



GEORGIA⁺ DEPARTMENT OF EDUCATION

Kathy Cox, State Superintendent of Schools

Training for the New Georgia Performance Standards

Day 5: Differentiation

**Content Participant's Guide
Mathematics Grade 7**

We will lead the nation in improving student achievement.

Table of Contents

Use of This Guide and Specialists' Contact Information	3
Agenda	4
Overview	5
Seventh Grade Georgia Performance Standards	6
Resources	12
Jumping Jacks	37
Underlying Assumptions	41
Equalizer	42
Differentiation Poster	43
Math "Coordinated"	44
True/False Quiz	50
Traditional vs Differentiated Classrooms	51
Name That Graph	52
Low-Prep and High-Prep	57
Permission Forms for Student Work	58

Use of This Guide

This training program was developed by the Georgia Department of Education as part of a series of professional development opportunities to help teachers increase student achievement through the use of the Georgia Performance Standards.

The module materials, including a Content Facilitator's Guide, Participant's Guide, and PowerPoint Presentation are available on a CD to designated trainers throughout the state of Georgia who have successfully completed a Train-the-Trainer course offered through the Georgia Department of Education. These trainers have also received supplementary materials.

Materials (guides, presentations, etc.) will be available electronically on <http://www.georgiastandards.org> under the training tab after all trainings of Day 5 have occurred. Consult the trainer for availability.

For more information on this or other GPS training, contact Claire Pierce at (404) 657-7063 or cpierce@doe.k12.ga.us or Peggy Pool at (404) 657-9063 or ppool@doe.k12.ga.us.

Specialists' Contact Information

For a list of district coordinators visit the Georgia Learning Connection:

English Language Learners

<http://www.glc.k12.ga.us/contact/contact.asp?groupname=ESOL+District+Coordinators>

Gifted and Talented

<http://www.glc.k12.ga.us/contact/contact.asp?groupname=Gifted+Education>

For specialists at the Georgia Department of Education:

English Language Learners—Andrea Mirtalebi

amirtale@doe.k12.ga.us

Gifted and Talented—Linda Andrews

lindrew@doe.k12.ga.us

Exceptional Students (Special Education)—Marlene Bryar

mbryar@doe.k12.ga.us

Agenda

Introduction to Differentiation

- Four Corners
- Calvin's Day at School
- Jumping Jacks

What is Differentiation?

- What is it?
- Standards-Based Education Model
- Self-Assessment

Why and How Do We Differentiate?

- Why do we differentiate?
- How do we differentiate?
- Math "Coordinated"
- Differentiation Stratego: A Reality Game

What Does a Differentiated Classroom Look Like?

- True/False Quiz: What Does Differentiation Look Like?
- Name That Graph
- Setting Personal Goals for Differentiating

Summary and Field Assignment

Overview

Day 5

By the end of Day 5 of training, participants will be able to:

1. Define differentiation and explain the importance of differentiation in the standards-based education process.
2. Explain key elements in planning for differentiation.
3. Describe and develop procedures for differentiating instruction in a flexible classroom.
4. Describe and develop effective classroom management strategies in a differentiated classroom.
5. Describe the roles of the teacher in a differentiated classroom.
6. Set individual goals for differentiating instruction in each classroom.
7. Cultivate a strong awareness of standards-based teaching and learning.
8. Become familiar with the 7th grade mathematics GPS along with the expected depth and rigor.
9. Have a deeper understanding of the content addressed within the module.

Seventh Grade Standards

Grade 7

By the end of grade seven, students will understand and use rational numbers, including signed numbers; solve linear equations in one variable; sketch and construct plane figures; demonstrate understanding of transformations; use and apply properties of similarity; examine properties of geometric shapes in space; describe and sketch solid figures, including their cross-sections; represent and describe relationships between variables in tables, graphs, and formulas; analyze the characteristics of linear relationships; and represent and analyze data using graphical displays, measures of central tendency, and measures of variation.

Instruction and assessment should include the appropriate use of manipulatives and technology. Topics should be represented in multiple ways, such as concrete/pictorial, verbal/written, numeric/data-based, graphical, and symbolic. Concepts should be introduced and used, where appropriate, in the context of realistic phenomena.

Concepts/Skills to Maintain

Operations with positive rational numbers, including mixed numbers

Line and rotational symmetry

Surface area and volume

Ratio as a representation of quantitative relationships

NUMBER AND OPERATIONS

Students will further develop their understanding of the concept of rational numbers and apply them to real world situations.

M7N1. Students will understand the meaning of positive and negative rational numbers and use them in computation.

- Find the absolute value of a number and understand it as the distance from zero on a number line.
- Compare and order rational numbers, including repeating decimals.
- Add, subtract, multiply, and divide positive and negative rational numbers.
- Solve problems using rational numbers.

GEOMETRY

Students will further develop and apply their understanding of plane and solid geometric figures through the use of constructions and transformations. Students will explore the properties of similarity and further develop their understanding of 3-dimensional figures.

M7G1. Students will construct plane figures that meet given conditions.

- Perform basic constructions using both compass and straight edge, and appropriate technology. Constructions should include copying a segment; copying an angle;

Georgia Department of Education

Kathy Cox, State Superintendent of Schools

6/14/2005

All Rights Reserved

bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

- b. Recognize that many constructions are based on the creation of congruent triangles.

M7G2. Students will demonstrate understanding of transformations.

- a. Demonstrate understanding of translations, dilations, rotations, reflections, and relate symmetry to appropriate transformations.
- c. Given a figure in the coordinate plane, determine the coordinates resulting from a translation, dilation, rotation, or reflection.

M7G3. Students will use the properties of similarity and apply these concepts to geometric figures.

- a. Understand the meaning of similarity, visually compare geometric figures for similarity, and describe similarities by listing corresponding parts.
- b. Understand the relationships among scale factors, length ratios, and area ratios between similar figures. Use scale factors, length ratios, and area ratios to determine side lengths and areas of similar geometric figures.
- c. Understand congruence of geometric figures as a special case of similarity: The figures have the same size and shape.

M7G4. Students will further develop their understanding of three-dimensional figures.

- a. Describe three-dimensional figures formed by translations and rotations of plane figures through space.
- b. Sketch, model, and describe cross-sections of cones, cylinders, pyramids, and prisms.

ALGEBRA

Students will demonstrate an understanding of linear relations and fundamental algebraic concepts.

M7A1. Students will represent and evaluate quantities using algebraic expressions.

- a. Translate verbal phrases to algebraic expressions.
- b. Simplify and evaluate algebraic expressions, using commutative, associative, and distributive properties as appropriate.
- c. Add and subtract linear expressions.

M7A2. Students will understand and apply linear equations in one variable.

- a. Given a problem, define a variable, write an equation, solve the equation, and interpret the solution.
- b. Use the addition and multiplication properties of equality to solve one- and two-step linear equations.

M7A3. Students will understand relationships between two variables.

- Plot points on a coordinate plane.
- Represent, describe, and analyze relations from tables, graphs, and formulas.
- Describe how change in one variable affects the other variable.
- Describe patterns in the graphs of proportional relationships, both direct ($y = kx$) and inverse ($y = k/x$).

DATA ANALYSIS AND PROBABILITY

Students will demonstrate understanding of data analysis by posing questions, collecting data, analyzing the data using measures of central tendency and variation, and using the data to answer the questions posed.

Students will understand the role of probability in sampling.

M7D1. Students will pose questions, collect data, represent and analyze the data, and interpret results.

- Formulate questions and collect data from a census of at least 30 objects and from samples of varying sizes.
- Construct frequency distributions.
- Analyze data using measures of central tendency (mean, median, and mode), including recognition of outliers.
- Analyze data with respect to measures of variation (range, quartiles, interquartile range).
- Compare measures of central tendency and variation from samples to those from a census. Observe that sample statistics are more likely to approximate the population parameters as sample size increases.
- Analyze data using appropriate graphs, including pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots introduced earlier, and using box and- whisker plots and scatter plots.
- Analyze and draw conclusions about data, including describing the relationship between two variables.

Terms/Symbols: natural number, whole number, sign, integer, opposite, negative, positive, absolute value, term, variable, commutative property, associative property, distributive property, algebraic expression, linear equation, direct and indirect proportions, constant of proportionality ($y = kx$), variation, polyhedron, translation, rotation, reflection, dilation, symmetry, bisector, parallel lines, perpendicular lines, cross-section, similar, congruent, point, line, plane, line segment, endpoints, intersection, ray, parallel lines, perpendicular lines, similar, similarity, rate, scale drawings, corresponding sides, corresponding angles, congruent, diagonal, algebraic expression, commutative property, associative property, distributive property, direct variation, inverse variation, inversely proportional, mean, median, mode, range, quartile, interquartile range, outlier, histogram, scatter plot, line plot, box-and-whisker plot, \cong , \sim , \approx , \parallel , \perp , \angle .

Process Standards

The following process standards are essential to mastering each of the mathematics content standards. They emphasize critical dimensions of the mathematical proficiency that all students need.

Georgia Department of Education
Kathy Cox, State Superintendent of Schools
6/14/2005
All Rights Reserved

M7P1. Students will solve problems (using appropriate technology).

- a. Build new mathematical knowledge through problem solving.
- b. Solve problems that arise in mathematics and in other contexts.
- c. Apply and adapt a variety of appropriate strategies to solve problems.
- d. Monitor and reflect on the process of mathematical problem solving.

M7P2. Students will reason and evaluate mathematical arguments.

- a. Recognize reasoning and proof as fundamental aspects of mathematics.
- b. Make and investigate mathematical conjectures.
- c. Develop and evaluate mathematical arguments and proofs.
- d. Select and use various types of reasoning and methods of proof.

M7P3. Students will communicate mathematically.

- a. Organize and consolidate their mathematical thinking through communication.
- b. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.
- c. Analyze and evaluate the mathematical thinking and strategies of others.
- d. Use the language of mathematics to express mathematical ideas precisely.

M7P4. Students will make connections among mathematical ideas and to other disciplines.

- a. Recognize and use connections among mathematical ideas.
- b. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.
- c. Recognize and apply mathematics in contexts outside of mathematics.

M7P5. Students will represent mathematics in multiple ways.

- a. Create and use representations to organize, record, and communicate mathematical ideas.
- b. Select, apply, and translate among mathematical representations to solve problems.
- c. Use representations to model and interpret physical, social, and mathematical phenom

Reading Standard Comment

After the elementary years, students are seriously engaged in reading for learning. This process sweeps across all disciplinary domains, extending even to the area of personal learning. Students encounter a variety of informational as well as fictional texts, and they experience text in all genres and modes of discourse. In the study of various disciplines of learning (language arts, mathematics, science, social studies), students must learn through reading the communities of discourse of each of those disciplines. Each subject has its own specific vocabulary, and for students to excel in all subjects, they must learn the specific vocabulary of those subject areas *in context*.

Beginning with the middle grades years, students begin to self-select reading materials based on personal interests established through classroom learning. Students become curious about science, mathematics, history, and literature as they form contexts for those subjects related to their personal and classroom experiences. As students explore academic areas through reading, they develop favorite subjects and become confident in their verbal discourse about those subjects.

Reading across curriculum content develops both academic and personal interests in students. As students read, they develop both content and contextual vocabulary. They also build good habits for reading, researching, and learning. The Reading Across the Curriculum standard focuses on the academic and personal skills students acquire as they read in all areas of learning.

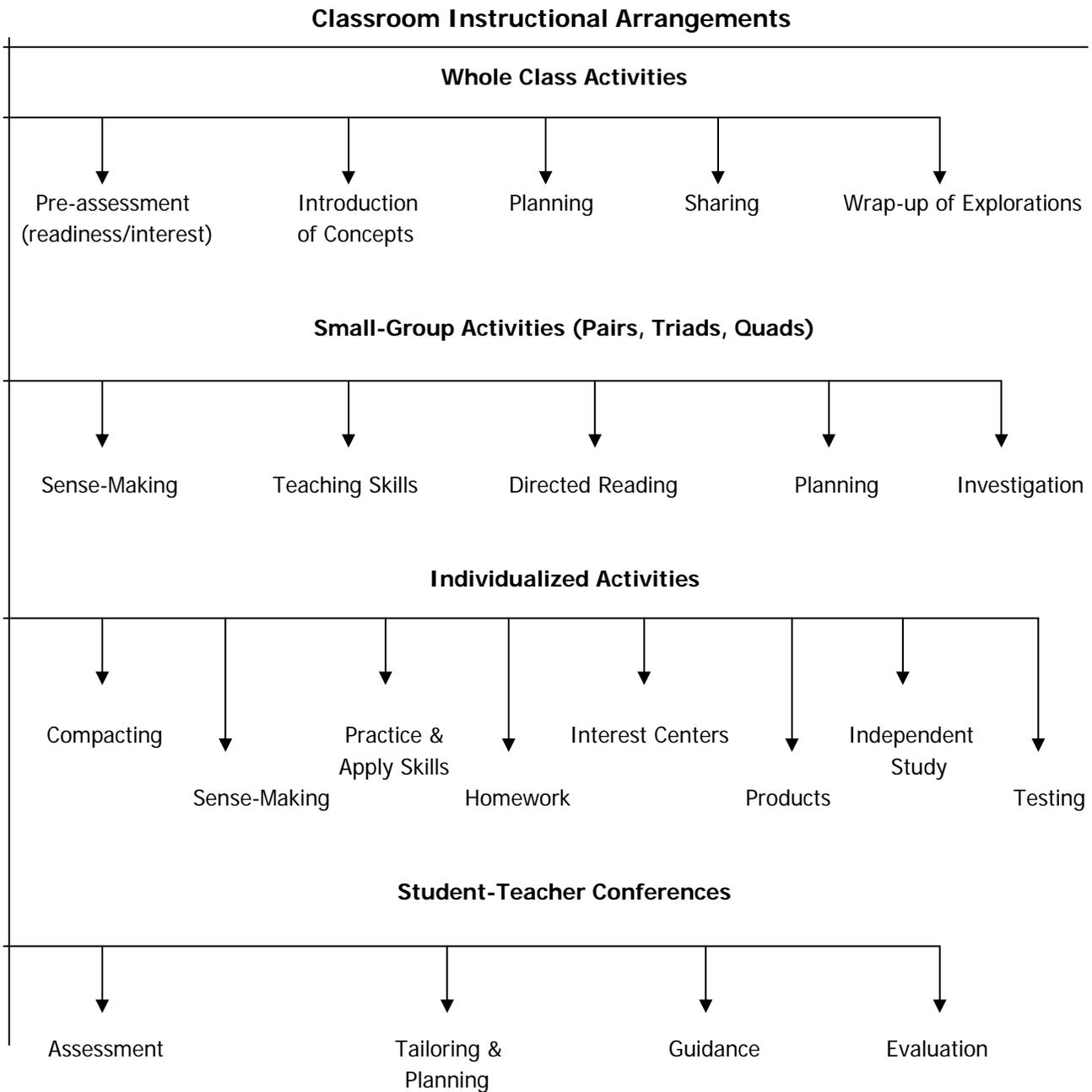
MRC. Students will enhance reading in all curriculum areas by:

- a. Reading in all curriculum areas
 - Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas.
 - Read both informational and fictional texts in a variety of genres and modes of discourse
 - Read technical texts related to various subject areas
- b. Discussing books
 - Discuss messages and themes from books in all subject areas.
 - Respond to a variety of texts in multiple modes of discourse.
 - Relate messages and themes from one subject area to messages and themes in another area.
 - Evaluate the merit of texts in every subject discipline.
 - Examine author's purpose in writing.
 - Recognize the features of disciplinary texts.
- c. Building vocabulary knowledge
 - Demonstrate an understanding of contextual vocabulary in various subjects.
 - Use content vocabulary in writing and speaking.
 - Explore understanding of new words found in subject area texts.
- d. Establishing context
 - Explore life experiences related to subject area content.
 - Discuss in both writing and speaking how certain words are subject area related.
 - Determine strategies for finding content and contextual meaning for unknown words.

Middle School Mathematics

	6 th Grade	7 th Grade	8 th Grade
Numbers and Operations	<ul style="list-style-type: none"> • Factors and multiples • Fundamental Theorem of Arithmetic • GCF and LCM • Compute with fractions and mixed numbers (unlike denominators) • Equivalent fractions, decimals, and percents 	<ul style="list-style-type: none"> • Absolute value • Compare & order rational numbers • Compute & solve problems with positive and negative rational numbers 	<ul style="list-style-type: none"> • Square roots of perfect squares • Rational vs Irrational numbers • Simplify expressions with integer exponents • Scientific Notation
Measurement	<ul style="list-style-type: none"> • Convert units using proportions • Volume of right rectangular prisms, right circular cylinders, pyramids and cones • Surface area of right rectangular prisms, right circular cylinders 		
Geometry	<ul style="list-style-type: none"> • Line & rotational symmetry • Ratio, proportion and scale factor with similar plane figures • Scale drawings • Compare/contrast right prisms/pyramids and cylinders/cones • Views of solid figures • Nets (prisms, cylinders, pyramids, and cones) 	<ul style="list-style-type: none"> • Basic constructions • Transformations • Properties of similarity • 3-D figures formed by translations & rotations in space • Cross sections of cones, cylinders, pyramids and prisms 	<ul style="list-style-type: none"> • Properties of parallel and perpendicular lines • Meaning of congruence • Pythagorean Theorem
Algebra	<ul style="list-style-type: none"> • Ratio for quantitative relationship • Write & solve proportions • Write & solve simple one-step equations 	<ul style="list-style-type: none"> • Algebraic expressions • Linear equations in one variable • Relationships between two variables 	<ul style="list-style-type: none"> • Represent, analyze, and solve problems • Inequalities in one variable • Relations and Linear functions
Data Analysis and Probability	<ul style="list-style-type: none"> • Question, Collect Data, Make Graphs • Experimental/ Theoretical Probability • Predictions from investigations 	<ul style="list-style-type: none"> • Question, Collect Data, Make Graphs, Interpret results 	<ul style="list-style-type: none"> • Set theory • Tree Diagrams/ Counting Principles • Basic laws of probability • Organize, interpret, make inferences from data
Process Skills	Problem Solving, Arguments, Communicate, Connections, Multiple Representations	Problem Solving, Arguments, Communicate, Connections, Multiple Representations	Problem Solving, Arguments, Communicate, Connections, Multiple Representations

Range of Activities in a Differentiated Classroom



Carol Ann Tomlinson, *How to Differentiate in Mixed-Ability Classrooms*, 2nd ed., Alexandria: ASCD, 2001, 25.

Pre-Assessment Strategies

- ✓ teacher prepared pretest
- ✓ KWL charts and other graphic organizers
- ✓ writing prompts/samples
- ✓ questioning
- ✓ guess box
- ✓ picture interpretation
- ✓ prediction
- ✓ teacher observation/checklists
- ✓ student demonstrations and discussions
- ✓ initiating activities
- ✓ informational surveys/questionnaires/inventories
- ✓ student interviews
- ✓ student products and work samples
- ✓ self-evaluations
- ✓ portfolio analysis
- ✓ game activities
- ✓ show of hands to determine understanding: every pupil response
- ✓ drawing related to topic or content
- ✓ standardized test information
- ✓ reader response survey
- ✓ anticipation journals

Glossary

Ability Grouping—Grouping students according to similar readiness levels or learning profiles.

Alternate Assignment—Assignments given to particular students or groups of students in lieu of the assignment given to the other members of the class. These assignments are designed to capitalize on student readiness levels, interests, or learning profiles.

Anchor Activity—A task or activity that a student automatically moves to upon completion of other assigned work.

Cluster Grouping—Flexible grouping and regrouping of students within a classroom to accommodate different instructional needs at different times and/or for different subject or content, different readiness levels, interests, or learning profiles.

Compacting—Modifying or streamlining content, process, or product in order to eliminate repetition of previously mastered material.

Contracting—Students contract for grades and/or choose from a variety of available project/product options.

Cooperative Learning—Students work with other students in groups to achieve a specific goal or purpose. Each group member has a particular, predetermined role in helping the group reach its goal.

Exit Cards—Teacher distributes index cards to students a few minutes before the end of class. Students respond quickly to a specific prompt such as “What’s the most important thing you learned today?” Exit cards provide a quick and easy method of assessing understanding.

Flexible Grouping—Purposeful reordering of students into a variety of different groups in a short amount of time in order to ensure that all students work with a number of different students on a regular basis. Criteria for grouping—readiness, interest, learning profile, activity or task, content—will vary regularly as well.

Interest Centers/Groups—Interest centers (often used with younger learners) and groups (often used with older learners) allow students choice in an area or areas of study.

Independent Study Projects—A student or small group of students pursues an area of interest related to a specific topic, curricular area, or individual area of interest.

Literature Circles—Small groups of students read and/or study different books with varying degrees of difficulty and/or focusing on a variety of topics of interest.

Product/Project Options—Students chose from a variety of options the way that they will provide evidence of learning. These options allow students to utilize their individual strengths and interests.

Pyramid Activities—Any activity that begins with students working individually, progresses through pairs, groups of four, etc., until ending with the whole-class group. A good way to review material or to practice test-taking strategies. Students may begin by individually recording what they know and then add to or change their responses as they collaborate with other students.

Questioning Strategies—Different types of questions are employed before, during, and after an activity, a lesson, or a unit of instruction to engage and challenge students to demonstrate their understanding from the knowledge level to the evaluation level. These questions allow students to clarify their thinking, increase their knowledge, and deepen their understanding.

RAFT Activities—Students select a Role, Audience, Format, and Topic for a particular task. The task vary but may include writing, oral presentations, skits, review activities, etc.

Reader's Workshop—This student-centered, instructional model for “real reading” uses authentic literature and allows students to self-select books. Students read at their own pace, reflect on what they read, and talk about their reading with others.

Reading Buddies—One name for peer reading partners, pairs of students who assist each other in reading for comprehension. They may take turns: one reading aloud and the other summarizing OR one reading aloud while the other formulates questions about that reading, etc.

Scaffolding—This refers to any support system that enables students to succeed with tasks they find genuinely challenging.

Subject/Content Acceleration—A student or group of students moves to a higher level of at an earlier time or age than the other students.

Thinking Maps—Visual representations of ideas that allow students to “unpack” their thinking and organize ideas in a visual format rather than solely in sentences or paragraphs.

Tiered Assignments—Teachers adjust the degree of difficulty for a particular assignment or task in order to meet the needs of students with varying levels of readiness, varying interests, and/or varying learner profiles.

Writer's Workshop—This student-centered, instructional model for “real writing” uses authentic assignments that allow students to participate in differentiated activities while participating in all stages of the writing process. Students spend time on self-selected writing activities.

Recommended Readings/Viewings/Websites: Differentiation

Note: A more general list of resources for the standards-based education process is contained in the materials for Day 1 of training.

At Work in the Differentiated Classroom. Alexandria, VA: ASCD, 2001.

This excellent resource includes three VHS tapes and a Facilitator's Guide. The videos provide clips of real differentiated classrooms and include commentary by Carol Ann Tomlinson. One set of these materials is being sent to each local system.

Berger, Sandra L. "Differentiating Curriculum for Gifted Students." 1991. Information Center on Disabilities and Gifted Children. Council on Exceptional Children, 1996. <http://ericec.org/digests/e510.html>.

Berger provides an overview of four areas of differentiation: content, process, product, and learning environment. In addition, she lists seven guiding principles for curriculum differentiation developed by the curriculum committee of the Leadership Training Institute.

Hall, Tracey, Nicole Strangman, and Anne Meyer. "Differentiated Instruction and Implications for UDL Implementation: Effective Classroom Practices Report." *Ideas that Work*. National Center on Accessing the General Curriculum. U.S. Office of Special Education Programs. CAST, Inc. 1999-2005. http://www.cast.org/publications/ncac/ncac_diffinstructudl.html.

This report examines information on the theory and research behind differentiated instruction and the intersection with Universal Design for Learning (UDL), a curriculum designed approach to increase flexibility in teaching and decrease the barriers that frequently limit student access to materials and learning in classrooms. The report includes a number of links to sites with more information about differentiated instruction.

"Interact Graphic Organizers." *Write Design Online*. zNet. <http://www.writedesignonline.com/organizers/interact.html#interaction>.

Using varying types/levels of graphic organizers provides one means of differentiating content or process. This website includes a number of different types of graphic organizers along with explanations and suggestions for their use. Links to other resources may also be valuable.

"The I-Search Curriculum Unit." *Literacy Matters*. Education Development Center, Inc., 2003-04. <http://www.literacymatters.org/content/isearch/intro.htm>.

Individual and group investigations, valuable strategies for differentiation, may be organized as I-Searches. An I-Search can actively engage students in the research process as they

pursue questions of importance that they care about. This site explains one version of the I-Search process.

Laternau, Joseph. "Standards-Based Instruction for English Language Learners." Honolulu: **Pacific Resources for Education and Learning**.
http://www.prel.org/products/pc_/standards-based.htm.

This article examines the potential benefits of standards-based instruction for English Language Learners (ELLs), presents a standards-based process for designing standards-based instructional units, and reviews the design of two standards-based units for ELLs. The benefits of performance standards for ELLs are clearly represented in a chart included in the article.

Teaching Styles Inventory. Texas Collaborative for Teaching Excellence. CORD, 2005.
<http://www.texascollaborative.org/tools/TSI.pdf>.

Use this twelve item teaching style inventory to self-assess and self-score your teaching style in the areas of concept representation, learning, interaction, and cognitive processing.

Tomlinson, Carol Ann. *How to Differentiate in Mixed-Ability Classrooms*. 2nd ed. Alexandria, ASCD, 2001.

This valuable resource explains both the theory behind and the means to achieve differentiation in mixed-ability classrooms. Each school received one copy of this resource along with other materials in the fall of 2004.

----- "Mapping a Route Toward Differentiated Instruction." *Educational Leadership* 57.1 (Sept. 1999): 12-16. http://pdonline.ascd.org/pd_online/diffinstr/e1199909_tomlinson.html.

Tomlinson provides a view into three separate classrooms to illustrate what a differentiated classroom does and does not look like.

----- *The Differentiated Classroom: Responding to the Needs of All Learners*. Alexandria, ASCD, 1999.

In this book, Tomlinson discusses the what, how, and why of differentiation, and provides examples from a number of differentiated classrooms.

Tomlinson, Carol Ann, and Caroline Cunningham Eidson. *Differentiation in Practice: A Resource Guide for Differentiating Curriculum, Grades K-5*. Alexandria, VA: ASCD, 2003.

This resource provides a brief primer on differentiation, as well as six differentiated units of instruction for grades K-5: two language arts units, two mathematics units, one science unit, and one social studies unit.

----- . *Differentiation in Practice: A Resource Guide for Differentiating Curriculum, Grades 5-9.*
Alexandria, VA: ASCD, 2003.

This resource provides a brief primer on differentiation, as well as six differentiated units of instruction for grades 5-9: one language arts unit, one mathematics unit, one science unit, two social studies units, and one French unit.

----- . *Differentiation in Practice: A Resource Guide for Differentiating Curriculum, Grades 9-12.*
Alexandria, VA: ASCD, 2005.

This resource is scheduled to be published in August of 2005.

Mathematics

Danielson, Charlotte. *A Collection of Performance Tasks and Rubrics: Middle School Mathematics.*
Larchmont, NY: Eye on Education, 1997.

Illuminations. <http://illuminations.nctm.org/index.asp>

Intermath. <http://www.intermath.uga.gatech.edu>

National Library of Virtual Manipulatives. <http://nlvm.usu.edu/en/nav/vlibrary.html>

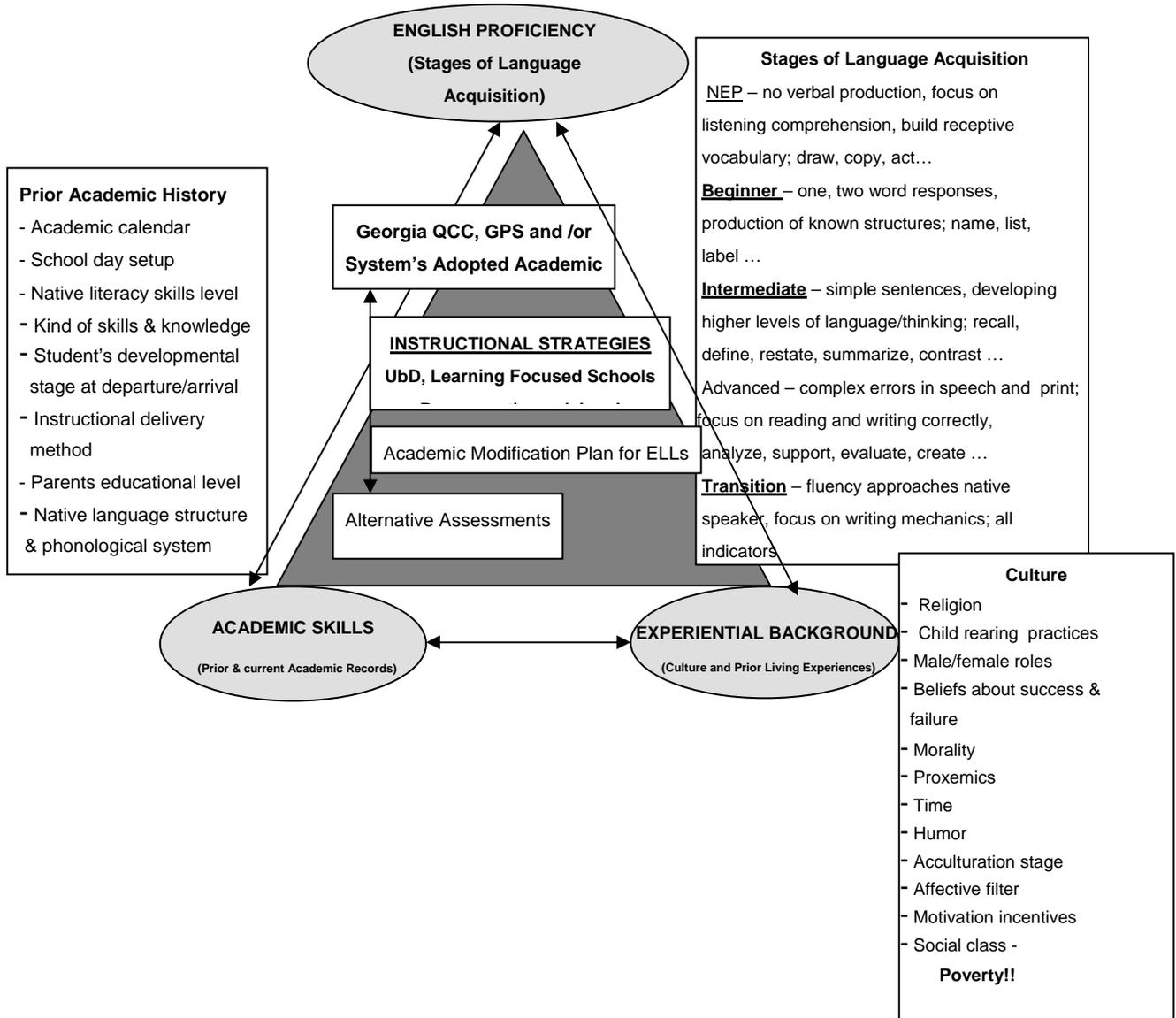
Northey, Sheryn Spencer. *Handbook on Differentiated Instruction for Middle and High Schools.*
Larchmont, NY: Eye on Education, 2005.

Van de Walle, John A. *Elementary and Middle School Mathematics: Teaching Developmentally, Fifth Edition.* New York, NY: Longman Press, 2004.

Van de Walle, John A. and LouAnn Lovin. *Teaching Student-Centered Mathematics: Grades 5-8.*
Boston, MA: Pearson Allyn & Bacon, 2006.

Pre-Assessing the English Language Learner

Framework for Understanding the Learning of PHLOTE & ELL Students: Who Am I Teaching?



© Victoria V. Webbert, 2003

What Does Differentiated Instruction Look Like?

Differentiated Instruction is...	Differentiated Instruction is not...
1. Assessing students before a unit of instruction to determine what they already know	1. All students in the class completing the same work for a unit/chapter
2. Adjustment of the core curriculum by content (below to above grade level), process (concrete to abstract), and product (simple to complex)	2. Limiting how and what is taught by teaching to the average student
3. Providing assignments tailored for students of different levels of achievement	3. Assigning more work at the same level to high achieving students
4. Having high expectations for ALL students	4. Focusing on student weaknesses and ignoring student strengths
5. Educational experiences which extend, replace, or supplement standard curriculum	5. Activities that all students will be able to do
6. Structuring class assignments so they require high levels of critical thinking and allow for a range of responses	6. Giving the same kind of problems or questions and expecting more
7. Students participating in respectful work	7. Creating more work-extra credit, do when done
8. Students and teachers collaborating in learning	8. Using higher standards when grading
9. Putting students in situations where they don't know the answer- often	9. Providing free-time challenge activities
10. Differing the pace of instruction	10. Using capable students as tutors
11. A blend of whole class, group, and independent learning	11. Using individualized instruction

Instructional Accommodations for ELLs

Accommodations for ELLS are appropriate and effective only to the level that these match the English language learners proficiency in English, prior academic knowledge and cultural learning patterns.

<p>give tests orally rather than in written form</p> <p>give more time to complete assignments</p> <p>allow same-language buddy to assist</p> <p>require fewer responses to demonstrate mastery</p> <p>permit incomplete sentences in responses</p> <p>permit ungrammatically correct sentences in responses</p> <p>provide lower level text on content material</p> <p>provide video on content material</p> <p>provide text on tape</p> <p>highlight key points</p> <p>reduce number of key points that student is responsible for knowing</p> <p>give advanced organizers/study guides</p> <p>permit open book tests</p> <p>use graphic organizers</p> <p>give written instructions as well as oral</p> <p>make a written record of instruction and display it on chart paper</p> <p>take time to develop students' prior knowledge of new topics</p> <p>increase % of student talk about topic (more discussions)</p> <p>break students into small groups for discussion</p> <p>plan for group work</p> <p>use demonstrations when possible</p> <p>present model of work done well at the beginning of the assignment</p> <p>use hands-on activities when possible</p> <p>give sufficient wait time after asking questions</p> <p>adapt homework requirements to reflect stage of language development</p>	<p>use performance based assessment when possible</p> <p>adapt project/assignment requirements so students can participate</p> <p>provide learning centers (language masters, books on tape, magazines for classifying and developing picture dictionaries, language based games)</p> <p>provide additional examples</p> <p>pair verbal directions with visual clues</p> <p>provide computer time (phonics software, <i>Kidspiration</i> graphic organizer software, internet)</p> <p>seat student near teacher or positive role models</p> <p>relate content to real life</p> <p>present tasks from easy to hard</p> <p>reduce details needed to learn main concepts</p> <p>use simpler vocabulary or paraphrase</p> <p>look at students when talking</p> <p>use audio-visual aids frequently</p> <p>provide student with outline of lesson notes</p> <p>use peer assisted note taking</p> <p>use role-playing</p> <p>use games</p> <p>provide self-checking materials</p> <p>use different colors for worksheets</p> <p>use enlarged type on worksheets</p> <p>reduce the length or amount of work</p> <p>mark only correct answers</p> <p>do NOT write the name of a Korean student in red...it means death</p> <p>give short quizzes/avoid long tests</p> <p>allow the use of a dictionary during tests</p> <p>allow student to take tests until passes/emphasize mastery</p>
--	---

Georgia Department of Education, GPS Differentiation Menu

For students who have difficulty with writing/composing written material:

- cooperative learning groups
- word processing application
- dictation to a scribe or onto a tape
- demonstrate/role play
- oral responses, presentation, and assessments
- multi-media presentation
- graphic organizer
- extended time on timed tasks
- word prediction software
- *Co-Writer*, *Write Out Loud*, *Dragon Naturally Speaking*, or other software
- voice output computer programs
- spell check/grammar check (not allowed on standardized tests)
- task item rubrics
- teacher prepared format
- break work into manageable parts
- individual or small group test taking
- story starters
- sentence starters
- outlines
- tape recorded essays and oral presentations
- voice activated software
- portable word processor
- prewriting conference/prewriting activities
- illustrations
- K-W-L chart
- provide sample work
- debates
- proofreading checklist
- word bank/word wall
- matrix usage
- note taking assistance
- provide student with key words on essay tests
- abbreviate assignments
- adapted writing tools or other assistive technology, as appropriate

For students who have difficulty with reading/accessing written material:

- cooperative learning groups/group discussion
- extended time on timed tasks
- voice output computer programs
- talking dictionaries
- break work into manageable parts/presentation of small chunks of a passage
- individual or small group test taking
- testing with reader or scanable text readers
- books on tape/listening to recording/viewing film version of story
- text read to the student by adult or peer
- reading guides (highlighted text, summaries, etc.)
- Language Master
- tracking light or other tracking device
- colored overlays
- computer generated books
- answer "yes/no" questions for comprehension checks
- choral reading
- pre-reading summary

- electronic text (text reader)
- oral (or audio) presentation to student
- teacher introduction of vocabulary words
- paired reading
- picture cues
- illustrations to show comprehension
- *CoWriter*, *Write Out Loud*, other software
- K-W-L chart
- previewing topics to introduce vocabulary and key concepts
- listening guide to facilitate note taking
- links to prior knowledge/personal experience
- debates
- word bank/word wall
- other assistive technology, as appropriate

For students who have difficulty speaking:

- sign language interpreter/transliterater
- augmentative communication devices
- communication boards
- cooperative learning groups
- usage of other preferred means of communication
- demonstrate/play act tasks
- picture symbol program
- object symbols
- voice output computer programs
- object symbols
- voice output computer programs
- break work into manageable parts
- provide time to respond
- ask “yes/no” questions
- indicating correct answer by pointing
- assign written rather than oral reports
- avoid situations that create pressure
- other assistive technology, as appropriate

For students who have difficulty listening:

- cooperative learning groups
- visual presentation using computer software, such as *PowerPoint* or *Inspiration*
- break work into manageable parts
- repeat, rephrase, simplify statements and instructions
- provide time to respond
- use of literal, concrete speech
- visual aids
- preferential seating
- note taking assistance (copy or notes/note-taking guides/note taker)
- have student repeat instructions
- reinforce oral instructions with written instructions
- assistive technology, as appropriate

For students who have difficulty with mobility:

- cooperative learning groups
- switch use
- touch screen
- modified keyboards
- extended time on timed tasks (or waive timed tasks)
- modified handwriting and/or grid paper
- weighted pencils and other motoric devices
- slant board or wedge

- magnets, tape, or other paper stabilizers
- stabilized materials
- break work into manageable parts
- individual or small group test taking
- provide time to respond
- page turner
- flexible schedule/scheduled rest breaks
- provide assistance in manipulating classroom and personal materials
- note taking assistance
- adaptive or special furniture
- dictation to a scribe or onto a tape
- other assistive technology, as appropriate

For students who have difficulty attending to task:

- cooperative learning groups with specific tasks assigned
- rubrics
- graphic organizers
- extended time on timed tasks
- break work into manageable parts
- individual or small group test taking
- task analysis
- task analysis graphically displayed
- proximity control
- visual, verbal, and tactile cues
- gain student's attention before delivery of information
- flexible schedule/scheduled rest breaks
- preferential seating
- note taking assistance
- provide study guides for tests
- have student repeat instructions
- regular notebook/agenda checks
- give abbreviated assignments
- set time allotments for tasks
- organizer/daily planner/homework notebook/folders
- fewer items on each page
- allow students to mark answers in workbooks and test booklets
- select optimal time of day for assessments
- provide study carrel or other quiet work space with minimal distractions
- assistive technology, as appropriate

For students who have difficulty with organizations/study skills:

- cooperative learning groups
- graphic organizers
- extended time on timed tasks
- break work into manageable parts
- individual or small group test taking
- task analysis
- task analysis graphically displayed
- organizer/daily planner/homework notebook/folders
- provide time to respond
- preferential seating
- provide sample work
- task item rubrics
- provide study guides for tests
- have student repeat instructions
- regular notebook/agenda checks
- set time allotments for task
- fewer items on each page
- provide study carrel or other quiet work space with minimal distractions

- provide books to remain at home
- establish and post daily routines
- allow students to mark answers in workbooks and test booklets
- assistive technology, as appropriate

For students who are Deaf/Hard of Hearing:

- sign language interpreter/transliterator
- amplification equipment
- sound-treated classrooms/special acoustics
- visual presentation using computer software, such as *PowerPoint* or *Inspiration*
- highlighted vocabulary
- closed captioning for viewing movies and other video presentations
- cooperative learning groups
- demonstrate/play act tasks
- voice output computer programs
- individual or small group test taking
- give short, specific verbal instructions
- story webs
- story starters
- *Write Out Loud*, *CoWriter*, or other software
- peer scribe
- note taking assistance
- provision of class notes with critical information, test questions, and highlighted vocabulary
- preferential seating
- refrain from speaking with back turned to students
- provide a work space with minimal noise
- other communication aids (assistive technology), as appropriate

For students who are Visually Impaired:

- Braille text/Braille writer
- enlarged print
- print with optical devices
- tactile symbols
- calendar system
- auditory and electronic formats
- dark or raised line paper
- cooperative learning groups
- slant board
- individual or small group test taking
- low vision devices/magnifying equipment
- screen readers/text scanners
- audiotaped directions and text (Talking Books for the Blind)
- word processing program with voice output
- electronic Braille note takers
- positioning in class away from glare
- black print handouts
- primary typewriter
- preferential seating
- usage of grid paper
- special or adapted lighting
- other alternate formats, communication aids, or assistive technology, as appropriate

Student-Created Products

<p>Verbal</p> <p>anecdote audio recording ballad book report campaign speech characterization choral reading cinquain comedy act comparison conference couplet debate description dialog discussion documentary dramatization explanation fairy tale/tall tale free verse interview jingle joke lecture lesson limerick mock interview monologue myth newscast nursery rhyme oral report panel discussion quatrain radio show radio commercial rap recorded dialogue rhyme weaving wire sculpture</p>	<p>riddle role-play song speech story telling survey</p> <p>Visual</p> <p>advertisement CD cover anagram animation annotated biblio. area graph artifact collection award banner bar graph blueprint book jacket booklet bookmark brochure bulletin board calendar cardboard relief cartoon chart checklist collage collection comic book costume cross-section crossword puzzle design diagram diorama display drawing film dialog dictionary editorial</p>	<p>filmstrip flag flashcard flip chart flowchart game graphic greeting card hieroglyphic icon id chart illustration layout map mask mobile mosaic movie newscast outline painting pattern pennant photo essay photograph picture dictionary picture story pie chart playing card print puzzle scatter graph scenario scrap book scroll sign silk screen slide show stencil TV commercial timeline letter to editor limerick list</p>	<p>transparency travel ad travel log tree chart video tape wall hanging weather map weaving web web page window shade word game word search</p> <p>Kinesthetic</p> <p>apparatus aquarium artifacts card game cardboard relief ceramics charade circuit boards clothing collage collection dance demonstration discovery center display dramatization equipment etching experiment fair food furniture gadget game hat imaginary play patent pen pal petition</p>	<p>improvisation instrument invention jigsaw puzzle kite laboratory learning center macramé mime mobile model origami parallel play paper mache play prototype puppet finger puppet marionette hand puppet puppet show puzzle quilt relief rubbing role play sand casting scavenger hunt service sewing cards shadow box simulation skit soap sculpture stage set stitchery terrarium tie-dye tool toy uniform vehicle riddle satire science fiction</p>
--	---	--	---	--

Written	essay	log	plan	scroll
advertisement	fairy tale/tall tale	lyrics	play	short story
autobiography	field manual	magazine	poem	skit
book report	free verse	magazine article	prediction	slogan
booklet	friendly letter	manual	profile	speech
brochure	glossary	metaphor	puppet show	story
business letter	guidebook	myth	questionnaire	story problems
characterization	handbook	new story ending	questions	survey
classified ad	handout	newsletter	radio script	telegram
comic book	interview script	newspaper	rating scale	TV script
comparison	job description	newspaper article	rationale	term paper
computer prog.	joke book	notes	recipe	test
couplet	jot list	novel	reference	travel log
creative writing	journal article	oath	report	vocabulary list
critique	label	outline	research paper	yearbook
database	law	pamphlet	review	
description	lesson plan	parody	rewritten ending	

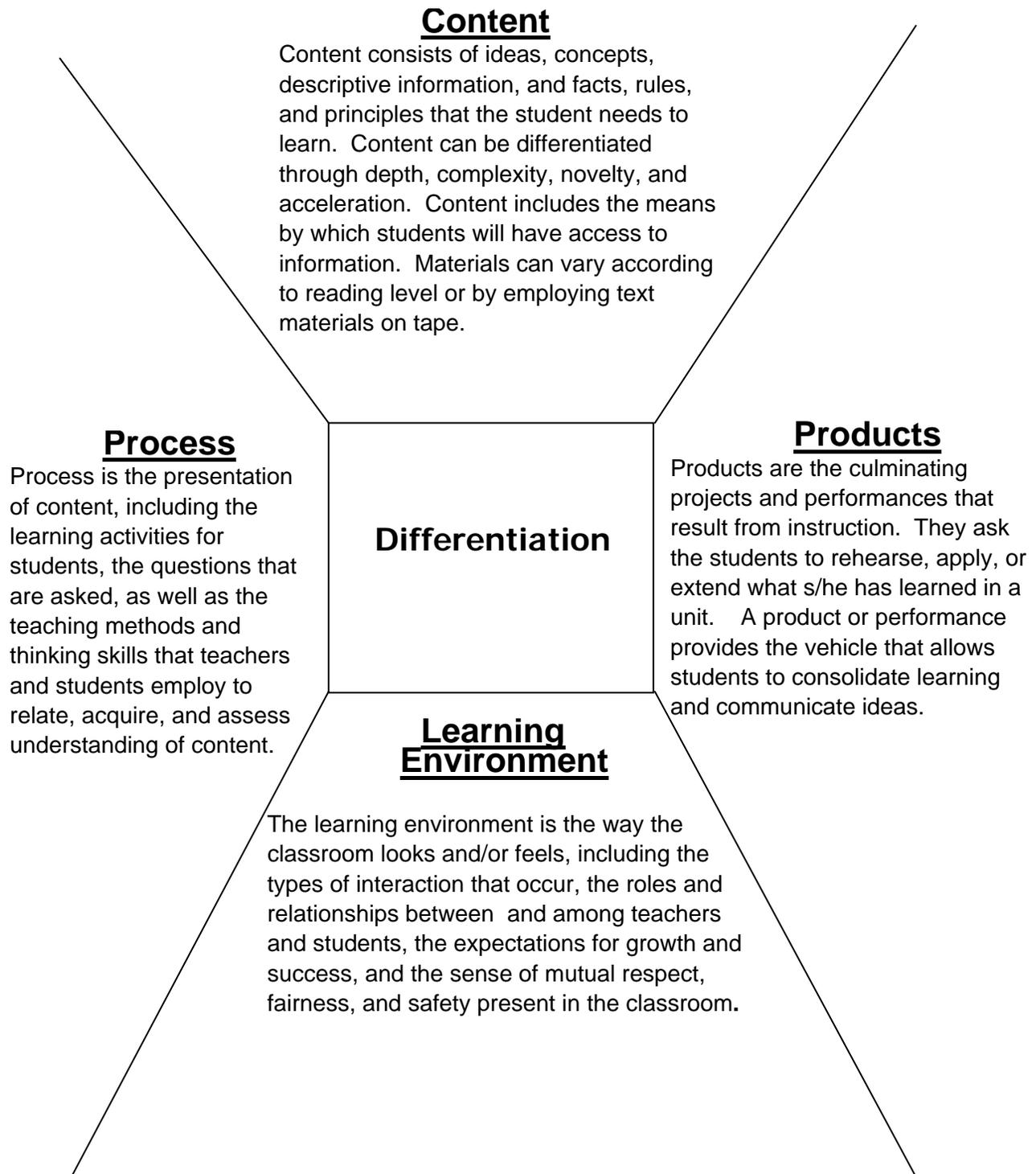
from GA Dept. of Education *Curriculum Guide for the Education of Gifted Students*, by Jim Curry and John Samara

Product Possibilities

Design a web page	Design political cartoons	Compile a newspaper
Develop a solution to a community problem	Formulate & defend a theory	Develop an exhibit
Create a public service announcement	Conduct a training session	Conduct an ethnography
Write a book	Design & teach a class	Write a biography
Design a game	Do a demonstration	Present a photo-essay
Generate & circulate a petition	Present a news report	Hold a press conference
Write a series of letters	Write a new law & plan for its passage	Develop & use a questionnaire
Present a mime	Make learning centers	Conduct a debate
Design & create a needlework	Create authentic recipes	Make a video documentary
Lead a symposium	Choreograph dances	Create a series of illustrations
Build a planetarium	Present a mock trial	Write poems
Conduct a series of interviews	Make a plan	Develop tools
Develop a collection	Compile & annotate a set of Internet resources	Design or create musical instruments
Submit writings to a journal, magazine, or newspaper	Design a new product	Compile a booklet or brochure
Interpret through multimedia	Write a series of songs	Draw a set of blueprints
Design a structure	Create a subject dictionary	Present a radio program
Design & conduct an experiment	Make and carry out a plan	Do a puppet show
Collect & analyze samples	Design a simulation	Create a series of wall hangings
Plan a journey or an odyssey	Write a musical	Go on an archeological dig
Make an etching or a woodcut	Develop a museum exhibit	Design & make costumes
Write letters to the editor	Be a mentor	Present an interior monologue
	Write or produce a play	Generate charts or diagrams to explain ideas

Carol Ann Tomlinson, *How to Differentiate in a Mixed-Ability Classroom*, 2nd ed., Alexandria, ASCD, 2001, 89.

What to Differentiate





Strategies for Managing a Differentiated Classroom

Carol Ann Tomlinson

1. Have a strong rationale for differentiation instruction based on student readiness, interest, and learning profile.
2. Begin differentiating at a pace that is comfortable for you.
3. Time differentiated activities to support student success.
4. Use an “anchor activity” to free you up to focus your attention on your students.
5. Create and deliver instructions carefully
6. Assign students into groups or seating areas smoothly.
7. Have a “home base” for students.
8. Be sure students have a plan for getting help when you’re busy with another student or group.
9. Minimize noise.
10. Make a plan for students to turn in work.
11. Teach students to rearrange furniture.
12. Minimize “stray movement”.
13. Promote on-task behavior.
14. Have a plan for “quick finishers”.
15. Make a plan for “calling a halt”.
16. Give your students as much responsibility for their learning as possible.
17. Engage your students in talking about classroom procedures and group process.

Student Scenarios for "Differentiation Stratego: A Reality Game" Cards

<p>Roy is a very bright student. He can remember most factual information the first time it is presented. However, he has a problem remaining focused during traditional instructional activities (lectures, worksheets, etc.) When he stops working he will sometimes look around the class, and beat on his desk. He simply cannot sit still, and pesters other students continually.</p>	<p>Ahmad is a gifted student. He is very interested in science. Ahmad often seeks out information pertaining to science outside the normal course curriculum. He excels on his daily class work, but will become bored if he is required to complete whole class assignments.</p>
<p>Sheila is an extremely quiet, intelligent young lady. She doesn't participate in class discussions, but consistently performs well on standardized tests. Sheila turns in all of her homework and class work assignments. She receives A's in all of her courses, but she dislikes completing more difficult or challenging assignments.</p>	<p>Phillip loves to draw. He has a book of cartoon characters that he uses his sketch paper to reproduce. Phillip often puts off classroom assignments to continue drawing the characters in his book. His classmates have acknowledged his talent, and often comment on his superior ability.</p>
<p>Sheila is an extremely quiet, intelligent young lady. She doesn't participate in class discussions, but consistently performs well on standardized tests. Sheila turns in all of her homework and class work assignments. She receives A's in all of her courses, but she dislikes completing more difficult or challenging assignments.</p>	<p>Phillip loves to draw. He has a book of cartoon characters that he uses his sketch paper to reproduce. Phillip often puts off classroom assignments to continue drawing the characters in his book. His classmates have acknowledged his talent, and often comment on his superior ability.</p>
<p>Roscoe is a very smart student. However, he likes to entertain the class with his jokes and spontaneous comments during class sessions. He makes "funny" comments that actually go far beyond humor. The cutting effect of such comments is intentional. His classmates often become distracted by his "off the wall" statements. Though Roscoe enjoys amusing the class, he completes his assignments on time. He receives A's and B's in all of his classes.</p>	<p>Demarcus has a lot of energy. He can't sit still for more than 10 to 15 minutes at a time. He appears to be fidgety and has a very short attention span. He consistently gets out of his seat without permission and walks around the classroom. He attempts to move around the room when he should be working. If Demarcus is not out of his seat, he is raising his hand to ask permission to leave the room. His most common requests include: a) "Can I go to the restroom?" b) "I left my book in my locker. Can I go get it?" or c) "Can I go see the counselor?"</p>

<p>Stephen participates in various sports. He is a member of the basketball, football, and track teams. However, he is not consistent in turning in daily class work assignments. Stephen rarely completes homework assignments, and is a mediocre student. Stephen reads sports magazines incessantly. He is not a discipline problem, but does not seem to show an interest in anything besides sports.</p>	<p>Paul is an inclusion student. He feels a little uncomfortable being in a large class after years in a smaller setting. Paul thinks that many of the kids in his class are smarter than he is. As a result, he tends to withdraw during class discussions. He exhibits little or no effort on class assignments or projects. Paul can understand basic concepts and shows potential when he tries to complete the work he is given.</p>
<p>Carla likes to write poetry and listen to music. She often looks up her favorite artist's lyrics on the internet and attempts to memorize them. During class sessions it is not unusual for Carla to hum or sing to herself. Recently, her CD player was collected in class while she was listening to her favorite singing group. Carla aspires to become a famous singer and go on tour all over the world.</p>	<p>Kim is an extremely bossy student. She is very opinionated, and does not hesitate to interrupt lectures or class activities to challenge the validity of a concept presented. She does not work well in groups because she attempts to perform all the tasks herself without the assistance of other group members. Her classmates despise her and avoid working with her whenever possible.</p>
<p>Lucy is very talkative. She can't wait for a break in the class session so she can exchange the latest gossip with one of her friends. She is a very poor listener and often does not realize she is talking. The teacher often has to tell her to stop talking at inappropriate times. Lucy is a very bright student, but allows her talking to interfere with completing individual assignments.</p>	<p>Stephanie has trouble with her reading. Her standardized test scores reflect that she reads several years below grade level. When Stephanie reads aloud, some of the students laugh at her. Stephanie has trouble pronouncing basic words, and she possesses low reading comprehension skills. She feels uncomfortable reading aloud in class because of the comments other children make toward her.</p>
<p>Raphael always challenges the teacher's fairness regarding major tests. He seeks out alternative measures to prove his ability. Raphael may suggest to the teacher to take a different type of test or to be tested after the class is tested. He often argues over the correctness of answers on the test. The teacher feels he may be trying to escape blame for his failures, and uses his behavior to gain attention from his peers.</p>	<p>Mary is a constant worrier. She worries so often it may lead to her becoming upset physically and mentally. She worries about tests, projects, and how people perceive her. Mary expects failure, and this expectation often deepens her worrying. Her feelings tend to lead to lack of participation and withdrawal during class activities.</p>

<p>Laurie questions everything. She asks an abnormal number of questions about every conceivable subject. Laurie tends to ask questions even when she knows the answer. She even interrupts lectures or class activities to ask questions. Laurie makes very good grades, and her favorite subject is math. She would love to become a math teacher someday.</p>	<p>Jordan is extremely quiet and does not participate in class sessions. He sits in class and does nothing most of time. Jordan does enjoy playing various games on the computer, and he seems to make attempts to participate in class sessions that involve review games (i.e., Jeopardy, Wheel of Fortune).</p>
<p>Lakeisha approaches every task with an "I can't" attitude. Her teacher thinks Lakeisha lacks self-confidence. She even claims to be unable to complete assignments that she has done before. Lakeisha feels it's much better to say, "I can't" than to attempt any task. She will attempt to do rudimentary assignments, but refuses to do anything that requires her to complete complex tasks.</p>	<p>Ralph is an average student. He receives B's and C's in his core classes. He infrequently completes his homework and class work. Ralph's dad taught him how to work on cars. Ralph knows how to change oil, check tire pressure, and make other minor car repairs. He enjoys taking things apart and putting them back together. Ralph also enjoys working on electronic devices such as gameboys, radios, and even computers.</p>
<p>Joy seems to be satisfied with second place. She intentionally identifies the classmate who is first or the most intelligent pupil. She feels that she is only worthy of second place. Joy is capable of being a top student, but she seems to have a sense of inferiority. She tends to idolize the first-place student, and her lack of self-confidence makes her feel she could never be first.</p>	<p>Chan is overwhelmed with the number of assignments he has yet to complete. He gets so far behind he can't seem to catch up. Every class day seems to dig him deeper and deeper into the hole of failure. Chan gets very frustrated when he is unable to finish his class work or assigned projects. He tries to do his best, but he can never seem to catch up.</p>
<p>Simone is an inclusion student. She demonstrates a high degree of ability on the individual assignments she turns in. However, she always wants to do what the group is doing. She has a tendency to see herself as always "part of the group." Simone can complete assignments on her own, but seeks attention from her classmates to validate herself.</p>	<p>Andrew does not complete his assignments because he says, "I've never seen this before" or "I don't know anything about that". He repeatedly makes comments like, "What?" "How did you do that?" "Huh?" and "Could you do that again?" The teacher questions whether Andrew really doesn't understand or if he is "playing dumb." He may be using this as a means to excuse himself from performing in the classroom.</p>

<p>Heather makes strange sounds or noises in the classroom. Some of her common odd noises include: hums, whistles, throat noises, and tapping on her desk. Heather plays the violin in the orchestra, and loves listening to classical music. Sometimes the noise she makes prevents her from completing her assignments and may distract other students.</p>	<p>Samuel never finishes a project. He loves to plan large scale projects, but he never comes close to completion. When Samuel works in a group situation, he will praise those that go along with his elaborate ideas and ridicule the more conservative group members. His goals are often too high for successful achievement, and he leaves the majority of the work for his group members to complete.</p>
<p>Robert is a student that has been retained several times during his schooling. Many of his past teachers pass him reluctantly because they don't want to deal with his disrespectful behavior another year. Robert has the ability to perform on a satisfactory level in a school setting, but has yet to reach his full potential. He doesn't work up to his ability level, and has taken on an indifferent attitude toward school because of past failures. Robert feels uncomfortable at times because he is older than the other students, and this makes him feel a little insecure.</p>	<p>Brittney complains about every assignment she is given. Her teacher usually writes the assignment on the board or tells the class when a project is due with very little input from the students. Brittney completes the majority of her work, but dislikes the redundant tasks she completes in class. In Brittney's spare time she writes and performs in plays for her local community center. She recruits younger kids from the neighborhood to participate in her productions. Brittney often wishes her classes at school were just as exciting as the performances at the community center.</p>
<p>Ethan displays an "I don't care" attitude toward school. He repeatedly says "he doesn't care" to teachers, students, and other school personnel. He shows disgust and lack of interest in many of his class activities.</p>	<p>Suzico is an above average student, and a perfectionist. She takes more time to complete assignments than other students in the class because she wants to make sure her answers are correct and her penmanship is neat.</p>
<p>Matthew likes to be the first person finished with his assignments. He is an intelligent young man, but he rushes through his work so he can be the first person complete. Occasionally, the speed at which he completes his assignments results in incorrect answers.</p>	<p>Maria is a good student. However, English is not her first language. Sometimes she struggles with comprehending the content of her textbooks because she is primarily a Spanish speaking student.</p>
<p>Chris is every teacher's favorite student. He consistently works to the best of his ability on every assignment. If he finishes early, he gladly assists the teacher or helps other students complete their work.</p>	<p>Margaret has to work harder to understand ideas and concepts; but once she does, she never forgets. She is always willing to spend extra time on assignments.</p>

**BLANK PAGE
ON
COLORED
PAPER!**

Jumping Jacks (From Unit 2 of the Grade 7 Framework.)

Adapted from *Variables and Patterns* © 2004 *Connected Mathematics Project*.
Investigation 1.

Preparing for a Bicycle Tour

The popularity of bicycle tours gave five college students—Sidney, Celia, Liz, Malcolm, and Theo—an idea for a summer business. They would operate bicycle tours for school and family groups. They chose a route from Atlantic City, New Jersey, to Norfolk, Virginia, including a long stretch along the ocean beaches of New Jersey, Delaware, and Maryland. They decided to name their business Ocean Bike Tours. While planning their bike tour, the five friends had to determine how far the touring group would be able to ride each day. To figure this out, they took test rides around their home-towns.

Think About This!

- How far do you think you could ride in a day?
- How do you think the speed of your ride would **change** during the course of the day?
- What conditions would affect the speed and distance you could ride?

To answer the questions above, you would need to take a test ride yourself. Although you cannot ride your bike around the classroom, you can perform a simple experiment involving jumping jacks. This experiment should give you some idea of the patterns commonly seen in tests of endurance.

Jumping Jack Experiment

This experiment requires four people:

- a jumper (to do jumping jacks)
- a timer (to keep track of the time)
- a counter (to count jumping jacks)
- a recorder (to write down the number of jumping jacks)

As a group, decide who will do each task.

Here's how to do the experiment: When the timer says "go," the jumper begins doing jumping jacks. The counter counts the jumping jacks out loud. Every 10 seconds, the timer says "time" and the recorder records the total number of jumping jacks the jumper has done so far. Repeat the experiment four times so that everyone has a turn at each of the four tasks.

A. Prepare a **table** for recording the total number of jumping jacks after every 10 seconds, up to a total time of 2 minutes (120 seconds).

Time (in seconds)	0	10	20	30	40	50	60	...
Total number of jumping jacks								

B. Do the jumping jack experiment and record your group's data. (BE sure to include the data for all four people in your group.)

Use your table of jumping jack data to answer these questions:

C. How did your jumping jack rate (the number of jumping jacks per second) change as time passed? How is this shown in your table?

D. What might this pattern suggest about how bike-riding speed would change over a day's time on the bicycle tour?

Making Graphs

E. Make a graph of your jumping jack data.

F. What does your graph show about jumping jack rate as time passes? (Another way to say this is, What does your graph show about the relationship between the number of jumping jacks and time?)

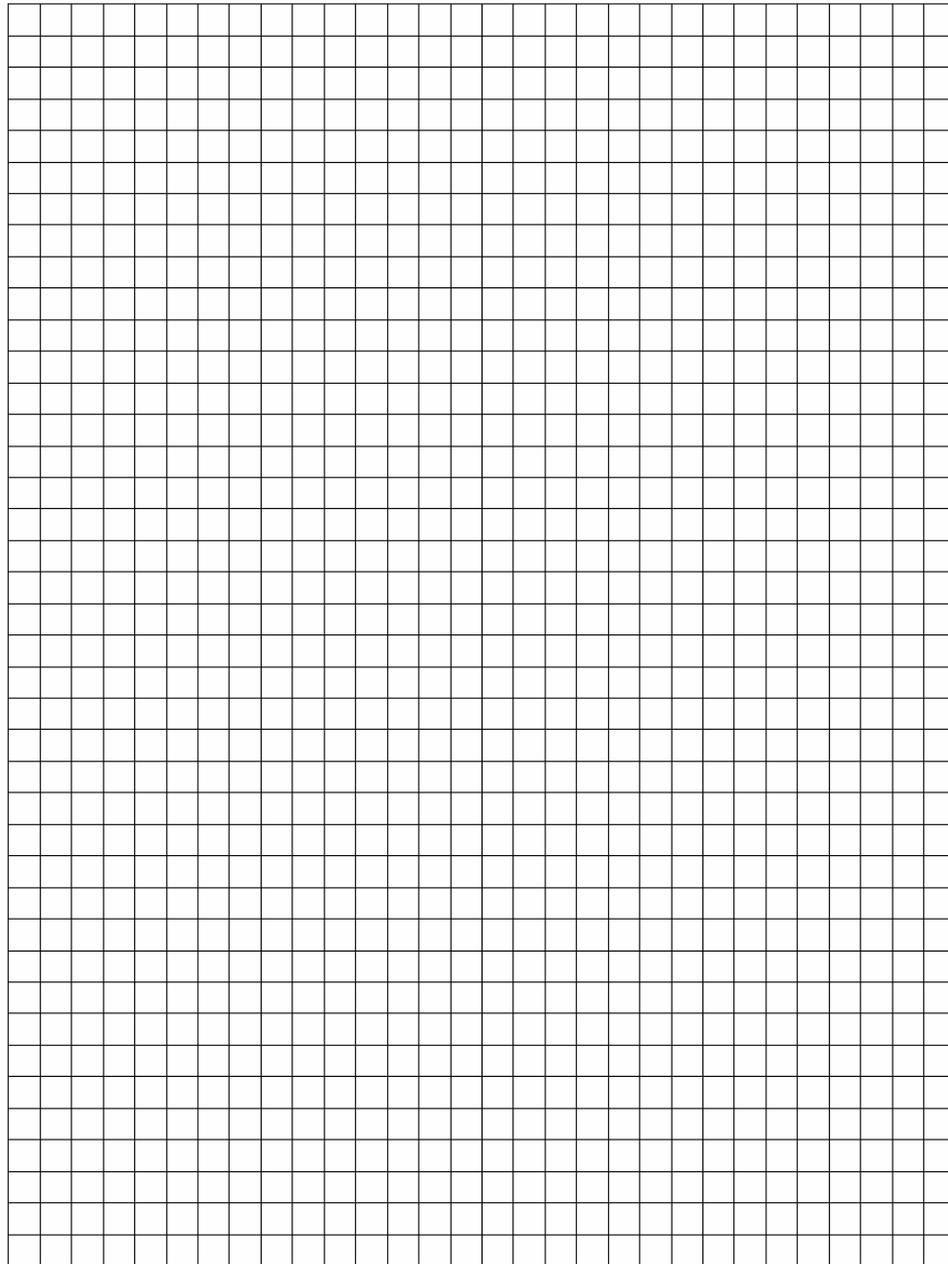
G. Is the relationship you found between the number of jumping jacks and time easier to see in the table or the graph? Explain your answer.

Some additional questions that the teacher may want to ask are listed below.

- 1. What are the variables in this situation?*
- 2. Which should probably be thought of as the independent variable and which as the dependent variable?*
- 3. Which axes should be used to show the progression of values for each variable?*
- 4. What values should be represented by the grid marks (commonly called tic-marks) on the two axes? Why would other scales be problematic?*

How do we make points on the graph represent values of the time and distance variables?

Time (in seconds)	0	10	20	30	40	50	60	...
Total number of jumping jacks								

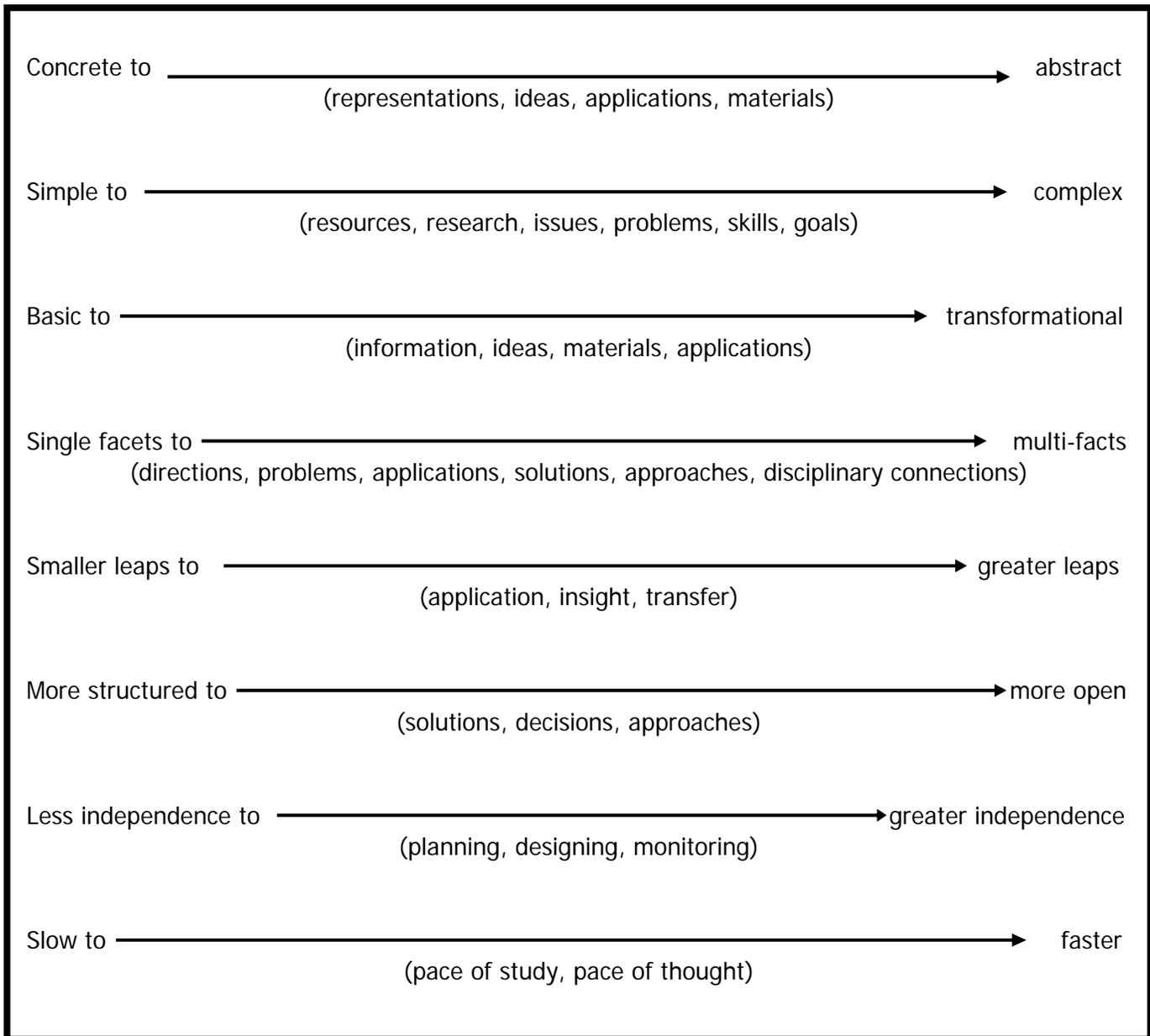


Some Underlying Assumptions of Differentiated Instruction

Read each assumption and assess your own “way of thinking about teaching” by marking the star if this assumption is implicit when planning instruction, the smiley face if you take this assumption into consideration in some way during planning and the question mark if you need to think about your practice in terms of this assumption.

The Underlying Assumption	☆	☺	?
1. When planning, I accommodate multiple and varied learning needs (social as well as cognitive), rather than attempting to accommodate them after student frustration or failure.			
2. I work to create and maintain a classroom community where students feel safe and valued as they are; at the same time I support each student in order to maximize his or her potential.			
3. I interact with each student with positive regard and positive expectations.			
4. I recognize every student has both talents and areas of need, and I emphasize the student's strengths rather than accentuating labels, deficits, or differences. At the same time, I do not call attention to the differentiation, but rather I help students appreciate varied ways in which all of them can find personal success with important goals.			
5. I use multiple and alternative forms of assessment at all stages of student learning in order to uncover and address a full range of learning needs and strengths.			
6. I gather and employ knowledge and information about my students in order to identify and address their varied readiness levels, interests, and learning profiles.			
7. I find ways to provide opportunities for all students to access meaningful and powerful ideas, information, and skills rather than reducing the standards, watering down the curriculum, or assigning busy work.			
8. I use multiple methods to engage students in active learning. Although I may employ whole-class instruction, I question and encourage student discussions and explanations to enrich and remediate throughout the instruction.			
9. I work to develop classroom management skills that allow 1) multiple tasks to proceed smoothly in the classroom, 2) students to take increasing responsibility for their learning, and 3) the time to monitor student activity and coach for student growth and quality work.			

Based on the work of Stephanie Corrigan, Utah Valley State College. Adapted and modified from “The Facilitator’s Guide,” *At Work in the Differentiated Classroom*, Alexandria: ASCD, 2001, 57-58.

 **The Equalizer****Tomlinson**

■ Differentiation

	<i>What is it?</i>	<i>How to differentiate?</i>	<i>Strategies to use?</i>
<i>Content</i>			
<i>Process</i>			
<i>Product</i>			
<i>Learning Environment</i>			

MATH "COORDINATED"

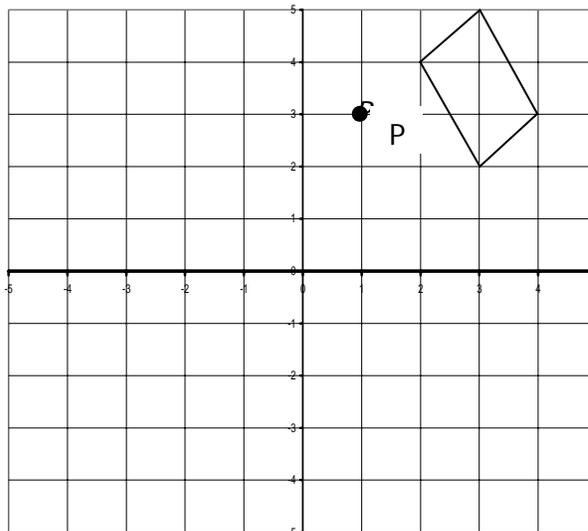
Coordinating Translations (From Unit 4 of the Grade 7 Framework.)

Your task is to plot any creative polygon you want on the coordinate plane, and then create polygons congruent to the one you designed using the three translations described below.

1. For each vertex of your original polygon in the form (x, y) , create its image at the coordinates $(x+4, y)$.
2. For each vertex of your original polygon in the form (x, y) , create its image at the coordinates $(x, y - 3)$.
3. For each vertex of your original polygon in the form (x, y) , create its image at the coordinates $(x - 4, y+1)$.

The vertices of your original polygon combined with their images must be mapped to points in all four quadrants of the coordinate plane to receive full credit.

Coordinating Rotations (From Unit 4 of the Grade 7 Framework.)



1. Label the coordinates of the polygon above.
2. Rotate the polygon 90° (counterclockwise) about the origin and label the coordinates.
3. Rotate the polygon 90° (clockwise) about the origin and label the coordinates.
4. Describe a rotation that would guarantee the point $P(1,3)$ would be inside the square formed by the vertices $(5,5)$, $(-5,5)$, $(-5,-5)$, and $(5,-5)$.

Dilations in the Coordinate Plane (From Unit 5 of the Grade 7 Framework.)

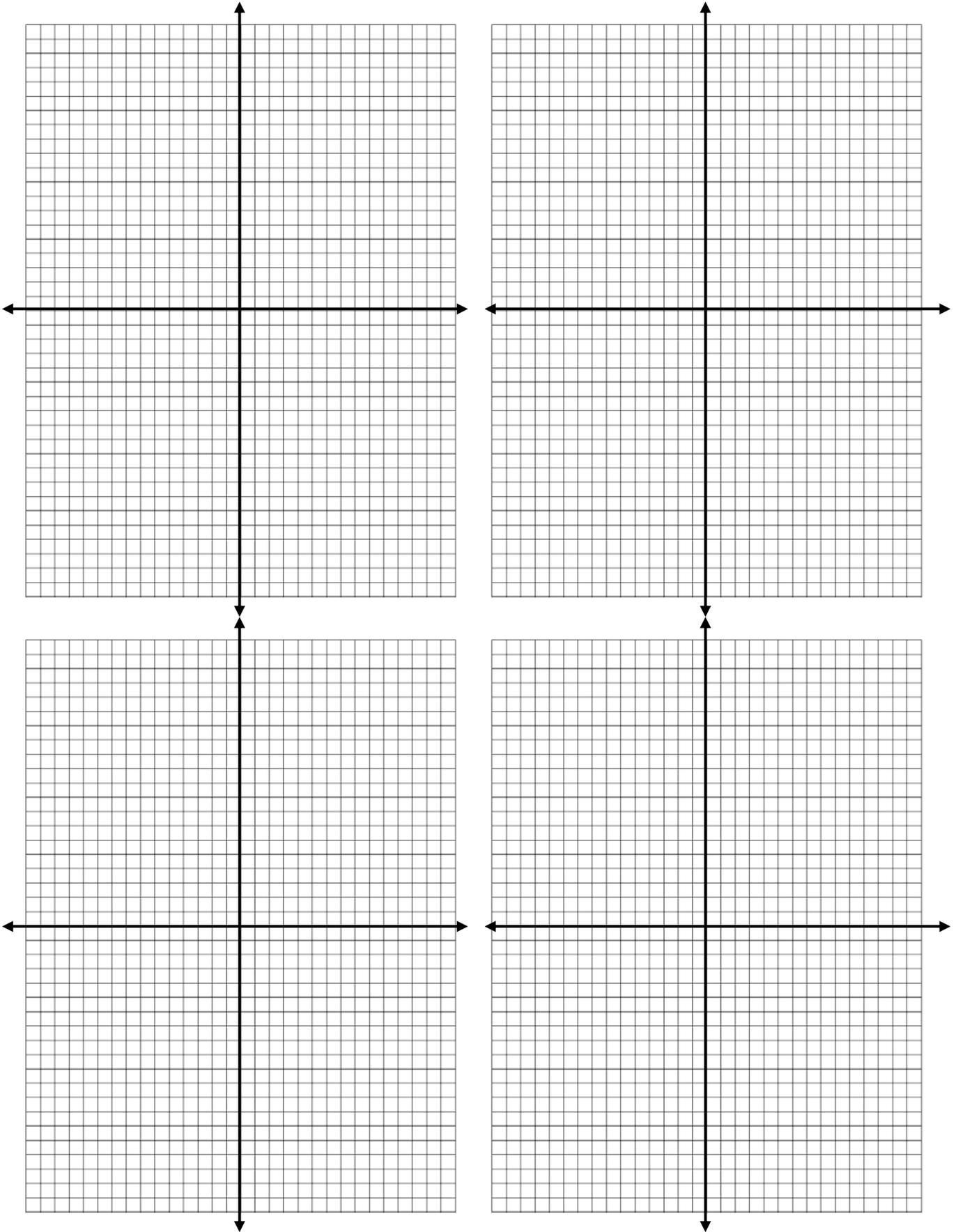
Plot the ordered pairs given in the table to make six different figures. Draw each figure on a separate sheet of graph paper. Connect the points with line segments as follows:

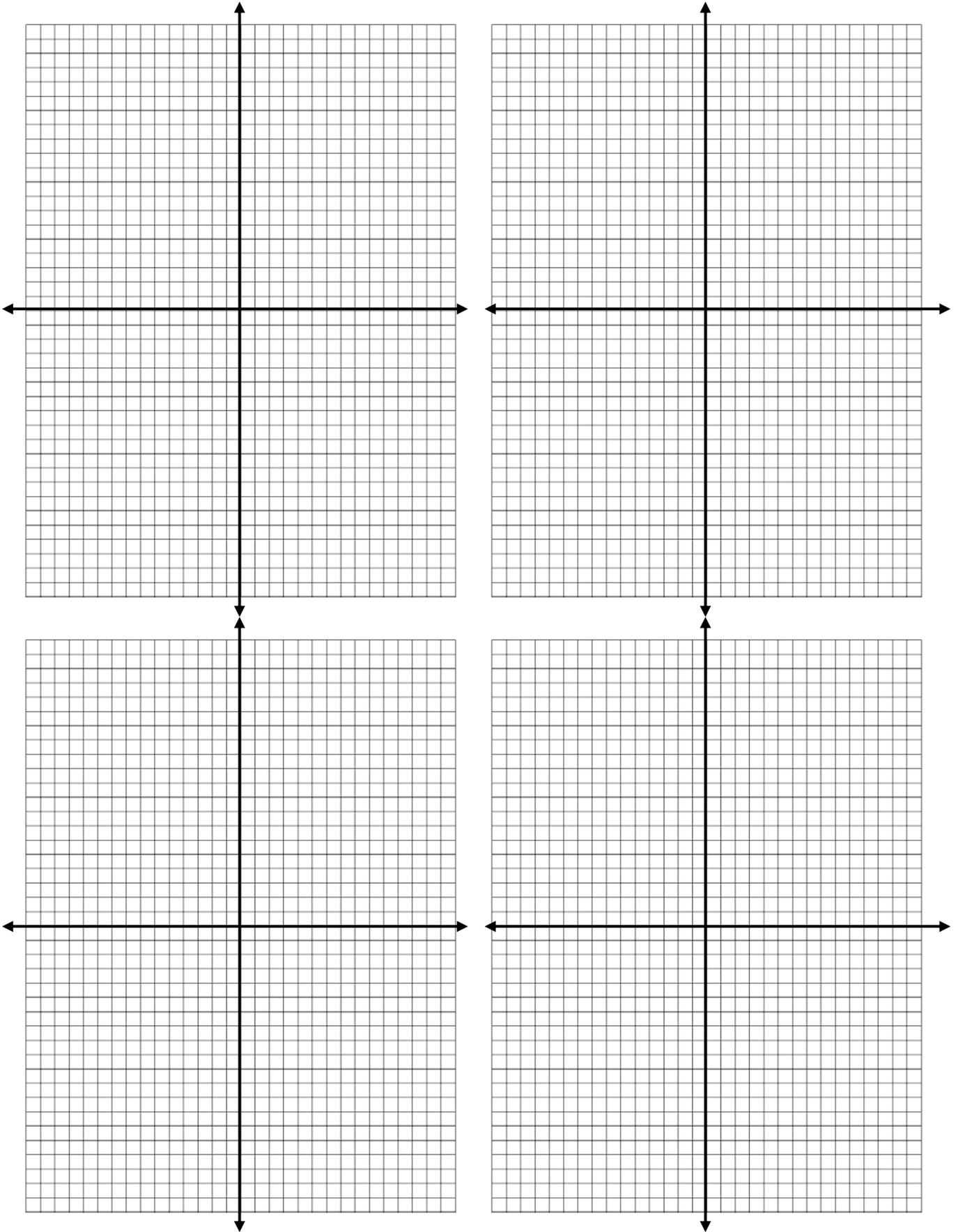
- For Set 1, connect the points in order. Connect the last point in the set to the first point in the set.
- For Set 2, connect the points in order. Connect the last point in the set to the first point in the set.
- For Set 3, connect the points in order. Do not connect the last point in the set to the first point in the set.
- For Set 4, make a dot at each point (don't connect the dots).

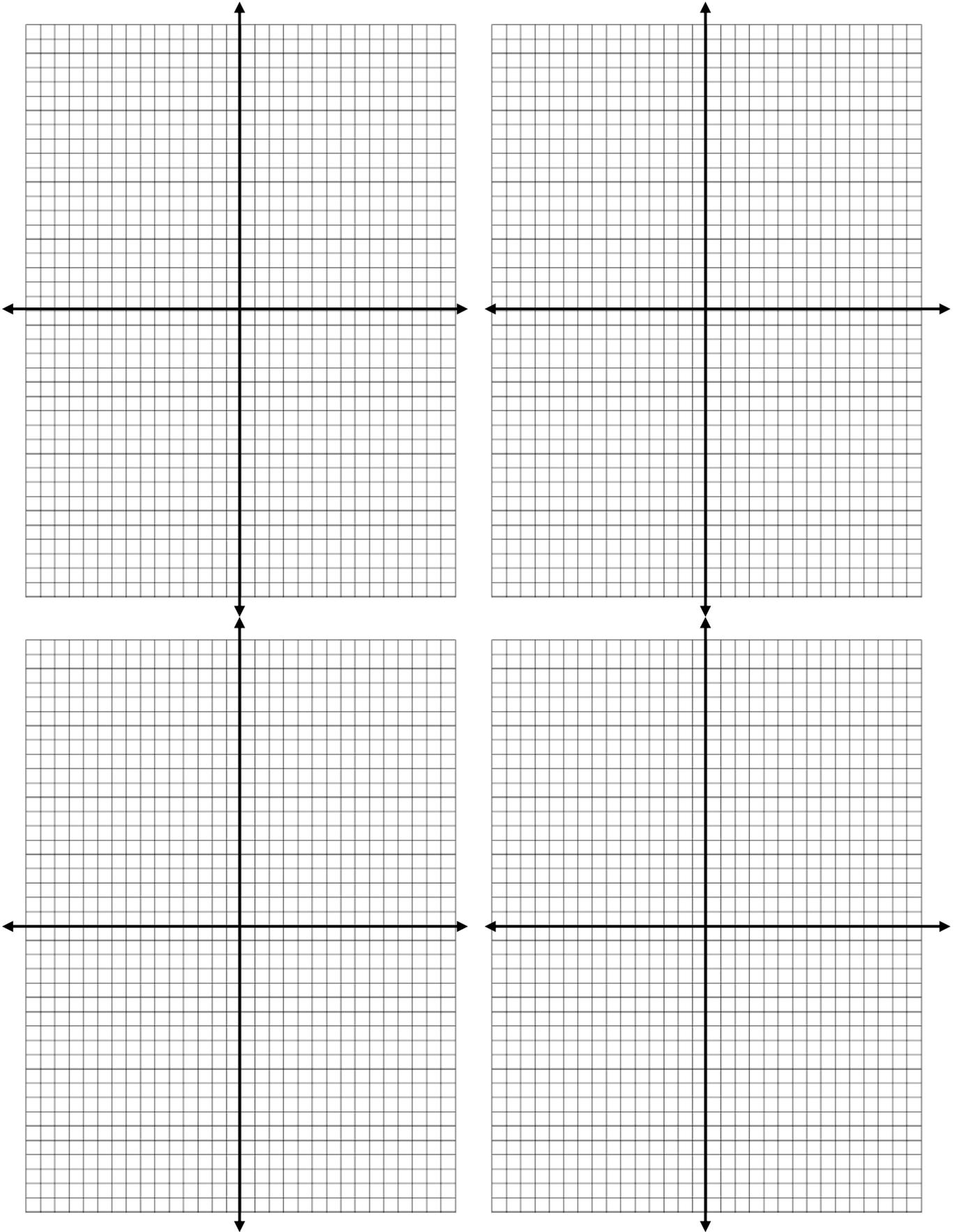
After drawing the six figures, compare Figure 1 to each of the other figures and answer the following questions.

1. Which figures are similar? Explain your thinking.
2. Describe any similarities and/or differences between Figure 1 and each of the other figures.
 - Describe how corresponding sides compare.
 - Describe how corresponding angles compare.
3. How do the coordinates of each figure compare to the coordinates of Figure 1? If possible, write general rules for making Figures 2-6.
4. Is having the same angle measures enough to make two figures similar? Why or why not?
5. What would be the effect of multiplying each of the coordinates in Figure 1 by $\frac{1}{2}$?
6. Translate, reflect, rotate (between 0 and 90°), and dilate Figure 1 so that it lies entirely in Quadrant III on the coordinate plane. You may perform the transformations in any order that you choose. Draw a picture of the new figure at each step and explain the procedures you followed to get the new figure. Use coordinates to describe the transformations and give the scale factor you used. Describe the similarities and differences between your new figures and Figure 1.

Figure 1	Figure 2	Figure 3	Figure 4	Figure 5	Figure 6
Set 1					
(6, 4)	(12, 8)	(18, 4)	(18, 12)	(6, 12)	(8, 6)
(6, -4)	(12, -8)	(18, -4)	(18, -12)	(6, -12)	(8, -2)
(-6, -4)	(-12, -8)	(-18, -4)	(-18, -12)	(-6, -12)	(-4, -2)
(-6, 4)	(-12, 8)	(-18, 4)	(-18, 12)	(-6, 12)	(-4, 6)
Set 2					
(1, 1)	(2, 2)	(3, 1)	(3, 3)	(1, 3)	(3, 3)
(1, -1)	(2, -2)	(3, -1)	(3, -3)	(1, -3)	(3, 1)
(-1, -1)	(-2, -2)	(-3, -1)	(-3, -3)	(-1, -3)	(1, 1)
(-1, 1)	(-2, 2)	(-3, 1)	(-3, 3)	(-1, 3)	(1, 3)
Set 3					
(4, -2)	(8, -4)	(12, -2)	(12, -6)	(4, -6)	(6, 0)
(3, -3)	(6, -6)	(9, -3)	(9, -9)	(3, -9)	(5, -1)
(-3, -3)	(-6, -6)	(-9, -3)	(-9, -9)	(-3, -9)	(-1, -1)
(-4, -2)	(-8, -4)	(-12, -2)	(-12, -6)	(-4, -6)	(-2, 0)
Set 4					
(4, 2)	(8, 4)	(12, 2)	(12, 6)	(4, 6)	(6, 4)
(-4, 2)	(-8, 4)	(-12, 2)	(-12, 6)	(-4, 6)	(-2, 4)







What Does Differentiation Look Like: A True/False Quiz

Directions: Mark the item T if it is TRUE for a differentiated classroom or F if it is FALSE for a differentiated classroom. After you have responded individually, compare your answers to the others in your table group. When you disagree, discuss your various points and attempt to reach consensus.

- _____ 1. Allowing all students in the class to complete the same work for a unit/chapter.
- _____ 2. Assessing students before a unit of instruction to determine what they already know.
- _____ 3. Adjusting the **core** curriculum by content (below to above grade level),
- _____ 4. Limiting how and what is taught by teaching to the average student.
- _____ 5. Providing assignments tailored for students of different levels of achievement.
- _____ 6. Having high expectations for **ALL** students.
- _____ 7. Providing educational experiences which extend, replace, or supplement standard curriculum.
- _____ 8. Assigning more work at the same level to high achieving students.
- _____ 9. Focusing on student weaknesses and ignoring student strengths.
- _____ 10. Using activities that **all** students will be able to do.
- _____ 11. Structuring class assignments so they require high levels of critical thinking and allow for a range of responses.
- _____ 12. Giving the same kind of problems or questions and expecting more.
- _____ 13. Creating more work-extra credit, to do when done.
- _____ 14. Having students participating in respectful work.
- _____ 15. Putting students in situations where they don't know the answer often.
- _____ 16. Ensuring that students and teachers collaborating in learning.
- _____ 17. Providing free-time challenge activities.
- _____ 18. Differing the pace of instruction.
- _____ 19. Using capable students as tutors.
- _____ 20. Using higher standards when grading.
- _____ 21. Blending of whole class, group, and independent learning.
- _____ 22. Using individualized instruction.

A Traditional Classroom Compared to a Differentiated One

Traditional Classroom	Differentiated Classroom
1. Student differences are masked or acted upon when problematic.	1. Student differences are studied as a basis for planning.
2. Assessment is most common at the end of learning to see "who got it."	2. Assessment is ongoing and diagnostic to understand how to make instruction more responsive to learner need.
3. A relatively narrow sense of intelligence prevails.	3. Focus on multiple forms of intelligence is evident.
4. A single definition of excellence exists.	4. Excellence is defined by individual growth from a starting point.
5. Student interest is infrequently tapped.	5. Students are frequently guided in making interest-based learning choices.
6. Relatively few learning profile options are	6. Many learning profile options are provided. taken into account.
7. Whole class instruction dominates.	7. Many instructional arrangements are used.
8. Coverage of texts and/or curriculum guides drives instruction.	8. Student readiness, interest, and learning profile shape instruction.
9. Mastery of facts and skills out-of-context focus of learning.	9. Use of essential skills to make sense of the key concepts and principles is the focus of learning.
10. Single-option assignments are the norm.	10. Multi-option assignments are frequently used.
11. Time is relatively inflexible.	11. Time is used flexibly in accordance with student need.
12. A single text prevails.	12. Multiple materials are provided.
13. Single interpretations of ideas and events	13. Multiple perspectives on ideas and events are routinely sought.
14. The teacher directs student behavior.	14. The teacher facilitates students' skills at becoming more self-reliant learners.
15. The teacher solves problems.	15. Students help one another and the teacher solve problems.
16. A single form of assessment is often used.	16. Students are assessed in multiple ways.

Carol Tomlinson

Name That Graph

 (Adapted from Unit 6 of the Grade 7 Framework.)

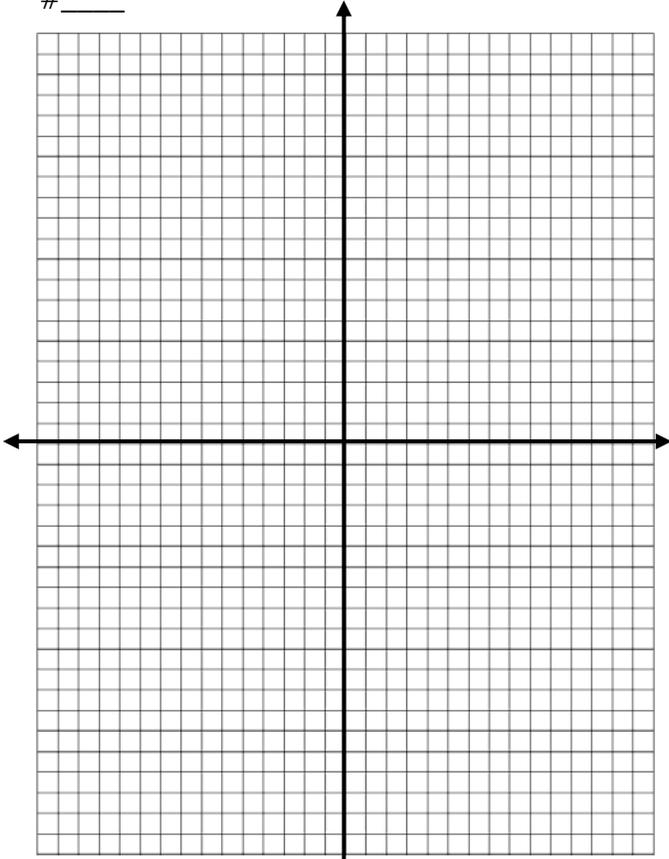
Directions: Choose three equations and t-charts to graph and answer the questions below. Make sure you get tic-tac-toe.

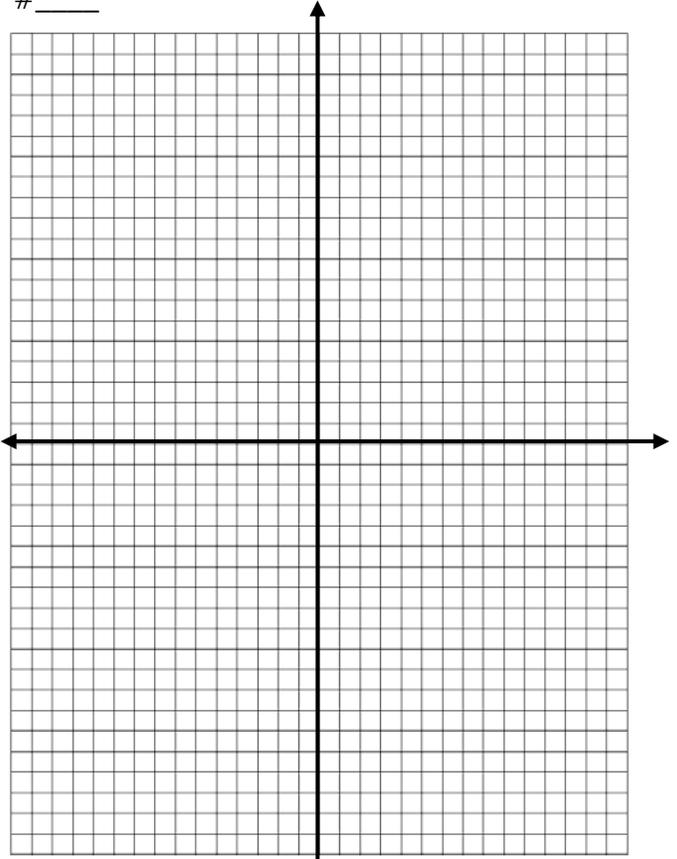
<p>1. $y = 2x$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">-1</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">-2</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">4</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	-1		-2		3		4		<p>2. $y = \frac{3}{4}x$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">4</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">8</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">12</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">16</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	4		8		12		16		<p>3. $y = 15/x$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">1</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">5</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">15</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	1		3		5		15			
x	y																																	
-1																																		
-2																																		
3																																		
4																																		
x	y																																	
4																																		
8																																		
12																																		
16																																		
x	y																																	
1																																		
3																																		
5																																		
15																																		
<p>4. $y = 3x - 7$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">-6</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">-3</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">6</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	-6		-3		3		6		<p>5. Make your own equation and t-chart.</p>	<p>6. $y = \frac{1}{2}(x) - \frac{1}{2}$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">-2</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">0</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">$\frac{1}{2}$</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	-2		0		$\frac{1}{2}$		3													
x	y																																	
-6																																		
-3																																		
3																																		
6																																		
x	y																																	
-2																																		
0																																		
$\frac{1}{2}$																																		
3																																		
<p>7. $y = .5/x$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">.25</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">1</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">2</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">4</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	.25		1		2		3		4		<p>8. $y = x / 2 + 1$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">2.6</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">4.7</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">-6</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">-8.5</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	2.6		4.7		-6		-8.5		<p>9. $y = x$</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr><th style="padding: 2px 10px;">x</th><th style="padding: 2px 10px;">y</th></tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">2</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">4</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">5</td><td style="padding: 2px 10px;"></td></tr> <tr><td style="padding: 2px 10px;">-7</td><td style="padding: 2px 10px;"></td></tr> </tbody> </table>	x	y	2		4		5		-7	
x	y																																	
.25																																		
1																																		
2																																		
3																																		
4																																		
x	y																																	
2.6																																		
4.7																																		
-6																																		
-8.5																																		
x	y																																	
2																																		
4																																		
5																																		
-7																																		

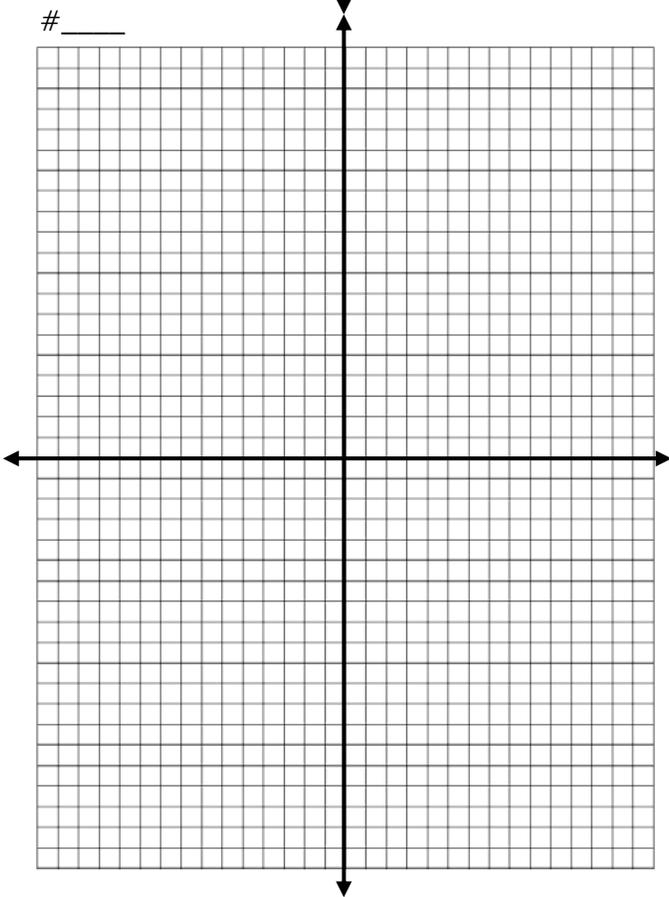
I am showing all of my work and neatly labeling it for # ____, # ____, # ____, # ____ (optional)

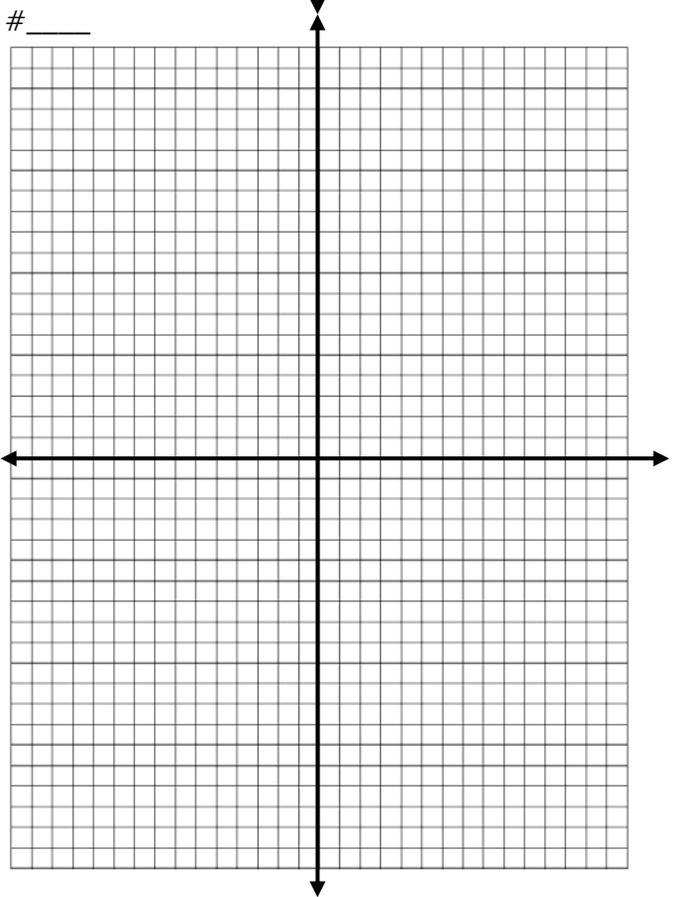
Signature _____ Date _____

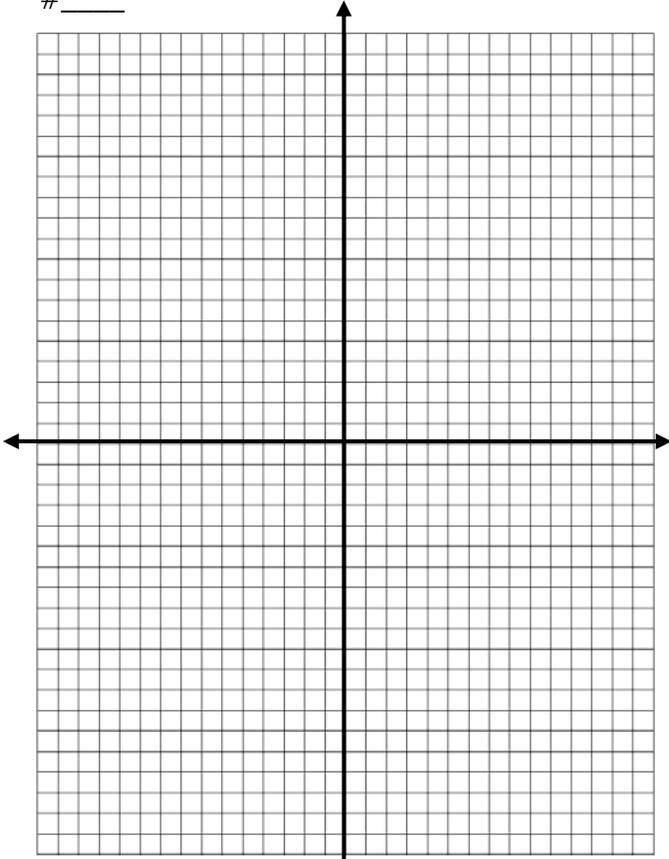
- Tell which of the graphs you picked are directly proportional and how they are alike. Create story problems for them.
- Tell which of the graphs you picked are inversely proportional and how they are alike. Create story problems for them.
- Tell which of the graphs you picked is neither? How can you tell?
- Describe a situation in which both variables would increase, but the relationship would not be directly proportional?
- Describe a situation in which one variable would increase and the other variable would decrease, but the relationship would not be inversely proportional?

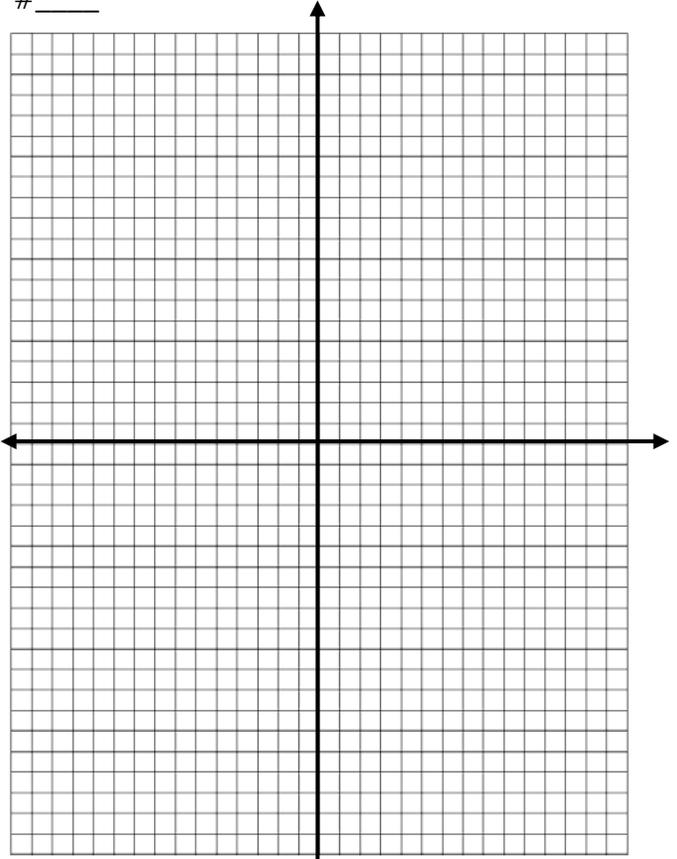


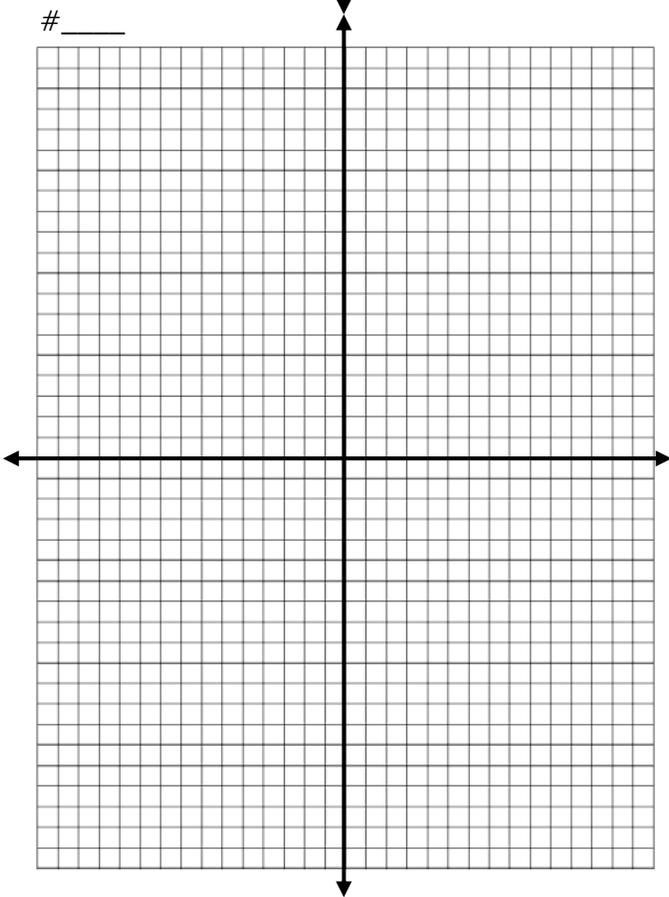


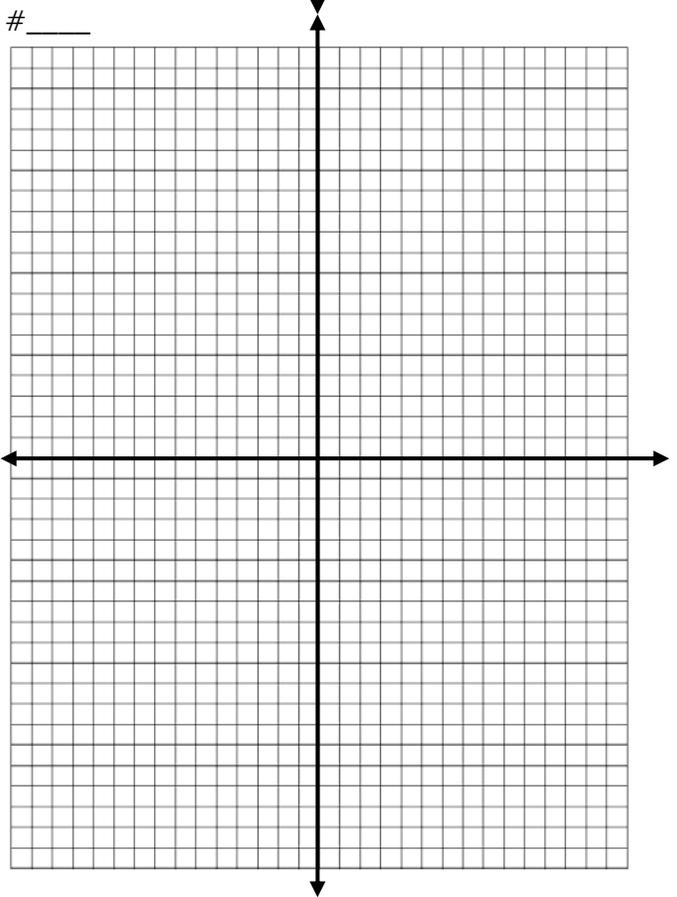


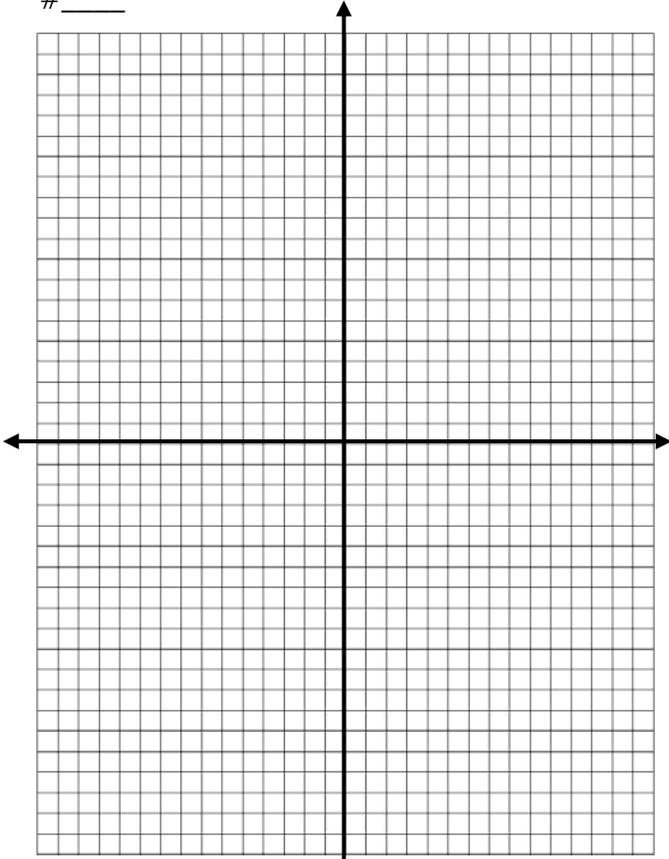


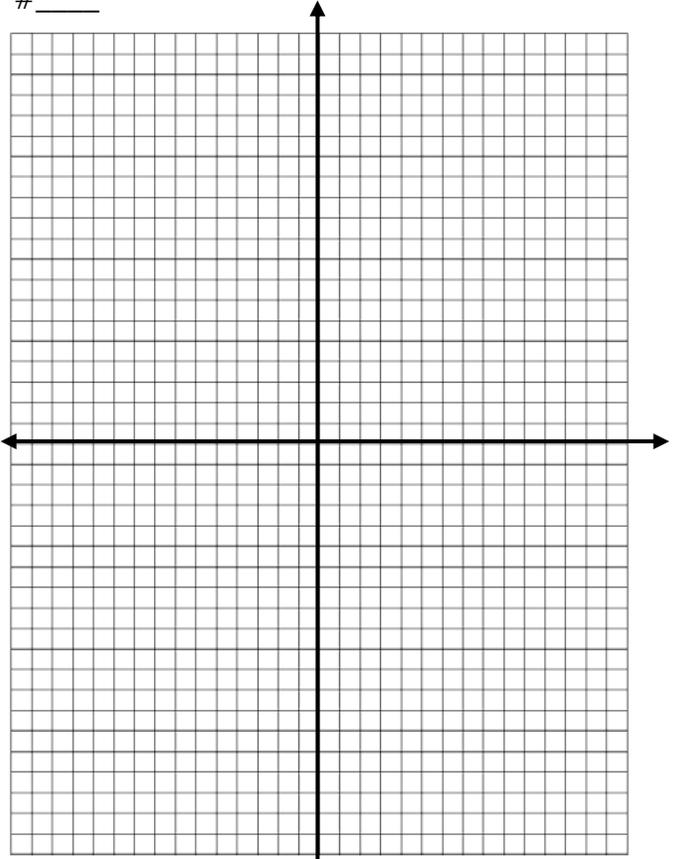


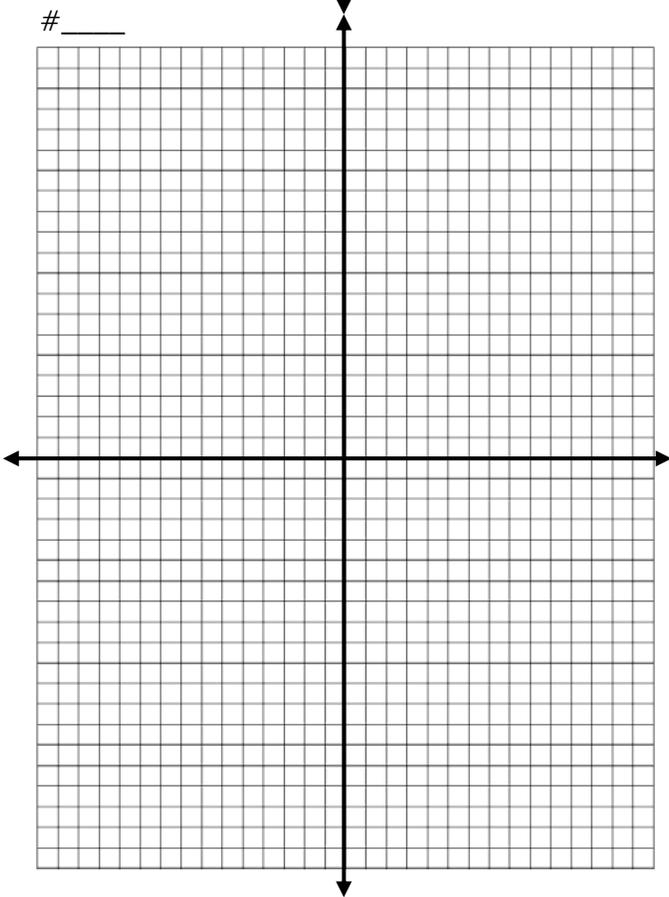


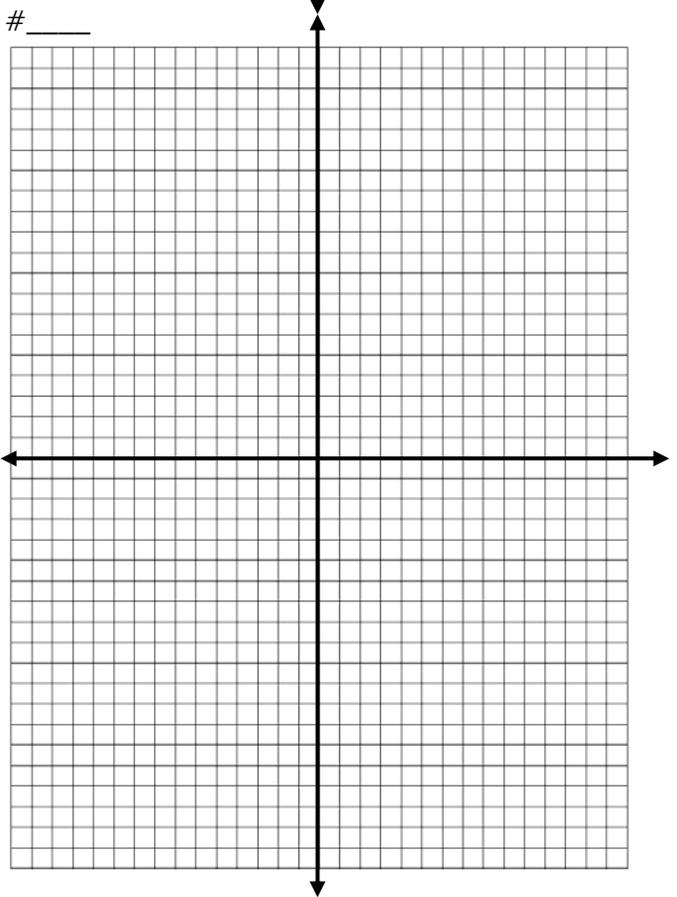












Low-Prep and High-Prep Differentiation

Low-Prep Differentiation

- Choice of books
- Homework options
- Use of reading buddies
- Varied journal prompts
- Orbitals
- Varied pacing with anchor options
- Student-teacher goal setting
- Work alone/work together
- Whole-to-part and part to whole explanations
- Flexible seating
- Varied computer programs
- Design-A-Day
- Varied supplementary materials
- Options for varied modes of expression
- Varying scaffolding on same organizer
- Let's Make a Deal projects
- Computer mentors
- Think-Pair-Share by readiness, interest,
learning profile
- Use of collaboration, independence, and
cooperation
- Open-ended activities
- Miniworkshops to reteach or extend skills
- Jigsaw
- Negotiated Criteria
- Explorations by interest
- Games to practice mastery of information
and skill
- Multiple levels of questions

High Prep-Differentiation

- Tiered activities and labs
- Tiered products
- Independent studies
- Multiple texts
- Alternative assessments
- Learning contracts
- 4-MAT
- Multiple intelligence options
- Compacting
- Spelling by readiness
- Entry Points
- Varying organizers
- Lectures coupled with
graphic organizers
- Interest groups
- Tiered centers
- Interest centers
- Personal agendas
- Literature Circles
- Stations
- Complex instruction
- Group investigation
- Tape-recorded materials
- Teams, Games, and
Tournaments
- Tic-Tac-Toe
- Simulations
- Problem-Based Learning
- Graduated rubrics
- Flexible reading formats
- Student-centered writing
Formats

Tomlinson, *How to Differentiate in Mixed-Ability Classrooms*, 34.

Teacher Permission Form for Student Work

CONSENT AND ASSIGNMENT

This Consent and Assignment (the "Assignment") is effective when signed by the undersigned Georgia educator ("Educator") and is between Educator and the Georgia Department of Education (the "GDOE"). For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree:

1. GDOE gratefully acknowledges the contribution Educator is hereby making to GDOE of the original work product (the "Work Product") created, developed, worked on or revised by Educator in connection with GDOE's Georgia Performance Standards Project (the "Project"). So that GDOE may fully use the Work Product in any manner it sees fit, including making copies, modifications and derivative works, Educator hereby fully and unconditionally transfers, assigns and conveys to GDOE all of Educator's copyright, ownership interests and other intellectual property rights in the Work Product (collectively, the "Intellectual Property Rights"). Educator further agrees that GDOE may publicly recognize and acknowledge Educator's contribution to, and involvement in, the Project.

2. This Assignment is governed by Georgia law, can only be amended if both parties do so in writing, is assignable solely by GDOE and supersedes any contrary oral or written agreement or understanding. Educator grants to GDOE the power and authority to execute any documentation deemed necessary by GDOE to register or protect the Work Product or Intellectual Property Rights therein or complete the full transfer of the Work Product and Intellectual Property Rights to GDOE which is the purpose of this Assignment.

"Educator"

Name:

Signature:

Print:

"GDOE"

Georgia Department of Education

By:

Title:

Date:

Parent/Guardian Permission Form for Student Work

CONSENT AND ASSIGNMENT

This Consent and Assignment (the "Assignment") is effective when signed by the undersigned legal guardian ("Guardian") on behalf of the Guardian and minor Georgia student named below ("Student"), and is among Guardian, Student and the Georgia Department of Education (the "GDOE"). For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree:

1. GDOE gratefully acknowledges the contribution Student and Guardian are hereby making to GDOE of the original work product (the "Work Product") created, developed, worked on or revised by Student. So that GDOE may fully use the Work Product in any manner it sees fit in connection with GDOE's Georgia Performance Standards Project (the "Project"), including making copies, modifications and derivative works, Guardian on behalf of Guardian and Student (and their heirs and successors) hereby fully and unconditionally transfer, assign and convey to GDOE all of Student's and Guardian's copyright, ownership interests and other intellectual property rights in the Work Product (collectively, the "Intellectual Property Rights"). Guardian further agrees that GDOE may publicly recognize and acknowledge Student's contribution to, and involvement in, the Project.

2. This Assignment is governed by Georgia law, can only be amended if both parties do so in writing, is assignable solely by GDOE and supersedes any contrary oral or written agreement or understanding. Student grants to GDOE the power and authority to execute any documentation deemed necessary by GDOE to register or protect the Work Product or Intellectual Property Rights therein or complete the full transfer of the Work Product and Intellectual Property Rights to GDOE which is the purpose of this Assignment.

"Guardian"

"GDOE"

Signature:

Georgia Department of Education

By:

Print Name:

Title:

Guardian's Relationship to Minor:

Date:

Print Minor's Name:
