

## 3.13: Inquiry in Tutorial

## Using the Inquiry Process in Tutorials

Higher-level questions are at the heart of the tutorial because they prompt inquiry, a process that enables students to become independent thinkers who master their own learning. Inquiry occurs in the tutorial at Steps 5 and 6 as shown on *Handout 1.9b*. (You may want to provide students with a copy of this handout for reference.)

**Directions:** Read the chart, and highlight key concepts of each level of the inquiry process. Use this page as a guide during tutorials, following the steps for each student presenter.

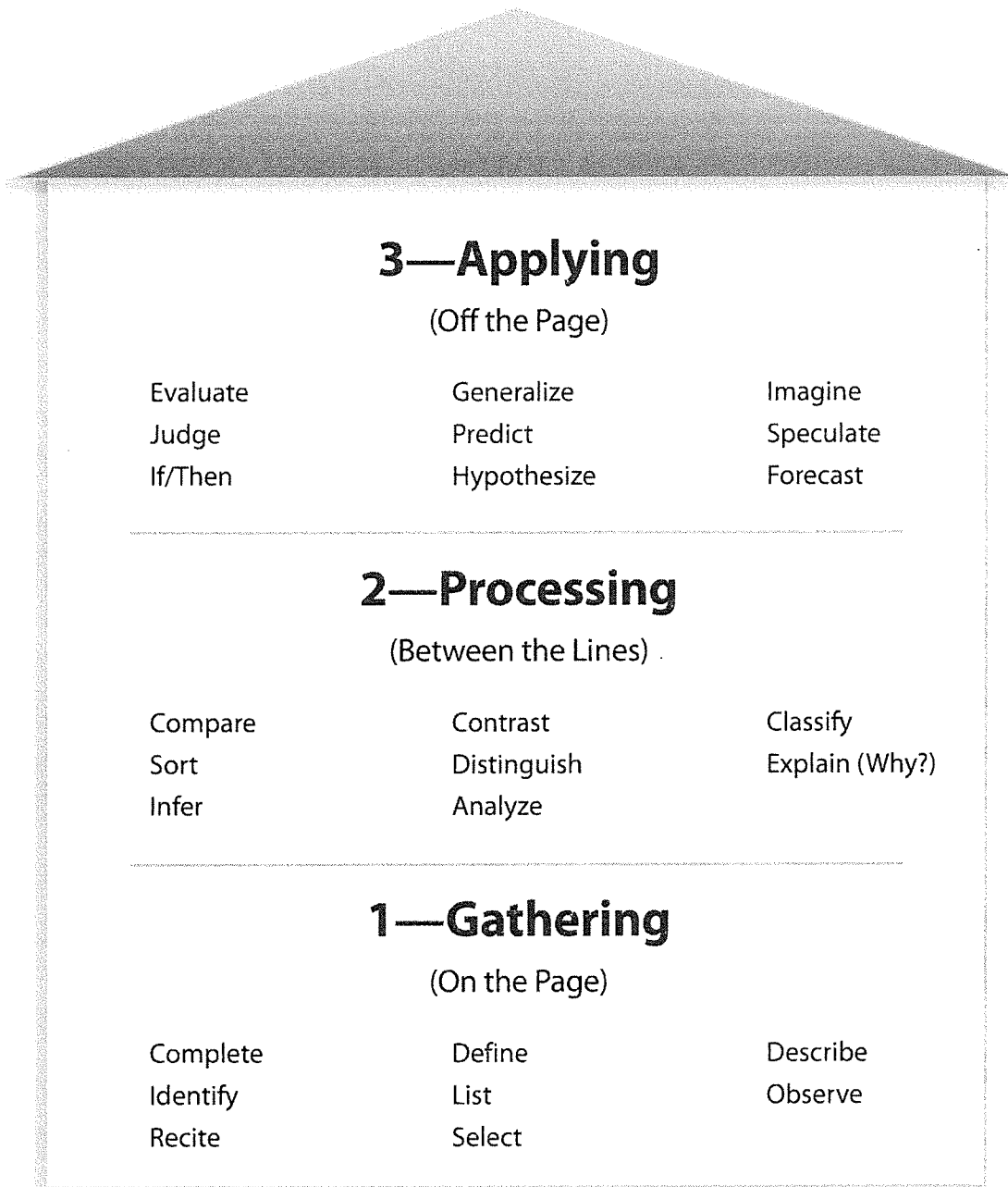
Levels	Description of Inquiry Level	Sample Questions
<b>Level 1</b>	<p><b>Gather and Recall Information (Gathering/Input)</b></p> <p>Ask <b>LEVEL 1</b> questions to identify what student knows about the problem/question and to help him/her connect to prior knowledge.</p>	<ul style="list-style-type: none"> <li>• What do you know about your problem?</li> <li>• What does _____ mean?</li> <li>• What did you record in your class notes about the lecture?</li> <li>• What does it say in the text about this topic?</li> <li>• What is the formula or mnemonic device (e.g., P-E-M-D-A-S) that will help you identify the steps necessary to solve the problem?</li> </ul>
<b>Level 2</b>	<p><b>Make Sense Out of Information Gathered (Processing)</b></p> <p>Ask <b>LEVEL 2</b> questions to help student begin processing the information gathered, make connections and create relationships.</p>	<ul style="list-style-type: none"> <li>• Can you break down the problem into smaller parts? What would the parts be?</li> <li>• How can you organize the information?</li> <li>• What can you infer from what you read?</li> <li>• Can you find a problem/question similar to this in the textbook to use as an example?</li> <li>• What is the relationship between _____ and _____?</li> </ul>
<b>Level 3</b>	<p><b>Apply and Evaluate Actions/ Solutions (Applying/Output)</b></p> <p>Ask <b>LEVEL 3</b> questions to help student apply knowledge acquired and connections made to predict, judge, hypothesize or evaluate.</p>	<ul style="list-style-type: none"> <li>• How do you know the answer is correct? How could you check your answer?</li> <li>• Is there more than one way to solve the problem? Could there be other correct answers?</li> <li>• Can you make a model of a new or different way to share the information?</li> <li>• How do you interpret the message of the text?</li> <li>• Is there a real-life situation where this can be applied or used?</li> <li>• Can you explain it in a different way?</li> <li>• Could the method of solving this problem work for other problems?</li> </ul>

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# Costa's Levels of Thinking

To better understand the content being presented in their core subject areas, it is essential for students to learn to think critically and to ask higher levels of questions. By asking higher levels of questions, students deepen their knowledge and create connections to the material being presented. Students need to be familiar with Costa's (and/or Bloom's) Levels of Thinking to assist them in formulating higher levels of questions.



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# Costa's Levels of Thinking

	Level	Descriptions	Vocabulary Words for the Levels of Thinking			
<b>Higher-Order Thinking Skills</b> <b>HOTS</b>	<b>APPLYING INFORMATION</b>	<b>(OUTPUT)</b>  Applying and evaluating actions, solutions and connections made in order to predict	assemble	develop	make	
			build	devise	plan	
				construct	formulate	produce
				create	imagine	write
			design	invent		
	<b>PROCESSING INFORMATION</b>	<b>(PROCESSING)</b>  Making sense out of information; processing the information gathered by making connections and creating relationships	appraise	forecast	select	
					argue	generalize
			check	hypothesize	support	
			critique	if/then	test	
			defend	judge	value	
			detect	predict	value	
<b>Lower-Order Thinking Skills</b> <b>LOTS</b>	<b>GATHERING INFORMATION</b>	<b>(INPUT)</b>  Identifying and recalling information	attribute	discriminate	integrate	
						classify
				compare	examine	outline
				contrast	experiment	question
			criticize	explain why	sort	
			deconstruct	infer	structure	
			differentiate			
			carry out	employ	operate	
			choose	execute	schedule	
			demonstrate	illustrate	sketch	
			do	implement	solve	
			dramatize	interpret	using	
			classify	explain	recognize	
			complete	identify	report	
			describe	locate	select	
			discuss	paraphrase	translate	
			define	memorize	reproduce	
			duplicate	recall	state	
			list	repeat		

Adapted from Comparison by Andrew Churches at <http://edorigami.wikispaces.com> and [http://www.odu.edu/educ/roverbau/Bloom/blooms\\_taxonomy.htm](http://www.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm)

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**Costa's Levels of Thinking and Questioning:  
English**

<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>
<ul style="list-style-type: none"> <li>• What information is provided?</li> <li>• Locate in the story where ...</li> <li>• When did the event take place?</li> <li>• Point to the ...</li> <li>• List the ...</li> <li>• Name the ...</li> <li>• Where did ...?</li> <li>• What is ...?</li> <li>• Who was/were ...?</li> <li>• Illustrate the part of the story that ...</li> <li>• Make a map of ...</li> <li>• What is the origin of the word _____?</li> <li>• What events led to ...?</li> </ul>	<ul style="list-style-type: none"> <li>• What would happen to you if ...?</li> <li>• Would you have done the same thing as ...?</li> <li>• What occurs when ...?</li> <li>• Compare and contrast _____ to _____.</li> <li>• What other ways could _____ be interpreted?</li> <li>• What is the main idea of the story (event)?</li> <li>• What information supports your explanation?</li> <li>• What was the message in this piece (event)?</li> <li>• Give me an example of ...</li> <li>• Describe in your own words what _____ means.</li> <li>• What does _____ suggest about _____'s character?</li> <li>• What lines of the poem express the poet's feelings about _____?</li> <li>• What is the author trying to prove?</li> <li>• What evidence does he/she present?</li> </ul>	<ul style="list-style-type: none"> <li>• Design a _____ to show ...</li> <li>• Predict what will happen to _____ as _____ is changed.</li> <li>• Write a new ending to the story (event) ...</li> <li>• Describe the events that might occur if ...</li> <li>• Add something new on your own that was not in the story ...</li> <li>• Pretend you are ...</li> <li>• What would the world be like if ...?</li> <li>• Pretend you are a character in the story. Rewrite the episode from your point of view.</li> <li>• What do you think will happen to _____? Why?</li> <li>• What is most compelling to you in this _____? Why?</li> <li>• Could this story have really happened? Why or why not?</li> <li>• If you were there, would you ...?</li> <li>• How would you solve this problem in your life?</li> </ul>

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## Costa's Levels of Thinking and Questioning:

# Math

LEVEL 1	LEVEL 2	LEVEL 3
<ul style="list-style-type: none"> <li>• What information is provided?</li> <li>• What are you being asked to find?</li> <li>• What formula would you use in this problem?</li> <li>• What does _____ mean?</li> <li>• What is the formula for ... ?</li> <li>• List the ...</li> <li>• Name the ...</li> <li>• Where did ... ?</li> <li>• What is ... ?</li> <li>• When did ... ?</li> <li>• Explain the concept of ...</li> <li>• Give me an example of ...</li> <li>• Describe in your own words what _____ means.</li> <li>• What mathematical concepts does this problem connect to?</li> <li>• Draw a diagram of ...</li> <li>• Illustrate how _____ works.</li> </ul>	<ul style="list-style-type: none"> <li>• What additional information is needed to solve this problem?</li> <li>• Can you see other relationships that will help you find this information?</li> <li>• How can you put your data in graphic form?</li> <li>• What occurs when ... ?</li> <li>• Does it make sense to ... ?</li> <li>• Compare and contrast _____ to _____.</li> <li>• What was important about ... ?</li> <li>• What prior research/formulas support your conclusions?</li> <li>• How else could you account for ... ?</li> <li>• Explain how you calculate ...</li> <li>• What equation can you write to solve the word problem?</li> </ul>	<ul style="list-style-type: none"> <li>• Predict what will happen to _____ as _____ is changed.</li> <li>• Using a math principle, how can we find ... ?</li> <li>• Describe the events that might occur if ...</li> <li>• Design a scenario for ...</li> <li>• Pretend you are ...</li> <li>• What would the world be like if ... ?</li> <li>• How can you tell if your answer is reasonable?</li> <li>• What would happen to _____ if _____ (variable) were increased/decreased?</li> <li>• How would repeated trials affect your data?</li> <li>• What significance is this formula to the subject you're learning?</li> <li>• What type of evidence is most compelling to you?</li> </ul>

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## Costa's Levels of Thinking and Questioning: Science

LEVEL 1	LEVEL 2	LEVEL 3
<ul style="list-style-type: none"> <li>• What information is provided?</li> <li>• What are you being asked to find?</li> <li>• What formula would you use in this problem?</li> <li>• What does _____ mean?</li> <li>• What is the formula for ... ?</li> <li>• List the ...</li> <li>• Name the ...</li> <li>• Where did ... ?</li> <li>• What is ... ?</li> <li>• When did ... ?</li> <li>• Describe in your own words what _____ means.</li> <li>• What science concepts does this problem connect to?</li> <li>• Draw a diagram of ...</li> <li>• Illustrate how _____ works.</li> </ul>	<ul style="list-style-type: none"> <li>• What additional information is needed to solve this problem?</li> <li>• Can you see other relationships that will help you find this information?</li> <li>• How can you put your data in graphic form?</li> <li>• How would you change your procedures to get better results?</li> <li>• What method would you use to ... ?</li> <li>• Compare and contrast _____ to _____.</li> <li>• Which errors most affected your results?</li> <li>• What were some sources of variability?</li> <li>• How do your conclusions support your hypothesis?</li> <li>• What prior research/formulas support your conclusions?</li> <li>• How else could you account for ... ?</li> <li>• Explain the concept of ...</li> <li>• Give me an example of ...</li> </ul>	<ul style="list-style-type: none"> <li>• Design a lab to show ...</li> <li>• Predict what will happen to _____ as _____ is changed.</li> <li>• Using a science principle, how can we find ...</li> <li>• Describe the events that might occur if ...</li> <li>• Design a scenario for ...</li> <li>• Pretend you are ...</li> <li>• What would the world be like if ... ?</li> <li>• What would happen to ___ if _____ (variable) were increased/ decreased?</li> <li>• How would repeated trials affect your data?</li> <li>• What significance is this experiment to the subject you're learning?</li> <li>• What type of evidence is most compelling to you?</li> <li>• Do you feel _____ experiment is ethical?</li> <li>• Are your results biased?</li> </ul>

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## Costa's Levels of Thinking and Questioning: Social Studies

LEVEL 1	LEVEL 2	LEVEL 3
<ul style="list-style-type: none"> <li>• What information is provided?</li> <li>• What are you being asked to find?</li> <li>• When did the event take place?</li> <li>• Point to the ...</li> <li>• List the ...</li> <li>• Name the ...</li> <li>• Where did ...?</li> <li>• What is ...?</li> <li>• Who was/were ...?</li> <li>• Make a map of ...</li> </ul>	<ul style="list-style-type: none"> <li>• What would happen to you if ...?</li> <li>• Can you see other relationships that will help you find this information?</li> <li>• Would you have done the same thing as ...?</li> <li>• What occurs when ...?</li> <li>• If you were there, would you ...?</li> <li>• How would you solve this problem in your life?</li> <li>• Compare and contrast _____ to _____.</li> <li>• What other ways could _____ be interpreted?</li> <li>• What things would you have used to ...?</li> <li>• What is the main idea in this piece (event)?</li> <li>• What information supports your explanation?</li> <li>• What was the message in this event?</li> <li>• Explain the concept of ...</li> <li>• Give me an example of ...</li> </ul>	<ul style="list-style-type: none"> <li>• Design a _____ to show ...</li> <li>• Predict what will happen to _____ as _____ is changed.</li> <li>• What would it be like to live ...?</li> <li>• Write a new ending to the event.</li> <li>• Describe the events that might occur if ...</li> <li>• Pretend you are ...</li> <li>• What would the world be like if ...?</li> <li>• How can you tell if your analysis is reasonable?</li> <li>• What do you think will happen to _____? Why?</li> <li>• What significance is this event in the global perspective?</li> <li>• What is most compelling to you in this _____? Why?</li> <li>• Do you feel _____ is ethical? Why or why not?</li> </ul>

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