

TEACHER SKILLS IN DEVELOPING THINKING SKILLS

Effective thinkers are able to analyze situations systematically and proficiently, using a number of skills learned through effective delivery of instruction. You will play a critical role in the development of these skills; simply by using teaching methodology to encourage student thought processes. The following teacher competencies will assist in this development:

1. Foster an open climate. Promote student interaction with you and with others, through having an attitude of acceptance of different ideas. Encourage student thought through asking open-ended questions, guided group activities, and student interaction.
2. Encourage students to gather and organize information. If all information is presented to students, their attitudes will be passive. Instead, establish a game plan or road map and have the students "discover" answers. Once this is accomplished, have them organize information in a logical sequence.
3. Encourage students to justify ideas. After students gather and organize information learned, have them present and justify what has been discovered through formal or informal presentations.
4. Provide visual clues for developing cognitive strategies. Visual clues, such as structured overviews and graphic organizers, give students concrete pictures of abstract ideas. Mapping can help students understand relationships.
5. Probe to develop student responses. Probing involves a well-planned series of teacher questions leading the students. Questions must be planned prior to the delivery of a lesson and help the students build on different responses, which bring them to conclusions. The important element of probing is that the students think through responses and then come to conclusions.
6. Provide adequate wait-time. How many times have you actually waited for responses? Too often, teachers look for quick responses without giving students time to think through questions and develop answers. Students will think at different rates and should be given an adequate period to formulate responses. When you ask questions, be patient. Give each student enough time to actually think about the question. If the student does not understand the question, rephrase it.
7. Encourage, no, insist students answer questions in full sentences. As simplistic as this seems, it is essential. Students will improve communication and thought processes by responding in full, complete thoughts in logical sequence.
8. Teach for transfer. Skills developed in each classroom must have transfer to another discipline. This can be accomplished by simply asking students how a new skill, technique, or information can be used for other aspects of life. Encourage students by providing examples, relating these new skills to a broad range of applications and situations.

Thinking Skills

Examples of Open-Ended Questions:

What did you notice about . . . ?

What do you mean by . . . ?

How do you know . . . ?

What is the difference between . . . ?

Tell us three things about . . . ?

Show us what you mean . . . ?

How are these alike/different?

What made you decide . . . ?

How did you figure out . . . ?

Who has an entirely different way? Explain.

What does this tell you about . . . ?

From what you know about _____, what questions could you ask . . . ?

Why would you want or need to know that?

What was the result of . . . ?

How does this compare with . . . ?

What do you think you should do first?

What is the main idea of this . . . ?

What better way . . . ?

What do you predict would happen if . . . ?

From what we discussed today, what logical conclusions could you draw?

Summarize what we discussed today.

What do you think should happen next?

Developing Components of a Unit of Instruction

Student Supplement 2 – Selecting Key Words to Describe Thinking Skills (Cognitive Domain)

<i>Knowledge</i>	<i>Comprehension</i>	<i>Application</i>	<i>Analysis</i>	<i>Synthesis</i>	<i>Evaluation</i>
Define	Convert	Calculate	Analyze	Assemble	Appraise
Describe	Defend	Change	Classify	Categorize	Assess
Identify	Discuss	Compute	Compare	Combine	Compare
Label	Distinguish	Demonstrate	Diagram	Compile	Conclude
List	Estimate	Discover	Differentiate	Compose	Contrast
Match	Explain	Draw	Discriminate	Create	Criticize
Name	Express	Manipulate	Dissect	Develop	Defend
Outline	Extend	Modify	Distinguish	Design	Discriminate
Reproduce	Generalize	Operate	Examine	Explain	Estimate
Select	Give	Practice	Identify	Generate	Explain
State	Infer	Predict	Illustrate	Modify	Interpret
	Paraphrase	Prepare	Investigate	Organize	Judge
	Predict	Produce	Outline	Plan	Justify
	Review	Relate	Point out	Rearrange	Measure
	Rewrite	Show	Relate	Reconstruct	Rate
	Summarize	Simulate	Select	Relate	Summarize
		Solve	Separate	Reorganize	Support
		Translate	Subdivide	Revise	
		Use		Rewrite	
				Summarize	
				Write	