

Remodeled Lessons: High School

The following links provide examples of remodeled lessons found in *The Critical Thinking Handbook: High School*.

The basic idea behind lesson plan remodeling as a strategy for staff development in critical thinking is simple. Every practicing teacher works daily with lesson plans of one kind or another. To remodel lesson plans is to critique one or more lesson plans and formulate one or more new lesson plans based on that critical process.

To help teachers generalize from specific remodeling moves, and so facilitate their grasp of strong sense critical thinking and how it can be taught, we have devised a list of teaching strategies, which are outlined in *Strategy List: 35 Dimensions of Critical Thought*. Each strategy highlights an aspect of critical thought. Each use of it illustrates how that aspect can be encouraged in students.

Complete remodeled lessons have three major components:

1. an "Original Lesson", or statement of the "Standard Approach" (which describes the topic and how it is covered, including questions and activities)
2. the "Critique" (which describes the significance of the topic and its value for the educated thinker, evaluates the original, and provides a general idea of how the lesson can be remodeled)
3. "Remodeled Lesson" (which describes the new lesson, gives questions to be posed to students and student activities, and cites the critical thinking strategies by number).

The strategy number generally follows the questions or activities it represents. Complete remodel sets also include a list of "Objectives" which integrate the objectives of the original with the critical thinking goals; and the list of critical thinking "Strategies" applied in the remodel (listed in order of first appearance).

- [Vitalizing Vapid Vocabulary](#)
- [To Kill A Mockingbird](#)
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Vitalizing Vapid Vocabulary

Objectives of the Remodeled Plan

The Students Will:

- have an increased understanding of words in their functional context through extended analysis
- think independently by making their own logical deductions of word meanings from their roots
- prepare for SAT examinations

Standard Approach

Every week students are given 10-50 words from an alphabetically arranged vocabulary book. They are to memorize spelling, meaning, and sometimes part of speech. At the end of the week, students are given an orally administered written quiz or a matching type ditto.

Critique

All English teachers are stuck with this repetitive, ritual rubric of vocabulary presentation. Memorization being the lowest form of learning, the weekly quizzes can be as tedious for the teacher as they are for the student. Whenever the spelling test type of format is adopted, cheating is rampant. Words studied out of context have little relevancy.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-14 clarifying and analyzing the meanings of words or phrases
- S-1 thinking independently
- S-29 noting significant similarities and differences

Ten words from the vocabulary lists are put on the chalkboard. Derivations and stems are discussed. "Do you recognize any parts of words? Can you figure out what they might mean, or what they have something to do with?" After the etymologies have been discussed and verified in dictionaries, students can discuss contexts for using the words. "When would this word be used? Why? For what purpose?" Students are then assigned to write a logical, flowing paragraph of about two hundred words using the target ten words. Cheating is eliminated. S-1

Editor's note: When making vocabulary lists, give students a group of related words, rather than randomly chosen, or alphabetically grouped words. Have students brainstorm, use dictionaries and thesauruses to list synonyms and other related words. Discussion and writing, then, can focus on distinguishing synonyms and exploring

relationships between related concepts. "When would this word be used? What do these words have in common? What other words could we add to this group? When might any of these synonyms do equally well? When would this but not that be most appropriate, accurate, etc.? S-29 Would you apply these two words to the same thing? Ever, often, never? Would two people who were arguing use them for the same thing? What other words are similar or have related meanings? Do any of these words imply any of the others?"

To Kill a Mockingbird

Objectives of the Remodeled Plan

The Students Will:

- recognize their own sociocentricity by discussing school cliques
- examine the nature, causes, and consequences of their assumptions about other groups
- develop intellectual courage by examining social pressure to agree with one's group
- understand stereotypes and be able to identify examples in their own lives
- transfer insight into their sociocentricity to that described in the novel

Standard Approach

To prepare students for **To Kill a Mockingbird**, a novel of social injustice in the South during the Depression, background information is given in a lecture covering the author, Harper Lee, and facts about the Depression. Students should be aware of the quasi-autobiographical nature of the novel, references such as FDR, blue eagle, WPA, and John Dewey, as well as the social and economic climate in the South during the Depression.

Critique

This novel presents an excellent opportunity for students to explore stereotypes and prejudice while examining their own sociocentricity. Although background information enhances the understanding of the novel, students have a deeper understanding of the issues presented in this novel and the relevance of these issues in their own lives by sharing a more active role in the gathering and evaluation of the information. The background information will be more meaningful if presented after students are engaged in the above issues and if they play an active role in gathering that information.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-2 developing insight into egocentricity or sociocentricity
- S-3 exercising fairmindedness
- S-4 exploring thoughts underlying feelings and feelings underlying thoughts
- S-35 exploring implications and consequences
- S-6 developing intellectual courage
- S-11 comparing analogous situations: transferring insights to new contexts

Students are to bring to class a definition and an example of stereotype. In small self-selected groups, students identify the social groups at Vintage High School. They list several characteristics and several values of each group. Students discuss the following questions. To which group do you belong? Which other groups do you or would you associate with? Which groups would you never associate with and why? What characteristics or values do these groups have that conflict with yours? Do those groups feel the same way about your group? Explain. S-3 Why does each group hold these views of the other? Why do you have these feelings about different groups? S-4 A representative from each group shares the group's observations and conclusions with the entire class.

The class discusses the implications of these observations and conclusions. "What happens when people make these kinds of assumptions about others? What are the positive and negative consequences of identifying yourself with a particular group and excluding yourself from other groups? S-35 What forms of group identification are legitimate? Which are unjustified? Why do people make such unjustified distinctions? Why is it hard to express attitudes that conflict with those of your group? How do group members respond to dissent? Why? How do you feel about those who disagree with the rest of the group? How does the group members' response make the dissenters feel? Why?" S-6

Then, as background preparation for reading, students could do their own research about the Depression and the South, sharing their results.

Editor's note: When the book is finished, students can discuss the social class distinctions made in it: What groups of people are covered in this book? (Townspeople, Blacks, people like the Cunninghams, the Ewells.) "What are Aunt Alexandra's distinctions, and attitudes about others? Why did she feel this way about each group? Was she fair? Why or why not? What were Jem and Scout's theories on class distinctions? Why did they come up with these theories? Why did the theories make some sense to them? How reasonable were they? Where did they miss the mark? Where does Boo fit in? Would he have been treated differently if he had been from another class?" S-2

Students can compare the social distinctions in the book to those of their school. "How are the social distinctions made at school like and unlike those in the book?" The class can take specific points made in the two sets of discussions, and see if they apply to the other context. (For example, if, when discussing the book, students note that people in the book were born into their classes, they could discuss whether they chose their groups.) Students can discuss the consequences of the differences between the two "societies," and the justification of the social systems and the kinds of behavior it allows and even encourages. S-11

Writing Argumentative Essays

Objectives of the Remodeled Plan

The Students Will:

- develop their perspectives through dialectical exchange, writing, and argument analysis and evaluation
- clarify issues and key words
- evaluate evidence
- practice critical thought by writing and revising argumentative essays

Standard Approach

Students pick an issue or position and find reasons to support their conclusions. Sometimes students are told to state and refute opposing arguments. They research their topics, noting facts supporting their positions. Sometimes texts introduce fallacies and a bit of logic as preparation. Students write an argumentative essay, defending their positions.

Critique

Though this handbook mainly focuses on incorporating critical thinking into other lessons, lessons specifically on critical thinking can also be useful. Generally, texts' treatment of argumentation suffer from many serious flaws and misunderstandings, display fuzziness of thought, misuse terms, and lack critical insight. As a whole, texts downplay evaluation of reasoning. (Where mentioned or suggested, they give little guidance and often use confusing language). They rarely suggest evaluating the relevance of support to conclusions.

Texts mainly focus on how to defend opinions, not how to shape them more reasonably. Though they address the importance of giving reasons for beliefs, they often neglect the importance of considering opposing views, or strengthening one's reasoning by weeding

out or altering unjustified beliefs. Presenting good reasons, though valuable, is only half of a discussion. The standard approach allows reactions that are too often impressionistic and based on prejudice or lack of understanding.

Rather than teaching argument analysis and evaluation, texts generally have students attempt to distinguish fact from opinion. Though the motive of having students distinguish questionable from acceptable claims is worthwhile, the usual approach does not accomplish this purpose. It produces an unquestioning attitude of acceptance for statements that seem factual, though factual (empirical) claims are not necessarily reliable, and students can't necessarily tell if so-called facts are true. Facts, when used in an argument, may not be complete or relevant. Since statements students are called on to judge as opinions are given without context, students cannot rationally judge whether they are mere whim or can be well defended. Rather than using the fact/opinion distinction, students can distinguish questionable from acceptable claims and fact from interpretation and judgment.

This remodel illustrates a way of orchestrating cognitive strategies to reason dialectically.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-26 reasoning dialectically: evaluating perspectives, interpretations, or theories
- S-12 developing one's perspective: creating or exploring beliefs, arguments, or theories
- S-28 thinking precisely about thinking: using critical vocabulary
- S-31 distinguishing relevant from irrelevant facts
- S-34 recognizing contradictions
- S-18 analyzing or evaluating arguments, interpretations, beliefs, or theories
- S-3 exercising fairmindedness
- S-13 clarifying issues, conclusions, or beliefs
- S-15 developing criteria for evaluation: clarifying values and standards
- S-14 clarifying and analyzing the meanings of words or phrases
- S-16 evaluating the credibility of sources of information
- S-13 evaluating evidence and alleged facts

Remodeled Lesson Plan

Introduction

We have written these lessons as a unified unit culminating in a well-thought-out argumentative essay. Similar units, repeated over the course of the year, can greatly improve both reasoning and its expression.

Class discussions can be used to introduce and clarify aspects of critical thought through the analysis and improvement of two opposing arguments selected as models. The models should address the same issue from different perspectives, be fairly strong, but require some improvement. Small group discussions allow students to develop and clarify their positions on issues of their choice, and argue between opposing views.

For their essay and discussion groups topics, students could brainstorm issues of interest to them. Each group must share an issue about which group members disagree. The issues from which they choose should not be questions of mere preference but should call for reasoned judgment. Each student then picks an issue and writes an essay. Students should state their positions and support them with their best reasons. This is the first draft of their argumentative essays. S-12

Beginning Argument Analysis S-28

The teacher might develop students' use of critical vocabulary by having them rephrase the model arguments into explicit premises, assumptions, and conclusions. To have students identify the conclusion of each model, ask, "What is the conclusion? What is the point of the argument? What statement is this argument trying to convince you to believe? Is the conclusion stated or implied?" Then ask, "What reasons are given? Is the reasoning complete, or is there a hidden claim, or assumption?"

Students could then begin to analyze and evaluate the arguments in a class discussion. You could have them give reasons for their evaluations, or guide discussion with questions like the following: "Does it present evidence? What? Are the claims clear? What do they mean? Could they mean something else? Are they ambiguous? Questionable? Complete? What is left out? Is this reason relevant - should it affect our conclusion? Why or why not? S-31

To help students pinpoint the conflict between the model arguments, you might ask, "Do these reasoners disagree about the facts? (Which facts?) Their interpretations of the facts? (On what theories do they base their interpretations?) Do they disagree about values? About how to realize those values? About which of two values is most important?" S-34 Students could suggest ways to make each argument stronger. The teacher may also model improving the arguments and their expression during this and future class discussions. S-18

When assigning discussion groups, emphasize the importance of listening carefully and openmindedly to other arguments. Students can take notes on, and include, opposing views in their essays. Students should argue their positions (that is, give reasons to convince the others to adopt their conclusions). The groups could note assumptions, pinpoint contradictions, and look for strengths and weaknesses in the arguments given. Each group could recap the main points of their discussion to the entire class. Encourage the groups to find some points of agreement.

You may want to have students argue each other's positions. S-3 Students can then evaluate each other's presentations of their arguments. Have students rewrite their papers.

Clarification

Another lesson could be used to develop students' ability to clarify issues and concepts, again using the model arguments previously mentioned. How would this arguer state the issue? The other arguer? How could we state the issue in words both sides would accept? How could this issue be settled? What concepts do we need to clarify? Is something being evaluated? (What? Why? What standards are most appropriately applied?) S-13

The teacher can have students identify the key terms in the model arguments. Ask students to describe examples to which the key words or phrases in the model arguments would properly apply. Then ask for examples of their opposites. Also ask what phrase could apply to both kinds of cases. Students should then discuss features common to each kind of case, and make the standards they use to judge such cases explicit. S-15 Why is this a case of X? What does the word imply? Why does this arguer characterize the situation as X? S-14

Then each group can meet again to clarify the key claims and terms from their discussion groups. Have students distinguish those terms which all agree apply from disputed terms. They should then clarify the disputed terms or claims by using examples of terms, opposites, and other cases. The standards used for applying the terms or claims should be clarified, the facts required to justify evaluations made explicit.

Evaluating Claims and Evidence

You may want to focus the next section directly on distinguishing claims which need further support from those which are acceptable without further support. You may use questions like the following: Does anyone know whether or not this is true? How do you know? Is there reason to doubt this statement? Why or why not? Accept it? What would support it Undermine it? S-13 Stress that one can't judge truth or reasonableness of a claim from its form or appearance. A statement alone doesn't tell us how much or little thought, or what quality of thought produced it. For each model, students can evaluate the evidence cited by considering questions like the following: Where did this information come from? How could the source know this? Is this source reliable? (Do they have a good track record? Anything to lose or gain? Are they in a position to know?) S-16 Is this evidence relevant? Is relevant evidence left out? S-31 Would that evidence require the reasoner to change the conclusion? Why or why not? S-33

Students can then expand and revise their essays. They should give their new positions and arguments, supporting claims which require support. Stress that the strongest arguments take the strengths of other points of view into account. S-12

Students could trade their papers with other members of their groups. Students can comment on the papers requesting clarification or evidence, pointing out where the relevance of claims is unclear, or facts or assumptions are questionable, and correcting distortions of opposing points of view. Students can use the comments when revising their essays. The teacher could have students write group papers, instead of individual papers giving all sides of the disagreement and clarifying points of disagreement.

International Trade

Objectives of the remodeled plan

The Students Will:

- discuss and evaluate international trade decisions and policies
- develop intellectual good faith and courage by comparing ideal capitalism with practice, and evaluating departures from ideals

This lesson explains that the real world is far more complex than the example of two countries and two goods. The students investigate a nation's situation when it has a positive balance of trade and when it has negative balance of trade.

Critique

This lesson does not necessarily call for suspending judgment or distinguishing facts from ideals. The student does not look critically at international trade. The lesson does not challenge the student to look at the interdependence of trade among nations. The economy of developing countries is not a part of our students' experience and therefore they are unaware of the implications and the consequences of trading with us as a nation. Students need to explore implications and consequences on all levels of economic prosperity.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-20 analyzing or evaluating actions or policies
- S-3 exercising fairmindedness
- S-27 comparing and contrasting ideals with actual practice
- S-6 developing intellectual courage
- S-35 exploring implications and consequences

- S-7 developing intellectual good faith or integrity

When discussing trade, encourage students to research and reflect the meaning of "trade" from different countries' perspectives (i.e. 1st world, 2nd world, 3rd world and 4th world countries). Have the class discuss the effects of positive balance of trade in developing countries. S-3 What is the trade policy of the U. S.? Is it consistent with the principles of free enterprise?

S-27 Do you agree with our policies? Why or why not? S-6 How might a short term positive balance of trade in developed countries negatively affect longer term trade interests? What are some signs of interdependence which call us away from a short term or narrowly pragmatic perspective on trade? S-35

In small groups first, and then in a report given to the class, students can research news reports, and discuss key questions. "What values beyond immediate self-interest call us to recognize our linkage with other nations? Why? What is our action in relation to our trade policy? Why was this done? Is our trade policy consistent? Explain." S-27

Editor's note: To guide research, have students find news articles in which disputes regarding international trade are covered or analyzed. Some students could trace back long-term consequences of trade policy decisions made a decade or more ago. "What is (was) the issue in this case? What sides are being taken? What reasons given? What principles or goals are behind each position? What results did each side give for the policies considered? Which consequences are most plausible? Why?"

S-35 Which of these older cases bear most resemblance to which current cases? What was done? What were the results? Were they desirable? What should be done now? S-20 How does capitalistic theory address international trade issues? In what ways do we depart from the theory? S-7 Do we favor trade with some nations for political rather than economic reasons? Why? What countries do we refuse to trade with? Why? Is this wise? Why or why not? Can this sort of behavior be reconciled with belief in capitalism? Why or why not?" S-6

Titration

Objectives of the Remodeled Plan

The Students Will:

- learn the technique of titration and some of its applications

- think independently by clarifying their results
- transfer insights and make interdisciplinary connections by discussing applications of key concepts

Students will obtain samples of standard acid and base solutions of unknown concentration from the teacher and follow the procedure outlined in the laboratory manual, to determine the concentration of the base. At least three trials should be done, and reasons stated in the discussion section of the laboratory report, for variations in results among the three trials.

Critique

This lesson fails to take advantage of the information and mis-information which students already possess regarding the roles of acids and bases in the world around them and in their own bodies. The process of titration has numerous applications in pure science and industry. These applications and their importance should be brought out.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-1 thinking independently
- S-11 comparing analogous situations: transferring insights to new contexts
- S-23 making interdisciplinary connections
- S-9 developing confidence in reason

Students will be encouraged to tell what they think the word "neutralization" means and will, after discussion of the various interpretations of this term, be presented with the process from the point of view of the chemist. Relationships between volume and molarity of acids and bases and the titration process will be explained. Students will proceed to the laboratory where the process of titrating a sample of a solution of sodium hydroxide of unknown concentration will be demonstrated. Students will carry out the appropriate calculations to determine the concentration of the unknown solution. Class results will be presented, in the form of a table, on the chalkboard, and reasons for variations will be discussed so that the method may be clarified. S-1

Students will be asked to name substances which they are likely to encounter on a day-to-day basis which would lend themselves to the titration process. S-11 Possibilities would include household ammonia, vinegar, lemon and lime juices, etc. A discussion of a variety of indicators which might be used with these substances should be postponed, as it would only complicate matters. Students will be asked to bring substances from home which might be titrated to determine their acid or base concentration. Care must be taken that, when these substances are titrated, they are properly diluted.

A discussion of the application of the titration process to medicine and industry will serve to relate this laboratory exercise to other branches of science. S-23

Editor's note: Have students describe what happens when they are conducting their tests, explain why the procedure is as it is, and explain how they make their calculations and why. " What, exactly are you doing? Why? What effect will that have? What are these liquids doing in there during this process? Why use this? Why have that control? What would happen if we ...? How might that affect our results? Why? What does this information tell you? What do you need to know? What numbers do you need? Why? What equation are you using? Why? Which numbers go where? Why?" Etc. S-9

Compound Interest

Objectives of the Remodeled Plan

The Students Will:

- be able to distinguish compounded interest, simple interest, and interest compounded continuously
- compare various institutions' investment programs by clarifying their claims, and refining generalizations
- custom tailor a financial plan for their own futures, distinguishing relevant from irrelevant factors

Standard Approach

Students will learn formulas for compound interest. They should be able to solve these equations with exponents and logarithms.

Critique

This lesson does not explain the difference in the various formulas nor when, why, or how to apply them. Using information pamphlets and ads from banks will also help students practice distinguishing relevant from irrelevant information. When students are setting up and working out equations, students should understand reasons for doing each step.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-17 questioning deeply: raising and pursuing root or significant questions
- S-13 clarifying issues, conclusions, or beliefs
- S-10 refining generalizations and avoiding oversimplifications
- S-31 distinguishing relevant from irrelevant facts

After the formulas for interest compounded continuously, daily, monthly, and simple interest are introduced, the students will be given examples that will not show a significant difference once the interests are calculated. They will then be asked why this worked in this manner. Have students explain in detail why the equations are set up as they are. When would one type of interest be more desirable than another? When would this kind of account be best? That? First have students guess, then do the calculations.

S-17

Prior to the introduction of these formulas, the students will have been asked to gather information from five different banks/savings & loans. Discussion will then be stimulated by these questions which clarify the policies:

How do these institutions describe their method of calculation of interest? Are all these institutions offering similar plans? How are the plans different? Why are their plans different? What kinds of terms do they use? What do they mean? Are there special restrictions on these accounts? S-13

How could these various kinds of accounts apply to different personal situations? To what kind of individual would it apply and how? Are there factors that may change a particular situation? S-10

Next, on their own, the students would write a personal scenario of their lives ten years from now, briefly describing their lifestyles and incomes. They would explain what criteria they would use in selecting a bank. They would explain what factors in their lives are critical in their personal situation. S-31

To develop the next part of their papers, students must answer the following question. "In what ways would your association with this institution be advantageous to you?" For the last part of this paper students need to write a one-page description of their future financial plan and on a second piece of paper they must back up their predictions with answers that have been derived from appropriate formulas. And finally, they should consider other options of investment. Would there be better ways to invest in their situations?

Soccer Tactics

Objectives of the Remodeled Plan

The Students Will:

- participate in a previously planned fitness program specific to the requirements of soccer
- develop attacking and defensive strategies in soccer, thus thinking independently
- assess their solutions and actions
- develop and participate in modified games which will apply the devised strategies
- devise and participate in soccer ball skills practices

Standard Approach

Students analyze two specific aspects of the game of soccer-distance and player size-which affect the game outcome and hence influence strategy. In response to teacher-posed problems, small groups of students devise their own solutions within the limitations of their skill, fitness, rules of the game, and problem-solving abilities.

Critique

This lesson is used to illustrate the "divergent" teaching style which is the least teacher-directed model discussed in one of the "classic" physical education instructional strategies texts. In the opening section of the lesson, pairs of students explore the implications of situations set up by the teacher. The students lose the chance to imagine their own situations, explain the problems which could occur, and devise possible strategies. By presenting the students with the two variables to be explored, this lesson misses a key step Ñ that which provides the opportunity for students to discover the factors that they consider are important in the game outcome. From this point, small groups could design and try out strategies to either overcome or maximize these factors.

Strategies Used to Remodel

These refer to subsections of *Strategy List: 35 Dimensions of Critical Thought*.

- S-1 thinking independently
- S-31 distinguishing relevant from irrelevant facts
- S-19 generating or assessing solutions
- S-20 analyzing or evaluating actions or policies

The lesson starts with a soccer-specific warm-up activity, devised in previous lessons by the students, which includes practice of dribbling, tackling, and passing in small groups. Students also pair up and then practice against other pairs. Discussion then follows in those small groups when students themselves identify and justify key factors which influence win-lose situations. S-31

Students devise and participate in practice situations for strategies which either overcome or maximize those variables. How, exactly, does this factor influence the game? Why? What problems can this cause? How? How could this problem be solved? What effect would that have? Which solution is best for which situation? S-19

This practice is followed by discussion in which the students assess the strategies' effectiveness. How did each proposed solution work? Which helped solve the problem? Did any create additional problems? Why? Which solution is best for which situations? S-20

When rule violations occur, in particular dangerous play, the teacher could direct the discussion to students' assessing the consequences of such behavior. Why did this happen? Why do players do this? What effect does this have? How can we all help prevent this from happening in the future? S-20

In closing the lesson, students and teacher could return to the original questions: Which factors influence the game outcome? What strategies can you use to maximize or minimize them? Students have the opportunity to explain the specific situations in which they identified key variables.