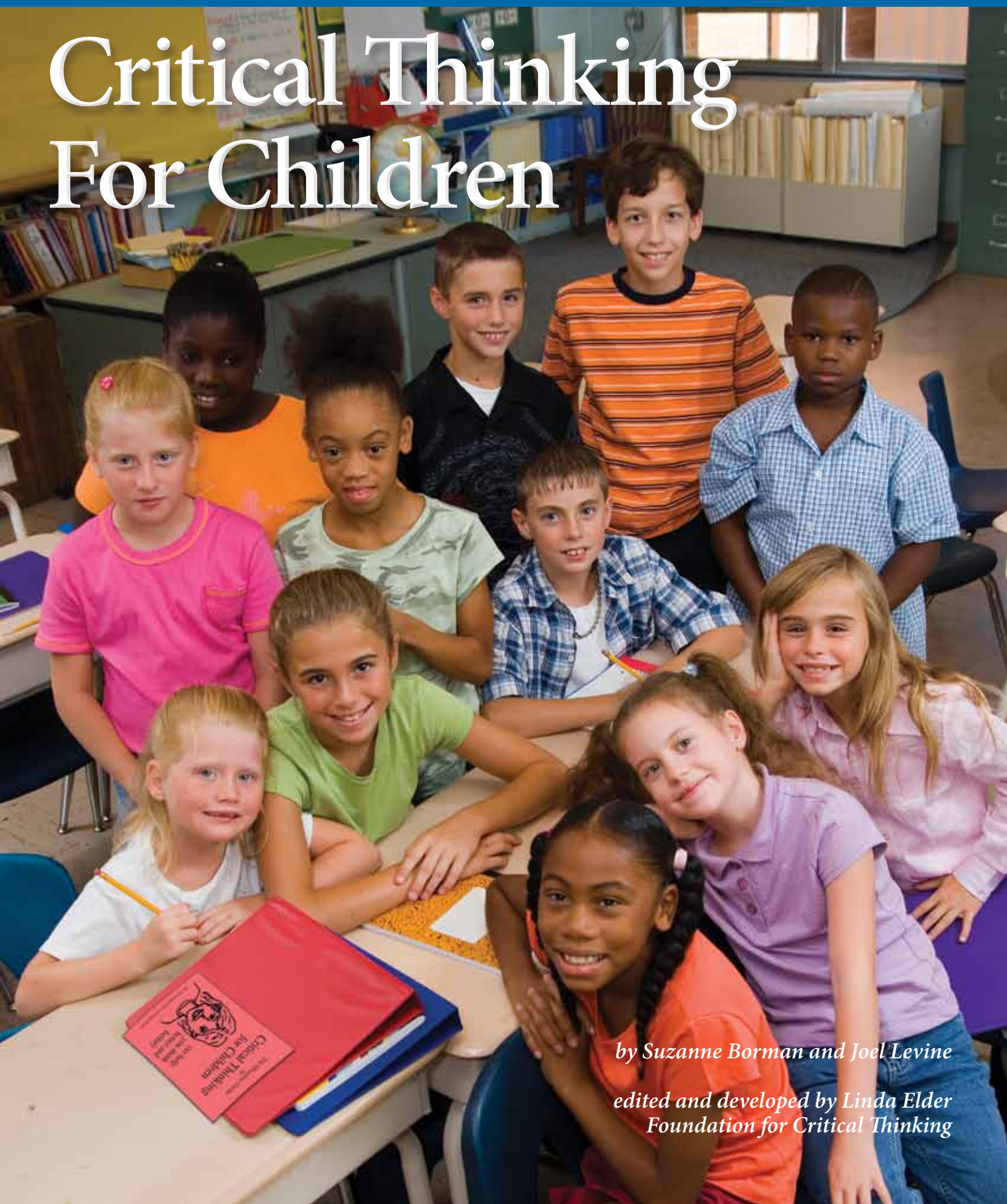


TEACHERS HANDBOOK FOR

# Critical Thinking For Children



*by Suzanne Borman and Joel Levine*

*edited and developed by Linda Elder  
Foundation for Critical Thinking*



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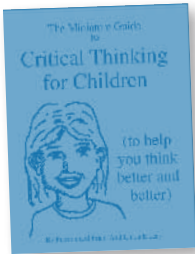
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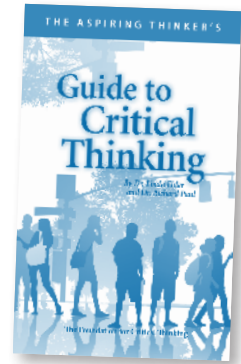
## Introduction

We assume you are reading this Handbook because you want to foster fairminded critical thinking in your instruction. But your job is very demanding. You may wonder how you could “add on” another set of procedures and activities. The ideas, concepts, and strategies presented in this Handbook are not something you add to your curriculum. Rather, they provide you and your students with intellectual tools that apply to the learning of all academic subjects. They apply to all learning activities. Once you have grasped the theory of critical thinking, you will find that it is relevant to everything you do in the classroom—to all of your content and instructional activities, and to all classroom management issues and student interactions. The intellectual tools to which you will be introduced in this Handbook come from the work of Richard Paul and Linda Elder and are designed to foster fairminded critical thinking. This Handbook is designed to be used in conjunction with *The Miniature Guide to Critical Thinking for Children* (Elder, 2006).



When internalized, the intellectual tools which are the focus of this Handbook and the strategies for using them will affect how you approach your content and how you help students think within the content. When you teach using these intellectual tools, your students will learn how to identify the purpose of the content they are studying. They will learn to raise relevant questions, find and interpret significant information, understand key concepts, evaluate underlying assumptions, consider logical implications and practical consequences, and look at issues and situations from different points of view.

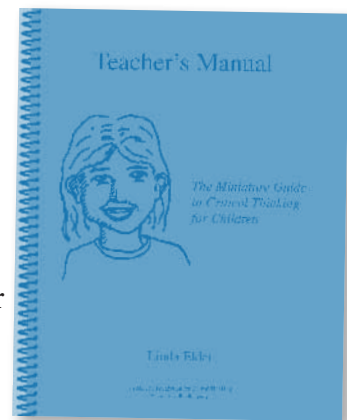
Fairminded critical thinking presupposes knowledge of thinking itself. The content we teach in school results from thinking and affects thinking. One goal of fostering fairminded critical thinking is to help students learn to evaluate thinking—their own and others’—in such a way as to improve it. The concepts and principles set forth in *The Miniature Guide to Critical Thinking for Children* (Elder, 2006) are based on at least two foundational assumptions: first, that improving the quality of students’ thinking improves their learning and their lives; and, second, that all students, including young ones, can improve their thinking by practicing intellectual “moves” using the tools of fairminded critical thinking. This guide is best used with students grades one through five or six. For older students, see *The Aspiring Thinker’s Guide to Critical Thinking* (Elder & Paul, 2009).



An excellent and concise guide to the essential concepts and principles of the Paul and Elder framework is given in *The Miniature Guide to Critical Thinking: Concepts and Tools*, which accompanies this handbook. The Handbook will guide you in teaching the parts of thinking and the intellectual standards, i.e., some of the intellectual tools presented in *The Miniature Guide to Critical Thinking for Children*. We have organized the Handbook for this purpose. This Handbook and *The Miniature Guide to Critical Thinking for Children* should be used in conjunction with the *Teacher’s Manual to the Children’s Guide* by Linda Elder (2002). References to this manual have been made (in boxes) throughout this Handbook.

A deeper look at the Paul and Elder approach to critical thinking can be found in *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life* (Paul & Elder, 2006).

In section two, we refer to posters we created using the *Miniature Guide to Critical Thinking for Children*. Get permission from the Foundation for Critical Thinking ([www.criticalthinking.org](http://www.criticalthinking.org)) if you would like to make posters for your classes using this guide. Also, each student should receive a copy of *Miniature Guide to Critical Thinking for Children*. Older or more advanced students should receive a copy of the *Aspiring Thinker’s Guide* (Elder, 2009).



The lessons in this Handbook have been developed primarily through our work with elementary school students in classes where our focus was helping teachers of these students foster critical thinking. For this reason, we often use an informal “this is what we tried” tone in this Handbook. In many cases we modified as we went along, in keeping with the true spirit of critical thinking—there is often a better way and we can (hopefully) find it. The lessons we present here culminated from trial and error and continued to develop until we felt they “worked” for a specific purpose. Still modification towards improvement will always be a primary goal of critical thinking and thus of these lessons and strategies.

## OUTLINE OF THE HANDBOOK

This Handbook consists of the following four sections.

**Section I: THE CRITICAL THINKING TOOLBOX** – This section introduces you to some of the most basic concepts of critical thinking, including the parts of thinking (for analyzing thinking) and the intellectual standards (for assessing thinking). We also include in this section the DOXI, a learning strategy based on the work of Elder and Paul<sup>1</sup> that helps your students understand these and other important concepts.

**Section II: CLASSROOM LESSONS WHICH FOSTER CRITICAL THINKING** – Fifteen critical thinking lessons are included into this Handbook. They exemplify methods which, when broadly applied, can transform your classroom into a place where critical thinking is at the heart of everything you do and what your students are consistently working toward. In essence these lessons show you the kinds of activities and materials that can foster critical thinking. Consider these lessons as a starting point. As you develop your understanding of critical thinking you will create new ways to help your students become fairminded critical thinkers. We have especially focused on lessons which help students apply critical thinking concepts and strategies while reading and writing.

**Section III: CRITICAL THINKING GAME** – This section introduces the critical thinking game which is based on the critical thinking toolbox. It has proven to be an effective and engaging instructional aid, exercising students’ thinking about critical thinking, fostering creativity, and encouraging empathetic student camaraderie. This section explains how to create and use the critical thinking game. It provides a detailed description of the steps and materials needed to construct and play it. A model lesson using the critical thinking game is also provided.

**Section IV: CRITICAL THINKING TEST** – This section introduces you to, and provides detailed instructions for, the administration of the *Critical Thinking Test for Elementary Students*, developed and field-tested by the authors and by Linda Elder. Included is a reproducible copy of the Test. This Test is designed to assess your students’ progress in acquiring critical thinking skills. You can administer it not only as students enter your class and at the end of the year, but throughout the school year. The Master Rubric for the test provides a convenient way of presenting the test data in numerical form. In today’s data-driven educational system, this test provides the hard numbers that will satisfy the ever-present demand for standardized measurements. But it depends on your own understanding of critical thinking. Only those with a good understanding of the parts of thinking and intellectual standards will be in a position to grade the test.

**Additional materials we recommend, for use with students, in addition to this handbook (see pages 70-72):**

- *The Miniature Guide to Critical Thinking for Children* by Linda Elder
- *Children’s Guide to Critical Thinking - Companion DVD*
- *The Teacher’s Manual to the Children’s Guide* by Linda Elder
- *Masks of Fairminded Fran, Selfish Same and Naïve Nancy*
- *Think About Fran and Sam: Which one is better at thinking?* by Linda Elder
- *The Aspiring Thinker’s Guide for more advanced students*
- *Critical Thinking Handbooks for Teachers*

<sup>1</sup> DOXI is a slight modification of SEEI: State, elaborate, exemplify, illustrate. See *The Thinker’s Guide to How to Write a Paragraph* by Richard Paul and Linda Elder, 2007, Foundation for Critical Thinking Press, pp. 35-39)

## Section I: THE CRITICAL THINKING TOOLBOX

Some of the most basic concepts and principles in critical thinking can be thought of as tools your students can use to improve the quality of their thinking. Although becoming an expert in critical thinking takes long and persistent effort, you should see immediate changes in students’ behavior and thinking as you introduce each tool discussed. It is rewarding to see these initial improvements widen and deepen as you continue teaching for critical thinking. In this section, we have included the parts of thinking, the intellectual standards, and the learning strategy called the “DOXI.” Before introducing these concepts, note that the Paulian Framework or Paul and Elder Framework for Critical Thinking entails the following main theoretical components (Paul & Elder, 2010, p. 19):

**Critical thinkers routinely apply intellectual standards to the elements of reasoning in order to develop intellectual traits.**

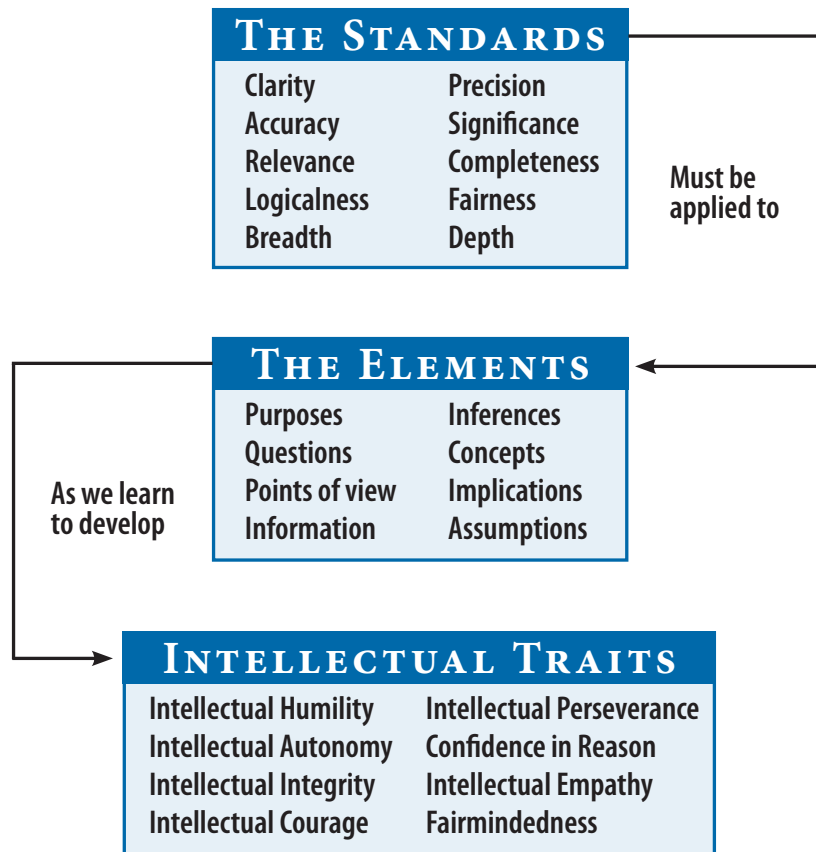


Diagram 1

Though *The Miniature Guide to Critical Thinking for Children* focuses on each of these concepts, in this Handbook we focus primarily on the parts of thinking and standards for thought. To cultivate intellectual traits in students, which is necessary if we are to foster fairminded critical thinking, see the suggestions in the *Teacher’s Manual to the Children’s Guide* by Linda Elder (2002).

## THE PARTS OF THINKING

For students to think critically, they must first understand what is entailed in thinking, what their minds are doing when they think purposefully, when they reason to understand something (e.g., to figure something out, solve a problem, answer a question, resolve some issue, etc.). You, as the teacher, must also understand what moves of the mind are characteristic of the individual who is reasoning (as opposed to when rote memorizing, daydreaming, engaging in associational thinking, etc.). When you reason, when you think in order to figure something out, there are inherent structures implicit in your thinking. By “critical thinking” we mean self-correcting, self-improving reasoning. In this Handbook, “thinking” means “reasoning.” In day-to-day thinking, these structures are implicit and the moves unconscious, so we don’t tend to notice them.

These inherent structures or parts of thinking are also called the elements of reasoning (Paul & Elder, 2010). Throughout both the *Thinker’s Guide to Critical Thinking for Children* and this Handbook, we use the phrase “parts of thinking.” To improve our thinking (our reasoning), the parts of thinking must be made explicit, so that we can evaluate them against appropriate standards. The standards against which we evaluate our thinking are known as “the universal intellectual standards.” We will discuss these presently. First, let us look at the parts of thinking.

Each time we reason, the following parts of thinking are present in our thinking (Paul & Elder, 2006).

- **Purpose:** All reasoning has a purpose, a goal, an end in sight.
- **Question at Issue:** All reasoning is an attempt to figure something out – to resolve some issue, to settle some question, or to solve some problem.
- **Empirical Dimension:** All reasoning is based on facts, data, information, and/or evidence.
- **Inference, Interpretation, and Conclusion:** All reasoning consists of inferences by which we draw conclusions and by which we give meaning to the data.
- **Concepts and Ideas:** All reasoning is expressed through, and shaped by, concepts and ideas, which categorize and organize things, experiences, and other concepts and ideas.
- **Assumptions:** All reasoning is based on assumptions, that is, it begins somewhere taking some things for granted.
- **Implications and consequences:** All reasoning leads somewhere and has logical implications, which, when acted upon, have real consequences.
- **Point of view:** All reasoning is done from some point of view that may derive from one dominant standpoint, or may reflect many standpoints and perspectives that are relevant to answering the question at Issue.



The following diagram lays out the parts of thinking and can be found in *The Miniature Guide to Critical Thinking for Children*, p. 14.

**We take our thinking apart to find problems in our thinking – and fix them.**

**Here are the parts:**

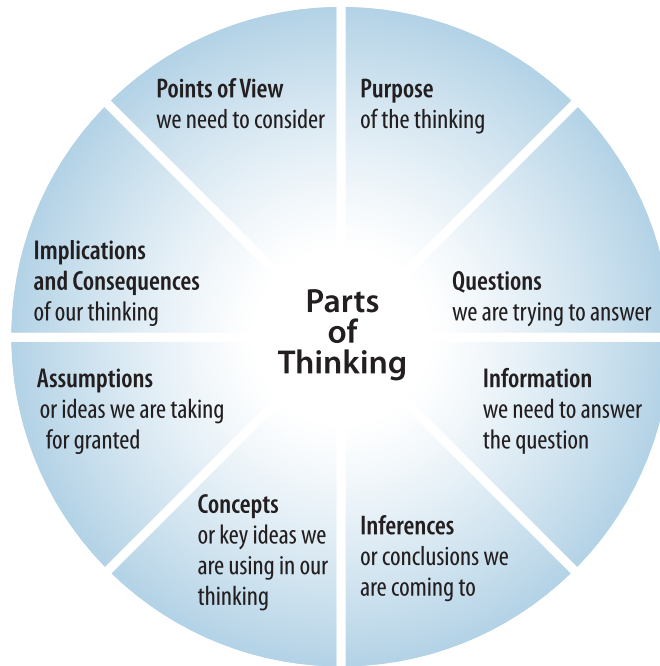


Diagram 2

A circular format is used in diagram 2 (and 3), to show that the parts of thinking are not isolated elements, but interrelated aspects of a complex and dynamic whole. Reasoning is fluid and is characterized by simultaneous involvement of all of its parts. For our specific purposes, we may wish to focus our attention on one or more parts (but not all) at a time. For example, we may concentrate on the **information** relevant to a **question at issue** (problem), while leaving aside for the moment how one’s **assumptions** affect one’s **interpretation** of that **information**.

These eight parts of thinking constitute what “thinking” entails, whenever we reason about anything whatsoever. Diagram 3 captures this process.

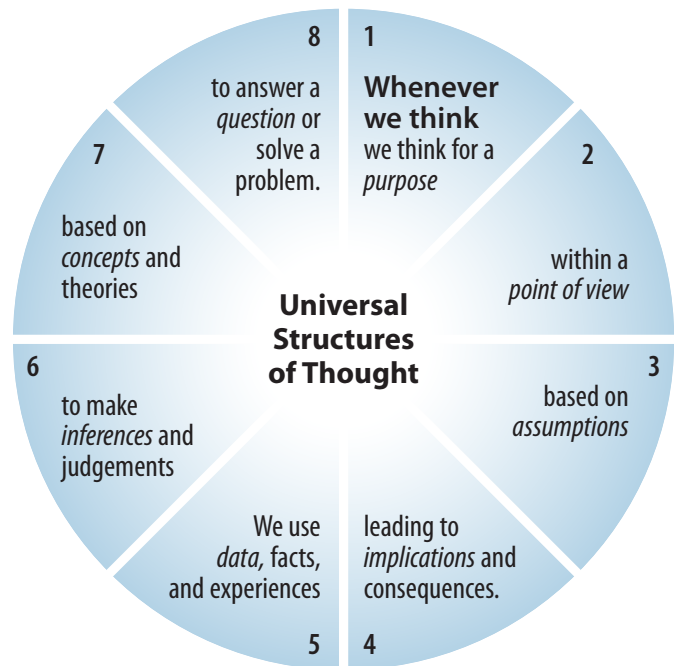


Diagram 3

Each time we reason, whether we are thinking well or poorly, each time we try to figure something out, don't we have a purpose? Similarly, isn't there some question we are trying to answer or problem we are trying to solve? Probably we have a number of sub-questions, such as: "How can I solve the problem?" "Who can I ask for help?" "Who is an expert on this?" "Can I read about this?", etc. Don't we always use information, experiences, or empirical data as we are trying to answer our question? Don't we always interpret that information? Don't we come to conclusions (or make inferences)? Aren't our conclusions always influenced by our assumptions and point of view? Isn't everyone's reasoning guided by their concepts (ideas, facts, theories); and doesn't the justifiability and depth of these concepts affect the accuracy and depth of our conclusions? Finally, doesn't all our reasoning lead somewhere, i.e., have implications and consequences? When we can identify ALL these parts in our thinking, we are better able to reason our way through problems and issues.

To get a better understanding of how one might use the parts of thinking to consciously improve one's thinking consider this example of a teacher using them to think through a practical problem. We have intentionally chosen a mundane, everyday life issue.

### Reasoning Through a Practical Problem

**My Problem:** My paperwork (loads of it) both at home and at work is disorganized. This disorganization affects my daily life by making documents more difficult to find, creating a cluttered atmosphere, causing stress and hassle for me and those who share spaces with me, both at home and at school. I must find a way to improve this aspect of my personal and professional life. This is a problem I have had all of my life. When I arrive at school, my desk is a mess and there are papers everywhere. More often than not, these just get pushed or moved from one place to another. The same happens at home. I recognize that I don't work or live in my environment in isolation; rather I may have over 30 individuals occupying my work space at the same time (classroom). At home I live in a small apartment with my husband. Although we usually get along very well, it can be stressful to share a space and especially a space that is messy and unorganized.

### Application of Elements of Reasoning

#### PURPOSE

My purpose is to better organize the paperwork in my home and classroom so that I can have less stress and chaos in my life. It is important to me and to others that I be more respectful of the fact that I "share" space with other people. So I must do my part to keep them uncluttered and organized, where one can both work and relax.

#### QUESTION AT ISSUE

How should I best organize my paperwork so as not to clutter both my home and work environments?

Sub-questions:

- How can I structure my life so that organization takes a higher priority?
- What barriers are getting in the way of my organizing better? How can I best deal with these barriers?
- Once I am better organized, how will I maintain my systems of organization?

**INFORMATION (empirical data)**

I already have systems of paperwork organization at school and home (folders to organize documents, website for student assignments, computer grading program for organization and evaluation of student work, etc.), but my motivation to keep them up has dropped off completely.

I recently purchased an *Organizing for Dummies* handbook, to help me tackle this issue. Many times this problem has overwhelmed me to the point of virtual paralysis. I need to read this book and see what tips I can find for my purpose.

I plan on having more conversations with other teachers about how they organize their papers and documents.

**INFERENCES (and interpretations)**

Once I look closely at the information relevant to my question, I will learn tips for keeping myself organized. Some preliminary inferences include the following:

- I need to quickly and effectively deal with paperwork as soon as it comes in.
- I need a faster turnaround time getting documents back out (to students, if it is graded work; or, to colleagues, if it is paperwork about a certain student; or, to companies, if it is bills at home, etc.).
- I need to consistently use the system of organization I previously created.

**CONCEPTS**

My main concept is – “Organization of Paperwork.”

Other concepts relevant to my main concept: organization, disorganization, motivation to organize paperwork.

**ASSUMPTIONS**

My main assumptions: 1) that by working through my problem using the eight “parts of thinking” and learning how other teachers solve this problem, I can become better organized; 2) If I don’t do something actively to solve this problem, it will continue to vex me and others who share my space; 3) I can become more organized if I make it a priority and learn how to become better organized; 4) If I become more organized, the quality of my life will improve.

**POINT OF VIEW**

I am looking at disorganization and seeing it as causing significant problems in my life, both for me and others who share my space or depend on me to be more organized.

**IMPLICATIONS and CONSEQUENCES**

The implications and consequences of deciding and enacting a plan to organize my home and school life will be real and far-reaching. By being better organized and thus more timely in returning student work (which will result from developing and sticking to a better system for paperwork organization), I will get feedback to students sooner, which will allow them more time for revisions of their work. I also won’t be worrying about how I will get the work done I’ll just be doing it. This will lead to less unnecessary stress and more time enjoyment. I foresee no significant negative consequences.

This example shows how one can use the parts of thinking systematically and clearly to think through a problem (question at issue). When working with students, you can introduce these parts and have them articulate at least some of them in reasoning through a problem. It isn't necessary to have students articulate every element of reasoning to learn from the experience. You might just have them figure out the problem, the purpose, the information needed to solve the problem and their conclusions or inferences.

To learn more about the elements of reasoning, or parts of thinking, which we strongly recommend, see the *Thinker's Guide to Analytic Thinking* by Linda Elder and Richard Paul (2010). Also see *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life*, chapter four (Paul & Elder, 2006).

## THE UNIVERSAL INTELLECTUAL STANDARDS

If we want to reason well, consistently, not only do we need to take our thinking apart in order to analyze it. We also need to be able to assess it in ways that make most sense. Paul and Elder (2006) introduce intellectual standards as follows:

One of the fundamentals of critical thinking is the ability to assess one's own reasoning. To be good at assessment requires that we consistently take apart our thinking and examine the parts with respect to standards of quality. We do this using criteria based on clarity, accuracy, precision, relevance, depth, breadth, logicalness, and significance. Critical thinkers recognize that, whenever they are reasoning, they reason to some purpose (element of reasoning). Implicit goals are built into their thought processes. But their reasoning is improved when they are clear (intellectual standard) about that purpose or goal. Similarly, to reason well, they need to know that, consciously or unconsciously, they are using information (element of reasoning) in thinking. But their reasoning improves if and when they make sure that the information they are using is accurate (intellectual standard).

Put another way, when we assess our reasoning, we want to know how well we are reasoning. We do not identify the elements of reasoning for the fun of it, or just to satisfy some authority. Rather, we assess our reasoning using intellectual standards because we realize the negative consequences of failing to do so. In assessing our reasoning, then, we recommend these intellectual standards as minimal:

- |             |             |                |
|-------------|-------------|----------------|
| • Clarity   | • Relevance | • Logicalness  |
| • Accuracy  | • Depth     | • Significance |
| • Precision | • Breadth   | • Fairness     |

These are not the only intellectual standards a person might use. They are simply among those that are most fundamental. In this respect, the elements of thought are more basic, because the eight elements we have identified are universal—present in all reasoning of all subjects in all cultures for all time. On the one hand, one cannot reason with no information about no question from no point of view with no assumptions. On the other hand, there is a wide variety of intellectual standards from which to choose—such as credibility, predictability, feasibility, and completeness—that we don't use routinely in assessing reasoning.

As critical thinkers, then, we think about our thinking with these kinds of questions in mind: Am I being clear? Accurate? Precise? Relevant? Am I thinking logically? Am I dealing with a matter of significance? Is my thinking justifiable in context? Typically, we apply these standards to one or more elements (p. 87).

Here is an overview of some of the foundational intellectual standards according to Paul and Elder:

For a detailed discussion of intellectual standards, see *The Thinker's Guide to Intellectual Standards* by Linda Elder and Richard Paul (2009). We will comment here on just two of these standards by way of introduction: clarity and fairness.

## To Evaluate Thinking We Must Apply Intellectual Standards to the Elements of Thought

<b>Clarity</b>	<b>Understandable, the meaning can be grasped</b> Could you elaborate further? Could you give me an example? Could you illustrate what you mean?
<b>Accuracy</b>	<b>Free from errors or distortions, true</b> How could we check on that? How could we find out if that is true? How could we verify or test that?
<b>Precision</b>	<b>Exact to the necessary level of detail</b> Could you be more specific? Could you give me more details? Could you be more exact?
<b>Relevance</b>	<b>Relating to the matter at hand</b> How does that relate to the problem? How does that bear on the question? How does that help us with the issue?
<b>Depth</b>	<b>Containing complexities and multiple interrelationships</b> What factors make this a difficult problem? What are some of the complexities of this question? What are some of the difficulties we need to deal with?
<b>Breadth</b>	<b>Encompassing multiple viewpoints</b> Do we need to look at this from another perspective? Do we need to consider another point of view? Do we need to look at this in other ways?
<b>Logic</b>	<b>The parts make sense together, no contradictions</b> Does all this make sense together? Does your first paragraph fit in with your last? Does what you say follow from the evidence?
<b>Significance</b>	<b>Focusing on the important, not trivial</b> Is this the most important problem to consider? Is this the central idea to focus on? Which of these facts are most important?
<b>Fairness</b>	<b>Justifiable, not self-serving or one-sided</b> Do I have any vested interest in this issue? Am I sympathetically representing the viewpoints of others?

Excerpted from "The Thinker's Guide to Analytic Thinking", page 6-7.

**Clarity** is considered a gateway standard because, if something is unclear, we cannot further assess it. In other words, it wouldn't make sense to say: "I have no idea what you are saying, but I can tell you that it is wrong (i.e. inaccurate, illogical, unreasonable, etc.)."

**Fairness** is an important intellectual standard because humans are so often focused on their own desires and purposes that they fail to see how their behavior affects others. Elder and Paul believe that the essence of critical thinking is to treat all reasoning—both one's own and others'—with equal critical scrutiny, according to the same intellectual standards. For reasoning to be objective, it must be impartial and justified. If we have carefully applied the other standards—as appropriate to each part of thinking in a given context—then we have implicitly satisfied the standard of fairness. Selfish reasoning is never concerned with justifiability; fairminded reasoning attempts to meet this standard.

To better understand intellectual standards, it helps to contextualize them. Let us then

return to our "disorganization" example, this time applying a few of the intellectual standards to each of the parts of thinking.

## APPLICATION OF INTELLECTUAL STANDARDS TO THE PARTS OF THINKING

### PURPOSE (Am I clear about my purpose? Is it fair?)

My purpose is to better organize the paperwork in my home and classroom where, currently, there is much disorganization I can have less stress and chaos in my life. I need to make a drastic change in the way I am dealing with the paperwork situation at both home and school. It is important to me and to others that I be more respectful of the fact that I am “sharing” these spaces. So I must do my part to keep them uncluttered and organized, where one can both work and relax.

#### Application of intellectual standards to the Purpose:

Is my PURPOSE CLEAR? Yes. I have given enough detail in articulating my purpose to make it understandable to the reader.

Am I being FAIR in pursuing this purpose? Yes. My organization, or lack thereof, affects my daily life both at school and at home, my colleagues and husband, and has become a true burden on myself and those who work and live with me. By not addressing this problem, my behavior would be unfair. One of the reasons for addressing it is to be more fair to relevant others in my life.

### QUESTION AT ISSUE

How should I best organize and deal with my paperwork so as not to clutter both my home and work environments?

#### Sub-questions

- How can I structure my life so that organization takes a higher priority?
- What barriers are getting in the way of my organizing better? How can I best deal with these barriers?
- Once I am better organized, how will I maintain my systems of organization?

#### Application of intellectual standards to the question at issue:

Are my questions **relevant** to my purpose of beginning and maintaining a system of organization at home and school? Yes. They contribute directly to the solution of my problem of disorganization (which is having negative effects on my life and those sharing my spaces). If I can find answers to these questions and follow through with the solutions, I feel certain I can conquer my current problem of disorganization.

Are my **questions** significant? Though there may be more pressing problems I could address, these question are significant because of the chaos and stress in my life being cause by the fact that I am so disorganized. If I solve this problem, I will have time to deal with more significant problems.

### INFORMATION (empirical data)

I already have systems of paperwork organization at school and home (folders to organize documents, website for student assignments, computer grading program for organization and evaluation of student work, etc.), but my motivation to keep them up has dropped off completely.

I recently purchased an *Organizing for Dummies* handbook, to help me tackle this issue. Many times this problem has overwhelmed me to the point of virtual paralysis. I need to read this book and see what tips I can find for my purpose.

I plan on having more conversations with other teachers about how they organize their papers and documents.

**Application of intellectual standards to the information:**

How can I be sure I am gathering relevant, useful INFORMATION, and that I am looking at the information fairly?

Since I plan to ask for guidance from experienced and well-organized colleagues, and since I will be referring to a widely used book on organization as a guide, these procedures should provide information both useful and relevant to the topic of paperwork organization. Since I am discussing my problem with my colleagues and husband, concerning their thinking and feelings, as well as my own, I should be considering all relevant information in a way that is fair, both to myself and others.

**INFERENCES (and interpretations)**

Once I look closely at the information relevant to my question, I will learn tips for keeping myself organized. Some preliminary inferences include the following:

- I need to quickly and effectively deal with paperwork as soon as it comes in.
- I need a faster turnaround time getting documents back out (to students, if it is graded work; or, to colleagues, if it is paperwork about a certain student; or, to companies, if it is bills at home, etc.).
- I need to consistently use the system of organization I previously created.

**Application of intellectual standards to the inferences I am making**

Based on my PURPOSE, QUESTIONS, and INFORMATION, are my INFERENCES CLEAR, LOGICAL, and FAIR? Once I have gathered the information relevant to solving my problem, some of which are tentatively stated above, I will then need to apply these standards in making inferences about the information, and in making my final conclusions for action.

**CONCEPTS**

My main concept is – “Organization of Paperwork.”

Other concepts relevant to my main concept: organization, disorganization, motivation to organize paperwork.

**Application of intellectual standards to the concepts that are guiding my thinking:**

Is my main CONCEPT—“ORGANIZATION OF PAPERWORK”—realistic and does it accurately represent what I need to do to solve the problem I have articulated? Since this concept is fairly simple, and seems fairly easy to solve if I put my mind to it, the concept seems realistic in context. It also seems clearly to be representing what I need to do to reduce the chaos caused by my disorganization.

**ASSUMPTIONS**

My main assumptions: 1) that by working through my problem using the eight “parts of thinking” and learning how other teachers solve this problem, I can become better organized; 2) If I don’t do something actively to solve this problem, it will continue to vex me and others who share my space; 3) I can become more organized if I make it a priority and learn how to become better organized; 4) If I become more organized, the quality of my life will improve.

**Application of intellectual standards to the assumptions I making in this situation:**

Am I clear about my assumptions and are they justifiable in context? While there are many assumptions that inform my view in this situation, those assumptions stated above seem to be some of the more directly relevant to the issue at hand. These assumptions illuminate the fact that I recognize the importance of the elements of reasoning in solving this problem, that I see that I need to analyze my reasoning, and then follow

through on my inferences and main conclusions. These assumptions also show that I see the importance of getting this problem under control and doing something about it to improve the quality of my life. Thus my assumptions seem justifiable in context. There may be other assumptions, however, that I am not noticing, that may get in the way of my solving this problem. For instance, I have tended to procrastinate about this problem in the past. If I fail to recognize this, and assume I can just somehow get around this tendency in myself without actively working in it, I may need to rethink my assumptions.

### POINT OF VIEW

I am looking at disorganization and seeing it as causing significant problems in my life, both for me and others who share my space or depend on me to be more organized.

#### Application of intellectual standards to point of view:

Is my POINT OF VIEW justifiable? Have I considered the viewpoints of relevant others? I believe I have honestly assessed my thinking and behavior in this situation and its effects on others. Therefore I believe my viewpoint is justifiable. In fact, a primary reason for my need to address this problem is its effect on others.

### IMPLICATIONS and CONSEQUENCES

The implications and consequences of deciding and enacting a plan to organize my home and school life will be real and far-reaching. By being better organized and thus more timely in returning student work (which will result from developing and sticking to a better system for paperwork organization), I will get feedback to students sooner, which will allow them more time for revisions of their work. I also won't be worrying about how I will get the work done I'll just be doing it. This will lead to having less unnecessary stress and more time enjoyment. I foresee no significant negative consequences.

#### Application of intellectual standards to implications and consequences:

Have I made CLEAR the IMPLICATIONS and CONSEQUENCES of my thinking? Have I considered and articulated the logical implications in this situation? Yes. I have clearly articulated the implications and likely consequences in this situation. I have thought through what might happen if I don't successfully deal with this problem, as well as the benefits from effectively dealing with the problem.

In this example, we have shown how one can consciously identify the parts of (our) thinking and apply intellectual standards to them to assess their quality. Although there are hundreds or more intellectual standards (Elder & Paul, 2009) the *Miniature Guide to Critical Thinking for Children* highlights the following as some of the important intellectual standards children in elementary school can easily learn:

Clarity      Accuracy      Relevance      Logicalness      Fairness

Some important Intellectual Standards elementary school children can easily learn:

Clarity      Logicalness  
Accuracy      Fairness  
Relevance

Each of these intellectual standards and all eight parts of thinking are explained by Fairminded Fran in *The Miniature Guide to Critical Thinking for Children*. Fairminded Fran articulates a definition of each along with questions that will help students use these critical thinking concepts more self-consciously. As a teaching aid, we make a poster (regular poster-board size of 22" x 34") of each of the pages on which these concepts appear (contact the Foundation for Critical Thinking for permission). As we introduce each intellectual standard or part of thinking to our third-grade students, for example, its poster goes up on the wall. The poster remains there for the rest of the year. This poster wall is very helpful to the teacher as a sort of living, growing, wall-sized manual of critical thinking tools. The teacher can readily refer to any poster whenever it is relevant to what is going on in the classroom. This helps with both academic and behavior




issues. Pointing to the appropriate poster, the teacher might say something like: “How is what you are saying relevant to the topic we are discussing?” Or, “Is what you are doing right now fair to the class?” “Does everyone in your group clearly understand your purpose; can each of you explain it in your own words?” In section II of this Handbook you will find instructions on how to make these posters.

Many elementary school teachers wonder whether their students really can learn critical thinking concepts. They certainly can. No matter what grade you teach, you will find that your students not only can learn the concepts, but also have a natural enthusiasm and inclination to learn them. When children are introduced to the parts of thinking and the intellectual standards, they have an innate sense that they are learning something significant and important. This sense seems to motivate them, even when they find the lessons challenging. The lessons we have designed also allow the students to think through the issues and questions on their own. This in itself has proved to be very motivating. In our experience, children naturally “turn on” to critical thinking.

## THE DOXI

Thus far we have introduced the parts of thinking and the intellectual standards as principal tools (along with intellectual dispositions) in a Critical Thinking Tool Box. Now we will introduce you to a very helpful strategy for helping students understand and internalize important concepts. Since the parts of thinking are all concepts, as are the intellectual standards, this strategy can be used to help children understand and learn them (as well as other concepts). We call this strategy the DOXI. Each letter of this acronym stands for a step in the strategy, making it easy for children to remember. We have found that adding the “DOXI, the Dachshund” visual to the DOXI template, endears it to children. In the first step, students write the “dictionary Definition” of the concept. In the second step, students write the definition in their “Own words.” Third, students give an “eXample” of the concept. In the fourth and final step, students provide an “Illustration” of the concept. The illustration can be a drawing, an analogy, another example, a graphic organizer, a poem, a role- play, etc. – anything that helps them better understand the concept.



Name \_\_\_\_\_

Date \_\_\_\_\_

# D O X I

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CONCEPT/WORD

**D** Definition of the concept/Word (Write the Dictionary Definition.)

**O** Own Words (Put the definition in your Own words.)

**X** Example (Give an example of the concept.)

**I** Illustrate the concept (Create a role-play, picture, graphic, dialogue, analogy, or metaphor, showing the concept’s meaning.)

Do not use the DOXI as merely a worksheet—filled out mechanically, the same way each time. It can be used in various ways. You can have students work on it in small groups or in pairs, or have them complete the first two steps individually and then go to small groups for the last two steps. We have found that students enjoy “illustrating” the concept through role-play, and this also requires them to discuss the meaning they are trying to convey and to listen to each other. The complete physical involvement strengthens their memory of the concept. However, there are many ways to illustrate a concept, including drawing a picture of it. The DOXI is most effective if teachers vary how they use it and recognize it as an effective means for internalizing powerful ideas.

## Section II: LESSONS FOR CRITICAL THINKING

### Introduction

This section includes fifteen lessons that have been classroom tested. They were initially developed for the purpose of bringing fairminded critical thinking alive for third-graders at Potrero Elementary School, located near the U.S.-Mexico border, in East San Diego County. For the most part, students at this school, during this project, had limited English skills, were considerably below grade level in reading and math, and were living at the poverty level. From this experience, we developed a logical sequence for introducing the children to fairminded critical thinking. The lessons are numbered according to that sequence. As the lessons progress, we had students use more of the parts of thinking and intellectual standards, and in more complex ways. These fifteen lessons give details about the kinds of activities and materials that can be created to help students become progressively better critical thinkers. Remember, however, that these lessons are merely a starting point. As you develop your understanding of critical thinking, you will by implication create new and deeper ways of fostering it in your classrooms. Note that we refer to a “Critical Thinking Notebook.” This is a notebook in which students document their critical thinking work and do assignments as required.



## From the Classroom: Lesson One

(NOTE: Before beginning these lessons, each student should be provided a copy of *The Miniature Guide to Critical Thinking for Children* for their own personal use. This should be a copy they can write in, take notes, etc. Explain that you will be using these guides throughout the year.)

**Critical Thinking Focus:** Introducing critical thinking and the three kinds of thinkers

**Purpose:** To introduce critical thinking and help students begin to think about its importance in life.

### Activity 1:

#### Discussion: Why learn Critical Thinking?

Questions to use in guiding an initial socratic questioning discussion focused on the importance of good thinking:

- What part of the body do we think with?
- What guides everything we do?
- Is it important to be good thinkers? Why?
- Can we become better thinkers? How?
- What can we do better if we become better at thinking?
- What happens if we don't practice thinking well?
- What happens if we don't do a good job of thinking?

**Analogy:** To explain the idea of “exercising the mind” in thinking:

One makes the muscles stronger by using them, as in lifting weights, etc. One gets better in sports by practicing them. In basketball you practice all the “moves of the game” (dribbling, passing, shooting baskets, rebounding, etc.). In the same way, your mind gets better at doing more things, if you practice thinking critically.

### Activity 2:

#### Create a Class poster – “. . .if I could think better?”

Ask students to think carefully before responding to this question: What could I do better if I could think better? Students respond to this question as the teacher lists their responses on a large poster. This class poster is put on the wall, and for the rest of the year, the teacher refers to the poster to remind students of their own reasons for learning to “think better.”

### Activity 3:

#### Introduce page 7 poster, on the “Power of the Mind” (from *The Miniature Guide to Critical Thinking for Children*)

Make a large poster from page 7. Put it in the classroom where all can easily see it. The poster is a duplication of all that appears on the page, including the drawing of Fairminded Fran. Have students read the first part of the poster: “Critical Thinkers Believe in the Power of Their Minds.” (They can also refer to their own guides.) Discuss the idea of “the mind having power, since students do not usually associate the word “power” with the mind. Have students read the second part of the poster: “I can figure out anything I need to figure out.” Have students discuss what that means. Have them give examples of things they can figure out with their minds.

**Activity 4:****Introduce page 6 poster – “...seek better way of doing things.”**

Have students read: “Critical Thinkers Seek Better Ways of Doing Things.” Discuss what this means. Have students give an example of “seeking a better way of doing something.” Read the second part of the poster with students, or have a student read: “There’s always a better way and I can find it.” Ask students if they have ever found “a better way of doing something.” Have them give examples.

**Activity 5:****Introduce page 3 poster – “...three kinds of thinkers.”**

Have three students read aloud about each kind of thinker – each reading one kind. Ask students what they think about each kind of thinker. Which of these kinds of thinkers would they want to be like? Do we all have some of each kind of thinker in us? Sometimes we think like Selfish Sam, sometimes like Naïve Nancy, and sometimes like Fairminded Fran. Help students see that the goal is to be more like Fairminded Fran. Discuss why: she’s a happier person; gets along better with other people; people tend to be more fair to her because she is fair to them; etc.

**Role-Play**

Teacher organizes a role-play. Groups of three students each, create a brief dialogue in any setting they like (e.g., playground, supermarket, etc.) In the dialogue, one student acts like Selfish Sam, one like Naïve Nancy, and one like Fairminded Fran. The teacher models this role-play with the help of two students or aides but doesn’t tell the class which characters are being portrayed by each person in the role play. At the end of the “model” role-play, the class tells who played each of the three characters, by describing the type of thinking and behavior each displayed. Alternately, each group plans and presents its own role-play depicting the three types of thinkers. Then the class identifies which character each person in the group is role playing explains why.

For additional activities for introducing the three kinds of thinkers, see *The Teacher’s Manual to the Miniature Guide to Critical Thinking for Children*, part one. We suggest that you get at least one class set of the masks of Fairminded Fran, Selfish Sam and Naïve Nancy for use in role playing. Several class sets would be better, as students really enjoy holding these while role-playing the characters. See pp. 70-72 for ordering information.

## From the Classroom: Lesson Two

**Critical Thinking Focus:** Introducing the intellectual standard of relevance

**Purpose:** By the end of the lesson, students will be able to explain the meaning of relevance, in their own words. They will be able to demonstrate through role-play what it means for “something to be relevant, to what someone else is doing, saying, or writing.”

### Activity 1:

Drs. Borman and Levine perform the following role-play in front of the class.

Dr. Borman:	Hi Dr. Levine. On the way over here, I was thinking of some activities we could do with the students. I think they will find them fun. Can I tell you my ideas?
Dr. Levine:	Did you see the Padres’ game last night?
Dr. Borman:	Dr. Levine, what about the activities I was talking about? You act like you never heard me!
Dr. Levine:	(Turns to the class and says) “Why is she talking like that? What did I do wrong?”

Students respond that Dr. Levine is not talking about what Dr. Borman is talking about. They all feel this is not very nice. One student is able to say: “Dr. Levine said something irrelevant.” This student had learned some critical thinking the previous year, as a second-grader.


### Activity 2:

Students are asked to read the page 11 poster (and refer to it in their own guides), which features Fairminded Fran’s definition of relevance, and questions to help students decide when something is relevant.

Have students read the relevance poster line-by-line, asking the following questions as they read:

- What does it mean “to stay on track?”
- What does “relate to” mean?
- How can you tell when something is relevant to a problem you are trying to solve?
- What questions can you ask when you are not sure whether something is relevant?

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**Be Relevant**  
(Make sure you stay on track.)


Something is relevant when it relates directly to:

- The problem you are trying to solve
- The question you are trying to answer
- Whatever you are talking about or writing about

Questions you can ask when you are not sure whether something is relevant:

- How does what you say relate to the problem?
- How does this information relate to the question we are asking?
- What will help us solve the problem?
- How does what you say relate to what we are talking about?

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**Activity 3:**  
**Introduce DOXI**

DOXI is a four-part process, which helps students understand and internalize the meanings of concepts. (See section I: critical thinking toolbox.)

Each student has his or her own DOXI sheet. We explain that:

**“D” stands for “Definition from the Dictionary”:**

Each student has a dictionary and looks up the meaning of “relevant”. One student reads the definition aloud. Class discusses it and all students write the “dictionary definition” in the “dictionary” space of the DOXI.

**“O” stands for “Own words”:**

Students put the “dictionary definition” of relevant into their “Own words,” and write this in the “Own words,” space of “DOXI.” This is a little difficult for our third-grade students (all of whom are ESL students). However, when they see we expect them to try anyway, they usually find they can do it. When students really struggle with this, you might have them work in groups.

**“X” stands for “eXample”:**

Students give an “eXample” of someone behaving or communicating in either a relevant or irrelevant way, and describe their example in the “eXample” space on the DOXI. This is not difficult for them, having already worked on the concept in the “D” and “O” steps. But if they have trouble, suggest some examples and see if they can come up with their own.

**“I” stands for “Illustrate”:**

Tell students this could be anything that helps them remember the concept - another example, a drawing, diagram (graphic), poem, analogy, role-play – anything they can do to “Illustrate” the concept.

Students get into groups of three. Each group plans a short role-play that depicts someone communicating or behaving in a relevant or irrelevant way. Each group presents its role-play to the rest of the class. Class identifies who is communicating or behaving in a relevant or irrelevant way. Students must be ready to tell why, when they answer.

After the role-plays finish, we ask the students to write the meaning of relevance in their own words, in their critical thinking notebooks. At this point, we find students are beginning to have a living understanding of the concept we were working with. The DOXI process does not cram some definitions into short-term memory for the next vocabulary test; rather, it helps students begin to internalize and use important ideas.

For additional activities for introducing the standard of relevance, see *The Teacher’s Manual to the Miniature Guide to Critical Thinking for Children*, pp. 29-30.





Name \_\_\_\_\_

Date \_\_\_\_\_

# D O X I

-----  
CONCEPT/WORD

- D** Definition of the concept/Word (Write the Dictionary Definition.)
- O** Own Words (Put the definition in your Own words.)
- X** Example (Give an example of the concept.)
- I** Illustrate the concept (Create a role-play, picture, graphic, dialogue, analogy, or metaphor, showing the concept's meaning.)

According to the dictionary, this word means \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

In other words \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

An example of this would be \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

I would illustrate this concept in the following way \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## From the Classroom: Lesson Three

**Critical Thinking Focus:** Introducing the Intellectual Standard of Fairness and continuing to internalize the standard of Relevance

**Purpose:** This week our objective is to review the intellectual standard of relevance and introduce the standard of fairness. The teacher of this class is at her wits' end, because almost all of the students are inattentive and talk while she is talking. All of her usual classroom management methods (and she is a very experienced teacher) have failed with this class. Despite the fact that it is a small class, it is the most difficult class she has ever had. We designed the following activity (i.e., reviewing relevance), specifically for this class.

We introduce the problem to the class, by giving everyone the following handout, entitled: **"RELEVANT THINKING IS NEEDED TO SOLVE A PROBLEM."**

### Relevant Thinking is Needed to Solve a Problem

*(Note that this lesson is presented to the class from the "third-person" point of view.)*



Miss Semano has been talking to us about a problem she has. She says that children are talking while she is talking. She says children don't pay attention and aren't willing to do the work that needs to be done in class. What can be done about this? Why aren't people paying attention? Do you think these problems are getting in the way of learning? How should we treat one another in class? How should the children treat the teacher? How should people treat one another in the world? How should you treat someone who is trying to help you learn?

Now write out one thing you can do to help solve the problem we have been discussing. Make sure your suggestion is relevant to solving this problem.

The students get immediately involved in this activity. It holds their attention, because it deals with their own problem. When they finish writing their suggestions, we read each solution aloud, so we can decide together whether it is relevant to solving the problem. When discussing whether each suggestion is relevant, remind the students that we want to hear everyone's thoughts, but every idea may not be relevant and that's okay because we are all learning together.



Next, we introduce the intellectual standard of fairness. We show the students the page 13 poster, for fair, and put it on the wall, as part of the wall-sized Manual of Critical Thinking Tools.

We have different students read each line of the poster. Following the DOXI procedure for fairness, each child looks up fair or fairness (or both) in the dictionary; writes the **D**ictionary definition; elaborates on it in their **O**wn words; gives an **eX**ample of someone being fair or unfair; and, **I**llustrates it by a role-play (groups of three), depicting a situation in which at least one character is being fair or unfair. Thus, each group demonstrates that they have clearly understood the meaning of fairness and how it can be seen in context.

Finally, the teacher reads a short story, in which a baby dragon is trying to get someone to love it. A series of characters refuse to love him, giving various reasons. We ask the children to tell whether that reason is fair or unfair, and why. Other books we recommend for teaching the concept of fairness are *Go Home: The True Story of James the Cat* by Libby Phillips Meggs and *A Home for Dakota* by Jan Zita Grove.

We have found it important to follow DOXI with an activity in which the concept is applied. The suggested stories do this. Students must make judgments using the standard of fairness. We cannot overemphasize the fact that we are striving to develop instruction in which students are guided to think things through, rather than resort to short-term memory, for the sake of a test.

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**When we consider the feelings of others before we do something, we are being fair.**

**You can ask these questions when you are not sure whether you, or someone else, is being fair:**

- Am I being selfish right now?
- Is he or she being selfish right now?
- Am I considering the thinking of others?
- Am I considering the feelings of others?
- Am I giving him what he deserves?

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For additional suggestions for introducing fair and unfair thinking, see *The Teacher's Manual to the Miniature Guide to Critical Thinking for Children*, part two.

Also, see the children's book: *Think About Fran and Sam: Which one is better at thinking?* See pp. 70-72 for ordering information.

## From the Classroom: Lesson Four

**Critical Thinking Focus:** Intellectual Standards – Relevance, Fairness  
Parts of Thinking – Point of View, Question at Issue

**Purpose:** To help students think more deeply about the problems they are creating in class; to introduce point of view and questions as parts of thinking; to help students further internalize the standards of fairness and relevance.

**Content Focus:** Classroom Management and Language Arts (reading: *Click Clack Moo*, by Doreen Cronin)

The behavior of the students in this class remains a major issue. The teacher must spend extra time and effort just to maintain a minimal level of student involvement. While Drs. Borman and Levine also experience a high level of disruptive activity while working with these students, the critical thinking content (parts of thinking and standards) holds their attention. Students get deeply involved in these lessons. This week, we work again with relevance and fairness. We also bring in the part of thinking, point of view, but do not formally introduce it (i.e., do not use a large poster and do a DOXI, which will be done in Lesson Five). You will find your own ways to introduce and reinforce the various parts of thinking and standards. The key question is: “What works best – given your students, your school and classroom situation?”

Our first activity addresses the class’s behavior problem, i.e., not being attentive, not staying on task, interrupting and speaking out impulsively.

### Activity 1:

We put a vertical column of numbers on the board, from 1 to 10, and explain how we can judge things on this scale. For example, students could tell us how they like chocolate ice cream on this scale, letting “10” mean they like it very much, and “1” means they don’t like it at all.

We tell them we want them to rate themselves on a Scale of 1 to 10 **as a class—their own behavior, only**. On a Scale of 1 to 10 (as a whole class), do they give their teacher their full attention, follow her directions without interrupting, and not talk to others when she is explaining things, or, do they do all these things? **Ten** means they are **perfect** – pay full attention, complete all their work without talking, and do not bother others. **One** means they are **very disruptive** – they do talk when the teacher is talking, do not do their work, etc. Each child has a small square of paper to write the number that best describes – from their own “point of view” (what they really thought) – the class’s behavior, from **1 to 10**. We tally up the numbers and write them on the board: “10” – three votes (amazingly enough), “5” (median) – eight votes, “1” – five votes, “4” – one vote, and “7” – one vote.

These numbers show us and the students how they perceive their behavior in the class. We want them also to become aware of their teacher’s point of view of their behavior, through how she rates it. **She rates it as “1” – “very disruptive.” The majority of the students do not feel they are especially disruptive. Yet they are not surprised by their teacher’s rating and point of view.** Some of the students indicate that they feel the class is out of control (five voting “1”). The majority (eight), feel they are somewhere in the middle. The three that vote “10” are the most well-behaved students in the class. They seem to be rating their own behavior, rather than that of the class as a whole. This is not altogether surprising, given that children tend to see the world from their own egocentric viewpoint.

In our next activity, we introduce point of view in a formal way—i.e., with the large poster, etc. and activities to help the students understand their teacher’s point of view.

**Activity 2:**

Our second activity focuses on the standard of fairness, which we introduced the previous week.

We read the children's story *Click, Clack, Moo*. It is about a farmer who is furious with his cows. They have found an old typewriter in the barn and type him a note requesting electric blankets because the barn is cold at night. They also request blankets for the chickens, who are also cold at night. The farmer refuses to give the electric blankets as notes go back and forth between himself and the cows. The cows and chickens finally go on strike, refusing to give eggs and milk until they get blankets. At long last, the cows offer to trade the typewriter for blankets, and the farmer takes them up on it.

**Before** we read the story, we ask the students to listen for two things: "What is the problem in the story?" and, "Are any of the characters acting unfairly?" "Where and why?" Each student is given a paper with two columns on it, one labeled "FAIR" and one labeled "UNFAIR." As they listen to the story, they put the names of the characters in one column or the other. The students in this class unanimously think the farmer is unfair in not giving blankets to the cows and hens, and it was fair of the cows and hens to go on strike in order to get the blankets. To find out the students' reasoning, we ask "why" they think the farmer is unfair and the animals fair. The students feel, since the animals were cold, they should get the blankets. It is unfair of the farmer to let them be cold. In previous classes we have had students who felt that the cows and chickens were unfair and the farmer fair. In most classes, students have been divided on the issue.

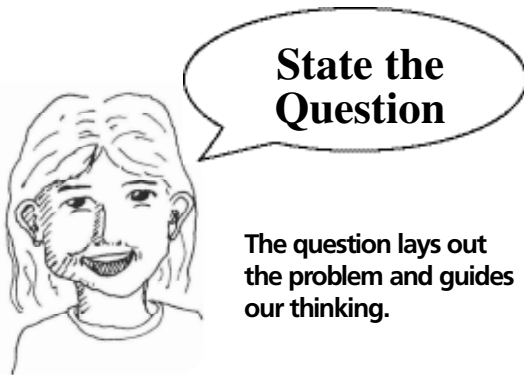
**After** reading the story, we ask students what the problem is. They say the problem is that the cows want blankets and the farmer doesn't want to give them the blankets. We suggest the farmer and cows have different points of view on the problem. The students identify the points of view of the farmer and the cows. They understand intuitively that different individuals have different opinions about various issues, so they don't have any trouble recognizing the points of view of the farmer and the cows. We also point out that though there may be differing points of view on an issue, every point of view is not always equally good!

We now formally introduced point of view, using the page 21 poster.

**Activity 3:**

We use the page 16 poster to formally introduce a new part of thinking, the question (called question at issue in the elements of reason terminology, but the question in the children's Mini-Guide.). We also review relevance, using it as a standard to assess this new part of thinking. The question poster helps the students understand the important role the key question (question at issue) plays in our reasoning. Note that "the question" is singular. In the words of Fairminded Fran, it "lays out the problem and guides our thinking." Using *Click, Clack, Moo*, we ask students to identify the problem in the story. They have no trouble identifying the problem—the cows want electric blankets, but the farmer does not want to give them.

We ask the children: "How can we be sure that we are fair to Farmer Brown, when we say that he should give the blankets to the cows? Maybe we don't know all the facts. Maybe we need to ask more QUESTIONS, to find out how best to answer our question at issue—i.e., sub-questions to provide more information, more facts. But the facts must be relevant to solving our problem, to achieving our purpose. Why is it important to ask relevant questions when there is a big disagreement? Let's see what Fairminded Fran has to say about this."



**Questions you can ask about the question:**

- What question am I trying to answer?
- What is the question we are trying to answer in this activity?
- Is my question clear?
- Should I be asking a different question?
- What question are you asking me?

Students read Fairminded Fran's statement in the bubble, and the definition just below it: "State the question" and "The question lays out the problem and guides our thinking." We explain why the question is called the question at issue, and that it means the "problem to be solved." We tell them: "The question at issue in our story comes from the conflict between Farmer Brown and the cows." We point out that in order to solve a problem (question at issue), you have to ask more questions. If we could ask questions to the characters in the story, we might learn more information, more facts that would help us solve the problem. Many times, we have to ask a lot of questions to make sure we get all the information we need to make a fair decision. All the questions we ask have to be relevant to the main question at issue and the purpose.

We tell them: "Now you are going to get a chance to ask the characters in the story, questions that are relevant to the main question at issue.

We attach a drawing of each character (Cow, Farmer Brown, Hen, and Duck) and the

author to the backs of five chairs lined up in the front of the room. Each student gets one 3" x 8" slip of paper. A stack of these slips is available on another chair in the front. We tell students to write a relevant question for any character. They should be able to tell us why that question is relevant to understanding the problem of the story. When finished, they place their slip on the chair with the drawing of the character to whom the question is addressed, and pick up another blank slip, and so on - as long as they can think of relevant questions. Students get intensely involved in writing their questions and bringing them up to the appropriate chair. We stop the question-writing when we run out of time. Reading each question, we have students vote on whether or not they think the question is relevant or irrelevant. Two thumbs up means relevant, two thumbs down means irrelevant, and one thumb up and one thumb down, means not sure. Brief, focused discussions about the questions receiving a "not sure" vote engage the class. As the activity proceeds, students become more skilled at distinguishing relevant from irrelevant questions. They also better understand the necessity of posing sufficient questions to find all the information required for solving a problem, understand something, or resolving a question at issue. Note that we have indirectly introduced the concept of "information," which is an essential part or element of thinking.

## From the Classroom: Lesson Five

**Critical Thinking Focus:** Parts of Thinking – Point of View, Purpose

**Purpose:** To give the class practice; first, in seeing a situation from a point of view other than their own (i.e., their teacher's); and, second, thinking about the relevance of different points of view to solving a real problem. Students are also introduced to the part of thinking, purpose, through *Click, Clack, Moo*, by Doreen Cronin.

**Content Focus:** Classroom Management and Literature

Behavior continues to be a major issue with this class. Despite a small improvement, the class is still very difficult to work with. Their uncontrolled behaviors – talking during “quiet” activities, getting out of their seats frequently, etc. – continue. We formally introduce the part of thinking, point of view, as a way to curb these disruptive behaviors.

### Activity 1:

#### Rating Class Behavior on a Scale of 1 to 10

Teacher writes 1 through 10 on the board, in a vertical column. Students review what it means to rate something on a Scale of 1 to 10 (Lesson IV). Ask students to describe what they think the behavior of the class looks like at various numbers. This assures us they understand which class behaviors the numbers indicate.

### Activity 2:

#### Students Rate their Behavior as a Class

We ask students to write the number that best represents the behavior of the class over the past few weeks, and why they picked that number. Students' choices are tallied on the board and their reasons discussed. This scale is compared to the scale the class created three weeks earlier. Their new scale indicates they see a vast improvement in their behavior.


### Activity 3:

#### Whole-Class Instruction, Using the point of view poster

Teacher and students read the page 21 poster on being aware of how point of view affects our thinking. Each line of the poster is read and discussed. Students are asked to write about situations in which they tried to understand someone else's point of view. They give such examples as trying to understand the point of view of a friend who wants to play a different game than they do. Their responses are given in a whole-class discussion.

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Understand  
Your Point  
of View



**Point of View is what you are looking at and the way you are seeing it.**

**Questions you can ask about point of view:**

- How am I looking at this situation?
- What am I looking at? And how am I seeing it?
- Is there another reasonable way to look at the situation? Or is my view the only reasonable view?
- Are you looking at girls as sissies?
- Are you looking at boys as tough?

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We ask students to rate the class on three behaviors, but now from their teacher's point of view:

1. Going to the teacher's desk without permission.
2. Creating disturbances on the rug, while their teacher is reading to them or explaining things.
3. Talking to each other at their desks, while teacher is teaching.

For each of the three behaviors, students are to write the number they think expresses how their teacher rates them, from her point of view, and explain why they chose that number.

There was, again, a vast difference between the students' rating of their behavior from their own point of view, and what they thought the teacher rated it, from her point of view. Trying to view it as their teacher would, they rated themselves very poorly, mostly 1 to 3. It is clear from their reasons that students are beginning to understand the concept of viewing something from the point of view of someone other than themselves.

The teacher rates the class and explains her point of view about the three behaviors. The teacher was slightly more generous than the students when she rated their behavior from her point of view. We discuss the need for further improvement. Students have a new awareness: they must also think, not only from their own point of view, but also from the point of view of their teacher.

#### **Activity 4:**

#### **Student Role-Play – points of view of the three characters in *Click, Clack, Moo*.**

We have students assemble on the rug in the front of the classroom. We remind them that their behavior on the rug is one of the behaviors they are working on improving. Teacher reads *Click, Clack, Moo*. Students look for the points of view of the cow, the hen, and Farmer Brown as the story is read. Students get into groups of three to create a short role-play. Each student is to represent one of the three characters and explain that character's point of view. They speak from the voice of first person—"This is the way I see the situation..." As group performs its role-play, each student explains the point of view of his or her character as described in the story.

It is clear from the role-plays that students have gained an accurate understanding of their characters' view points. This—coupled with the behavior-rating activity—shows that the class are acquiring a deeper understanding of point of view.

To help foster disciplined listening, see the critical listening strategy in the *The Teacher's Manual to the Miniature Guide to Critical Thinking for Children*, p. 29, #3 at the top of the page.



**Activity 5:****Introduce part of thinking – purpose**

The students are still on the rug. Teacher asks: “Since we have read *Click, Clack, Moo*, for the second time today, what do you think is the author’s purpose in writing the story?” Students look puzzled. Teacher remarks: “I just realized we have not looked at the part of thinking called purpose. Let’s see what Fairminded Fran has to say about this part of thinking.”


Teacher shows class page 15 poster. Student reads Fairminded Fran’s definition of purpose. “Your purpose is your goal, or what you are trying to make happen.” Teacher asks students what the definition means to them. Class discusses students’ answers. Teacher has students take turns reading the rest of the poster – i.e., questions one can ask to better understand purpose.

Teacher turns back to *Click, Clack, Moo*. She repeats original question: “What is the author’s purpose in writing this story?” Teacher asks students to explain their answers to the class. Ask students to get into pairs and write answers to the following questions: “What is Farmer Brown’s purpose in the story?” “What is the Cows’ purpose?” “What is the Ducks’ purpose?” “Did any of the characters’ actions show they changed their purpose as the story went on?” “Why do you think they changed their purpose?”

When finished writing, students discuss their answers as a class. Teacher asks a concluding question: “Why does Fairminded Fran tell us to ‘Think about the purpose’?”

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## Think About the Purpose



**Your purpose is your goal, or what you are trying to make happen.**

**Questions you can ask to target purpose:**

- What is your purpose in doing what you are doing?
- What is my purpose in doing what I am doing?
- What is our purpose?
- What is the purpose of this assignment?
- What is the purpose of the main character in this story?
- What is my teacher's purpose?
- What is my sister's purpose?
- What is my brother's purpose?
- Is there something wrong with my purpose?

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## From the Classroom: Lesson Six

**Critical Thinking Focus:** Parts of Thinking – Information; Intellectual Standard – Accuracy

**Purpose:** To introduce information as a part of thinking and accuracy as an intellectual standard; to help students begin to think mathematically.

**Content Focus:** Math, Capacity

### Activity 1:


The teacher discusses with students her experience at the store figuring out how much juice to buy for the class. In the juice section she found many different-sized juice bottles. How many bottles of each size must she buy? She holds up a one-quart juice container showing them which size of bottle she was looking at in the store. She asks the students: “What information must I have to figure how much juice to buy so that each person in the class will get one cup of juice?” The teacher holds up an eight-ounce plastic cup to show how much juice each student will get, and then shows the class a quart-size plastic container of juice. “How many of these quart-size bottles of juice must I buy so that each student gets one cup of juice?”

The key is to bring students to understand that they must first figure out what information is required to solve the problem. You are teaching them to “think through” the problem—i.e., to think mathematically—as opposed to merely using a procedure with no understanding of why they are using it.


While guiding students through this exercise, point out that they are looking for the relevant information they must have to solve this problem. Reminding them of this, tell them: “Let’s look at the information poster on the wall and see what Fairminded Fran says about information.”

**Read page 17 poster, with children.**

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**Gather  
the Information**



**The information is the facts, evidence or experiences you use to figure things out.**

**Questions you can ask about information:**

- What information do I need to answer this question?
- Do I need to gather more information?
- Is this information relevant to my purpose?
- Is my information accurate?

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Fairminded Fran tells us:

- We must find out which information we need to solve the problem.
- We must make sure we have gathered all the information we need.
- We must be sure all of our information is relevant to our problem.
- We must make sure our information is accurate.

You should guide children to the information they need in order to solve the problem. Help them think this through, by asking the following questions: (1) “How many students are in the class today?” (2) “How many cups will we need, if each student gets one cup of juice?” Have everyone calculate on a piece of paper the answer to question #2, based on the answer to question #1. The answer to question #1 gives the information needed to answer question #2. It is important to have students work out the problem on a sheet of paper, before giving their answers. This way each student gets the benefit of figuring out the problem on their own.

Ask students: “How many cups are in this bottle of juice (showing them a quart container)?” “How do we know?” Explain that when we are interested in how much liquid a container holds, we are trying to find out the **capacity** of the container. Using quart containers and eight-ounce plastic cups, use these questions to help the students understand that to solve the problem they must know: first, how many students are in the class; and, second, how many cups the quart container holds. Such questions will help them calculate that we must buy two quart containers, not just one.

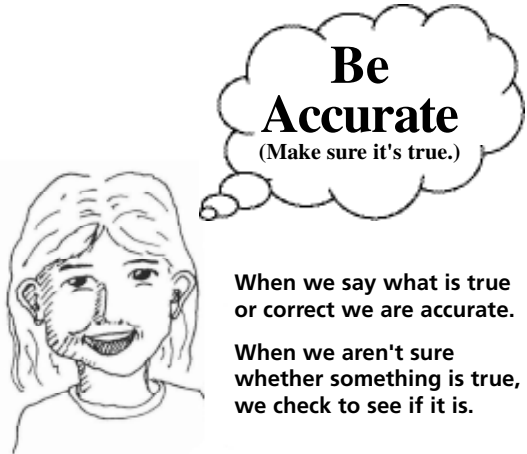
Ask students to tell about situations in which they have had to use information about measuring the capacity of various-sized containers. Take out various-sized containers. Explain how useful it is to know how much each of these containers holds, and that there are standard measurements that are used everywhere. Tell class: “There are some sizes of containers you will want to remember because you will need to use them a lot to solve different problems throughout your life.

When you measure capacity (just as with all measurements) you must be accurate.

### Introduce the accuracy poster.

Read page 10 poster with students. The teacher asks: “What does it mean to solve math problems accurately?” “How can you know your solution is accurate?” Through questions, bring students to discover such procedures as: checking their work, ball-park estimates, comparing answers with other students’ solutions, etc. The importance of meeting the standard of accuracy should be frequently reinforced. Accurate information and accuracy of thinking are required in all content areas. The teacher should direct students’ attention to the accuracy poster on the wall when relevant to instructional activity.

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Be  
Accurate

(Make sure it's true.)

**When we say what is true or correct we are accurate.**

**When we aren't sure whether something is true, we check to see if it is.**

**Questions you can ask to make sure you are accurate:**

- “How could we find out if this is really true?”
- “How can we check this?”
- “How could we test this idea to see if it is true?”
- “How do you know what you are saying is true?”

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### Activity 2:

Have students create their own flash cards with capacity equivalents written on them. When students finish, help them check for accuracy (correctness). Pair up students. Have them drill each other with their flash cards. Tell them: “We are preparing for a game which involves capacity questions.”

Ideas for other activities:

- Create several other problems that can be solved only by using capacity information, i.e., capacity equivalents. Students can use their flash cards as long as they need them, until they have internalized the capacities of each container.
- Have students devise their own problems focusing on capacity.

## From the Classroom: Lesson Seven

**Critical Thinking Focus:** Parts of Thinking – Information

**Purpose:** To continue to internalize the concept of information; to continue learning to think mathematically.

**Content Focus:** Math, using “Capacity” measurements

### Activity 1:

Collect empty containers (such as juice or milk containers) of various sizes, including quart, half gallon, and gallon size, and an eight-ounce measuring cup. The teacher reminds students that in the previous lesson on **capacity**, they figured out how many cups were in a quart. She takes out each of the different-sized containers – cup, quart, half-gallon, and gallon. The teacher asks students to identify each size container as she puts them on a table in front of the class. She says: “You already know how many cups are in a quart. You figured that out in the last lesson. You also made up your flash cards and have studied them. You know how many cups are in a half-gallon and a gallon. To review, write down how many cups are in a quart. Hold up your answer.” The teacher does the same for the half-gallon and the gallon containers.

The teacher tells students: “We are again planning how to buy juice so that everyone can have at least one cup. This time we’ve invited Mr. Pearson’s class to join our juice party. **What information must we have to buy the right amount of juice from the store so that all students in this class, plus those students in Mr. Pearson’s class, can have one cup of juice?** Refer students to the information poster on the wall. Have students write what information we must have to solve this problem. When you have written your answer, raise your hand, and we will check it. If your information is correct, finish solving the problem.”

Through questions, guide students to the understanding that to solve the problem they need to know: (1) how many students are in both classes, and (2) how many cups are in each different-sized container (which we already know). This is an essential step in learning to **think mathematically** about **how** to solve a math problem, rather than merely following formulas one doesn’t understand.

### Activity 2:

Once she has checked all the papers, the teacher informs the class: “Mr. Pearson’s class has 20 students. Knowing that our class has 14 students, you can now solve the problem.” Students can work in pairs if the teacher feels it will be helpful. Give students a specific time limit for solving the problem. When time is up, the teacher calls on students to give their answers and to explain how they got their answers.

We designed this lesson to be “authentic” to the students (i.e., a real-life problem). In solving a common practical problem, they come to understand why it is helpful to commit to memory **capacity** measurement units and conversions. This approach helps students want to internalize new ideas.

## From the Classroom: Lesson Eight

**Critical Thinking Focus:** Parts of Thinking – Assumptions

**Purpose:** To introduce the concept of assumptions.

This lesson introduces assumption, a new part of thinking. It begins with a role-play by the teacher. If you do not have two other adults to perform the role-play with you, pick two competent students or two students from an upper grade to help with this lesson.

### Activity 1:

#### Role-Play for “assumption”

SCENE: (Dr. Levine and Dr. Borman in their school offices – Dr. Borman calls Dr. Levine on phone)

Dr. Borman: Hi, Dr. Levine. Ms. Semano is coming over so we can plan a lesson for her class. Want to help?

Dr. Levine: Yes, that sounds like fun. When are we meeting?

Dr. Borman: Tomorrow after school. Let’s bring some refreshments. We’ll all be hungry by then. I’ll bring popcorn and you bring juice.

Dr. Levine: Okay, see you tomorrow.

SCENE: (Following day – Dr. Borman’s office – Ms. Seman is there, Dr. Levine just arrives)

Ms. Semano: How are you two doing?

Borman and Levine: Fine, fine.

Dr. Borman: Ms. Seman, guess what? Dr. Levine is going to help us plan the lesson and we have brought refreshments.

Ms. Semano: Great. I am hungry and thirsty.

Borman: Me, too – I’m really thirsty. Hey, Dr. Levine, let’s have some juice.

Ms. Semano: Great idea, I’m dying of thirst.

Dr. Levine: Okay, three juices coming up.

Dr. Levine: *(takes out large bottle of juice and says)* – Where are the cups?

Dr. Borman: You mean you didn’t bring them?

Dr. Levine: You only told me to bring juice. You didn’t say anything about cups.

Dr. Borman: Since you were bringing the juice, I naturally took it for granted that you would bring the cups we need to drink the juice! In fact, it never occurred to me to tell you to bring cups; I just **ASSUMED** you would bring them!

(Teacher asks class)


“What does Dr. Borman mean, when she says that she **assumed** that Dr. Levine would bring the cups to the meeting?”

Let students respond to see what they have understood. Turn to poster for assumptions.

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**Check Your Assumptions**

**Assumptions are beliefs you take for granted. Usually you don't question them, but you should.**



**Questions you can ask about assumptions:**

- What am I taking for granted?
- Am I assuming something I shouldn't?
- What assumption is leading me to this conclusion?
- What is this other person assuming?
- What does my mother assume about my friends?
- Are you assuming that boys are always stronger than girls?

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**Activity 2:**

We have not learned about this part of thinking yet. Let's see what Fairminded Fran says about assumptions. Bring out page 19 poster (assumptions). Students read definition: "assumptions are beliefs you take for granted. Usually you don't question them, but you should." Students write, in their own words, what they understand about the concept of assumption. Have class discuss their answers. Call on students to read questions on poster. Class discusses questions as each is read.

**Activity 3:**

Teacher asks students these questions about introductory role-play: "What assumption did Dr. Borman make?" "Should Dr. Borman have questioned this assumption?" "If she had questioned this assumption, what questions should she ask herself?" Through your questioning, bring students to articulate how to question their own assumptions.

**Activity 4:**

Put students in pairs. Ask them to write about an experience in which they made an assumption which they should have questioned. If they can't think of one, have them write about a time when someone else made an assumption that she or he should have questioned. Have class discuss some students' examples.

To help students understand assumptions, and distinguish inferences from assumptions see *The Teacher's Manual to the Miniature Guide to Critical Thinking for Children*, pp. 38-47.

## From the Classroom: Lesson Nine

**Critical Thinking Focus:** Parts of Thinking – Inference; Intellectual Standards – Fairness, Accuracy, Relevance

**Purpose:** To introduce the concept of inference.

### Activity 1:

#### Role-Play

SCENE: Two instructors, (Dr. Borman & Dr. Levine) make different inferences about why Jake, a student of both, has not been turning in his assignments.

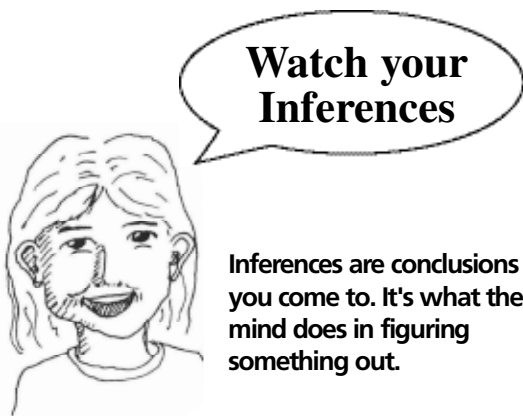
Dr. Levine: Dr. Borman, I have Jake in my class at the University. I believe you also have him in one of your classes, is that right?

Dr. Borman: Yes.

Dr. Levine.: Based on his behavior lately, I have inferred that he doesn't care about learning in my classes.

Dr. Borman: On what information do you base your inference? Oh – wait a minute, I don't think we have talked about this most basic part of thinking – INFERENCE – with the class yet. Have we, class?

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#### Questions you can ask to check your inferences:

- What conclusions am I coming to?
- Are there other conclusions I should consider?
- Is my inference logical?
- Is this other person's inference logical?

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### Activity 2:

Take out page 18 poster (inference poster) to formally introduce this concept to the students.

After reviewing poster, students write in their own words what it means to make an inference. Point out that it is essential to make **only** logical inferences. Logical inferences are conclusions that make sense in the situation.

SCENE: Continues.

- Dr. Borman: Okay, now that the class knows what it means to make inferences, let's get back to Jake. Why did you make the inference that Jake is a lazy student?
- Dr. Levine: He has not handed in his last three assignments. **Whenever** students don't hand in three assignments in a row, I **know** they are lazy. Therefore, I inferred that Jake is lazy.
- Dr. Borman: But, in fact, your inference may not be logical because there **could be many reasons why** a student misses three assignments in a row. There is the **possibility** that Jake is having some kind of personal or family problem that prevents him from getting his assignments in. It **could be true or false** that Jake is lazy. We need more information to know why he has not turned in his last three assignments.
- Dr. Levine: hmmm... I guess that possibility didn't occur to me.
- Dr. Borman: To be **FAIR** to Jake, we must know the **real** reason or reasons Jake has not turned in his last three assignments. When we know these reasons, we can reach a logical conclusion. Otherwise, how can we **trust** our conclusions and be **sure** we are fair to Jake?
- Dr. Levine: Yes, we better get **all** the relevant and accurate information about what is going on with Jake these days, or we won't be able to figure out if my inference about Jake being lazy is accurate.
- Dr. Borman: **That's right. We must get all the relevant and accurate information necessary to come to a logical conclusion about Jake's three late assignments. Otherwise we may be unfair to Jake.**
- Dr. Levine: Oh yes, I guess knowing his favorite football team won't be relevant to our question about why Jake is not doing his homework.
- Dr. Borman: That's right. What information do we need and where can we find it?
- Dr. Levine: You know what? We have a whole class of critical thinkers here with us. They are becoming better and better thinkers, and they are students like Jake is. Let's ask them for their ideas about what relevant information we can collect and where we could find that information.
- Dr. Borman: That's a great idea! I bet they could help us figure out what information we need and how to get it. That way, we will know if your inference about Jake is accurate. To get that relevant information, we need to raise relevant questions.

### Activity 2:

#### Pass out Activity Sheet (see next page)

Tell students: "This sheet will help you think about what information we must collect about Jake that is relevant to whether or not Dr. Levine's inference is true. Also, where can we look for that information and how will we know it is accurate?" Tell students their teacher will bring the needed accurate information to the next lesson. In the next lesson, we will talk more about the intellectual standard of logicalness.

To introduce the concept of inferences see *The Teacher's Manual to the Miniature Guide to Critical Thinking for Children*, pp. 38-46.



Name \_\_\_\_\_

Date \_\_\_\_\_

**Figuring out if Dr. Levine’s INFERENCE about Jake is Logical and Fair.**

RELEVANT INFORMATION WE NEED ABOUT JAKE	WHERE WE WILL GET THIS INFORMATION

## From the Classroom: Lesson Ten

**Critical Thinking Focus:** Parts of Thinking – Implications/Consequences, Assumptions;  
Intellectual Standards – Accuracy

**Purpose:** To introduce the concepts of implications and consequences; to help students think critically about “pets.”

**Content Focus:** Science/Biology: pets, how we think of them, how we should think of them.

### Activity 1: Dialogue

Dr. Levine: On my way to school today I went into the pet store and bought a hamster. I'm very happy because I really wanted a pet! (Dr. Levine pulls a hamster from his sweater pocket). See, isn't he cute?

Dr. Borman: Yes, he's cute, but why are you keeping him in your pocket? Don't you have a cage for him?

Dr. Levine: No, I didn't think of buying a cage. I guess you're right. He can't live in my pocket forever.

Dr. Borman: What are you going to feed him?

Dr. Levine: Oh, I'm going to feed him celery.

Dr. Borman: Why do you **assume** he needs only celery to eat? Maybe he needs other things too. How do you know it is safe for him to eat celery at all?

Dr. Levine: You're right. I made an assumption that he could eat celery and live on it without making sure that assumption is accurate.

Dr. Levine: Wait, does anyone in this class know what assumption means? Let's see how Fairminded Fran defines assumption.

We review the assumption poster (page 19 poster) with class. Students have already been introduced to this concept, but there is still a lot for them to learn about it.

We ask students if they have ever made an assumption that turned out to be **not true**. Students tell about **false** assumptions they have made. Drs. Levine and Borman return to their dialogue.

### Dialogue (cont)

Dr. Borman: Let me get this straight. You, a critical thinker, walked into a pet store, saw a cute hamster, and bought him just like that, without knowing what care he would need? You should have bought a book on taking care of hamsters!

Dr. Levine: Hmm...this is starting to get a little expensive – a cage, special food, and now a book too! I see your point, though. There are implications and consequences to buying a pet without knowing anything about what he needs to live happily and well.

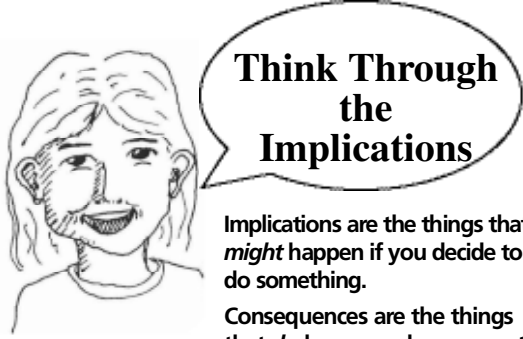
Dr. Borman: This class has been doing a lot of critical thinking activities. Let's ask them what the implications and consequences could be of buying a hamster without knowing anything about what he needs to be a healthy, happy hamster. Perhaps we should ask whether people should be “buying” pets at all, whether it is fair to animals for people to buy and sell them. First, let's see what Fairminded Fran says about implications and consequences. This is another part of thinking that she says we must know about.

**Activity 2:****Figuring out implications and consequences**

Introduce the poster for implications and consequences. Have students read all elements of the poster and discuss what they mean. Have them discuss this part until they have initially internalized its core meaning. Have students give examples of decisions they have made, and some important consequences of those actions.

To make sure students understand implications, have them write about a decision they can **imagine** making, and its logical implications (i.e., **possible** consequences). Students discuss their responses. Now have them write down one action they would do based on that decision and the likely (**probable**) consequences of that action. Again, students discuss their answers.

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**Think Through the Implications**

Implications are the things that *might* happen if you decide to do something.

Consequences are the things that *do* happen when you act.

**Questions you can ask about implications:**

- If I decide to do "X," what things might happen?
- If I decide not to do "X," what things might happen?
- When the main character in the story made an important decision, what happened as a result? What were the consequences?
- What are the possible implications of riding your bike too fast down the hill?
- What are the implications of touching that hot pot on the stove?

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**Activity 3:****Applying the newly learned concepts: implications and consequences**

We ask class to help us think through the **likely** consequences of Dr. Levine's buying a hamster without knowing anything about how to take care of him. This includes such information as: what and how much he eats and drinks, what exercise he needs, what kind of cage he needs, what is the proper room temperature, etc. Class gets into pairs to figure out together the most likely consequences. Whole class discusses what they have written.

**What are the logical implications and real consequences of buying a hamster?**

What are some important implications and consequences of people treating animals as products? How are these animals bred? How transported? What happens when people don't want them anymore? Is it fair to keep animals in cages? How would you like to live in a cage? Why do people think it is okay to keep animals in cages? What do animal right groups say about this?

## From the Classroom: Lesson Eleven

(NOTE: LESSONS ELEVEN AND TWELVE HAVE A BEFORE AND AFTER FORMAT. Lesson Eleven provides only a general prompt for writing about a reading assignment, while Lesson Twelve gives several specific prompts for the same content.)

**Critical Thinking Focus:** Parts of Thinking – Purpose, Question at Issue, Information, Point of View

**Purpose:** To further internalize the concepts of purpose, question, information, and point of view.

**Content Focus:** Language Arts (reading, *The Great Kapok Tree*, by Lynne Cherry)

### Activity 1:

#### Behavior Update

Again, we ask students to rate themselves as a class on the three behavior problems that have been an issue this school year. Ms. Semano then rates the same behaviors. Again, the whole class compares their own and their teacher's points of view on these behaviors. We ask the class to think about why their teacher's rating is so different from theirs. Each student writes down one way they can improve their own behavior so that their teacher rates them better.

### Activity 2:

#### Review the Parts of Thinking wheel

Drs. Borman and Levine hold up the poster depicting the parts of thinking (elements of reasoning) as wedges of a wheel. We call on different students to read each of the eight sections. We remind students of the eight separate posters (and pages in their guides) that elaborate on each of the parts of thinking. We point to purpose, information, question, and point of view on the wheel. The students had been formally introduced to these parts in earlier lessons. Today we will work to better understand these four parts by critically reading *The Great Kapok Tree*. We review these four parts briefly by reading each definition on the wheel.

### Activity 3:

#### Reading of *The Great Kapok Tree*

Students sit in a semi-circle on the rug in the front of the classroom. Dr. Levine reads *The Great Kapok Tree*. Dr. Borman shows the class the beautifully illustrated pictures on each page. After reading the story—as a review of literature concepts recently learned in class—we ask students whether *The Great Kapok Tree* is “non-fiction” or “fiction,” and why. Most students answer that, since animals don't talk in real life, and the animals in the story are talking, the story has to be fiction. A few students answer that the story is nonfiction, because the problem of the rainforest being destroyed is a real problem. A discussion follows. All students finally agree that the story is a “fictional,” but about a “real” problem.

### Activity 4:

#### Writing Assignment

Drs. Borman and Levine tell the class they will do a writing exercise involving the parts of thinking. They will write about *The Great Kapok Tree*. We write an Exercise Format on the board: (1) Name and date in upper right-hand corner; (2) *The Great Kapok Tree*, by Lynne Cherry – center of page, a little lower than name and date; and (3) A first sentence with which to begin the exercise: “My thinking about the *The Great Kapok Tree* is...” No length is specified. We want to have a writing sample—guided only by this general prompt—from before students consciously apply the parts of thinking, which they will do in the next lesson (Lesson 12).

### Activity 5:

#### Discussing Thoughts

After students finish writing assignment, class discusses what each has written.

## From the Classroom: Lesson Twelve

**Critical Thinking Focus:** Parts of Thinking – Purpose, Question at Issue, Information, Point of View, Implications and Consequences; Intellectual Standards – Relevance, Accuracy

**Purpose:** To learn to apply the parts of thinking to a story; to further develop critical reading abilities.

**Content Focus:** Language Arts (reading *The Great Kapok Tree*, by Lynne Cherry)

### Activity 1:

#### Reviewing the Critical Thinking wheel

Students should turn to the parts of thinking in their guides. We call on individual students to read out the purpose, question, information, and points of view sections of wheel. We tell students we will read *The Great Kapok Tree* for a second time.

### Activity 2:

#### Reading of *The Great Kapok Tree*

Each student is given their own copy of *The Great Kapok Tree*. Dr. Levine reads aloud as the students follow in their own copies.

### Activity 3:

#### Writing Assignment

Drs. Borman and Levine tell the class that they will write again about *The Great Kapok Tree*. This time, however, they will use the four parts of thinking to guide their thinking, using the following prompts: (1) “The author’s purpose for writing this story is...”, 2) “The information the author uses in the story is...”, (3) “A question the author is addressing...”, and (4) “The author’s point of view seems to be...” We remind students to use ample space and respond in complete sentences as they complete these prompts.

### Activity 4:

#### Discussing their Thoughts

After students finish this writing assignment they read their papers aloud to the class. Their teacher reminds students that the previous week they learned about implications and consequences. She tells them to look at the implications and consequences poster. The teacher calls on several students to read different portions of the poster. She asks: “In the story, *The Great Kapok Tree*, what were some important implications of the chopping down of the tree?” “What was implied by the fact that the animals in the story described the chopping down of *The Great Kapok Tree* to the sleeping man?” As students give their responses to the last question the teacher records their answers on a white board.

### Activity 5:

#### Going Deeper, Thinking about Relevance to One’s Own Life

The teacher asks students to look at the list of their responses, and to think about the relevance of the message in the story to their own lives. Students work in pairs, discussing this relevance as they consider the list together. This leads to an in-depth discussion. Students consider such philosophical questions as: “Is beauty important to my life?” “Is the existence of wild animals important to humans?” They also raise such social/political issues as, “What are the consequences of losing the rainforests for the sustainability of the earth?” “Who gains from the destruction of the rainforests, and who loses?”

**Activity 6:****Extension**

This lesson can be used as part of the science curriculum, by having students consider the accuracy of the animals' descriptions of the consequences of chopping down the Kapok Tree. The teacher can guide the students in learning how to "check accuracy" of what they read. Social Science can also be brought in as a content focus. The class can consider the social and political factors that impact the well-being of the rainforest and human and animal populations living in or near it. They can research the consequences of damage to the rainforests.

In this lesson, students were asked to look at the logic of the author's reasoning in a story. Another approach to stories is to have students analyze the logic of a character's thinking in a story. See *The Teacher's Manual to the Miniature Guide to Critical Thinking for Children*, p. 37.

## From the Classroom: Lesson Thirteen

**Critical Thinking Focus:** Parts of Thinking – Purpose, Question at Issue, Point of View, Inference;  
Intellectual Standards – Fairness, Logicalness

**Purpose:** To continue to develop critical reading skills; to introduce the standard of logicalness.

**Content Focus:** Language Arts (reading *The Boy Who Drew Cats: A Japanese Folk Tale*,  
Retold by Arthur A. Levine)

Since the term “acolyte” is likely unfamiliar to many students, have them do a DOXI on it prior to the lesson.

### Activity 1:

#### Reading the Story

Introduce *The Boy Who Drew Cats*, as a Japanese Folktale, retold by Arthur Levine. The illustrations were created for this book, so we make sure students are able to see all the illustrations as the story is read.

### Activity 2:

#### Reviewing the Parts of Thinking wheel

Students refer to the parts of thinking wheel in their children’s guide. Students are called upon to read the eight sections of the wheel. The teacher points to the eight related posters (one for each part) on the back wall. She points to the purpose, question at issue, and point of view wheel sections, explaining that today’s lesson will focus on these parts after the reading of *The Boy Who Drew Cats*.

### Activity 3:

#### Thinking Critically About the Story

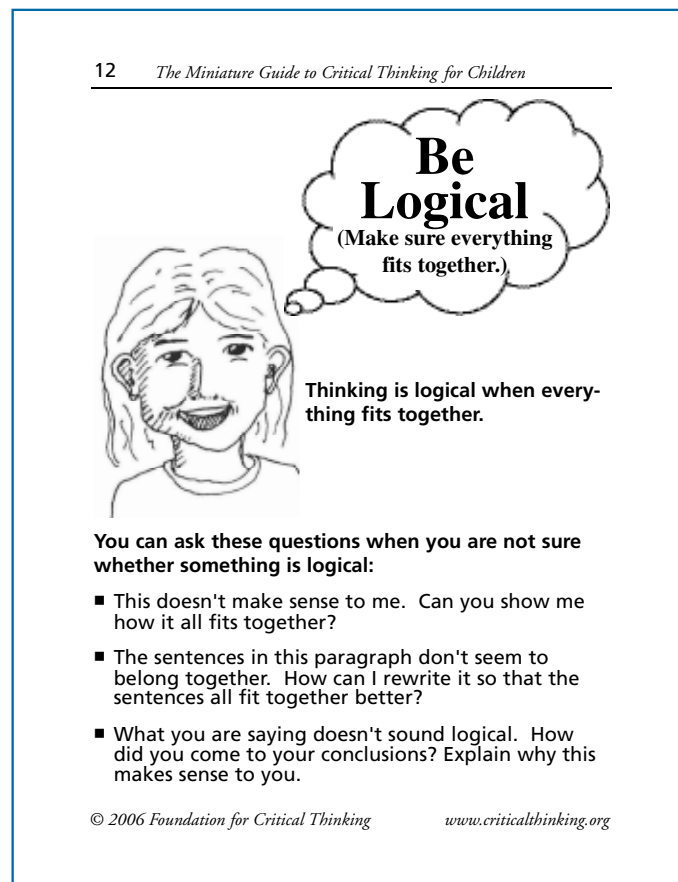
Students write responses to four questions about purpose, question at issue, point of view, inferences, and fairness. Students write their own responses to the questions and then work in pairs, discussing those responses.

- Question #1:** What was Matsuko’s question at issue regarding her son Kenji? Why do you say this is Kenji’s mother’s main question?
- Question #2:** Why do you think Takada and Yoshida have such different points of view regarding Kenji’s habit of drawing cats all over the Temple and on the Temple scrolls? Whose point of view do you think is more fair? Why?
- Question #3:** What inference could Kenji have made based on how the villagers reacted to his request for directions to the Temple?
- Question #4:** What do you think was the purpose of this folktale? Do you think this is an important purpose? Why or why not?

**Activity 4:****Discussion**

The whole class then discusses what they have written from their different points of view. The teacher stresses the following to the class: “Even if you don’t agree with someone else’s point of view, you should be respectful and listen to the reasoning behind that point of view. If you find that someone’s reasoning is more logical than your own, then you should happily accept their reasoning. However, if you feel your own reasoning is more logical, then you should respectfully explain why you think your point of view is more logical or accurate.”

At this point, since a new intellectual standard, logicalness, is mentioned, teacher introduces page 12 poster (and the children’s guide), in which Fairminded Fran tells us to “Be logical.”



Students read the poster and discuss its meaning, as was done with previous posters.



## From the Classroom: Lesson Fourteen

**Critical Thinking Focus:** Parts of Thinking – Information; Intellectual Standards – Clarity, Accuracy

**Purpose:** To deepen understanding of clarity and accuracy by applying them to a real-life situation.

### Activity 1:

#### Introducing the Activity

The teacher addresses the class: “Today we will work on thinking, speaking, and writing clearly and accurately. We have been introduced to the part of thinking, information. We have learned that we must always make sure the information we are using is accurate. When we communicate our information to someone, our information must be clear. Today, we will practice providing clear and accurate information to another student, who will have to solve a mystery using it. How quickly the other student can solve the mystery will depend on how clear and accurate the information is that you have written about the mystery.”

Before the activity begins, we read together a new poster introducing the intellectual standard of clarity (page 9 poster). The students read Fairminded Fran’s definition and discuss it. They take turns reading each of the “Things you can say and questions you can ask when you want to be clear.” Then they review the standard of accuracy using the appropriate poster (already introduced in Lesson Six).

Place students in pairs. One student from each pair is asked to go outside of the room for a few minutes. During this time, the students remaining in the room are each given a small object to hide somewhere on one side of the classroom. When they finish, they go outside the room while the other students come back in and are also given a small object to hide on the other side of the classroom. All students then write clear and accurate directions for finding the object. The teacher points out that “these directions are the information you will need to locate your object. The clearer the directions, the more readily is the object located.” Students then exchange their “directions for finding the object” to their initial partner. Each student tries to find the object as quickly as possible given the directions they received.

### Activity 2:

#### Reflections

The students really enjoy this activity and come to see the importance of clarity and accuracy in giving directions. At the end of the activity, the teacher asks the students to explain the importance of being clear and accurate. Students then discuss in large group what they learned from this activity. Students enjoy this activity immensely. They initially believe their information to be clear and accurate. They are then surprised to see how unclear or inaccurate the information is to the person who is

*The Miniature Guide to Critical Thinking for Children* 9

**Be Clear**  
(Don't confuse people.)

**We are confused when we are not clear. We are clear when we understand:**

- what we are saying,
- what we are hearing, or
- what we are reading.

**Things you can say and questions you can ask when you want to be clear:**

- Let me tell you what I mean. Let me give you an example.
- Could you tell me what you mean?
- Could you say that in other words?
- I'm confused. Could you explain what you mean?
- Let me tell you what I think you said. Tell me if I'm right.

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reading and trying to follow it. A few directions, however, are clear and accurate as evidenced by how quickly the object is located. The students are eager to repeat this activity in hopes of increasing the clarity and accuracy of their written directions and descriptions.

**Activity 3:**

**Review of Clarity and Accuracy**

Teacher calls on different students to read aloud the pages in the children's guide on clarity and accuracy. To make sure they understand these two standards, the students are asked to describe how clarity and accuracy are different and to give examples of each. The students give definitions to the class to clear up misconceptions.

## From the Classroom: Lesson Fifteen

**Critical Thinking Focus:** Parts of Thinking – Concepts; Intellectual Standards – Clarity

**Purpose:** To introduce students to the concept of “concepts” as the final part of thinking.

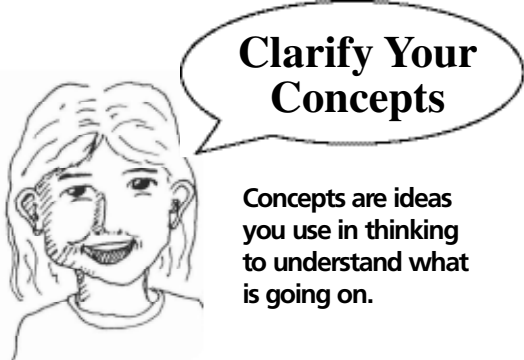
### Activity 1:

#### Introduction

The teacher points to the parts of thinking wheel poster containing all eight parts of thinking, saying: “We have been introduced to all the parts of thinking on the wheel except one. Can anyone tell me which one we have not studied?”

The students have no trouble identifying concepts as the one part of thinking they had not covered so far. Teacher says: “Let’s see what Fairminded Fran says about concepts.” She takes out the concept poster (page 20 poster) while students find it in their guides.

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**Concepts are ideas you use in thinking to understand what is going on.**

**Questions you can ask to clarify concepts:**

- What is the main idea in this story?
- What idea comes into my mind when I hear the word \_\_\_\_\_?
- What idea is this character using in his or her thinking? Is there a problem with this idea?
- What idea am I using in my thinking? Is this idea causing problems for me or for others?
- I think this is a good idea but could you explain it a little more?

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Teacher displays the poster so everyone can see it, and calls on a student to read Fairminded Fran’s definition of concept.

To prompt students’ thinking, the teacher asks: “What does Fairminded Fran mean by ‘ideas we use in our thinking?’ Can anyone give me an example of an idea you use in your thinking?” Students have a little difficulty with this question at first, but given a chance, they come up with thoughtful and creative responses that get the ball rolling. They are soon on their way to learning a new critical thinking concept.

To bring the idea of concepts home to the students, the teacher presents a concept with which they are sadly too familiar. She asks: “What do you think of when I say the word ‘bully?’” The teacher takes some oral responses to show students that each has his or her own “idea” of a “bully.” She then asks: “Can anyone give me another example of a concept?” Students are able to make a few suggestions, focusing on one-word concepts, using “bully” as their model.

To encourage students’ thinking about “concept,” the teacher poses a few more questions: “If a concept is an idea, as Fairminded Fran has told us, can an idea be called a name expressed by more than one word? Can anyone give me a concept whose name or label is more than one word?” If students are not able to do this immediately, suggest a few, e.g., “alphabet soup,” “bull frog,” “super hero,” “wood-burning stove,” “video game,” “constitutional amendment,” “maple tree,” etc.

**Activity 2:**

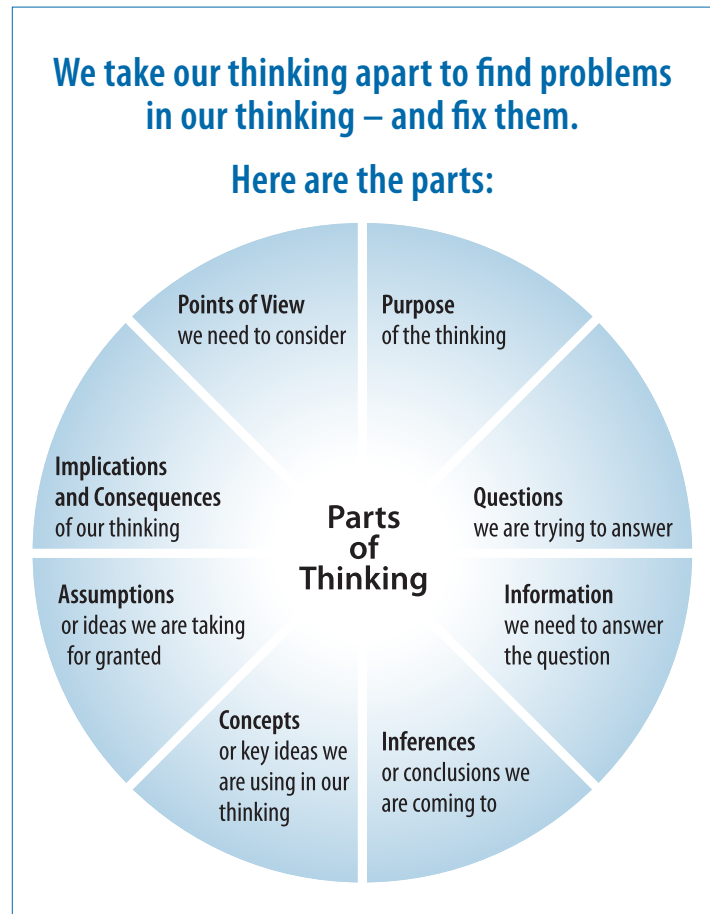
The teacher points out that all the parts of thinking (Elements) on the wheel are concepts. She continues: “By now, all of you have some idea of what each of these words – parts of thinking on the wheel – means. Who has an idea of what the part called ‘purpose’ means?” The teacher takes responses from the class and asks for students’ ideas about the meaning of each of the parts. By this time, the students have no trouble articulating their ideas about each part of thinking except concept. This is natural, since this lesson is their formal introduction to it.

**Activity 3:**

The teacher says: “Let’s look at the concept poster and see what Fairminded Fran says in the bubble – ‘Clarify your concepts.’ What does that mean?”

Students get into pairs to work through a DOXI on the word “concept.” Remember, in the DOXI process the students write the definition (from the Dictionary or from the poster), put that definition in their Own words, give an eXample of it, and, finally, provide an Illustration of the concept. Although they are working in pairs and exchanging ideas, each student fills out his or her own DOXI. They enter it into their critical thinking notebook. For the last step, Illustration, teacher asks students (in pairs) to choose a concept that interests them, and write a description of it, without naming it. Each pair reads their description to the class, and the other students guess what concept they are describing. The goal is to write the clearest and most accurate description of their concept that they can. The teacher serves as facilitator, helping the pairs write their descriptions.

The students have now been introduced to all the parts of thinking and five intellectual standards. In this lesson they have reviewed all the parts and were formally introduced to concept. This shows them that all eight parts are indeed concepts – concepts Fairminded Fran tells us we must know well to become better thinkers!



To help students better understand concepts, see *The Teacher’s Manual to the Miniature Guide to Critical Thinking for Children*, pp. 48-60. This section also offers suggestions for introducing students to intellectual traits, which are essential to fairminded critical thinking.

## Section III: CRITICAL THINKING GAME

### Introduction

This section will explain how to create and use the critical thinking game. You will find it an enjoyable and effective aid for fostering fairminded critical thinking. There are three sections: (1) Design of the game, (2) Using the critical thinking game, and (3) Broader applications of the critical thinking game.

### DESIGN OF THE CRITICAL THINKING GAME

The critical thinking game is designed to deepen students' understanding of the parts of thinking and universal intellectual standards through a hands-on, cooperative learning exercise that is also fun. In this section are detailed instructions on how to construct/develop the six parts of the game. Their use will be explained in the next section.

1. **Elements of Reasoning wheel:** This is the parts of thinking wheel, which has become familiar to you in the fifteen classroom lessons. When mounted as follows, this becomes the game board. Attach a copy of the wheel poster (20" x 30" display), to a sturdy poster board or 1/4" foam board, and laminate it for durability.
2. **Spinning Pointer:** Hobby stores carry inexpensive game spinners. The pointer is placed on the center of the parts of thinking wheel. It must be able to spin around freely, and stop so it clearly points at one of the eight parts wedges on the wheel.
3. **The Miniature Guide to Critical Thinking for Students:** Each student will need his or her own guide for reference and use during this game.
4. **Intellectual Standards Placards:** There are five 8 ½" x 11" placards, one for each of the five standards introduced in the Guide. In landscape format (lying sideways), type the standards on five pages in large bold font: **CLEAR, ACCURATE, RELEVANT, LOGICAL, and FAIR**. On five more pages, type their opposites: **UNCLEAR, INACCURATE, IRRELEVANT, ILLOGICAL, and UNFAIR**. Print these ten pages on white cardstock, to produce five placards (i.e., select "2 sheets into 1" on most printer/copiers), so each has a standard on one side and its opposite on the reverse side (e.g., FAIR/UNFAIR). In the same way, make a placard that has WHY? printed on it. Laminate the placards for durability.
5. **Reading:** Prior to the use of the "game," select a substantive story for students to read or that you will read to them. Create a series of questions you can draw from during the game to help students internalize and use the parts of thinking and intellectual standards. To effectively use this game you will need to be able to create questions for each of the elements of reasoning. Choose a reading accordingly. Be aware that there are many readings that are colorfully illustrated, amusing, and even interesting, but which do not have much substance for critical thinking. They may be entertaining, but offer little to help develop children's intellectual abilities.
6. **Critical Thinking Questions:** The questions you create from each reading (in advance) will lie at the heart of the critical thinking game. These questions must be clear and relevant to the reading. They should also be significant. Each question will focus on one of the parts of thinking. For suggested questions, see the laminate card entitled: **Questions which Target the Parts of Thinking** (for use with the critical thinking game) in the inside front pocket of this handbook. These questions should be contextualized for each reading.

### USING THE CRITICAL THINKING GAME

Lesson 16 exemplifies how to use the critical thinking game.

## From the Classroom: Lesson Sixteen

**Critical Thinking Focus:** Parts of Thinking – All eight parts

**Content Focus** (Language Arts): Reading, *Harry the Dirty Dog*, by Gene Zion

Required Materials: The Critical Thinking game

### Activity 1:

#### Reading of *Harry the Dirty Dog*

Students follow in their own copy as Dr. Levine reads the story.

### Activity 2:

#### Critical Thinking Game

- Step 1** – Introduce the game to students: “The critical thinking game we will now play targets all the critical thinking skills you have been learning this year. This “game” will help you better understand the story we just read, etc.” The game board has a spinner which each of you will have a chance to spin during the game...
- Step 2** – Make sure each student has her or his *Miniature Guide to Critical Thinking for Children*. Students are put into pairs.
- Step 3** – Ask a student to spin the spinning pointer. When the spinner stops, students are asked to find the page in the *Miniature Guide* which explains that part of thinking. Students then silently read the page. This process is repeated for each spin.
- Step 5** – Ask one question about the part on which the spinner stopped. All questions will target the story the students have just read.
- Step 6** – Student pairs try to answer the question, referring to the relevant page in the *Miniature Guide* and to their copy of *Harry the Dirty Dog*. Tell the class that all should be ready to be called on to answer the question after a few minutes. (See sample questions for this story on pp. 53-54).
- Step 7** – From a set of cards containing all the students’ names, take one randomly. That student and her or his partner get the first chance to give their answer. After the first pair gives their answer, two or three more cards are drawn, so three or four groups get to give their answers.
- Step 8** – Shifting focus, we hold up one of the intellectual standards placards. These are 8 ½" x 11" laminated sheets, showing a standard and its opposite on the two sides, e.g., **FAIR** and **UNFAIR**. We then hold up a laminated card with **WHY?** printed on it. Students tell whether that standard or its opposite applies to this part of thinking, explaining their reasoning, i.e., **WHY?** Tell the class that as the answers are given they must be aware of, and empathically consider, the different points of view being expressed by other students.

### Questions Focused on Harry the Dirty Dog

Here are some questions you can use with the game which are focused on this particular book. Note that some possible answers are in parentheses, in case you have difficulty with some of the answers. Create a similar list of questions for each story before beginning the game. Don't try to come up with the questions on the spot. The more stories you use with this game, the better you will get at creating questions for stories. Use the laminated card, Questions Which Target The Parts of Thinking in a Story, to create your own questions.

#### Questions targeting purpose:

- What was the purpose of the family giving Harry a bath? Was this a reasonable purpose?
- Do you think Harry understood this purpose?
- What was Harry's purpose in hiding the scrub brush and running away from home?
- What was Harry's purpose as he went through the town, or did he have more than one purpose?
- What was Harry's purpose in coming back home?
- What was Harry's purpose in running through the house with the scrub brush and into the bathtub?
- What was the family's purpose in giving Harry a bath towards the end of the story?
- What was Harry's purpose in hiding the scrub brush under his pillow at the end of the story?

#### Questions targeting question:

- What was the main question in Harry's mind when he hid the scrub brush and ran away?
- What was the main question in Harry's mind when he came back home?
- What question was the family asking when they saw the dog that they thought wasn't Harry?
- What question or questions do you think the family might have asked themselves once they realized what Harry had done and why?

#### Questions targeting information:

- What information did Harry use to decide to run away?
- What information did Harry use when he decided to go home?
- What information did Harry use to convince the family that he was Harry?
- What information caused the family not to recognize Harry?
- What information caused the family to finally recognize Harry?

#### Questions targeting concepts:

- What is the organizing idea in this story? (the idea of a dirty rather than a clean dog)
- What main idea was the family using in their thinking to decide when to give Harry a bath? (the idea of cleanliness)
- How did Harry see the idea of cleanliness at the beginning of the story?
- Did Harry see the idea of cleanliness differently at the end of the story? If so, how?
- Do you think the idea of cleanliness is as important to dogs as it is to humans? Explain.
- What about people? Do some people think cleanliness is more important than other people think it is?
- Do some people overvalue the idea of cleanliness? Explain.

#### Questions targeting inferences or conclusions:

- What main conclusions does Harry come to at the beginning of the story? (that if he hides the scrub brush he will no longer be washed, that being washed is annoying, that running away from home is a good way to deal with the fact that he hates being washed)
- What does Harry infer while he is playing around getting dirty at different places around town? (that being able to run freely and get as dirty as he wants is fun)
- What does Harry infer once he gets tired and hungry? (that it is time to go home)
- What does Harry infer when the family doesn't recognize him which causes him to walk toward the gate? (that the situation is hopeless so he may as well leave)
- What does Harry infer when he remembers the scrub brush? (that if he runs in the house and into the tub with it, the family will give him a bath and figure out he is Harry)

- What does the family infer when they first see the dirty dog in their yard? (that it is a strange dog that has wandered into their yard)
- What does the family infer when the dog jumps in the tub with the scrub brush? (that this strange dog wants a bath)
- What does Harry infer about the bath he was given at the end of the story? (that it made him feel pretty good)
- What does Harry infer which causes him to hide the brush under his bed at the end of the story? (that if he hides it, he won't have to take a bath until he wants one perhaps)
- What might the family infer or conclude after they realize all that Harry had done to keep from getting a bath?

#### Questions targeting assumptions:

- What might Harry have assumed when he hid the brush and ran away at the beginning of the story? (that if he hid the brush he would never have to take a bath again, that if he ran away the family would see they were treating him unfairly)
- What might Harry have assumed when he decided to go home? (that the family would recognize him and give him food and a place to rest, that the family wouldn't be angry with him for running away)
- What did Harry assume when he ran through the house with the scrub brush and jumped in the bath tub? (that the family would realize he wanted a bath and that when he was clean they would recognize him, and that when they recognized him they would be glad to see him).
- What did the family assume about Harry when they decided to give him a bath at the beginning of the story (that Harry would take the bath as usual even if he didn't like it, that he would not run away to avoid a bath)
- What did the family assume when they saw the dirty dog in the yard (that it couldn't be Harry and therefore must be some other dog)
- What did the family assume about Harry when he jumped into the bath tub with the scrub brush (that any dog that does that must want a bath)
- What might Harry have assumed when he hid the scrub brush under his pillow at the end of the story (that he could control when and if he got a bath by hiding the scrub brush and bringing it out only when he wanted one perhaps, that the family wouldn't get angry with him for hiding the brush)

#### Questions targeting implications:

- Did the family think of all the consequences of giving Harry a bath when he didn't want one? What was an important consequence of their trying to give Harry a bath at the beginning of the story?
- Did Harry think through the implications of running away before he did? Explain.
- What were some of the implications or consequences of his running away?
- If Harry had thought about the implications of running away before he did so, do you think he still would have run away?
- Did Harry think of the implications of his getting dirty – one of which was that the family might not recognize him when he returned?

#### Questions targeting point of view:

- What was Harry's point of view in the story? What was he looking at and how was he seeing it?
- What was the family's point of view at the beginning of the story? What were they looking at and how were they seeing it?
- How did Harry's point of view change during the story, or did it?
- How did the family's point of view change during the story, or did it?
- Which point of view was the most reasonable in the story, or were they both reasonable? Explain.



**Activity 3:****Reflections on this Lesson**

The various activities that can be used with the critical thinking game make it an engaging instructional aid. Students enjoy using their guides to find the “right” page and then read it for themselves. The answers students generate may differ significantly from pair to pair. The “game” activity has the educational advantage of exercising the students’ individual thought processes and creativity. They do not merely copy each other, or wait for someone else or the teacher to answer. The multifaceted nature of the critical thinking game calls for thoughtful student camaraderie. The game creates a fresh educational atmosphere and motivation, significantly different from that produced by the usual “educational games,” which depend on competition and point scoring. It is delightful to see students more interested in thinking through their own answers, than getting the correct answer from the teacher. Through intellectual work that is engaging, students begin to recognize that their own minds and their ability to think as individuals, are being valued and respected. Note that there are better and worse ways to handle student answers. For a deeper understanding of questioning and how best to employ it see the *Thinker’s Guide to the Art of Socratic Questioning* (Paul & Elder, 2006)

**BROADER APPLICATIONS OF THE “CRITICAL THINKING GAME”**

While the critical thinking game works well with literature, particularly through the use of stories, it can also be used to improve students’ thinking in any discipline and about any topic. A word problem in math can be used as the game’s focus. Ask a series of questions, such as:

- What is the purpose of solving this problem?
- What question are we trying to answer?
- What information do I need to solve this problem?
- What concepts, or equations, do we need, to solve this problem?
- What can we assume about the information, or what should we question about the information, rather than assume?

Well-conceived series of questions, based on the parts and standards, can similarly be created for history, science, playground behavior, diet, exercise, classroom behavior, study skills/habits, etc. For suggested questions see the enclosed laminated card entitled Questions for Socratic Dialogue. One sign that your students’ thinking skills are improving is when they are able to create a viable series of questions for a familiar discipline or topic.

You can use this game in helping students analyze the logic of a problem. See the questions on pp. 36 of *The Teacher’s Manual to the Miniature Guide to Critical Thinking for Children*.



## Section IV: THE CRITICAL THINKING ELEMENTARY TEST

### Introduction

This section focuses on the Critical Thinking Test for Elementary Students. It also includes ideas that have been “field-tested” for using this test in your classroom. This section has four parts, as follows: (1) The Critical Thinking Test, (2) Assessing Critical Thinking Test Responses, (3) Diagnostic Applications.

### CRITICAL THINKING TEST

This test provides a way to evaluate your students’ understanding of the parts of thinking and universal intellectual standards. The test has three sections: scenario section, concept section, and reading section. Each section allows you to assess your students’ understanding of critical thinking from a different perspective. The scenario section tests how (well students) use the standards to assess thinking. The concept section asks students to complete, in their own words, sentences which either use or define parts or standards. The reading section asks students to analyze and assess the thinking of several characters in a piece of literature. This test was designed with the expertise of Dr. Linda Elder.

## CRITICAL THINKING TEST

Student's Name \_\_\_\_\_

Date \_\_\_\_\_

Grade \_\_\_\_\_

Teacher \_\_\_\_\_

School \_\_\_\_\_

Scenario  
section

Concept  
section

Reading  
section

### I – SCENARIO SECTION

**Directions:** Read each statement below, circle the word that best describes it, and tell why you chose that word.

(1) “John, meet me later. I’ll be somewhere near the school with a friend.”

CLEAR  
UNFAIR  
FAIR  
UNCLEAR

I chose \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(2) Natasha’s mother said, “It looks like rain today, so you should take an umbrella with you to school.”

UNFAIR  
LOGICAL  
ILLOGICAL  
FAIR

I chose \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(3) When the teacher said there would be a class party next Friday, Nicole said, "I can bring some cookies and popcorn."

- ACCURATE
- IRRELEVANT
- RELEVANT
- INACCURATE

I chose \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(4) Maria said, "All boys have blue eyes and all girls have brown eyes."

- RELEVANT
- INACCURATE
- ACCURATE
- IRRELEVANT

I chose \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(5) Jessica said, "Milk comes from cows as well as some other animals."

- UNFAIR
- ACCURATE
- FAIR
- INACCURATE

I chose \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(6) Yvonne's mother gave her four cookies and asked her to share them equally with her brother. Instead, she gave her brother one cookie, and ate three herself.

- FAIR
- IRRELEVANT
- RELEVANT
- UNFAIR

I chose \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(7) Dwight said, "I don't think the circus should have elephants because it is cruel to them. Do you agree?" Barney said, "I like to play baseball."

- RELEVANT
- IRRELEVANT
- UNFAIR
- FAIR

I chose \_\_\_\_\_ because \_\_\_\_\_

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(8) Miguel said, "My dog is a German Shepherd whose name is Rinny."

- UNFAIR
- UNCLEAR
- FAIR
- CLEAR

I chose \_\_\_\_\_ because \_\_\_\_\_

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(9) Ali said, "If I study hard for all the math tests and do well, I will get an 'F' on the report card."

- ILLOGICAL
- RELEVANT
- LOGICAL
- IRRELEVANT

I chose \_\_\_\_\_ because \_\_\_\_\_

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(10) Sean told Peter, "You can't play with us because you're new in this school."

- UNFAIR
- FAIR
- INACCURATE
- ACCURATE

I chose \_\_\_\_\_ because \_\_\_\_\_

---



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## II –CONCEPT SECTION (PART 1)

**Directions:** Complete the following sentences.

(1) My thinking is relevant when I \_\_\_\_\_

---

---

(2) One concept I have learned in school is \_\_\_\_\_

---

---

(3) My main question about animals is \_\_\_\_\_

---

---

(4) My thinking is fair when I \_\_\_\_\_

---

---

(5) An assumption I have about school is \_\_\_\_\_

---

---

(6) My thinking is clear when I \_\_\_\_\_

---

---

(7) One implication/consequence of not doing my homework is \_\_\_\_\_

---

---

(8) The information I have learned in school that interests me most is \_\_\_\_\_

---

---

(9) My thinking is logical when I \_\_\_\_\_

---

---

(10) My thinking is accurate when I \_\_\_\_\_

---

---

(11) An inference I make when I see my friends arguing is \_\_\_\_\_

---

---

(12) A purpose I have for going to school is \_\_\_\_\_

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---

(13) From my point of view school is a place where \_\_\_\_\_

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---

(14) From my teacher's point of view school is a place where \_\_\_\_\_

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## II – CONCEPT SECTION (PART 2)

**Directions:** Complete the following sentences.

(1) Critical thinking is \_\_\_\_\_

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\_\_\_\_\_ In other words, \_\_\_\_\_

---

---

For example, \_\_\_\_\_

---

---

(2) Critical thinking is important, because \_\_\_\_\_

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---

(3) An inference is \_\_\_\_\_

---

---

\_\_\_\_\_ Understanding inferences is important, because \_\_\_\_\_

---

---

(4) A concept is \_\_\_\_\_

---

---

Understanding the role of concepts in thinking is important, because \_\_\_\_\_

---

---

One important concept I use in my thinking is \_\_\_\_\_ .

Understanding this concept is important, because \_\_\_\_\_

---

---

(5) One intellectual standard is \_\_\_\_\_

---

---

This intellectual standard is important in thinking, because \_\_\_\_\_

---

---

(6) Another intellectual standard is \_\_\_\_\_

---

---

\_\_\_\_\_ This intellectual standard is important in thinking, because

---

---

(7) Understanding your purpose in thinking is important, because \_\_\_\_\_

---

---

(8) An implication is \_\_\_\_\_

---

---

(9) A consequence is \_\_\_\_\_

---

---

Understanding implications and consequences of your thinking is important, because \_\_\_\_\_

---

---

(10) An assumption is \_\_\_\_\_

---

---

\_\_\_\_\_ It is important to understand assumptions in thinking, because

---

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### III –READING SECTION

**Directions:** Read *The Gingerbread Man* (pictures by Karen Lee Schmidt), and write an answer to each of the questions below.

**QUESTION 1:** What was the old woman’s purpose in baking the Gingerbread Man?

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**QUESTION 2:** Was her purpose clear or unclear? Why?

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**QUESTION 3:** What is one important assumption the Gingerbread Man makes in the story?

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**QUESTION 4:** Given what happens in the story, was this assumption accurate or logical? In other words, did it make sense? Why?

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**QUESTION 5:** What information did the fox use to figure out how to catch the Gingerbread Man?

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**QUESTION 6:** What was the main concept in the Gingerbread Man’s mind as he was running away from the crowd of people?

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**QUESTION 7:** What was the main concept in the minds of the people chasing the Gingerbread Man?

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**QUESTION 8:** What information did the Gingerbread Man use when he decided to trust the Fox?

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**QUESTION 9:** I would describe the Gingerbread Man’s point of view as follows:

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---

---

**QUESTION 10:** But the other characters in the story share the following point of view:

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**QUESTION 11:** If the Gingerbread Man were a real person, instead of a cookie, whose point of view is more fair, the Gingerbread Man’s or the other characters’? Why?

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## Assessing Responses

The following Outcome Rubric can be used in assessing the quality of the student's thinking for each response in the critical thinking test.

### OUTCOME RUBRIC

This Outcome Rubric is a scoring guide for assessing students' understanding of the parts of thinking and universal intellectual standards as demonstrated in the various items of the test. This Rubric gives a scale with five levels, each of which represents a specific degree and quality of understanding. It assigns a range of points to be given for each level. The scale and point values are given below:

+ Response demonstrates accuracy or logicalness, as well as depth of understanding, of the critical thinking concept(s) involved.	9-10 POINTS
+ Response demonstrates adequate (largely accurate/logical) understanding of the critical thinking concept(s) involved.	6-8 POINTS
+ Response demonstrates limited (only partially accurate or logical and somewhat superficial) understanding of the critical thinking concept(s) involved.	3-5 POINTS
+ Response demonstrates negligible (largely inaccurate/illogical, superficial) understanding of the critical thinking concept(s) involved.	1-2 POINTS
+ Response demonstrates no understanding of the critical thinking concept(s) involved.	0 POINTS

Since each question of the Test requires students to give a thoughtful written response, the above Rubric assesses the thinking and understanding behind those responses. The point ranges help you determine a numeric value for: (1) the student's response to each item, (2) an aggregate score for each section, and (3) a composite score for the test as a whole.

This Rubric can be used to assess the quality of thinking from three perspectives: (1) teacher assessing student, (2) student assessing student (peer assessment), and (3) student self-assessment. The Critical Thinking Test and Outcome Rubric help the teacher realize one ultimate purpose of teaching, i.e., to enable the student to continue to learn well without the teacher being present.

## Administering the Test

We suggest that you give the critical thinking test immediately as the school year begins. This will give you baseline data showing each student's initial understanding of the parts of thinking and intellectual standards.

We have found it best to administer the Test one section at a time and over several days, rather than in one sitting or on one day. This is necessary when testing children in grades K-3. You may find it necessary to administer parts of the test orally: (1) to the youngest children, (2) to English-language learners, and (3) to those with otherwise limited reading skills. Experience giving this Test has shown us over and over again that having difficulty with the English language does not mean students have deficiency in thinking. Administering the critical thinking test orally involves much more time, and needs to be planned accordingly. When testing the students orally, use a tape recorder as a back-up, to insure accuracy of the data collected.

By giving this test at the beginning of the year, and devoting an appropriate amount of time and attention to it, you are helping students appreciate how important it is to think clearly and carefully.

One very important feature of this test, unlike many assessment tools currently used in schooling, is that it has high consequential validity, which means that when it is appropriately used, it leads to improvements in teaching and learning. If we ask students, for example, to articulate the meaning of “assumption,” we are led to teach them the meaning of assumptions. If we ask them on a test to identify assumptions they are making, we are led to teach them to identify assumptions in their thinking. In other words, when you design instruction and homework assignments so that students will do well on the critical thinking test, “teaching to the test” will itself be educative!

Moreover, the use of this test should be used as a lesson itself. When students are asked to answer questions like those on this test, they are engaging in learning as they do so, since each time they articulate important ideas, they further internalize them. In other words, the critical thinking test requires substantive, high-quality thinking. Designing instruction to prepare students to do well on such a Test should be the norm. The model lessons found in section II of this Teachers’ Handbook describes in detail a variety of activities that have been designed to do just this.

It is helpful to administer one or more sections – or even parts of sections – of the test over the course of the year. This lets you track the progress of both the individual students and the class as a whole, and indicates how you should modify what you have been doing. You can use the Test prompts for guidance in developing your own prompts to assess students’ progress.

At the end of the school year, administer the Critical Thinking Test to get an overall sense of how far the students have developed as fairminded critical thinkers over the entire year. You will notice that students will not be able to cram for the critical thinking test. Nor will they be able to do well merely through skill in memorizing facts. Gaming this Test is not possible. Wit and cleverness cannot fool this Test.

## References:

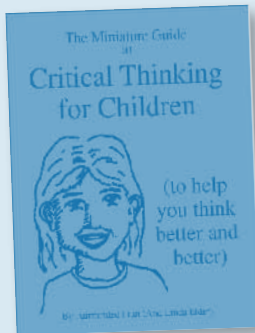
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- Paul, R. and Elder, L. (2010) *The Miniature Guide to Critical Thinking: Concepts and Tools*. (6<sup>th</sup> ed.) Dillon Beach, CA: The Foundation for Critical Thinking Press.
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The  
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for  
Critical Thinking

## Resources for Elementary Education

### For Elementary Teachers and Students



#### Critical Thinking for Children

This mini-guide is designed for K–6 classroom use. It explains basic critical thinking principles to children using cartoon characters. It focuses on the concepts of fairmindedness and selfishness, the elements of reasoning, intellectual standards, and intellectual virtues.

Item #: **540M**  
24 pages size: 4 1/4" w x 5 1/2" h  
ISBN 978-0-944583-29-6

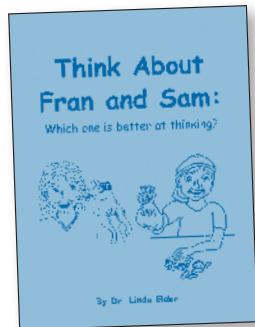
Price list: 1-24 copies \$5.00 each;  
25-199 copies \$4.00 each;  
200+ copies \$3.50 each

*The Miniature Guide to Critical Thinking for Children* 1

#### Contents

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#### Think About Fran and Sam

This story about Fairminded Fran and Selfish Sam is a story which helps children explore important concepts like fairness, selfishness and intellectual empathy. At the end of the story, children are asked to relate the concepts of fairness and selfishness to their own thinking and behavior.

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ISBN 978-0-944583-24-1

Price list: 1-24 copies \$5.00 each;  
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200+ copies \$3.50 each

#### Role-Playing Masks

This class set of masks will help depict the characters in the children's mini-guide and story above.

Using these laminated hand-held masks, students will enjoy role-playing Naïve Nancy, Selfish Sam, and Fairminded Fran.

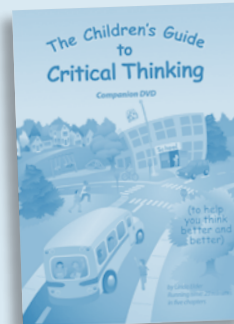
These masks enable teachers to focus on the importance of intellectual empathy and fair-mindedness in ways meaningful to children.

**\$13<sup>95</sup>** set of 3  
Item # **542P**



#### The Children's Guide – Companion DVD

The Children's Guide Video Companion DVD was created from *The Miniature Guide to Critical Thinking for Children*.



The book is read aloud while the key ideas and concepts are displayed. An engaging set of backdrops keeps this video entertaining while teaching important concepts in a clear way.

Running time: 23 minutes

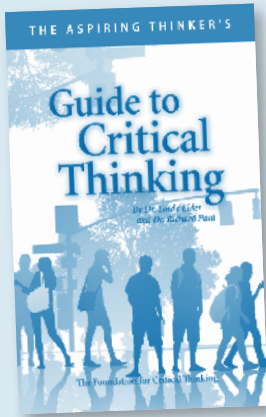
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## Additional Resources For Elementary Teachers and Students



### The Aspiring Thinker's Guide to Critical Thinking

This new Thinker's Guide was created specifically for the aspiring young learner, however the content and approach are applicable to students and people of all ages. This guide introduces critical thinking concepts and provides strategies for developing one's own critical thinking process. Its full color images and glossy format help capture the attention of the teenage or pre-teen student while focusing on the essence of critical thinking as it applies to today's world. The skills implicit in this guide apply to all subjects. Teachers can use it to design instruction, assignments and tests in any subject. Students can use it to improve their learning in any content area.

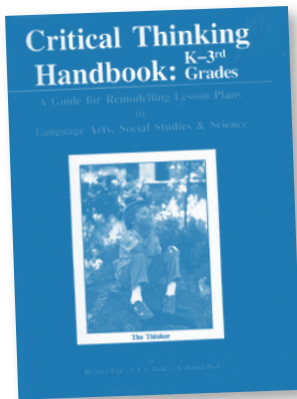
Item #: **554M**  
 48 pages size: 5 1/4" w x 8" h  
 ISBN 978-0-944583-41-8

Price list: 1-24 copies \$6.00 each;  
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### Critical Thinking Handbook: K-3rd Grades

A Guide for Remodelling Lesson Plans in Language Arts, Social Studies, and Science.

The four grade-level handbooks in this series can be used either as the basis for critical thinking staff development, or as an independent resource for teachers. Starting from standard lessons and standard practice, the teacher can see, in case after case, what the weaknesses are in standard lessons and how they can be remedied. A book from this series is an essential resource for any teacher serious about fostering the critical thinking of students.



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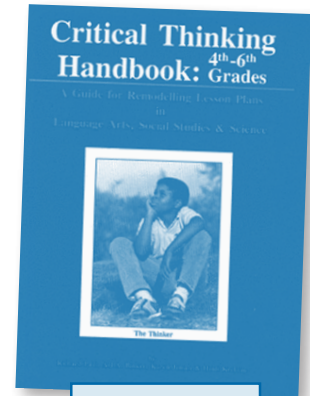
**Need detailed description for both Handbooks - info on website identical for both guides, see complete copy for 4-6th.**

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 Item # **401B**

### Critical Thinking Handbook: 4th-6th Grades

A Guide for Remodelling Lesson Plans in Language Arts, Social Studies, and Science

The four grade-level handbooks in this series can be used either as the basis for critical thinking staff development, or as an independent resource for teachers. Starting from standard lessons and standard practice, the teacher sees, in case after case, what the weaknesses are in standard lessons and how they can be remedied. A book from this series is an essential resource for any teacher serious about fostering the critical thinking of students.



**\$19<sup>95</sup>** each  
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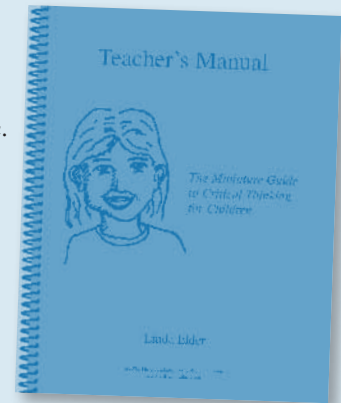
## Additional Resources For Elementary Teachers

### Teacher's Manual to the *Miniature Guide to Critical Thinking for Children*

One of our most popular elementary publications, this Teacher's Manual provides teachers with instructional strategies for using *The Miniature Guide to Critical Thinking for Children*. It includes the following:

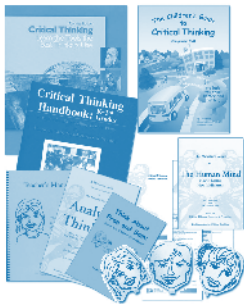
1. *The Miniature Guide to Critical Thinking Concepts and Tools*, a resource that briefly introduces teachers to the critical thinking concepts and theory they need to effectively teach children to improve their thinking and learning.
2. One copy of *The Miniature Guide to Critical Thinking for Children*.
3. Suggestions for using *The Miniature Guide to Critical Thinking for Children* and teaching basic critical thinking concepts.
4. "Think for Yourself" (TFY) activities for children which help them internalize critical thinking concepts. If your children are at the K-2 level or have reading difficulties, you can use the exercises as idea generators for verbally teaching the concepts.

All of the ideas in this manual have been used with elementary students. Ideally children will have their own copy of *The Miniature Guide to Critical Thinking for Children*. As you use this mini-guide on a daily basis in your classes, children will begin to internalize critical thinking concepts and develop their reasoning abilities. Included in the Teacher's Manual are strategies for using the masks of Fairminded Fran, Naïve Nancy, and Selfish Sam. These characters can be used in helping children distinguish between skilled and unskilled thinking, as well as fair and unfair thinking.



**\$14<sup>95</sup>** each  
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#### K-3 Grade Teacher Bundle, Item #08BUND

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THIS SET CONTAINS:

- 595M6: Analytic Thinking
- 350DVD: Children's Guide to Critical Thinking - Companion DVD
- 401B: Critical Thinking Handbook: K-3
- 104B: Learn the Tools the Best Thinkers Use - Concise Edition
- 542P: Masks of Fran, Sam, Nancy (set of 3)
- 570M5: Taking Charge of The Human Mind
- 541M: Teacher's Manual for 540M (children's mini-guide)
- 540M5: The Miniature Guide to Critical Thinking for Children
- 543M5: Think About Fran and Sam

**\$99<sup>95</sup>**

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- 350DVD: Children's Guide to Critical Thinking - Companion DVD
- 402B: Critical Thinking Handbook: 4th-6th Grades
- 200S: Laminated Card Set: Critical Thinking for Education (set of 6)
- 104B: Learn the Tools the Best Thinkers Use - Concise Edition
- 570M5: Taking Charge of The Human Mind
- 541M: Teacher's Manual for 540M (children's mini-guide)
- 543M5: Think About Fran and Sam

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## The Foundation for Critical Thinking

The Foundation for Critical Thinking seeks to promote essential change in education and society through the cultivation of fair-minded critical thinking, thinking predisposed toward intellectual empathy, humility, perseverance, integrity, and responsibility. A rich intellectual environment is possible only with critical thinking at the foundation of education. Why? Because only when students learn to think through the content they are learning in a deep and substantive way can they apply what they are learning in their lives. Moreover, in a world of accelerating change, intensifying complexity, and increasing interdependence, critical thinking is now required for survival.

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### About the Authors and Editor

## Need Bios and Photos for Suzanne Borman and Joel Levine



**Dr. Linda Elder** is an educational psychologist who has taught both psychology and critical thinking at the college level. She is the President of the Foundation for Critical Thinking and the Executive Director of the Center for Critical Thinking. Dr. Elder has a special interest in the relation of thought and emotion, the cognitive and the affective, and has developed an original theory of the stages of critical thinking development. She has coauthored four books on critical thinking, as well as twenty-one thinkers' guides.

# TEACHERS HANDBOOK FOR CRITICAL THINKING FOR CHILDREN



*Engaging Students as Thinkers*



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