ◆ **No Evidence of Mastery – Participate**
- ◆ **Evidence of Mastery – Advanced Work**
- ◆ **WORKING CONDITIONS - Rubric**
- ◆ **REQUIRED: Advanced Reading Material**
- ◆ **GRADING – Mastery = A to Begin?**
- ◆ **OR – Graded on Advanced Work/Rubric**
- ◆ **Incentive to do Advanced Work**

Curry & Samara Unit Design

From BASIC.....to ABSTRACT

Remember	Understand	Apply	Analyze	Evaluate	Create
FROM					
SIMPLE					
TO					
COMPLEX					
Select Topic	State a Challenge	Design a Plan	Gather Info	Organize Info	Present Findings

SAMPLE UNITS (Curry, Samara)

◆ SCIENCE

- ◆ MEASUREMENT**
- ◆ WEATHER**
- ◆ STATISTICS**
- ◆ THERMAL ENERGY**
- ◆ INVENTIONS**

**INTEGRATED UNITS
ADAPTATION
POWER**

◆ SOCIAL STUDIES

- ◆ GEOGRAPHIC SAGA**
- ◆ INVENTORS**

**INTEGRATED UNITS
CHANGE
EXPLORATION
CULTURES**

ADVANCED EXTENSIONS

Science & Social Studies

- ◆ Read Biographies & Chapters on Inventors, Scientists, Historical Figures – Hall of Fame
- ◆ Interview Skits
- ◆ Review Speeches by Political Figures and Scientists
- ◆ Research & Debate Conflicting Viewpoints
- ◆ Newsletter
- ◆ On-Line Info Discussion
- ◆ Interview of Practitioner – Career Research
- ◆ E-Mail Letters commenting on books, articles.
- ◆ Research Report
- ◆ Advanced Articles from Internet & Journals
- ◆ High School Textbook Extensions
- ◆ Quiz Competitions
- ◆ Greek & Latin Vocab for Science and History (Word Within A Word)
- ◆ Scientific Charts & Graphs of Experiment Descriptions
- ◆ Research Summaries
- ◆ Data Representation
- ◆ Classroom Vertical File Development

Applying the NAGC PARALLEL CURRICULUM MODEL

CORE or BASIC Curriculum	Curriculum of Connections	Curriculum of Practice	Curriculum of Identity
<p>Key Facts Concept Principles Skills Essential to the Discipline</p>	<p>Extends Core Interact with Core in a variety of settings, times, circumstances.</p>	<p>Promoting students' expertise as practitioners of the discipline.</p>	<p>Uses curriculum as catalyst for self-definition and self-understanding</p>
<p>POWER Standards for all</p>	<p>Extensions for Social Studies</p>	<p>Apply to Practice of Science</p>	<p>Personal Interest & Careers</p>

Activities to Stimulate Higher-Order Thinking

- ◆ **Use Analogies & Metaphors to describe concepts, theories, principles**
- ◆ **Attempt to solve real life problems**
- ◆ **Ask questions with multiple answers**
- ◆ **Use debates and discussions to tackle more than one side of an issue.**
- ◆ **Role plays or simulations of historical events.**
- ◆ **Supplement regular textbooks with additional materials**
- ◆ **Encourage students to watch T.V. programs, attend community meetings, read newspaper articles that express different viewpoints.**
- ◆ **Analyze the content of popular media for accuracy and completeness**
- ◆ **Explore the methods used to develop knowledge in a particular field.**

ADVANCED RUBRIC LABELS

ATTRIBUTES DESCRIPTORS	NOVICE		APPRENTICE		DISTINGUISHED
CRITERIA 1	BEGINNING	DEVELOPING	COMPETENT	PROFICIENT	EXPERT
CRITERIA 2	1 Needs Improv.	2 Satis.	3 Good	4 EXCEL	5 LENT
CRITERIA 3	1 "D"	2 "C"	3 "B"	4 EXCEL- LENT "A"	5 EXTEN- SION EXCEEDS EXPECTA- TIONS

HIGHER LEVEL TEST PREP

EXPLORE TEST

ENGLISH	READING	MATH	SCIENCE
<ul style="list-style-type: none"> ◆ Topic Development ◆ Organization ◆ Word Choice ◆ Sentence Structure ◆ Usage ◆ Punctuation 	<ul style="list-style-type: none"> ◆ Main Ideas and Author's Approach ◆ Supporting Details ◆ Relationships ◆ Meanings of Words ◆ Generalizations and Conclusions 	<ul style="list-style-type: none"> ◆ Basic Operations ◆ Probability ◆ Numbers: Concepts & Properties ◆ Expressions, Equations, and Inequalities ◆ Graphical Representations ◆ Properties of Plane Figures ◆ Measurement 	<ul style="list-style-type: none"> ◆ Interpretation of Data ◆ Scientific Investigation ◆ Evaluation of Models, Inferences, and Experimental Results

TEST Prep: SAT & ACT

◆ SAT

- ◆ **MATH** – More unusual problems; feel like IQ questions
- ◆ **WRITING/ENGLISH** - Grammar & Usage
- ◆ **READING COMPREHENSION** – Passages Different Lengths
- ◆ **SCIENCE** – NONE
- ◆ **ESSAY** – Mandatory 25 Min.
- ◆ **VOCABULARY** – Sentence Completion
- ◆ **TIME/FORMAT** – 10 SECTIONS 3 Hrs. and 45 Minutes
- ◆ **SCORING** – 3 Scores from 200-800 added = 600-2400

◆ ACT

- ◆ **MATH** – More Advanced (incl. Trig.); Questions more straightforward
- ◆ **WRITING/ENGLISH** - Punctuation, Grammar, Various writing issues.
- ◆ **READING COMPREHENSION** – Passages roughly the same length
- ◆ **SCIENCE** – Passages test reasoning, not science knowledge
- ◆ **ESSAY** – Optional 30 Min.
- ◆ **VOCABULARY** – NOT Tested
- ◆ **TIME/FORMAT** – 4 SECTIONS 2 Hrs. and 55 Min. + Essay 30
- ◆ **SCORING** – 1-36 – 4 Scores Avg.

A TRAITS

◆ **Accountability**

◆ **Accuracy**

◆ **Ambition**

◆ **Attention**

◆ **Attitude**

◆ **A+ ADDed More 3+**

◆ **A ADVANCED 3**

◆ **A- ASKed 2.9**



INSPIRING INSIGHT!

Insight
Beyond

.....Literal



FURTHER INFORMATION

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REFERENCES

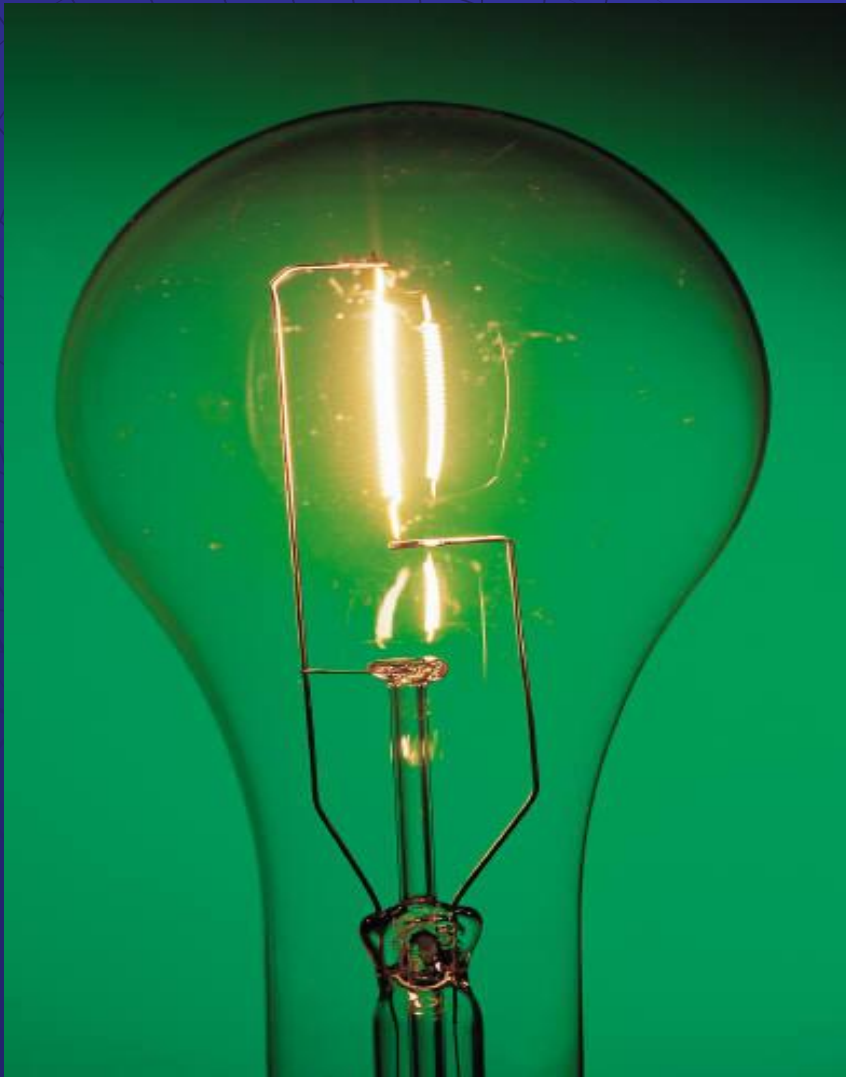
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GIFTED CHARACTERISTICS

TRAIT	POSITIVE	NEGATIVE
High Energy	Good at Multitasking – Gets Things Done	Exhausting – Moves Takes on Too Much
Intensity	Passionate & Enthusiastic w/World	May be source of ridicule by non-G/T
Perfectionism	Develops Naturally - Very High Standards	Dissatisfaction With Imperfections
Idealism & Sense of Justice	Promotes fairness & Concern for World	Rigid Judgment of Self and Others
Entelechy	Motivated to be all they can be; Strength of will	Strong will can be a threat to others; Burnout

LIGHTBULB !!!

C. 2012



- ◆ L Learning
- ◆ I Integrates
- ◆ G Genuine
- ◆ H Harmony
- ◆ T To
- ◆ B Balance
- ◆ U Understanding
- ◆ L Love &
- ◆ B Belonging

PSYCHIC OVEREXCITABILITY

Dabrowski – Adapted by M. Piechowski in
New Voices in Counseling the Gifted

PSYCHOMOTOR	Surplus of energy; rapid speech, fast games and sports; Psychomotor expression of emotional tension; compulsive talking
SENSUAL	Sensory pleasure (smelling, touching, hearing); Sensual expression of emotional tension (wanting limelight); Aesthetic pleasures
INTELLECTUAL	Probing questions; problem solving; learning (curiosity, avid reading, detailed planning); Theoretical thinking – Analytical thinking
IMAGINATIONAL	Free play of the imagination (image, metaphor, invention, fantasy, magical thinking); Spontaneous imagery as expression of emotion
EMOTIONAL	Intensity of feeling; Highly Sensitive Child; Inhibition (shyness); Strong affective memory; Fears, anxieties, feelings of guilt; Concern with death, depressive moods, Relationship feelings Feelings toward self (inadequacy, inferiority) 44

Teacher Checklist - **LEARNING**

- ◆ Unusually advanced vocabulary for age or grade; uses terms in meaningful way; has verbal behavior characterized by "richness" of expression, elaboration, fluency
- ◆ Large storehouse of information about a variety of topics (beyond usual interests of same age).
- ◆ Quick mastery & recall of factual information.
- ◆ Rapid insight into cause-effect relationships; tries to discover how and why of things; asks many provocative questions (as distinct from informational or factual questions); wants to know what makes things (or people) "tick."
- ◆ Has ready grasp of underlying principles and can quickly make valid generalizations about events, people, or things; looks for similarities and differences in events, people, things.
- ◆ Is keen and alert observer; usually "sees more" or "gets more" out of a story, film, etc, than others.
- ◆ Reads a great deal on own; usually prefers adult level books; does not avoid difficult material; may show a preference for biography, autobiography, encyclopedias and atlases.
- ◆ Tries to understand complicated material by separating it into its respective parts; reasons things out for self; sees logical and common sense answers.

Teacher Checklist - **MOTIVATION**

- ◆ **Becomes absorbed and truly involved in certain topics or problems; is persistent in seeking task completion; (Sometimes difficult to get student to move on to another topic.)**
- ◆ **Is easily bored with routine tasks.**
- ◆ **Needs little external motivation to follow through in work that initially excites the student.**
- ◆ **Strives toward perfection; is self-critical; is not easily satisfied with own speed or products.**
- ◆ **Prefers to work independently; requires little direction from teachers.**
- ◆ **Is interested in many "adult" problems such as religion, sex, race—more than usual for age level.**
- ◆ **Often is self-assertive (sometimes even aggressive); stubborn in own beliefs;**
- ◆ **Likes to organize and bring structure to things, people and situations.**
- ◆ **Is quite concerned with right and wrong, good and bad; often evaluates and passes judgment on events, people, things.**

ADVANCED LIT/ENG

Mid-Quarter - CRITERIA CHECKLIST

- ◆ **Maintains B Average**
- ◆ **Independence in class & Homework**
- ◆ **Consistent Homework on Time**
- ◆ **High Level of Commitment**
- ◆ **High Level of Focus in Class**
- ◆ **Quickly Grasps Reading & Vocab.**
- ◆ **Enjoys challenge of Advanced Reading**

Excellent

Satisfactory

Area of Concern

IDENTIFICATION LIT/ENG 7

8 out of 15 Points to Qualify

MAP READING	MAP LANGUAGE	Grade 6 CHECKLIST
MAP Reading 90+ % Highest of 3	MAP Language 90+ % Highest of 3	Reading/ Language Arts Checklist
90-91 = 1	90-91 = 1	1-8 = 1
92-93 = 2	92-93 = 2	9-16 = 2
94-95 = 3	94-95 = 3	17-24 = 3
96-97 = 4	96-97 = 4	25-32 = 4
98-99 = 5	98-99 = 5	33-42 = 5

ADV. LIT/ENGLISH 7-8 Checklist

◆ READING/LANGUAGE

READ COMP –
Verbal & Written
Responses to reading.

LITERATURE
Analytical & Interpretive
Skills

ADV. VERBAL SKILLS
Critical & High Level
Discussion Skills

LANGUAGE MECHANICS
Spelling, Sentence
Structure, Punctuation

WRITING – 6 Traits Sample

◆ WORK HABITS

INDEPENDENCE – Initiative
to independently complete
assignments in and out of
class.

HOMEWORK – Consistently
completes
all assignments on time.

FOCUS – Demonstrates high
level of focus in class

CLASSROOM READING
GRADE

ADVANCED RDG. GRADE

Accelerated Math - Checklist

- ◆ **Strong computational skills.**
- ◆ **Seeks out challenging math problems and activities on own and is persistent in solving them.**
- ◆ **Strong organizational skills. Completes homework.**
- ◆ **Learning quickly with few repetitions.**
- ◆ **Works well independently.**

Accelerated Math - LTHS

GR	ACCEL SEQUENCE	HONORS SEQUENCE
9	Algebra II Accel. EXPLORE 19-25 LTHS Alg. 1 Exam 70%+	Algebra II Honors EXPLORE 19-25 LTHS Alg. 1 Exam 90%+
10	Geometry Accel.	Geometry/Trig Honors
11	Trig/PreCalc Accel.	Precalculus Honors
12	Calculus AB (AP) 1 Sem. College	Calculus BC (AP) 2 Sem. College

What is GMS Model?

- ◆ Discussion – What will work?
- ◆ Ideas
- ◆ Review of Resource Materials
- ◆ Selection of Advanced Readings
- ◆ Development of Broad Template?
- ◆ Choice of Rubrics & Terms
- ◆ OTHER