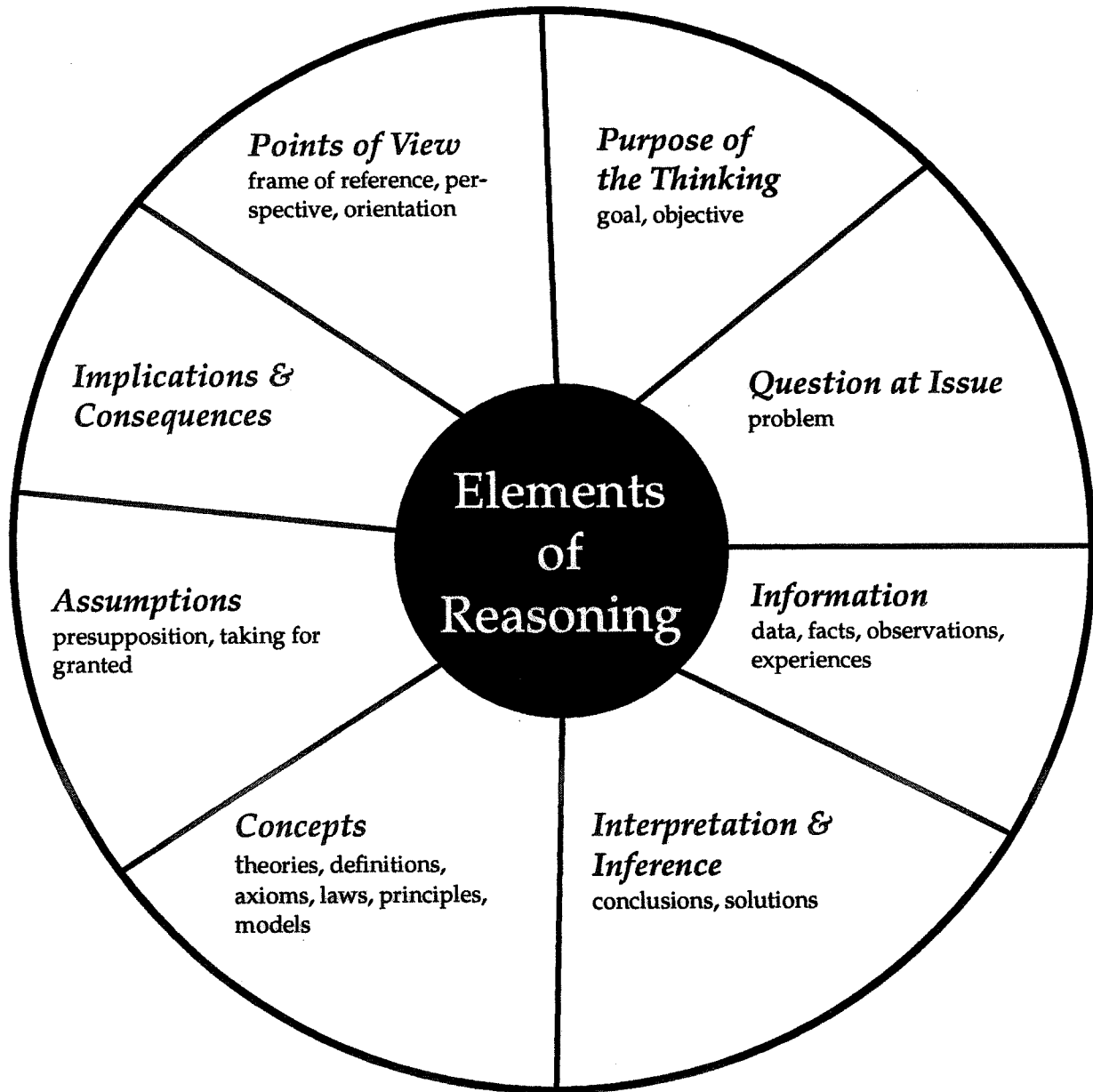


### 3) Elements & Standards

In this section we have placed transparencies that can be used in introducing either the elements of thought or the basic intellectual standards of thought. As critical thinkers we need to be able to break thinking down into its elementary components and we need to be able to assess our thinking.

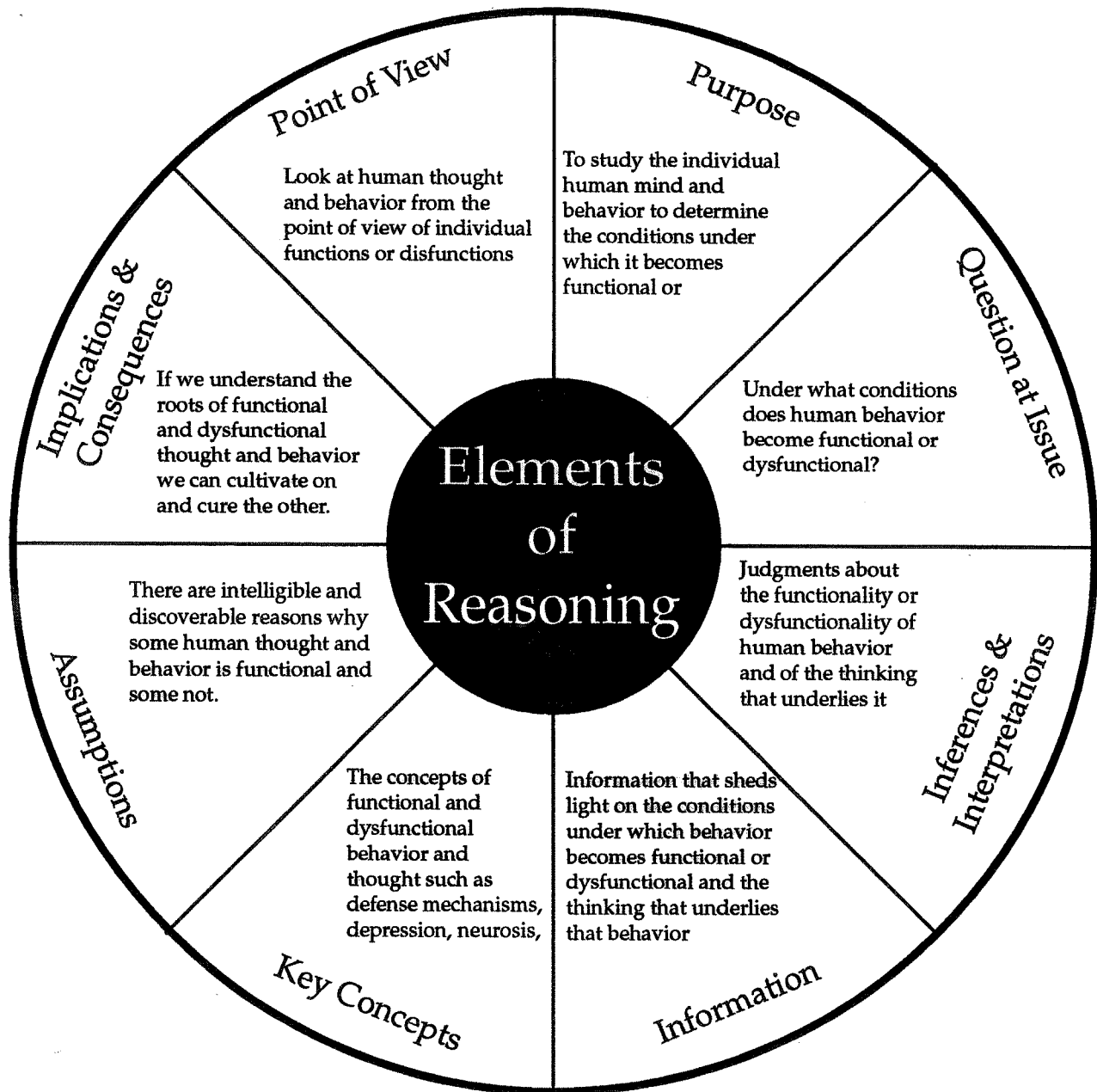
# A CRITICAL THINKER CONSIDERS THE ELEMENTS OF REASONING

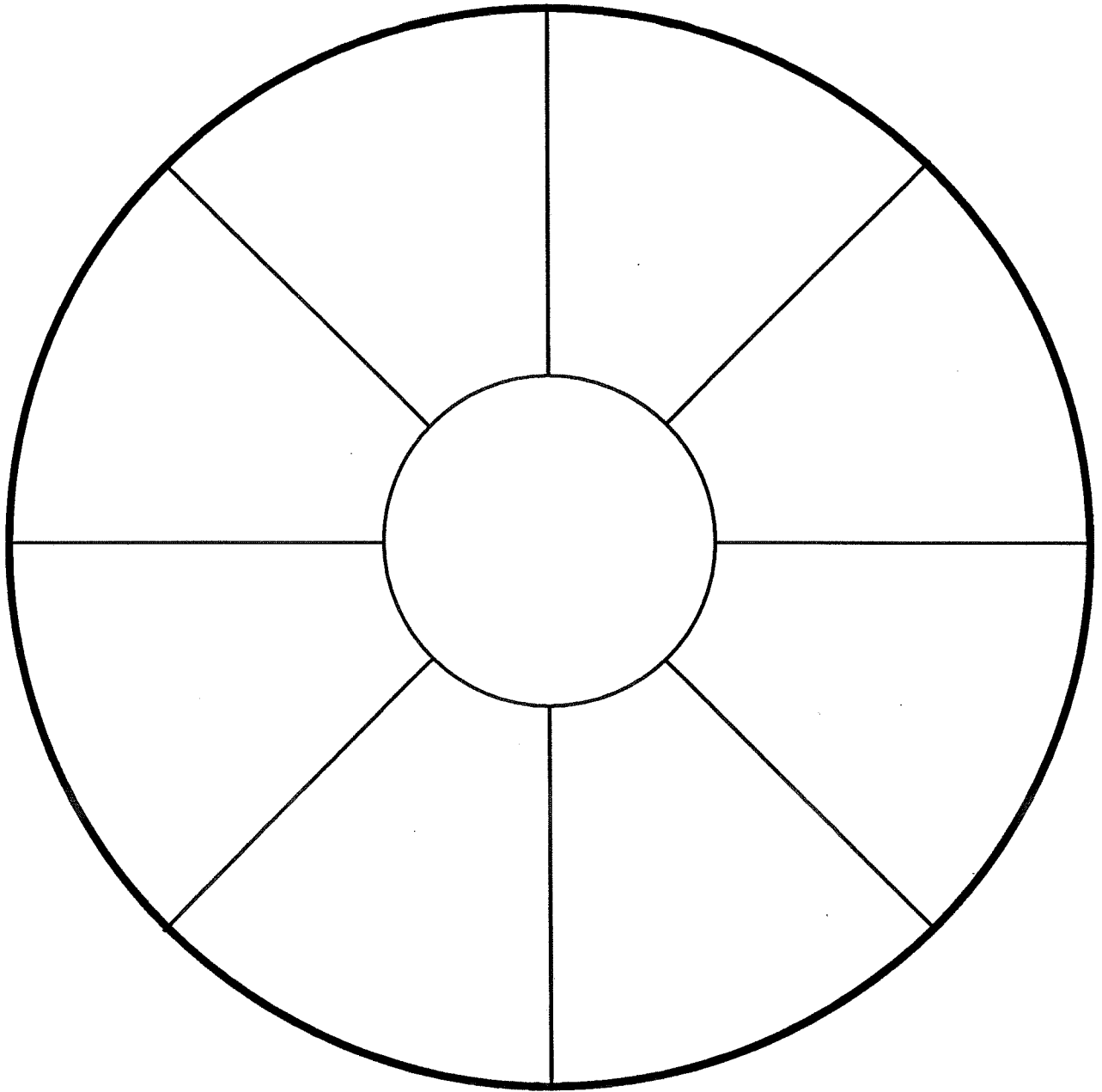


WITH SENSITIVITY TO UNIVERSAL INTELLECTUAL STANDARDS

Clear → Accurate → Deep → Breadth  
 Precise  
 Relevant

# The Logic of Psychology





# UNIVERSAL INTELLECTUAL STANDARDS

CLARITY: Could you elaborate further on that point? Could you express that point another way? Could you give me an illustration? Could you give me an example?

ACCURACY: Is that really true? How can we check that? How can we find out if it's true?

PRECISION: Could you give me more details? Could you be more specific?

RELEVANCE: How is that connected to the question? How does that bear on the issue?

DEPTH: How does your answer address the complexities in the question? How are you taking into account the problems in the question? Is that dealing with the most significant factors?

BREADTH: Do we need to consider another point of view? Is there another way to look at this? What would this look like from the point of view of a ...

What are the three most popular standards for determining what to believe and what not to believe?

# MOST POPULAR STANDARDS

- 1) It's true because I believe it.
- 2) It's true because we believe it.
- 3) It's true because I want to believe it.

Situation	Inference	Assumption
1. The girl is not happy.	Someone has hurt the girl.	Whenever someone is not happy, they have been hurt by someone
2. Go to a bar and a man asks you to come to his apartment.		
3. Your spouse is late coming home from work.		
4. Your teenage son is late coming home from a late night date.		
5. You meet a beautiful woman with blonde hair.		
6. Your toddler climbs into the waste basket.		
7. Your spouse is talking with an attractive member of the opposite sex at a party, for an extended period of time.		



## Clarity

Could you elaborate further?  
Could you illustrate what you mean?  
Could you give me an example?

## Accuracy

How could we check on that?  
How could we find out if that is true?  
How could we verify or test that?

## Precision

Could you be more specific?  
Could you give me more details?  
Could you be more exact?

## Relevance

How does that relate to the problem?  
How does that bear on the question?  
How does that help us with the issue?

## Depth

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?

## Breadth

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?

## Logic

Does all of this make sense together?  
Does your first paragraph fit in with your last?  
Does what you say follow from the evidence?

## Significance

Is this the most important problem to consider?  
Is this the central idea to focus on?  
Which of these facts are most important?

1) Review each of the elements of thought



with a view to identifying at least one standard applicable to it.

2) Cite one example from your field wherein it is essential to use one of these basic standards in thinking with these elements.

Clarity

Accuracy

Precision

Relevance

Depth

Breadth

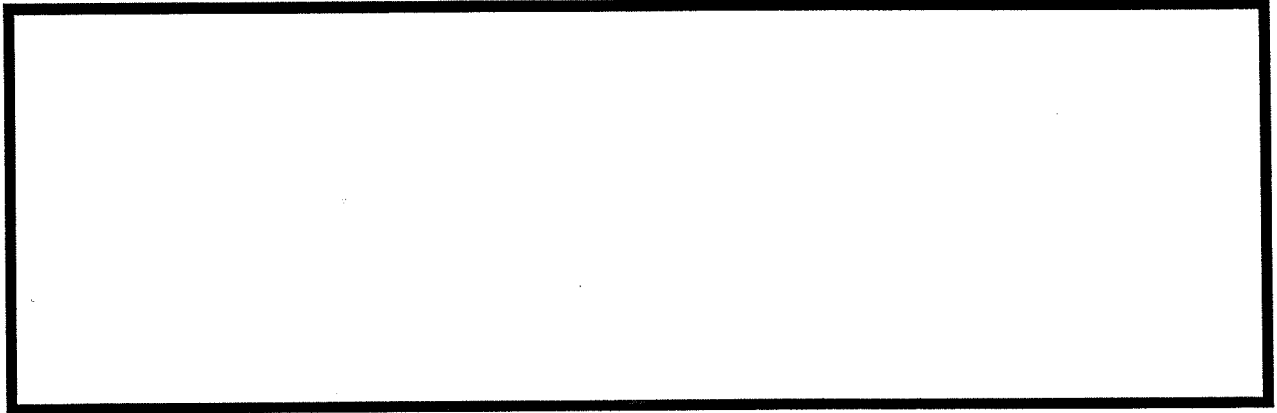
Logicalness

Select a class &  
devise an  
assignment that  
makes use of  
one or more of  
these standards.

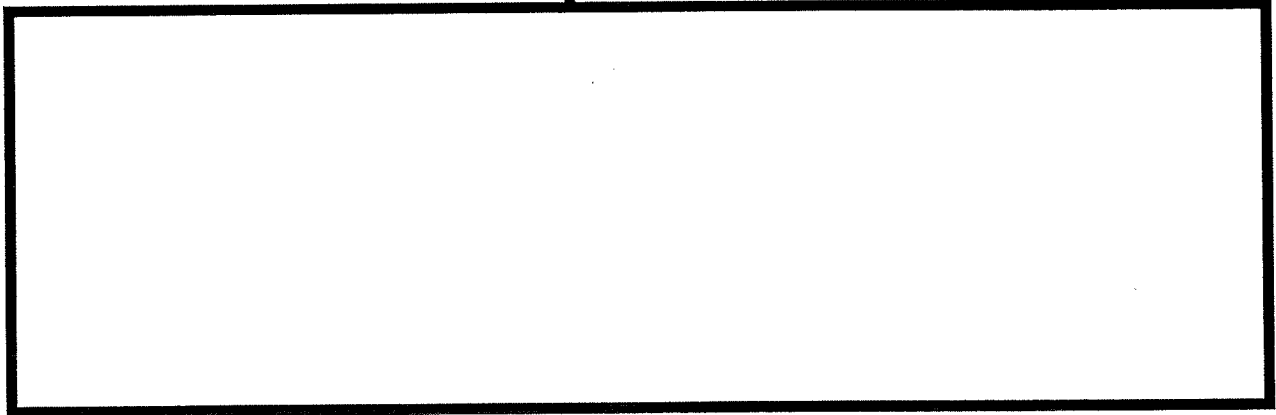


*Be prepared to  
explain how  
you would  
prepare  
students for the  
standards you  
are using.*

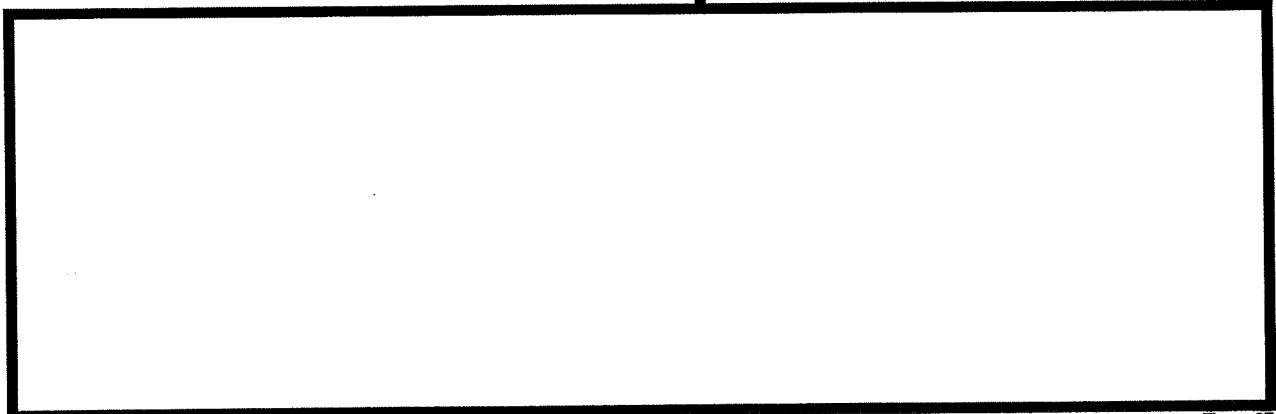
# Information

A large, empty rectangular box with a thick black border, positioned below the 'Information' header.

# Interpretation

A large, empty rectangular box with a thick black border, positioned below the 'Interpretation' header.

# Assumption

A large, empty rectangular box with a thick black border, positioned below the 'Assumption' header.

My boss criticized me.

He doesn't like me.

Whenever people criticize you it means that they don't like you.

We are working very hard.

We can't function at a higher level.

Higher level functioning is the result of effort only. There are not other factors.

Some of the people I have to deal with are very unpleasant.

So I am bound to be frustrated at least part of the time.

It is frustrating to deal with unpleasant people.



I have a lot of problems

So I worry a lot about things.

Worrying about problems helps solve them. (or) One can't avoid worrying when one has problems.

# The Elements of Reasoning and the Logic of a Subject

Using page 11 in the handbook, go through the elements, beginning with the Purpose of thinking and figure out how they relate to your course. Spend 10 minutes making notes as you prepare to explain the logic of it to another person.

Focus on:

- 1) Its purpose (why do we teach it?)
  - 2) The questions or problems one learns to answer or solve as one masters it.
  - 3) The kind of information one needs to access.
  - 4) The basic concepts or ideas (vocabulary) essential to it.
  - 5) The kinds of inference (the mode of judgement) it cultivates (one learns to make reasoned judgements about?)
  - 6) The possible implications/ consequences of those inferences.
  - 7) The assumptions it makes.
  - 8) The points(s) of view studying the subject engenders.
- Don't worry about the items you have trouble with.
  - Spend five minutes explaining what you figured out with a partner.

- 1) Choose a course you are teaching (or would like to teach).
- 2) Using the model of the “elements” of reasoning, think through your course design.



- What is my fundamental purpose?
- What is the central question?
- What are other key questions which relate to the central question?
- What sorts of information will students need in order to do the thinking I want?
- What sorts of “judgments” will I want them to learn to make?
- What are the key concepts for the course?  
etc... etc...

# Conceptual Analysis

- What is the difference between being “clever” and “cunning”? How are they similar?
  - What is the difference between “power” and “control”? How are they similar?
  - What is the difference between “love” and “romance”? How are they similar?
- 

In groups of 2, figure out the differences and similarities of each.

Think of several key concepts in your course/class which students could do a conceptual analysis of using this structure.

# ELEMENTS

- ① **Question:** What can we do in the classroom to help cleanup our home and school environments?
- ② **Purpose:** To improve environmental conditions at home and school.
- ③ **Concepts:** Contribute, cleanup, environment
- ④ **Points of view:** Children, parents, teachers, administrators, environmentalists
- ⑤ **Information:** Information about what needs to be done, information about what we are capable of doing, information about what help we will need, information about our limitations.
- ⑥ **Assumptions:** That we need to contribute to the cleanup of the environment. That we can contribute.
- ⑦ **Inferences:** Interpretation of the info about what needs to be done, what we can do, what help we need, about our limitations.
- ⑧ **Consequences (Implications):** What will follow if we do something to contribute, what will follow if we don't.

## INTELLECTUAL STANDARDS & THE ELEMENTS OF THOUGHT

- 1) Each of you will learn, then teach to your group of eight, the logic of one of the elements covered in the handbook on pages \_\_\_\_\_. For example, one of you will be assigned PURPOSE, another QUESTION, etc.
  - 2) Carefully read and take notes that you will teach from. Spend \_\_\_\_\_ minutes preparing to teach. You may use drawings, diagrams, or notes to teach from, BUT NOT THE HANDBOOK PAGE ITSELF. Give at least one example of how to bring it into the classroom.
  - 3) Each person spends \_\_\_\_\_ minutes teaching your element to the group of eight.
  - 4) Person whose last name is third alphabetically takes \_\_\_\_\_, the next person to the right take \_\_\_\_\_, and so on.
  - 5) Person who takes INFERENCES & CONCLUSIONS is the timekeeper.
- Realize that in this brief amount of time, you will be limited in how much you can teach. Relax and learn from the process.

# Elements (example)

1) **QUESTION:**

What can emergency medical technicians do to maximize the survival rate of patients from the moment of initial notification until the patient reaches the hospital?

2) **PURPOSE:**

To maximize patient survival rate while under care of EMT's

3) **CONCEPTS:**

Survival rate, emergency medical technicians, medical procedures used by EMT's.

4) **POINTS OF VIEW:**

Varying medical points of view, patient point of view, EMT point of view, point of view of other drivers, point of view of patient's family.

5) **INFORMATION:**

About procedures which increase survival rate, information regarding traffic, limitations in transportation.

6) **ASSUMPTIONS:**

That we can increase survival rate of patients while under the care of EMT's, that it is desirable to do so.

7) **INTERPRETATION:**

That there are various ways to interpret the information.

8) **IMPLICATIONS:**

That if we do not consider this issue seriously, people will die unnecessarily.

## USING THE ELEMENTS OF REASONING IN LITERATURE

This worksheet is designed to guide student thinking with respect to fiction they might read in class or for homework. It may be turned in as a written assignment or used as an outline for a class report. It is designed to probe beneath the surface of thinking and to guide student thought in a disciplined, critical manner. It focuses on helping students analyze the logic of the story through the elements of reasoning, while emphasizing relevant intellectual standards.

Students should be encouraged to elaborate on their answers where appropriate.

We recommend that this format be used for all analysis of fiction so that students come to deeply internalize the process of critical analysis.

Before having students use this format on individual book reports, in order to familiarize them with your expectations, have each student read the same story, then prepare individual reports using the format. Have them discuss their answers in groups. Then lead class discussion, providing feedback where appropriate, and providing your critical analysis as a model. In other words, work through the first assignment with them so that they understand what they are expected to do. Prior to using the format, the students should be familiar with the elements of reasoning and the intellectual standards:

- 1) What is the author's purpose for writing this story?
- 2) What are the key questions at the heart of the story?
- 3) What are the most significant ideas in the story?
- 4) What does the author assume about the world or about people and life? (Or, what do the main characters assume about the world or about people and life?)
- 5) What are the most significant happenings in the story? (this forms the information in the story)
- 6) How do the characters in the story interpret or understand what is going on? How do different characters interpret information differently or how does a particular character misinterpret information? How could the information be interpreted differently?
- 7) What is the point of view of each of the main characters?
- 8) What are the implications embedded in the story? What happens when characters do certain things, or think certain things? What results from their actions or their thinking?



# PLANNING MY RESEARCH PAPER

1. My purpose in writing this paper is \_\_\_\_\_  
\_\_\_\_\_
2. The main question I will be focused on is \_\_\_\_\_  
\_\_\_\_\_
3. Subquestions I will be focused on are \_\_\_\_\_  
\_\_\_\_\_
4. I will gather information to address my questions from these sources \_\_\_\_\_
5. The main idea in my paper is \_\_\_\_\_
6. The point of view I take is \_\_\_\_\_

## CHECKLIST:

- ✓ I have gathered accurate information.
- ✓ My paper is clearly written.
- ✓ I have considered various ways to interpret the information.
- ✓ I am clear about my purpose for writing the paper and my key questions.
- ✓ I have considered all points of view relevant to the questions
- ✓ I have followed out the implications which relate to the question.

# THE LOGIC OF WRITING

**PURPOSE:** To Communicate important concepts and ideas to a particular audience.

**QUESTION:** How can I approach my writing so that I clearly communicate my ideas to my target audience?

**INFORMATION:** Information about the assumptions, point of view, and general knowledge of the reader. Information about the characteristics of good writing. Information relevant to the thesis of my writing. Information about how to effectively communicate ideas in writing (from composition books and former teacher).

**INTERPRETATIONS/INFERENCES:** Interpretations of the information we gather. The conclusions we come to about the reader, about the assumptions the reader may bring to the reading, about the background knowledge of the average reader. Interpretations about the best ways to approach the content so that I can clearly communicate to the reader the key ideas. Interpretations of the information which form the key ideas of the written piece. The key conclusions I am trying to communicate to the reader.

**CONCEPTS:** All of the key concepts essential to developing my main points. All of the key ideas about how to write well that I use in thinking through my main points and how to express them.

**ASSUMPTIONS:** That the ideas I am communicating can be effectively communicated, that there are better and worse ways of communicating these ideas, that if I want to be a good writer I must be committed to writing and rewriting my work, that the ideas I am communicating are worth spending the time to communicate well.

**POINT OF VIEW:** The point of view inherent in the thinking of a good writer (see key assumptions), the points of view relevant to the issues in the written piece.

**IMPLICATIONS:** If I commit myself to effective writing I can become an effective writer. If I achieve my purpose, I may be able to transform the thinking of the reader.

## Elements:

- ① **Question:** What can we do, within our class, to contribute to the well being of the environment?
- ② **Purpose:** To raise our awareness of our responsibilities with respect to the environment and to do what we can to contribute.
- ③ **Concepts:** Contribute, well being of the environment.
- ④ **Points of view:** Children, parents, teachers, administrators, environmentalists.
- ⑤ **Information:** Information about what needs to be done, information about what we are capable of doing, information about what help we will need, information about our limitations.
- ⑥ **Assumptions:** That we need to contribute to the cleanup of the environment. That we can contribute.
- ⑦ **Inferences:** Interpretation of the info about what needs to be done, what we can do, what help we need, about our limitations.
- ⑧ **Consequences (Implications):** What will follow if we do something to contribute, what will follow if we don't.

## Elementary - Logic of a Subject

- ① **Purpose:** To teach students how to read so that they can function better in the world and have access to rich experiences and a multitude of information that they otherwise would not have access to.
- ② **Questions:** Through reading one is capable of answering an unlimited variety and number of questions.
- ③ **Information:** Information which expands reading ability such as books, articles, magazines, information which students will find intriguing. Educational games which require reading.
- ④ **Concepts:** Reading, comprehension, dialectic approach to learning, having a question in mind.
- ⑤ **Inferences:** One learns to make reasoned judgments about whether what they are reading makes sense to them. One learns how to interpret information.
- ⑥ **Implications:** Learning to read opens a world of information and dialog which serves as a primary vehicle for self development.
- ⑦ **Assumptions:** If my students learn to read, their lives will be improved and they will be better able to function. Students are capable of learning to read.
- ⑧ **Point of view:** By learning to read, students will have access to an unlimited number of points of view which they would not have access to without learning to read.

# THE ELEMENTS OF REASONING AND THE LOGIC OF A SUBJECT

Using page \_\_\_\_\_ in the handbook, go through the elements, beginning with the PURPOSE of thinking and figure out how they relate to your course. Focus on:

- 1) Its PURPOSE (why do we teach it?)
  - 2) The QUESTIONS or PROBLEMS one learns to answer or solve as one masters it.
  - 3) The kind of INFORMATION one needs to access.
  - 4) The basic CONCEPTS or IDEAS (vocabulary) essential to it.
  - 5) The kinds of INFERENCES (the mode of judgement) it cultivates (one learns to make reasoned judgements about?)
  - 6) The possible IMPLICATIONS & CONSEQUENCES of those inferences.
  - 7) The ASSUMPTIONS it makes.
  - 8) The POINTS OF VIEW studying the subject engenders.
- Don't worry about the items you have trouble with.
  - Stand up when finished and find a partner.
  - Spend five minutes explaining what you figured out with a partner.

## QUESTION:

What can I do to ensure that, as I age, I am healthy enough to have maximum freedom of movement, mental capabilities, life-span, and emotional strength while minimizing the amount of pain I must endure?

## PURPOSE:

To have maximum freedom of movement etc.

## CONCEPTS:

I need to clarify “freedom of movement,” “mental capabilities,” “emotional strength”

## INFORMATION:

Information about behavior which lengthens and shortens life span, which ensures maximum movement, mental capabilities and emotional strength. Information about diet implications, exercise, mental health, smoking.

### INFERENCES:

I conclude that I should eat a low fat, low calorie diet, exercise regularly, avoid smoking and excess alcohol. I should continually work with my mind, to develop it and keep it alive, and to be in control of my emotions and drives.

### ASSUMPTIONS:

I am capable of living a fit and health life. I can control my behavior in order to do so. If I behave in certain ways, I will live such a life, if not, I won't.

### POINT OF VIEW:

It is important to live a healthy and fit life.

### IMPLICATIONS:

The benefits which will come with living a healthy life.