

# **DIFFERENTIATION DIAMOND**

**DIFFERENTIATION STRATEGIES for  
Advanced Middle School Students**

**SCIENCE & SOCIAL STUDIES  
HETEROGENEOUS CLASS**

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# DEGREES OF GIFTEDNESS

Gagne (2003)

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

# GIFTED CHARACTERISTICS

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

# PSYCHIC OVEREXCITABILITY

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

<b>PSYCHOMOTOR</b>	Surplus of energy; rapid speech, fast games and sports; Psychomotor expression of emotional tension; compulsive talking
<b>SENSUAL</b>	Sensory pleasure (smelling, touching, hearing); Sensual expression of emotional tension (wanting limelight); Aesthetic pleasures
<b>INTELLECTUAL</b>	Probing questions; problem solving; learning (curiosity, avid reading, detailed planning); Theoretical thinking – Analytical thinking
<b>IMAGINATIONAL</b>	Free play of the imagination (image, metaphor, invention, fantasy, magical thinking); Spontaneous imagery as expression of emotion
<b>EMOTIONAL</b>	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)

# 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.**

# 7 MULTIPLE INTELLIGENCES

◆ **Verbal-  
Linguistic**

◆ **Logical-  
Mathematical**

◆ Visual-Spatial

◆ Body-  
Kinesthetic

◆ Musical-  
Rhythmic

◆ Interpersonal

◆ Intrapersonal

# 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 DIAMOND

Balancing Whole Group and Small Group Instruction  
(Sample Ability Distribution)

<b>STANINE</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>Percentile</b>	<b>0-19</b>	<b>20-29</b>	<b>30-39</b>	<b>40-49</b>	<b>50-59</b>	<b>60-69</b>	<b>70-79</b>	<b>80-89</b>	<b>90-99</b>
<b>Example: CLASS OF 20 Students</b>	<b>5 %</b>	<b>5 %</b>	<b>15 %</b>	<b>15 %</b>	<b>20 %</b>	<b>15 %</b>	<b>10 %</b>	<b>10 %</b>	<b>5 %</b>
	<b>1</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>
	<b>R.T.I.</b>	<b>R.T.I.</b>	<b>B</b> Belong s	<b>A</b> All	<b>S</b> Student s	<b>I</b> In	<b>C</b> Clas s	<b>Talent</b>	<b>G/T</b>

# **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**

# LEARNING MODALITIES

**ABSTRACT  
SEQUENTIAL**

**ABSTRACT  
RANDOM**

**AUDITORY  
(Hear)**

**LEARNING**

**STYLES**

**VISUAL  
(See)**

**CONCRETE  
SEQUENTIAL**

**CONCRETE  
RANDOM**

**KINESTHETIC  
(Touch)**

# VERTICAL / HORIZONTAL

## ◆ ACCELERATION

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

## ◆ ENRICHMENT

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

# MAP READING - Advanced

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

# INSPIRING INSIGHT!

Insight  
Beyond

.....Literal



# A TRAITS

◆ **Accountability**

◆ **Accuracy**

◆ **Ambition**

◆ **Attention**

◆ **Attitude**

◆ **A+ ADD 3+ WOW**

◆ **A ADVANCED 3**

◆ **A- ASKED 2.9**

# **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

<b>MAP READING</b>	<b>MAP LANGUAGE</b>	<b>Grade 6 CHECKLIST</b>
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.**

# H.S. Accelerated Math

<b>GR</b>	<b>ACCEL SEQUENCE</b>	<b>HONORS SEQUENCE</b>
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

# EXPLORE TEST (Grade 8 for H.S. Placement)

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

# SAT v/s 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 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.**

# Prime- and Down-Times

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

# Primary-Recency Effect in the Classroom

- ◆ 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)



# Applying the Primary-Recency Effect

- ◆ 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.

# INSTRUCTIONAL MODEL

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

# Average Retention of Material After 24 Hours

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

# Using Novelty in Lessons

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

# Working Memory With Age

	Capacity	Of Working	Memory
AGE in Years	Minimum	Maximum	Average
Younger than 5	<b>1</b>	<b>3</b>	<b>2</b>
Between 5 and 14	<b>3</b>	<b>7</b>	<b>5</b>
14 and Older	<b>5</b>	<b>9</b>	<b>7</b>

# Revisiting BLOOM's Taxonomy

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

# INSTRUCTIONAL MODEL & Bloom's Taxonomy

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

# 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 AVAILABLE

## ◆ SCIENCE

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

INTEGRATED UNITS  
ADAPTATION  
POWER

## ◆ SOCIAL STUDIES

- ◆ GEOGRAPHIC SAGA
- ◆ INVENTORS

INTEGRATED UNITS  
CHANGE  
EXPLORATION  
CULTURES

# Applying the NAGC PARALLEL CURRICULUM MODEL

<b>CORE or BASIC Curriculum</b>	<b>Curriculum of Connections</b>	<b>Curriculum of Practice</b>	<b>Curriculum of Identity</b>
<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><b>POWER Standards for all</b></p>	<p><b>Extensions for Social Studies</b></p>	<p><b>Apply to Practice of Science</b></p>	<p><b>Personal Interest &amp; Careers</b></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.**

# Reading Guidelines

- ◆ **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.**

# INSTRUCTIONAL METHODS

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

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

# DAILY LESSON DESIGN

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

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

# 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 EXTENSION EXCEEDS EXPECTATIONS



# 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

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