

CREATING CONDITIONS FOR POWERFUL LEARNING

*Logo now emphasis*

# QUESTIONING FOR UNDERSTANDING



Safe!

Students feel free to ask ques.

- feel free to ans. ques

- feel not threatened by being incorrect

comf. kids hear.  
- attitude of ins -

Attitude of ins.

- eye contact

- check for listening

- non-verbal supporting gestures

- Listen - don't interrupt

- paraphrase for understanding

- use student responses to lead to next ques.

- seek to understand - ask more ques if you don't -

(CATUS)

- call stud. by name
  - ask ques to entire class
  - use a friendly tone
  - use positive nonverbal
  - call on specific stud. not just volunteers
  - randomly select stud.
  - AVOID REPETITION STUD. RESPONSES !!
  - AVOID asking all ques at end of class
- ATELITEK TODAY'S SAID  
H SHARING THEIR REASONING  
EVEN IF IT ISN'T CORRECT

Elaboration

Follow up -

- cactus story -

or

- no hands story -

safe environment -

what makes

you feel safe

be willing to ask questions?

Group/Individual -

- sticks with names

- security card

Questions embedded  
in directions -

→ Directions are  
demanding  
engagement.

→ Ask participants to  
identify the kinds  
of questions on  
the page.

Don't  
forget

Questions are designed  
to promote certain  
levels of  
understanding →

designed to  
recognize good  
questions →

S - support students

E - engage

E - Evaluate

D - promote discourse

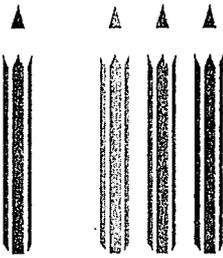
C - control students

A - review materials

A - answer student

P - participate





# Increasing the Quality of Interactions

## Pace of Questioning

Wait Time I

Wait Time II

## Distribution of Questions

Volunteer/Non-volunteer

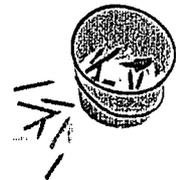
Equity and Expectations

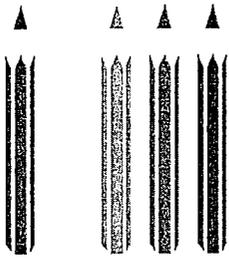
Group/Individual Balance

## ✓ Use of Elaboration and Follow-up Questions

## Use of Redirecting Questions

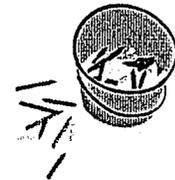
## ✓ Creation of a Safe Environment

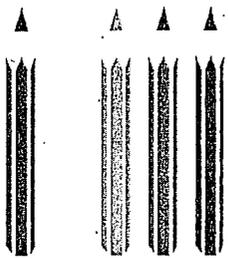




## AGENDA FOR THE DAY

- Purposes of asking questions
- Types of questions
- Increasing the quality of discourse
- Teaching students to ask questions
- Self-assessing and peer observation tools





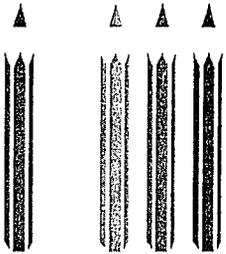
If the purpose were to \_\_\_\_\_, then an example of a question a teacher might ask to accomplish that purpose could be \_\_\_\_\_.

### Discussion

Which questions were the most difficult to generate, if any?

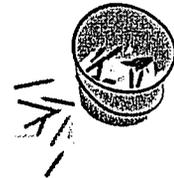
Why do you think that is so?





## Some Research on Questioning

- Over 50% of the school day is occupied with teachers asking questions and students answering questions.
- Teachers ask 2-4 questions every minute.
- Teachers ask 93% of all classroom questions

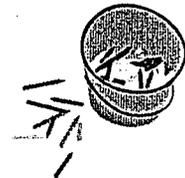


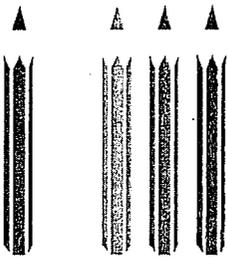
# Definition of Understanding



*Understanding is the thoughtful and effective use of knowledge and skills in varied situations.*

*Adapted from Understanding by Design*



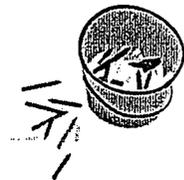


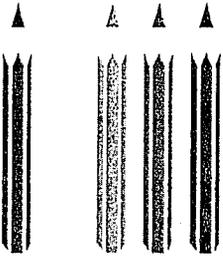
## VIDEO REVIEW

Label the questions you recorded as either a question that asks students to demonstrate their understanding or a question that does not ask students to demonstrate their understanding.

Compare your questions with your colleagues.

- *Which questions asked students to demonstrate understanding? Why?*
- *Which questions did not? Why not?*
- *Did any patterns emerge?*
- *Discuss any discrepancies in what you and your partner observed.*





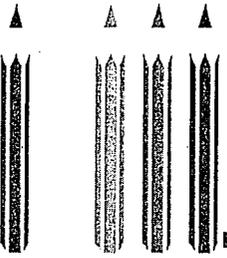
## React to these statements.

It is a complete error to equate asking questions of students to students asking us questions.

Allowing students to ask questions to stimulate learning is more important than asking questions to assess it.

Effective teacher-generated questioning strategies encourage students to think but not necessarily to become better questioners.



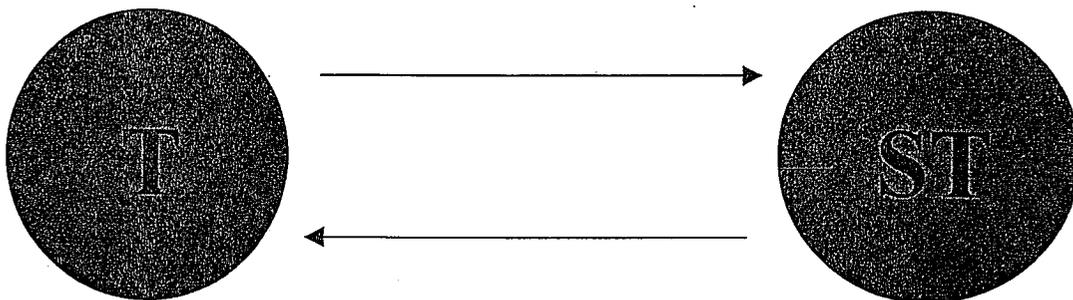


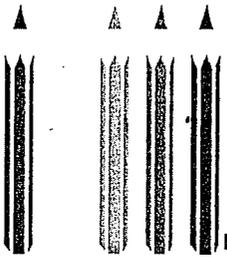
# **IRE: Interaction - Response - Evaluation**

I: Teacher Initiated Interaction

R: Student Response

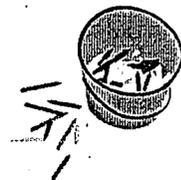
E: Teacher Evaluation





The ability to think - to be a lifelong seeker and integrator of new knowledge - is based on the ability to ask and consider important questions.

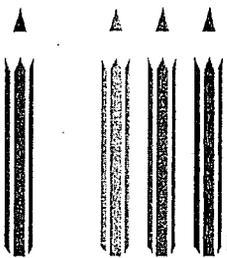
How else can we gain, analyze, and integrate new information unless we can ask questions that force us to do these things?



Read and Respond to this Quote

I'm more interested in questions  
than answers. I'm more  
interested in openings than closing.

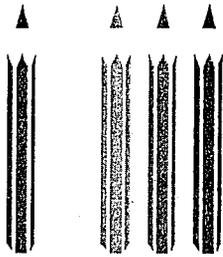
Madeline L'Engel, *A Wrinkle in Time*



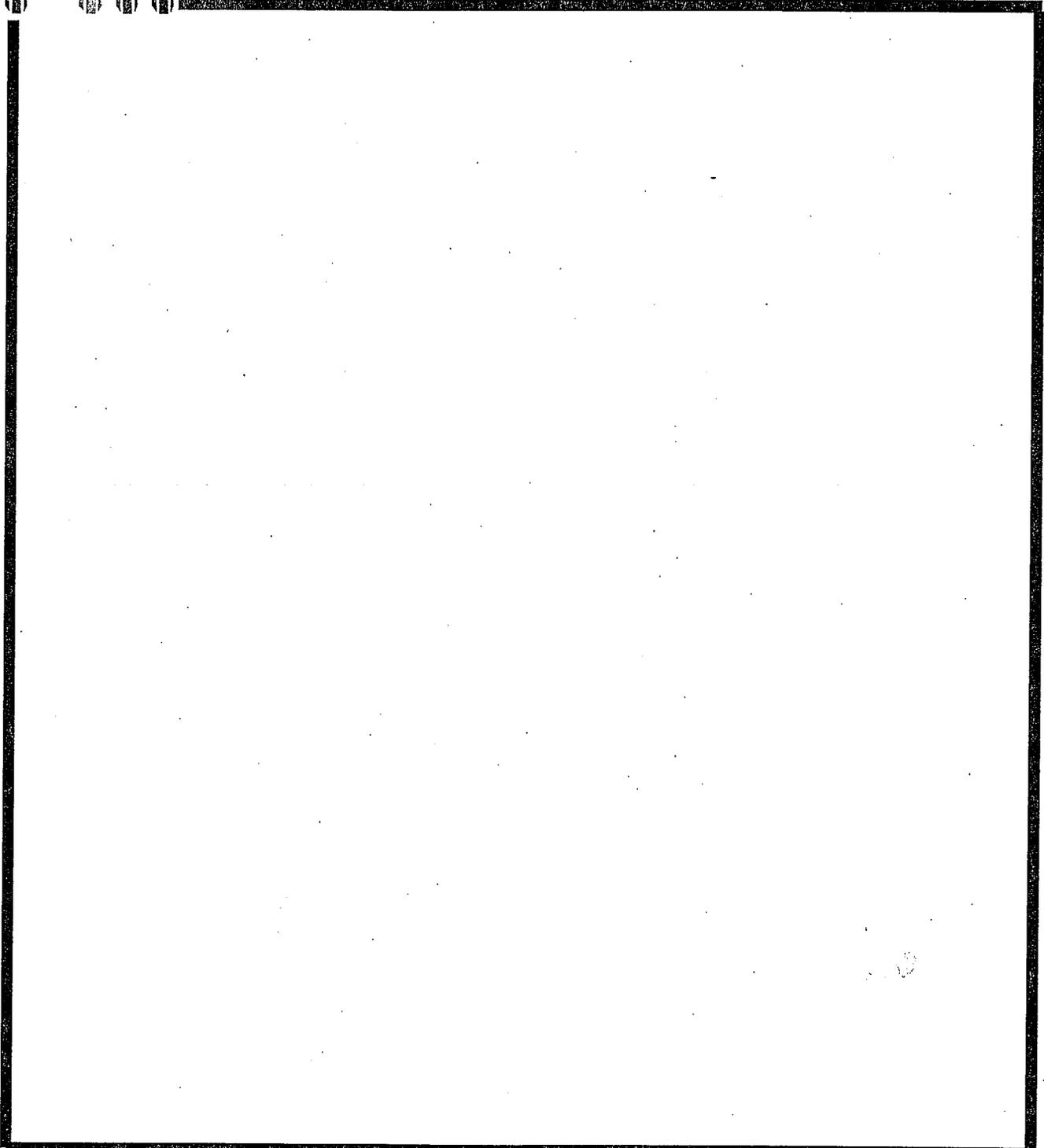
## **Share with a partner:**

- **Insights you have from the self-assessment...**
- **Something you want to change in your classroom...**





*CREATING CONDITIONS FOR POWERFUL LEARNING*



CCPL: Questioning for Understanding

## Bibliography for Questioning

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THE STUDY OF  
TEACHING

CREATING  
CONDITIONS FOR  
POWERFUL  
LEARNING

QUESTIONING FOR  
UNDERSTANDING

# Creating Conditions for Powerful Learning Facilitator's Manual

## QUESTIONING FOR UNDERSTANDING

Time: (180 minutes)

### PART I: WHY ASK QUESTIONS? (25 MINUTES)

**EXERCISE 1: INTRODUCTION, OUTCOMES & AGENDA (10)**

**EXERCISE 2: PURPOSES FOR ASKING QUESTIONS (15)**

### PART II: QUESTIONING TO PROMOTE UNDERSTANDING (65 MINUTES)

**EXERCISE 3: DEFINING UNDERSTANDING (5)**

**EXERCISE 4: FOUR TYPES OF QUESTIONS (25)**

**EXERCISE 5: QUESTIONS THAT PROMOTE UNDERSTANDING (20)**

**EXERCISE 6: ALIGNING QUESTIONS TO OUR OUTCOMES (15)**

### PART III: INCREASING THE QUALITY OF INTERACTION (35)

**EXERCISE 7: PROMOTING DISCOURSE (5)**

**EXERCISE 8: INCREASING INTERACTION (30)**

### PART IV: ENCOURAGING STUDENTS TO ASK QUESTIONS (40)

**EXERCISE 9: WHY HAVE STUDENTS LEARN TO ASK QUESTIONS? (10)**

**EXERCISE 10: WAYS TO TEACH STUDENTS TO ASK QUESTIONS (30)**

### PART V: CLOSURE (15)

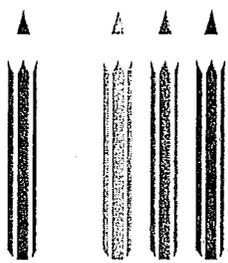
**EXERCISE 11: SELF-ASSESSING AND PEER OBSERVATION TOOLS (5)**

**EXERCISE 12: SUMMARY (10)**

### Outcomes for this Module:

Participants will:

- Identify purposes for asking questions and the types of questions that accomplish those purposes.
- Identify and generate questions that promote understanding and ask students to demonstrate understanding.
- Understand ways to increase the quality of interactions with and among students.
- Explore ways to teach students to ask questions.



## OUTCOMES FOR THIS SESSION

Participants will:

- Identify purposes for asking questions and the types of questions that accomplish those purposes.
- Identify and generate questions that promote understanding and ask students to demonstrate understanding.
- Understand ways to increase the quality of interactions with and among students.
- Explore ways to teach students to ask questions.

Charts 4-5

- hand out -

A Great  
outfit -



**EXERCISE 1: INTRODUCTIONS, OUTCOMES, & AGENDA (10 minutes)**

1. Introduction of the facilitators. Develop norms.

2. Outcomes for this session

Participants will:

- Identify purposes for asking questions and the types of questions that accomplish those purposes.
- Identify and generate questions that promote understanding and ask students to demonstrate understanding.
- Understand ways to increase the quality of interactions with and among students
- Explore ways to teach students to ask questions

Agenda for the Day

- Purposes of asking questions
- Types of questions
- Increasing the quality of discourse
- Teaching students to ask questions
- Self-assessing and peer observation tools
- Closure

Notes:

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Reasons for CCPL:

- Teacher appraisals (changes comm)
- Professional Dev on support of SIP
- Staff Development request - teacher/admin
- Pick & choose to meet needs
- 3 hour modules - teacher; admin; teacher-admin

CH - exit  
T - Trans  
#0 - handout

Facilitator Notes

- 1- CH: Title/Welcome
- 2- CH: Why CCPL - b/fom
- 3: CH: NORMS

T-D Title

T: Outcomes and Agenda

1a - Outcomes

4 - CH

1b - Agenda

6 - CH

\* CH: Housekeeping

Handout  
CPD

Poster notes  
D time schedule

teacher - both  
kids - both

more of them  
pass knowledge  
to each

Teacher Am -  
- plan us -  
- lunch  
- us  
- incl - plans -

why CCPL

EXERCISE 2: PURPOSES FOR ASKING QUESTIONS  
(15 MINUTES)

*Reasons - attention  
to make of Lucare  
Angela or die -*

*- attention getting  
- steps in process, evident,*

Facilitator Notes

*chart most common  
chart responses*

1. During instruction, teachers frequently ask questions. What are the reasons teachers ask questions? What might be some of the purposes of asking questions? Invite participants to generate a list at their table. Then chart some of the answers ( $\frac{5}{3}$  minutes)

T-2 / CH-7

T: What are purposes for asking questions? *based on article*  
CH-8 - Ex. of purposes

2. Different purposes require different kinds of questions. Mark a few of the purposes that the group generated and ask each group to come up with a question that might accomplish that purpose. Share the answers (5 minutes)

T-3 me

T: Generating Questions

*unit exp. for each or could do by group*

If the purpose were to \_\_\_\_\_, then an example of a question a teacher might ask to accomplish that purpose could be \_\_\_\_\_

3. Process: Which questions were the most difficult to generate, if any? Why do you think that is so? Share some of the research on the kinds of questions teachers ask most frequently. (5 minutes)

T-4

T: Some Research on Questioning

*we show -*

*goal get stuck to ask question*

4. All of these purposes you have generated suggest questioning plays an important role in instruction. Quite possibly teachers address multiple purposes within a particular lesson. This module is going to focus on how teachers use questioning to promote understanding and help students demonstrate understanding.

*Research*

*Fluency 1/3 rel  
Books tend to ans. question*

Notes:

*support students*

*Engage*

*Evaluate*

*Dialogue*

*Central*

*R-eview*

*A-pprise*

*P-erception*

*Set  
SEED  
CROP*

*Examples*

*Challenges*

*Transition*



# PURPOSES FOR ASKING QUESTIONS

What are the reasons  
teachers ask questions?

What do they hope to  
accomplish?

*Transition*

EXERCISE 3 – DEFINING UNDERSTANDING (5 MINUTES)

1. Share the definition of understanding we are using for our modules. For the purpose of this workshop, we have defined understanding this way:

Understanding is ~~insight into key ideas, as reflected in~~ <sup>the</sup> thoughtful and effective use of knowledge and skills in varied situations.

*ability to apply in diff. situations*

2. If a teacher's purpose were to promote and check for understanding, then that purpose would help determine the kinds of questions he/she would ask. Let's take a look at some different examples of questions and then try to determine what kind of thinking might be promoted by asking those questions.

Notes:

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Facilitator Notes

T-5 / CH-9  
T: Definition of Understanding

## Four Categories of Thinking

<p style="text-align: center;"><b>Accessing Information</b></p> <p>Requires students to remember or recall information they have learned or to gather that information through a variety of resources. This information may be from prior knowledge and experiences or from knowledge gained in class.</p> <p>Define                      Match          Select                     Recite          Name                     Recall          List                        Label          Observe                 Locate          Identify</p>	<p style="text-align: center;"><b>Organizing Information</b></p> <p>Requires students to take data or information and process it in order to make sense of it. This thinking often asks students to put information into a new pattern or make new connections. This thinking helps shape understanding.</p> <p>Analyze                    Classify          Compare                  Contrast          Explain                    Categorize          Group                     Infer          Summarize                Restate          Defend                    Paraphrase          Sequence</p>
<p style="text-align: center;"><b>Transforming Information</b></p> <p>Requires students to take data or information and transform it into a novel or unique form. This category often requires creative and critical thinking and asks students to demonstrate understanding.</p> <p>Predict                    Demonstrate          Speculate                Envision          Evaluate                 Generalize          Hypothesize             Imagine          Assess                    Criticize          Construct                Design          Develop                  Create</p>	<p style="text-align: center;"><b>Thinking about Thinking</b></p> <p>Requires students to become metacognitive—aware of their thought processes. These questions, in turn, allow students to manage and assess their own thinking strategies and transfer those strategies to new situations.</p>

- organizing / transforming  
information

Reference  
Quadrant -  
BALANCE  
Care & Caution

tendency to think we have  
to go from one quadrant  
to another - however -  
Prevalence of the stronger  
one

CH-10

left

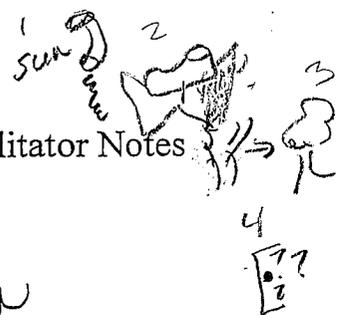
similar focus  
commonalities -  
contrast quo  
steps of  
Humbly

Caution -

Do not have  
energy of one level  
to go to another -

\* Start reflecting  
what level  
do you want to  
operate at?

**EXERCISE 4: FOUR CATEGORIES OF THINKING (25 MINUTES)**



Facilitator Notes

In order to develop questions purposefully that promote understanding or allow students to demonstrate understanding, we felt it was helpful to examine some possible categories of thinking and the questions that lead to that thinking. We have developed four categories. We could have used some frameworks that already exist such as those developed by Bloom, Guilford, and Costa & Kallick, but we felt these four categories helped us focus on our intended goal of promoting understanding. We have grouped these examples by the different kinds of thinking we would want from students. You might want to create or refine your own categories that are more meaningful to you.

*intro article*

*structure*

→ CH-10

1. Ask participants to look at the handout on examples of questions. With their group or a partner, identify what each of the examples in each box has in common in terms of the kind of thinking we are asking of the students. There may be more than one thing in common. (10)
2. Share the descriptions for the categories of thinking. Share also that these four categories probably do not encompass all types of questions teachers would ask or ways students would think— just the ones that are to accomplish our purposes of accessing information, organizing information, transforming information, and thinking about thinking.
3. Ask participants to read over the four descriptions and compare them to the commonalities they found. Check for any confusion. (5)

*Part 1*

\* T  
HO-1  
T/HO: Examples of Questions

*summarize for them*

\* T  
HO-2  
T/HO: Categories of Thinking

*not going to just happen*

Notes:

*connection to metacognition - inquiry process*

— "quote"—  
CH-11 careful considerations of asking questions.

CH-12 4 categories of thinking

CH-13  $\Delta$  metacognition<sup>6</sup>

CH-14 quality

Summary

Laurel

Chart  
14 steps

4. All four of these categories of thinking are important but not all promote or help students demonstrate understanding. We are presenting all four because they all play an important part in learning. Organizing Information and Transforming Information promote understanding. By making that thinking visible, students are able to demonstrate what they understand. When students are Accessing Information, they are simply recalling or gathering information and do not necessarily have to understand anything. Thinking about Thinking allows students to self-assess their thinking strategies and increases the possibility that students will transfer those strategies to other situations.

5. Also, it is not necessary for teachers to be able to classify questions in the correct category. Sometimes the distinctions are unclear or minor. However, these four categories are introduced as a tool to help teachers define the kinds of thinking skills teachers expect from students and for helping to establish congruence between the instructor's goals and the questions he/she asks.

6. (Optional) Invite each group to generate one or two questions for each category. Share some of them with the entire group. (5)

Notes:

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Facilitator Notes

mix - mix  
keep one variation

not the point

start using reflection -  
what level do you want to operate at?

tie-up  
reference to school's goal

**EXERCISE 5: QUESTIONS THAT PROMOTE UNDERSTANDING (20 MINUTES)**

Facilitator Notes

1. We know that Organizing Information and Transforming Information promote understanding and questions in these categories ask students to demonstrate understanding. We are going to see if we can identify these types of questions that promote these kinds of thinking.

2. Show a video clip of a teacher engaging students in questions. Ask the group to take notes by writing down the teacher's questions. (A secondary suggestion would be HS Chemistry – ASCD Professional Inquiry Kit – Teaching for Understanding or The Video Library of Teaching Episodes #17. (10)

After viewing the tape, ask participants to identify the sorts of categories into which the questions fell. (5) Student feedback

3. Ask participants to compare their notes with their colleagues and discuss the following:

- Which questions asked students to demonstrate understanding?
- Which questions did not?
- Did any patterns emerge?
- Discuss any discrepancies in what you and your partner observed. (5)

5. Point out again that all kinds of questions may be important but that not all questions ask for thinking that leads to or demonstrates understanding.

Notes:

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142 go together  
stage for viewing  
(ms)

real classrooms  
HS video - not  
great

Video clip of  
teaching episode

Egyptian  
Civilization  
main teacher - some  
time spent on  
some history parts  
of lecture

T: Discussion  
questions

Questions designed to  
promote certain  
levels of  
understanding

→ CH-15

When did they go to school?  
Anyone else talk about  
fradels?  
What's the big word?  
What else happened?

Pam

questioning  
involves in  
directions -  
demands an  
engagement

neg of  
good questions

# CCPL - Questioning for Understanding

CCPL  
("4U")

## Video Review: "Bill of Rights"

Source:

Background: Female, ~~the~~<sup>MS</sup> gr. teacher. Video predominately focuses on Teacher comments. Teacher establishes the set by using ~~current events~~ <sup>connect w/</sup> ~~to relate~~ so that st. can connect w/ govt./law, specifically the Bill of Rights. The tea. 'fires off' ? to the st.

Directions: Listen for the questions\* the tea. directs to the st. Write the ? down & then consider the level of thinking the tea. is eliciting from the st.  
"Scripting" (Recorded observations)

... Can he also be charged with receiving stolen property? ✓

... Think about it... Talk about it... Give your reasons why...

... How many say 'Yes'? No? ✓

... What does it mean? ✓

... How does it work? ✓

... What would be different? <sup>what could police officers do?</sup> ✓

... What might we see happening with the Police? ✓

... So, could you be accused? ✓

... Give me an example... what would be required ~~is~~ in a request for search & seizure

... What else do you need? Look @ No. #6

Focus

\* This video clip illustrates how the tea. uses ? at the organizing & transforming levels.

# CCPL - Questioning for Understanding

CCPL  
"4U"

Video: "Egyptian Civilization"

Source:

Background: <sup>male.</sup> 6<sup>th</sup> gr. teacher, World History lesson. Compare/Contrast social groups from the Egyptian Society.

Focus: Listen/obs. ? tea asks (st. responses). Tea ? are a mix of 4 categories, but provides ex. of redirecting calling for st. to share their opinions. Video also shows st. engaged & peers & processing their <sup>ideas</sup> thinking/reasoning.

Directions:

listen for ? the Teacher asks. Listen for ? from 4 categories & look for other instr. st. tea. uses to initiate st. thinking through his ?

"Scripting" (Recorded Observations)

... When do you think they went? <sup>Recall</sup>

... Anyone want to say something else? <sup>Recall</sup>

... What's the keyword? <sup>organ</sup>

... Would you <sup>please</sup> repeat that? <sup>organ</sup>

... What does surplus mean? <sup>recall</sup>

... What about the merchants? <sup>org</sup>

... Does anyone want to add to that? <sup>trans</sup>

... What group contributed the most? Give some reasons why? <sup>trans</sup>

... Turn to a neighbor - have a discussion about why. <sup>trans</sup>

... Which of these groups contributed the most? The Nobles? Merchants/Traders/Craftsmen? <sup>trans</sup>

... Workers? Slaves?

... why did you choose \_\_\_\_\_? <sup>trans</sup>

If Purpose →  
Promote  
understanding -

then!

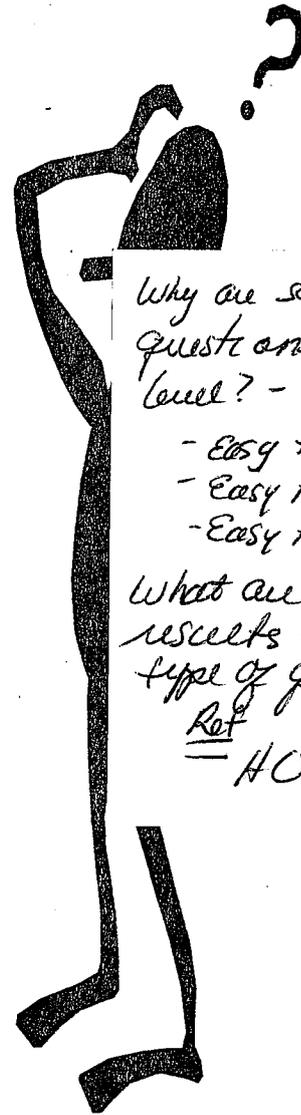
we need to be

- deliberate
- ask a variety  
of questions

that lead to  
understanding  
demon. understanding

## ING CONDITIONS FOR POWERFUL LEARNING

15-20% of  
questions  
are posed at  
the recall or  
factual level.



Why are so many  
questions at this  
level? -

- Easy to develop
- Easy to assess
- Easy to process

What are the  
results of these  
type of questions?

Ref

= HO - Guide lines

EXERCISE 6: ALIGNING QUESTIONS TO OUR OUTCOMES (15)

Facilitator Notes

*Panel*

1. If our purpose is to promote understanding, then we need to be deliberate in asking these types of questions that lead to promoting understanding and allowing students to demonstrate understanding.
2. Share quote about the amount of time spent asking recall questions. Point out that if we spend most of our time asking for recall thinking, then most learning will be at that level. *Ease develop, assess, process - what are the results? >*
3. The issue is not so much being able to design a variety of questions, but being able to design sequenced questions that are planned to generate a kind of thinking and accomplish worthwhile goals of instruction. Share some ideas for deliberately planning questions.

*T-7*  
*T: Time spent on recall questions*

*H0-3/guidelines*  
~~*ideas*~~ for planning questions

*→ To doing both sets of planning questions - some complex done by classroom -*

*Ask* participants to think of a lesson that they are going to teach in the next week. What are the standards they are going to address? Think of any important concepts or key ideas they want students to understand. (Review the definition of understanding, if needed.) Decide how they are going to have students demonstrate that understanding. Write down some questions that they might ask during the lesson - especially questions that will engage students in thinking that will yield the understanding they seek. Think about how they might sequence the questions within the lesson. Share with a partner (10)

*end of day*  
*Bill & Rights video*

Notes: *ROMO - SS. lesson - Bill of Rights - (MS)*

*Set up - take notes, look for variety of questions -*  
*Answers - questions, thinking*  
*Summary -*

*kind of sequence - moving towards higher level - patterns? sequence?*

*Key Handout - standards, objects, planning, assessment*

## Guidelines for Planning Questions

1. Decide what standard you want to address.
2. Determine the important concepts or key ideas you want students to understand from the lesson.
3. Determine what task students will perform to demonstrate that they understand by applying the knowledge or skills.
4. Decide on your goal or purpose for asking questions.
5. Write down your main questions in advance, listing your questions in a logical sequence (specific to general, lower level to higher level, a sequence related to the delivery of the content).
6. Ask questions which focus on the salient elements of the lesson, avoiding questioning students about extraneous matters.

## EXERCISE 7: PROMOTING DISCOURSE (5 MINUTES)

1. Share quote: Higher order questions do not necessarily lead to higher order thinking or higher order responses.
2. Share quote: <sup>hand</sup> It appears the quality of the interaction is more important than the ~~the~~ quality of the questions.
3. Ask participants to react at their tables.

Notes:

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Facilitator Notes

T-8

T: Quotes

*Discourse  
Engagement  
Process*

## React to these statements.

Higher order questions do not necessarily lead to higher order thinking or higher order responses.

It appears the quality of the interaction is more important than the quality of the questions.

Goal:  
Promote  
→ Discourse  
→ Engagement  
→ focus on the process  
- Comments -  
- Questions -  
- Concerns -

EXERCISE 8: INCREASING THE QUALITY OF THE INTERACTION (30 MINUTES)

Facilitator Notes

1. The literature identifies several ways to increase the quality of the interaction between the teacher and the students or students and students:

1. Pace of Questioning

A. Wait Time I

B. Wait Time II

2. Distribution of Questions

A. Volunteers/Non-volunteers

B. Equity and Expectations

C. Group/Individual Balance

3. Use of Elaboration and Follow-up Questions

4. Use of Redirecting Questions

5. Creation of a Safe Environment

2. Ask participants to read strategies 1-5 or direct teach them. Discuss with the whole group to clarify any questions.

3. Spend some time on number 5. Ask participants to generate a list of conditions that make them willing to answer questions in workshops or conditions that they have experienced today that have created an environment that is safe for answering questions. Ask for specific examples. Chart. At their table groups, invite them to share how they create those conditions for their students.

4. Number off from 1-5 at each table or ask participants to choose an area to observe. (Section 2 could be broken down for more than one person.) Talk about how you might collect data for that strategy during an observation.

5. View a video of a teaching episode and look for evidence of their strategy that increases the quality of the interaction. Collect data based on their strategy – for example, questions the teacher uses as follow-up or elaboration. Discuss at each table and then with the entire group.

*Days on*

*part become familiar with the different*

*Round*

*Before*

*Hand*

*ask questions*  
*ask questions with ans.*  
*share upon*

*ask someone else - but include first*  
*that in terms of group*

CH-16

CH-17-Def. of Wait Time

HO/T: Increasing the quality of the interactions

→ CH-18

→ CH-19  
Directions for video collecting evidence

~~Video:~~

*Summary all 3 round robin*

## INCREASING THE QUALITY OF THE INTERACTIONS

### 1. Pace of Questioning

#### A. Wait Time I

According to researcher Mary Budd Rowe, the average teacher waits less than a second after asking a question before giving a cue or moving on to another student or answering the question. She found when teachers waited 3-5 seconds that responses increased from a mean of 7 words to 28 words. Students also answered at higher intellectual levels, demonstrated more confidence in their answers, and even asked more questions to clarify understanding.

#### B. Wait Time II

Usually, a teacher reacts immediately to a student's answer, sometimes interrupting the response. When a teacher waits 3-5 seconds after a student response, students answer more completely and correctly, consider responses and draw more conclusions, ask more questions, increase interactions with other students, and demonstrate more confidence in their responses. Teachers' questions also tend to become higher level and more focused on outcomes.

### 2. Distribution of Questions

#### A. Volunteer/Non-volunteer balance

Some students know that in some classrooms they do not have to participate if they choose not to volunteer. The advantage of calling on only volunteers is that it may be less threatening. A disadvantage is that a small number of students will be answering all of your questions. When calling on non-volunteers, it is best to ask the question first, provide wait time, and then call on a student by name. If you call the student's name first, the rest of the class may not listen to the question.

**B. Equity and Expectations:**

Studies show that teachers tend to call on high-achieving students more than on low-achieving students and give more wait time to high-achieving students. Some teachers also call on students differently based on gender and race.

**C. Group/Individual Balance:**

Most questions tend to be one-on-one between the teacher and one student. In a class of 30 students, that usually means the probable engagement is 1/30<sup>th</sup> of the class at any one time, as students tend to disengage when they are not being addressed. Students can be engaged more actively by formulating questions in a way that allows for students to share their responses with one or more other students and then report out. The table below contrasts the two strategies.

Individual Questioning	Group Questioning
• One student held accountable at a time	• All students are held accountable
• No peer feedback	• Peer feedback supports and precedes teacher feedback
• Not always safe as answers are public	• Safer, more private engagement - opportunity for cognitive rehearsal before "going public"
• Discourse skills are not enhanced and exposure to diverse thinking is limited	• Opportunity to practice discourse skills and experience diversity
• Teacher guesses at total class needs based on one student's answer	• Teacher has broader picture of student needs

### **3. Use of Elaboration and Follow-up Questions**

Asking follow-up questions that require students to elaborate promotes more thinking and helps shape understanding. Initial responses may be superficial. Asking students to elaborate gets students more involved in critical analysis of their own and other students' ideas. Examples: "Now that you have shared the facts, what are the implications for our planet?" "What do you mean by civilized?" "What makes you think that?" "What might be another way of looking at that?"

Use the student response to lead to the next follow-up question. While listening to the student, try to determine whether you understand her point. If you do not understand, probe for more information or clarification. Examples: "What details can you share to further define your thinking?" "Share an example to help us follow your thinking?"

Teachers may also ask for elaboration from other students by asking others to agree/disagree, add to, support, modify, or give evidence to the contrary. This places the burden on the rest of the class to listen to each response. Examples: "Please add to that." "Who has another way to say that?" "Please paraphrase what Mike said."

### **4. Use of Redirecting Questions**

If students don't answer immediately, teachers typically answer their own questions. Asking other students instead of the teacher answering makes the whole class accountable for answering every question. It is also an effective strategy for allowing a student to correct another student's incorrect response.

When students ask a teacher a question, an effective strategy is to ask, "Who can answer that?" This strategy teaches students to provide responses to other students and not just the teacher. It also teaches students to listen more carefully to each other.

### **5. Creation of a Safe Environment**

Students often perceive that they have more to lose in terms of being embarrassed by answering a question incorrectly than from not answering. Students do not like to look ignorant before their teacher or peers. Creating a climate that allows for risk-taking and making mistakes increases the chance that students will answer questions thoughtfully.

EXERCISE 9: WHY SHOULD STUDENTS LEARN TO ASK QUESTIONS? (10)

Facilitator Notes

*Comment*  
*yes*  
*comment*  
T-10

T: Statements about student questioning

*quest*

1. React to the following statements: It is a complete error to equate asking questions of students to students asking us questions" plus other statements. (3)

*Research*

2. ~~Share some of the research on students asking questions.~~ The literature indicates that teachers ask 93% of the questions asked in the classroom. As a result, teachers' own understanding increases as they think up meaningful questions, but students often wait for learning to occur until the questions are asked. Questions often emerge naturally when we are reading, exploring, and discussing. They don't just appear magically at the end of the chapter or are imposed from an external source, but rather, are generated from genuine curiosity and perplexity.

*Lave*

T-11

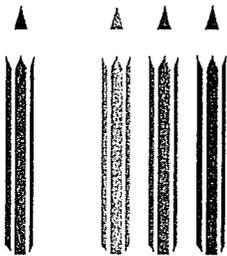
T: 93% of the question ...

*usually in the first 10 min of a post discussion*

The most common interaction pattern in classrooms at all grade levels is the IRE pattern, which consists of teacher-initiated interaction, student response, and teacher evaluation. The teacher usually initiates the interaction using a form of a question. This sends the message that teachers have the right to speak at any time but students must wait to be engaged or recognized by the teacher. It also communicates that the teacher decides what knowledge is valuable and at what pace the lesson should move; students are not allowed to raise related issues or personal concerns. The kinds of learning which lends itself to IRE patterns of instruction is limited to lower cognitive level processes which stress recall of information. Questions aimed at producing accurate recall or simple identification do little to promote any real thinking or understanding. Changing the IRE pattern and allowing students to initiate the interactions through their questions produces some different results.

\*T-  
Chart: IRE

*Student asks questions teacher responds*



CREATING

Teachers own  
understanding that  
increases as questions  
but students  
wait for learning  
to occur until  
questions asked  
Some ques. occur  
naturally - others  
must be generated  
from genuine  
curiosity (pupils etc)

POWERFUL LEARNING

Pre-school children ask more than  
half of the questions in the home.

Nursery school students ask less than 5%  
of the questions at school.

High school students ask less than 15% of  
the questions at school.

Overall, teachers ask 93% of all questions  
in the classroom



3. Share quote on importance of learning to ask questions. Ask participants to generate a list using the following stem: *What might be the impact on students if we allowed them to initiate interactions through their own questions?*

You might use the Place Mat Strategy: Place a large sheet of paper in the center of the table. Divide it into equal sections based on the number of participants at the table. Each participant generates their list individually and then they share the lists with the others at the table.

4. Ask groups to share ideas with the whole group. If they are not mentioned, then you might want to add the following:

a. **Develops Independence**: Our desire is to develop independent learners but as long as students are waiting for the teacher to ask a question, they are dependent on others for their learning. By teaching students to ask questions, they begin to develop lifelong skills of questioning. Students encounter a vast amount of information through technology (and from many other sources). They need to be able to focus their learning by asking questions about what that information means and what they should do with it. Teachers are not always available to guide them through that process.

b. **Increases Peer Interaction**: By shifting the control for interaction away from the teacher, students not only become more active participants in their own learning, they learn to listen to each other. In addition to learning to value their own contributions and knowledge, they learn to value each others' contributions. They increase their skills in genuine discourse.

c. **Increases Sense of Worth/Value**: In the IRE pattern, the teacher often evaluates the responses. By allowing students to initiate interactions, teachers' responses become less judgmental, leading students to feel that their thinking is interesting or important or related or novel and not just right or wrong.

Facilitator Notes

T-12

T: The ability to think ...

CH-20

HO\* - PLACEMAT  
(need small post-its)

CH-21

- generates ideas  
what are post-its  
effects on students  
to interact

Ben

- d. **Increases Interest & Motivation:** By generating their own questions, students' interest increases. Sometimes students fail to give more elaborate responses, not because they do not know the answer, but because they lack interest in the question the teacher asks. Having a greater sense of control over the direction of their learning increases student motivation.

Demonstration – Invite a participant to come up and share something about which they are very excited. As the participant is sharing, keep interrupting the story with questions that direct the sharing to where you want it to go. Ask the participant to share what they were thinking when you kept interrupting and controlling the conversation and how they felt about that. Questions can inhibit rather than facilitate dialogue and take the discussion in the direction of the question-asker. (5)

Notes:

*Get back order*

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E. Demonstration *understander*

*When st. ask? then to demonstrate  
provides evidence that student makes  
connect*

*class*

*Y  
Kern*

# EXERCISE 10: WAYS TO TEACH STUDENTS TO ASK QUESTIONS (30)

*(5 min) Pom*

1. Swap Shop - Invite participants to scan the strategies to teach students to ask questions and choose one of the strategies they might use it in their classroom. Then invite participants to get up and find another person with whom to share their strategy and what that it would look like in their classroom.. After each person has shared, they go find someone new with whom to exchange their ideas. They may wish to adapt their idea as they talk to other participants. If time allows, participants may share one great idea they heard from someone else with their table group. (15)

*on index card*

Facilitator Notes

HO-7-8

HO: Ways to Teach Students to Ask Questions

*Teach kids how to ask questions -  
- modeling  
- encouragement  
- personal experiences  
- a hand out*

*(5 min) due  
Read & Review*

## Discussion Questions: (15) ~~OPTIONAL~~

- Do some disciplines lend themselves better than others to student-generated questions?
- How much guidance (or actual instruction) would you need to help students formulate interesting and effective questions?
- ~~What effects would you predict student-generated questions would have on your students' motivation toward learning?~~
- ~~What are obstacles to using student-generated questions? How might you address those obstacles?~~

*5 min clarification  
most share*

*if for*

T-13

T: Discussion Questions

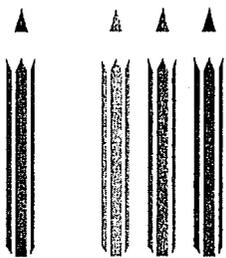
*Content*

## TEACHING STUDENTS TO ASK QUESTIONS

1. Teach students to categorize questions: If students know the names and purposes for different categories of thinking, they can learn to ask them of each other. It may be necessary to adapt the names of the categories we have used when teaching young children. Remember: It is as important to teach students the reason or purpose for asking each kind of question as it is for them to know the names of the categories. One way to use this strategy is to have students number off in their group from 1-4 and after a piece of content or reading, each student develops a question to generate a kind of thinking. Another strategy is to ask students to brainstorm questions on a particular subject and then categorize the kinds of thinking the questions generate. The teacher may want to add any types of questions that students do not seem to be generating so they have all four categories of thinking.
2. Teach students the cognitive behaviors that go with the thinking embedded in the questions: Students often don't know how to answer our questions because they do not know what kind of thinking we are asking them to perform. A verb such as "infer" can have multiple meanings even for teachers. Teaching students what those kinds of thinking are will allow them to use the appropriate thinking in their questions.
3. Allow students to develop their own questions for learning: At the beginning of a lesson, ask students what they would like to learn about a subject. Strategies such as "What I Know, What I Want To Know, and What I Have Learned" (KWL) help elicit student-generated questions.
4. Use Junior Great Books questioning strategies: In the Junior Great Books instruction, teachers are expected to only ask questions about which they are genuinely curious and to which they do not have an answer. For more information, go to [www.greatbooks.org](http://www.greatbooks.org)
5. Teach students rules of effective discourse: If students do not have skills for talking with their peers, they will be unable to break out of the pattern of only responding to the teacher. Teach students how to listen, probe, paraphrase, check for understanding, stay on the point, take turns, etc. One study found that early adolescents interact with other students much more freely than with the teacher. Answers are longer and more elaborate to peers' questions than to teachers' questions. (Dillon, 1982)

*Socratic  
seminars*

6. **Model effective questioning techniques:** It is very difficult to do something that we have not seen someone do effectively. It is important that teachers use the skills for increasing the quality of interactions and ask a variety of types of questions. Explaining to students what you are doing and why allows them to process your behavior and increases the probability they will duplicate it in another context.
7. **Use a declarative statement instead of a question:** Throughout this module we have presented statements instead of posing a question and asked you to respond. Statements can be more ambiguous and generate a less predictable response. The statement leaves more room for students to ask their own questions, add their own interpretations, and elaborate. Students are freer to use their prior knowledge and experience in accepting or rejecting the statement. Statements also give the teacher more information about what students understand or do not understand than questions.
8. **Ask students to create test questions:** If students have been taught the categories of thinking and their purposes, they are able to develop test questions at a variety of levels. Teachers could also allow students to analyze tests or questions at the end of chapters using the four categories of thinking. Giving students the opportunity to develop questions for assessment helps to focus their study. Generally, students create more difficult questions than teachers do.
9. **Use Reciprocal Teaching:** See attached article.
10. **Use Paired Problem Solving:** In this strategy students are paired. The problem solver tells what he or she is thinking at every step as he or she proceeds to solve the problem. The listener checks continually for accuracy, points out errors (but doesn't correct them); insists on vocalization; encourages the problem solver to persist; and seeks clarity and precision of language. (Arthur Whimbey & Jack Lochhead)



CREATING

*Pres. 4  
optional of  
there is  
same!*

OR POWERFUL LEARNING

## Discussions

- 1.) Do some disciplines lend themselves better than others to student-generated questions?
- 2.) How much guidance (or actual instruction) would you need to help students formulate interesting and effective questions?
- 3.) What effects would you predict student-generated questions would have on your students' motivation toward learning?
- 4.) What are the obstacles to using student-generated questions? How might you address those obstacles?



(Optional) Watch the film clip of a student teacher discussing his attempt to engage students through questions. Discuss your reaction to the clip. Educational "experts" often advise teachers that the best way to encourage students to think and to express their ideas is to pose a problem in the form of a question. Dillon (1982) points out however, that teachers' questions are formulated from teachers' problems - not from students' problems. "Students limit responses to teachers' questions not because students are unable to give richer answers, but because they are not sufficiently interested in the questions.(5)

*Smith*

*Ray*

Facilitator Notes

Video Clip from  
"Constructivism:  
Case Studies in  
Constructivist  
Classrooms" ASCD

OR ...

Respond to Quote

*Dillon Quote -  
on chart  
paper? —*

*teachers' questions  
are formulated  
from teachers' problems,  
- not from students'  
problems —*

*Comments?*

*left side*

## Teaching for Understanding Modules

**Questioning for Understanding:** This module helps teachers identify the levels of thinking they would like to promote and the questions that generate that level of thinking. It also explores how to improve the quality of the interactions in the classroom. In addition to improving teacher questions, the module examines ways to encourage students to ask questions.

**Providing Feedback to Promote Understanding:** This module identifies components of effective feedback, including framing feedback with clear, public criteria for success, having multiple sources of feedback, teaching students to self-assess, and finding opportunities for students to refine and revise work based on feedback.

**Assessing Understanding:** Depending on their purpose for assessing, teachers will want to use different assessments. This module examines how assessment can be embedded in instruction to improve performance and allow students to develop and demonstrate understanding. Participants explore and develop performance tasks as a way of assessing student understanding.

**Designing Standards-Based Units for Understanding:** Participants continue to explore understanding by examining how to design units of study for students. The unit design uses a “backward design” process. The process identifies the standard to be addressed, the big understandings and essential questions for the unit, the evidence and process for assessing understanding, and then the selection of appropriate learning activities.

# CONDITIONS FOR POWERFUL LEARNING

<p><b>1. Students experience the curriculum in a way that promotes understanding.</b></p> <p>Curriculum is:</p> <ul style="list-style-type: none"> <li>• Aligned (Standards/Content/Instruction/Assessment)</li> <li>• Holistic/Big Picture</li> <li>• Deep</li> <li>• Integrated/Interrelated/Connected</li> <li>• Multicultural</li> </ul>	<p><b>2. Students construct knowledge.</b></p> <p>Students:</p> <ul style="list-style-type: none"> <li>• Access prior knowledge to make connections</li> <li>• Organize information to make sense</li> <li>• Transform information to demonstrate understanding</li> <li>• Think about their thinking</li> </ul>
<p><b>3. Students' needs drive the design of learning experiences.</b></p> <p>Learning experiences are:</p> <ul style="list-style-type: none"> <li>• Challenging and rigorous</li> <li>• Relevant and authentic</li> <li>• Providing for choice</li> <li>• Developmentally appropriate</li> <li>• Attentive to learning styles</li> </ul>	<p><b>4. Students demonstrate understanding.</b></p> <p>Students modify performance based on:</p> <ul style="list-style-type: none"> <li>• Clear criteria for success</li> <li>• Feedback</li> <li>• A variety of assessments</li> <li>• Self-assessment</li> <li>• Questions</li> </ul>
<p><b>5. Students experience a learning environment that is safe and productive.</b></p> <p>The environment is safe:</p> <ul style="list-style-type: none"> <li>• Cognitively</li> <li>• Physically</li> <li>• Emotionally</li> <li>• Socially</li> </ul> <p>... supporting student productivity</p>	

# EXERCISE 11: SELF-ASSESSING AND OBSERVATION TOOLS (5)

*Handwritten signature*

Take a few minutes to examine the remaining observation tools. These tools could be used to self-analyze, possibly from a video or an audiotape of your teaching. They could also be used by peers to provide you with some feedback on questioning in your classroom. One tool will allow you to examine your teacher-made tests and textbook tests and assignments in order to analyze the types of questions you are asking and the type of thinking you are generating. This might be a good exercise for a study group or team meeting, analyzing a test a teacher brings to the meeting.

2. Students can also be a practical and reliable source of feedback on teacher questioning because they observe the teacher in action many hours each week.

Notes:

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## Facilitator Notes

HO-9-10

- analyze tests
- peer obs. form

*What kinds of thinking are you looking at?*

*Whole - 2 on packet, plus articles, self assessment*

Plus 2 other handouts

- > reflection,
- > self assessment
- > peer observations

### CLASSIFYING TESTS FOR CATEGORIES OF THINKING

of your own teacher-made tests. Classify the end/or thinking by the 4 categories we studied.

- f Accessing Questions \_\_\_\_\_
- f Organizing Questions \_\_\_\_\_
- f Transforming Questions \_\_\_\_\_
- d. Number of Thinking about Thinking Questions \_\_\_\_\_

2 Don't forget student feedback!

ize a chapter test from a textbook or any commercially content test using the same 4 categories we studied.

- Number of Accessing Questions \_\_\_\_\_
- Number of Organizing Questions \_\_\_\_\_
- Number of Transforming Questions \_\_\_\_\_
- Number of Thinking about Thinking Questions \_\_\_\_\_

- How did either of the tests meet or not meet stated or intended outcomes?
- What insights did you have as you did the analysis?
- Compare and contrast your analysis of your teacher-made test with the commercially made test.



## EXERCISE 12: CLOSURE

1. Review the configuration map for questioning and self-assess your classroom.
2. Find a partner and share:
  - Insights you have from the self-assessment
  - Something you want to change in your classroom

Notes:

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## Facilitator Notes

HO 11-12 Rubric  
HO: Configuration  
Map

T-14  
T: Questions for  
Discussion

(Optional)  
HO-13