

Teacher Reflection Questions: Does this meet the needs of my advanced learners?

Content

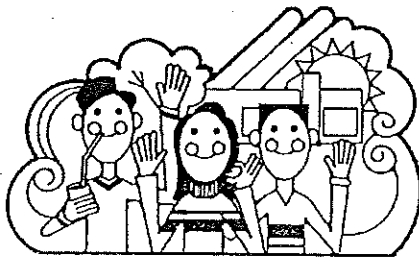
- Are abstract ideas presented?
- Are the ideas and/or the structure complex?
- Is advanced, rich vocabulary used?
- Does the content have a significant theme, concept, or “big idea”?
- Is the pacing flexible enough to allow for faster or slower learners?

Process

- Do the activities require higher-level thought from the students?
- Are questions open-ended?
- Is there opportunity for students to discover (themes, ideas, elements, rules, patterns, processes) for themselves?
- Are students required to use proof and/or reasoning to justify their answers?
- Is there student choice in processing activities?
- Is the pacing of activities flexible enough to allow for faster or slower processors?
- Is there variety in the nature of the activities to allow for various learning styles and preferences?

Product

- Is there a sense of authenticity to the products? (real problems, real audiences)
- Are the evaluation criteria for the end product clear from the beginning?
- Is there an opportunity for self-evaluation?
- Does the product require the student to be original and/or transcend the ordinary?
- Does the unit allow for the possibility of ongoing or in-depth research?
- Is an intent to elicit student creativity obvious in the product description(s)?



CURRICULUM DIFFERENTIATION CHART

Unit: _____

Key Concept	Auditory/ Analytic	Visual/Global	Tactile- Kinesthetic/Global	Extension
# 1				
# 2				
# 3				
# 4				
# 5				
# 6				
# 7				
# 8				
# 9				
# 10				

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CURRICULUM DIFFERENTIATION CHART

Unit: *Nutrition*

Key Concept	Auditory/ Analytic	Visual/Global	Tactile- Kinesthetic/Global	Extension
<p>#1: Nutritional eating means that we include foods from the 5 major food groups in our daily food selection: the bread, cereal, rice, and pasta group; the vegetable group; the fruit group; the milk, yogurt, and cheese group; and the meat, poultry, fish, dry beans, eggs, and nuts group.</p>	<p>Describe the foods you would eat to maintain a balanced diet for 3 days. Include 3 meals and 2 snacks per day. Compute calories, fat grams, and the percentage of food in each food group for each day.</p>	<p>Find pictures of various foods and place them in the appropriate categories on a Food Groups Chart. With the pictures, create plans for 3 days' worth of balanced breakfasts, lunches, dinners, and snacks.</p>	<p>Draw pictures of food from all 5 food groups for 3 days' worth of meals, with 3 meals and 2 snacks per day. Create a pie chart to show what percentage of each day's food falls into each of the 5 major food groups.</p>	<p>Investigate how eating plans that don't take a balanced approach (examples: Atkins, Sugar Busters) claim to help people manage their weight while still providing good nutrition. Show which food groups these plans include and eliminate.</p>
<p>#2: For healthy, balanced eating, we should eat the recommended number of servings from each food group, and use fats and oils sparingly.</p>	<p>Keep a food diary for a week. Present your data to other students in a way that demonstrates your understanding of how to choose foods from all food groups.</p>	<p>Ask 6 students in your class to record everything they eat today and report the results to you in writing tomorrow. Make a chart showing how many food groups each student's choices included. Create a visual aid to show the results along with your recommendations for change.</p>	<p>Make models of correct serving sizes of some foods from all food groups. Demonstrate to other students how to choose correct serving sizes.</p>	<p>Hypothesize what happens to a person's body if he or she eats too much or too little over a period of several months. Explain how overeating and undereating affect bodily systems and functions.</p>

<p>#3: People who don't eat a balanced diet may lack energy and may be more likely to have weight problems or get sick.</p>	<p>Use the Internet to find several sources that explain how people's health is affected in countries where a balanced diet is difficult or impossible. Write a speech to convince people who don't eat a balanced diet to change their eating habits.</p>	<p>Draw a series of pictures illustrating how several months of unbalanced eating affect the body.</p>	<p>Prepare a skit showing how several months of unbalanced eating affect the body.</p>	<p>Hypothesize what would happen to a person's body if he or she omitted one entire food group from his or her diet for a period of several months. Be able to present evidence for your predictions.</p>
<p>#4: Junk food is high in calories and low in nutrients, so it doesn't fuel the body as well as nutritional foods. When people eat a balanced diet, they crave less junk food.</p>	<p>Listen to and/or watch food commercials for one evening. Compute the percentage of junk food ads compared to the percentage of ads that emphasize good nutrition. Predict the long-term effects on the eating habits of young people who get most of their food information from commercials.</p>	<p>Separate the groceries your family has at home into two categories: Junk Food and Nutritional Food. Draw pictures of the foods you find and place them in the appropriate categories. Highlight the category that has the most food items and the one that costs your family the most money each week.</p>	<p>Use the Internet to learn how eating too much junk food affects the body. Choose a way to share your findings with the class. If you like, make a videotape of your presentation.</p>	<p>Prepare a lesson on junk foods and present it to the class. Include information about why people crave junk foods, how junk foods affect the mind and body, and why they are a problem for many adults.</p>
<p>#5: Exercise has long-lasting, beneficial effects on the body, regardless of the degree to which one makes wise decisions about nutrition.</p>	<p>Locate at least two research studies on the benefits of exercise. Prepare a presentation tool that will communicate the recommended exercise program for children, young adults, adults, and seniors.</p>	<p>Prepare a multimedia presentation to illustrate several activities people can do to improve and maintain cardiovascular and muscular health.</p>	<p>Prepare a demonstration of aerobic and/or weight resistance programs that can help with weight control and overall good health.</p>	<p>Very few people in this country exercise regularly. Use the Internet to locate statistics on this issue. Interview one person your age and one adult to get their input on this problem. Hypothesize reasons people use to avoid exercise. Come up with a plan to entice non-exercisers to start exercising.</p>

Choice Menus

Learning Menu

Empowering students through CHOICE while ensuring adherence to important LEARNING GOALS

What are Learning Menus

- Learning menus outline a variety of instructional options targeted toward important learning goals.
- Students are able to select the choices which most appeal to them.
- The teacher directs the menu process, but the student is given control over his/her choice of options, order of completion, etc.

KINDS of MENU

- MENU: *Main Dishes, Side Dishes, and Desserts* (for younger learners).
- AGENDA: *Imperatives, Negotiables, and Options* (for older learners).
- THINK TAC TOE: Complete a row, column or diagonal line of activities.

All three options can be differentiated according to interest, learning profile, or readiness (see enclosed examples).

MENU PLANNER



Menu for: _____ Due: _____

All items in the main dish and the specified number of side dishes must be complete by the due date. You may select among the side dishes and you may decide to do some of the desserts items, as well.



Main Dishes (complete all)

1

2

3

4



Side Dishes (Select _____)

1

2

3

4



Desserts (Optional)

1

2

3

MENU CONTRACT

“Probability”

Due: _____

All items in the main dish and the specified number of side dishes must be complete by the due date. You may select among the side dishes and you may decide to do some of the desserts items, as well.



Main Dishes (complete all)

- 1** Complete the “meteorology simulation” on p. 88-89 of your textbook.
- 2** Create a list of 10 pairs of events. 5 pairs should contain events that are *dependent*; 5 pairs should contain events that are *independent*. Explain each classification.
- 3** Complete the “frequency table” assignment on p. 506-507 of your textbook.
- 4** Examine the attached list of functions and determine which functions represent probability distributions.



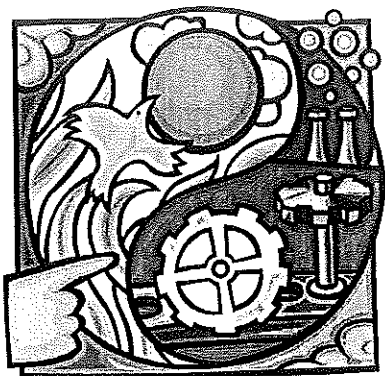
Side Dishes (Select 2)

- 1** Work with a partner to analyze the game of “Primarily Odd.” See your teacher for game cubes and further instructions.
- 2** Design a “game spinner” that has this probability distribution: $P(\text{red}) = 0.1$; $P(\text{green}) = 0.2$; $P(\text{blue}) = 0.3$; $P(\text{yellow}) = 0.4$.
- 3** Suppose a dart lands on a dartboard made up of four concentric circles. For the center of the board (the “bull’s eye”), $r = 1.5$; the remaining rings have widths of 1.5. Use your understanding of area and probability to determine the probability of 1) hitting a “bull’s eye” and 2) landing in the outermost ring.



Desserts (Select 1)

- 1** Figure the probability of “Murphy’s Law” and make a case for whether or not it should indeed be a “law.”
- 2** Use a frequency table to chart the colors that your classmates wear for a week. Then, use probability to predict how many students will wear a certain color on a given day.



Science Agenda on Chemical Problems in the Environment

IMPERATIVES (You *must* do each of these...)

1. Select a chemical problem in the environment and
 - Define and describe the difficulties it presents
 - Be sure to discuss why, where, and to whom/what

Your choices are:

- Global warming/Greenhouse effect
 - Ozone depletion
 - Acid Rain
 - Air Pollution
 - Water Pollution (including thermal pollution and land/ground pollution)
2. Complete a map showing where the problem exists, what/who is affected by it, and the degree of impact
 3. Develop a talking paper that describes present and future solutions, as well as your recommendations.

NEGOTIABLES (You *must* do at least one of these...)

1. Determine the approximate costs of the problem of one badly affected region and develop a graphic that shows total costs and what makes the costs (for example: Health costs, clean-up costs, lost revenues from land, etc.)
2. Develop a timeline of the evolution of the problem over the last 100 years, including significant dates, and factors that contributed to the change. Take the timeline into the future based on your current understanding of trends associated with the problem.

OPTIONS (You may do one or more of these...)

1. Create a Gary Larson-type cartoon or an editorial cartoon that makes a commentary on the problem.
2. Prepare a fictionalized account, but based on scientific fact, of a person who lives in a badly affected area. Your goal is to put a human face on the problem.
3. Develop a 60-second public service announcement (taped) to raise audience awareness of the problem and introduce positive actions citizens might take to improve the prognosis for the future.

LESSON TITLE: The Pythagorean Theorem

Lesson 4

Curriculum Area: Pre-Algebra

Authors: Susan Bray, Sally Becker, Andrea Esperat

Grade Level: 8

Time Required: 90 minutes

Instructional Grouping: Heterogeneous

1. Overview of Lesson:

Today students will contract with the teacher for independent practice and extension through their choices on a Think Tac Toe board. Students will select their activities today and begin their work. The contracts will be continued at home and completed during the first part of the next class period.

2. Materials:

Think Tac Toe sheets for every student.

3. As a result of this lesson students should:

(a) know...

- The Pythagorean Theorem states that in a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs ($c^2 = a^2 + b^2$).
- In a right triangle, the hypotenuse is the leg opposite the right angle.
- The hypotenuse is the longest side of the right triangle.

(b) understand...

- The Pythagorean theorem was developed and used in ancient times and is still an integral tool today.
- The relationship between the three sides of a right triangle.
- The Pythagorean Theorem works only for right triangles.

(c) be able to do...

- Use measurements to test the Pythagorean Theorem.
- Apply the theorem to solve practice problems.
- Recognize when to use the Pythagorean Theorem.

4. Pre-assessment:

5. Steps in Lesson:

- 1) The teacher will pass out Think Tac Toe sheets to every student.
- 2) The teacher will explain the activity choice in each square.
- 3) Just as in the "real" Tic Tac Toe game, students will select a line of three activities (3) to complete by the middle of the next class period.
- 4) Teacher will guide students as needed for the remainder of the period.

6. What is differentiated and how?

- The content is differentiated by increased complexity in the right-hand column.
- The process is differentiated by student interest (choice) and learning style.

7. Practical Hints for Implementation:

- Students will need clear directions and ready access to materials for all nine squares.
- You may want to steer your more advanced students toward the far right column.

*Attachments:

- Think Tac Toe master
- Directions for each square

Think Tac Toe
The Pythagorean Theorem

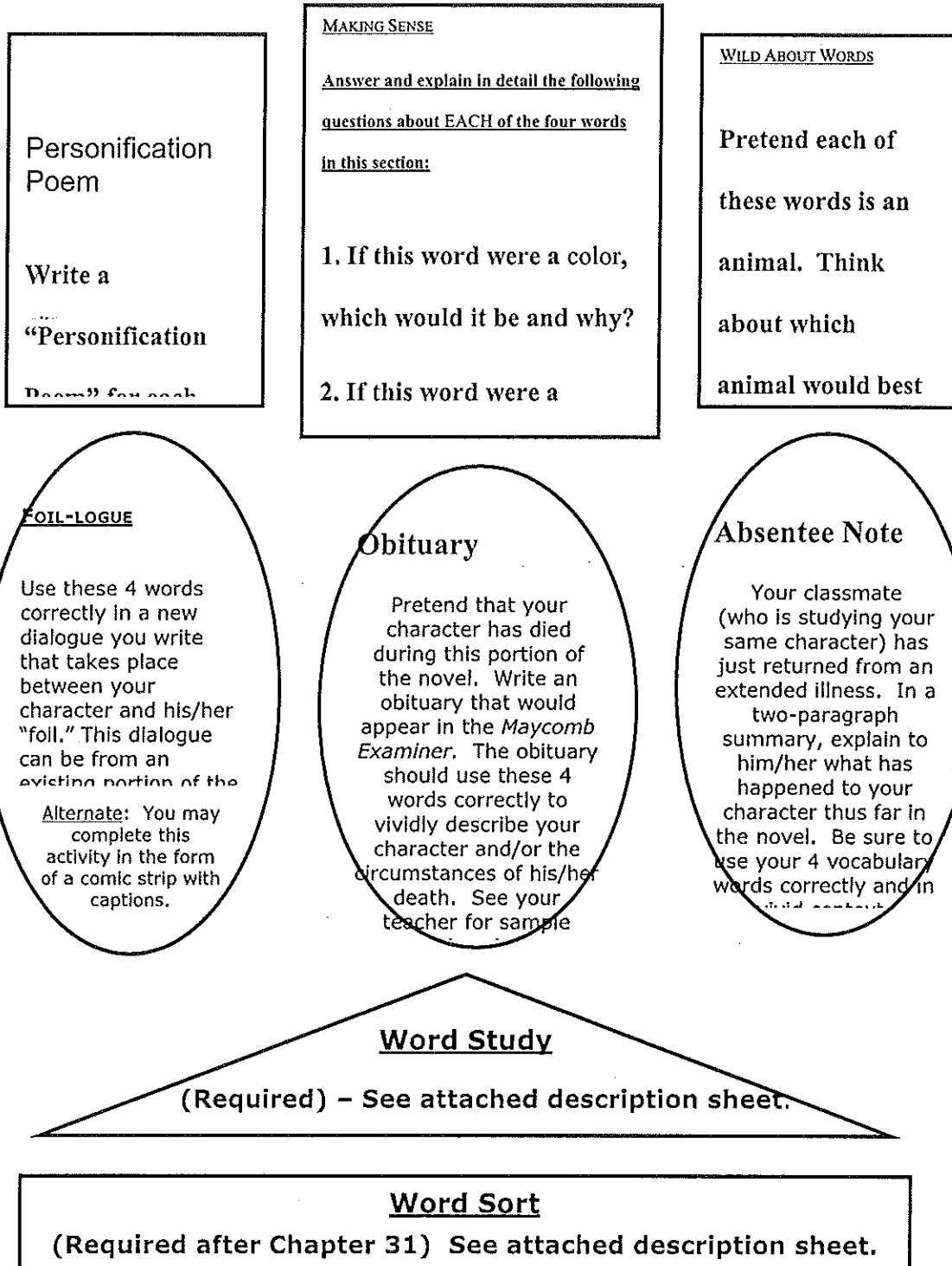
Directions: Complete the activities described in either one vertical or one diagonal row.

<p>Draw a right triangle and label the right angle, legs, and hypotenuse. State the relationship of the sides of a triangle.</p>	<p>Name a career in which one would have to use the Pythagorean Theorem. Give an example of when, where and how it would be used.</p>	<p>Design a teaching tool with a diagram of a proof of the Pythagorean Theorem. Label it for all to understand.</p>
<p>Complete all of the EVEN Practice Problems on p. 266 of your Prentice Hall text.</p>	<p>Complete the Practice Problems found at this site: http://regentsprep/Regents/math/fpyth/PracPyth.htm</p>	<p>Create four (4) real world problems that would need the use of the Pythagorean Theorem. Show the solutions.</p>
<p>Determine a set of 8 Pythagorean "TRIPLES." Prove them with equations.</p>	<p>Write a descriptive essay about Pythagoras: his life, accomplishments, and failures.</p>	<p>Find another mathematical theorem. State it, diagram its proof, and write a paragraph about why, how and where it works.</p>

VOCABULARY CONTRACT

Activities Menu

Directions: You must complete one of the activities below at the check points listed on the previous page. Consult the directions (also on the previous page) to ensure an appropriate combination of "shapes."



Vocabulary Contract Agreement

Please complete, sign, and turn in to your teacher at the beginning of the novel study. You are free to make changes to the plan as you go, but be sure to apprise your teacher of all plan revisions.

Directions: Draw the shape and write the title of the activity you plan to complete at each of the assigned "check points."

Ex> Check Point 1:

Making
Sense

Check Point 1 (after Chapter 6):

Check Point 2 (after Chapter 12)

Check Point 3 (after Chapter 17)

Check Point 4 (after Chapter 23)

Check Point 5 (after Chapter 31): REQUIRED—"Word Sort"

Check Yourself

Do you have...

- ...at least one oval?
- ...at least one square?
- ...a second (different) oval OR square?

I, the undersigned, do hereby agree to complete the activities listed above at the appointed checkpoints. I understand that, if I wish, I can alter my plan with

**To Kill a Mockingbird
Vocabulary K-U-D's**

As a result of this activity, students will...

...KNOW...

- ...the definitions of vocabulary words that are important to understanding assigned character's perspective.

...UNDERSTAND...

- ...that words have "personalities."
- ...that words enrich our ability to communicate.
- ...that words have family relationships with other words.

...BE ABLE TO...

- ...use personification and/or sense imagery to describe vocabulary words.
- ...use vocabulary words to discuss the novel's action and/or characters.
- ...group words according to similar roots, derivations, and meanings.

Vocabulary Contract

Directions: As you read *To Kill a Mockingbird*, you will encounter certain vocabulary words that are important to your character in some way. These words are included in your packet. To increase your insight into your assigned character, you will become an expert in these important terms in the following ways:

1. Before you read each assigned section, you should look up and define the words for that particular section (two words per section). If you're already familiar with those words, you are free to propose alternates.
2. Be on the "look-out" for those words' occurrence in your reading. Next to your definitions, record the sentence that uses that word.
3. Complete one of the vocabulary activities below at each of the following points in your reading:

- **After Chapter 6 (for chapters 1-6) –**
Your choice of a square, an oval, or the triangle.
- **After Chapter 12 (for chapters 7-12) –**
Your choice of a square, an oval, or the triangle
(a different shape than you did after chapter 6).
- **After Chapter 17 (for chapters 13-17) –**
Your choice of a square, a circle, or the triangle
(a different shape than you did after chapter 6 or 12).
- **After Chapter 23 (for chapters 18-23) –**
A second (new) square or circle of your choice
(an activity that you have not already completed).
- **After Chapter 31 (for chapters 1-31) –**
WORD SORT (Description sheet attached)

- The *Activity Menu* is attached (page 2). Please look through the activities and decide which options appeal to you the most.
- To help yourself plan and keep track of the activities you complete, please complete the attached *Contract Agreement* (page 3) and return it to your teacher.

FAIRY TALES AND FOLKTALES



EXTENSIONS MENU



<p>There are stories in almost every culture similar to the story of Cinderella. Why do you think this is? Find and read 6 similar stories and share your findings.</p>	<p>Make a graphic organizer that shows the elements that are common to all fairy tales. Complete 3 organizers for fairy tales you read from other cultures.</p>	<p>Rewrite a fairy tale from the point of view of a character other than the narrator. Create a mock trial to demonstrate the differing points of view.</p>
<p>Read several folktales from the U.S. and other parts of the world. Use a Venn Diagram or other organizational tool to illustrate the similarities and differences between fairy tales and folktales.</p>	<h1>Student Choice</h1>	<p>Fairy tales and folktales have long been used to teach important lessons to children. Read several stories. Then, pretending you're a parent, describe or act out the stories' lessons as you would for your kids.</p>
<p>Write or produce a play or skit of an original folktale or fairy tale. Perform this for an audience.</p>	<p>Choose one country or cultural group each from Europe, Asia, and Africa. Read folktales from each one and share them in some way with an audience.</p>	<p>Find out about the oral tradition in places where stories are told to new generations instead of being written down. Dramatize this process.</p>

MIDDLE SCHOOL MATH CHOICES

EXTENSIONS MENU

Congratulations! You are to embark on a math adventure. Choose 3 math projects to complete during our next unit of study. To receive full credit, be creative, take your time, and show all calculations!

<p>Create 15 different patterns with missing numbers. Include answers on a separate sheet of paper. Include an explanation for each of these missing number patterns.</p>	<p>Research the sports in the Olympics and create a pie graph of the information you find. Find and calculate the percentages in order to make your graph as accurate as possible. When finished, find the mean, median, mode, outlier, and range of the information you gathered.</p>	<p>You need to plan an evening out with four friends. You only have \$100 to spend. Using the Internet or newspapers, discuss what you will do and how much each activity will cost. Find as many discounts and coupons as possible and include these in your project.</p>
<p>You have won a sweepstakes for \$5,000. Create a wish list of items. Find these items in the newspaper or on the Internet to include as proof of purchase. You must spend within \$5 of the sweepstakes prize without going over. Calculate 7.75% tax for each item, and include total costs.</p>	<h1>Student Choice</h1>	<p>Create 20 different algebraic word problems. Solve for the missing variable on a separate sheet of paper.</p>
<p>You are a travel agent planning a trip for a family of four. Using the Internet and newspaper, research a destination of your choice and create an itinerary for this family. Include prices for activities, airfare, food, and accommodations. Don't forget total prices. When finished, create a travel brochure for this location.</p>	<p>Using ratios, create a scale drawing of a room in your house. Use graph paper and include measurements of doors, windows, and furniture. Label everything or use a key.</p>	<p>Be a comparison shopper. Choose 10 different items at a grocery store: toilet paper, cereal, canned green beans, etc. Find 2 choices for each product and calculate the unit cost per item. For example: price per pound or price per ounce. Find the better buy or what item gives you more per unit price. Include all work and calculations.</p>



EXTENSIONS MENU

	Student Choice	

