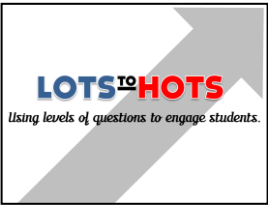
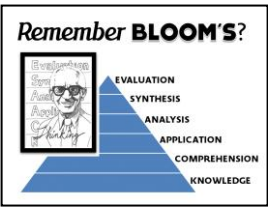
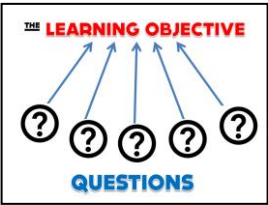
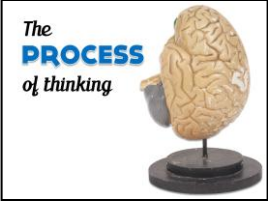
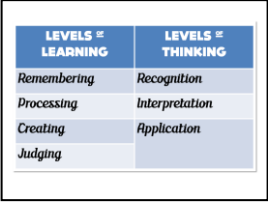

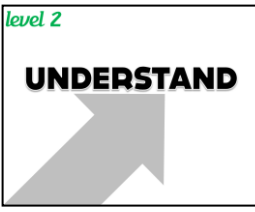
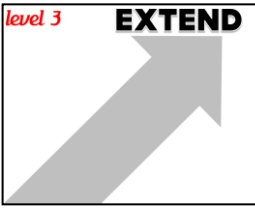
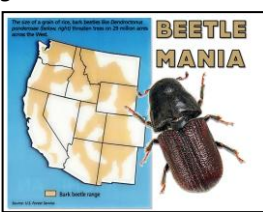
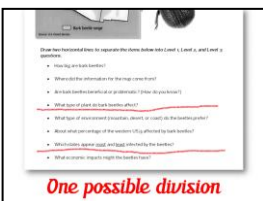
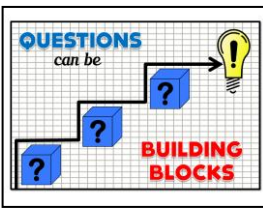
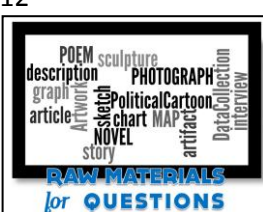
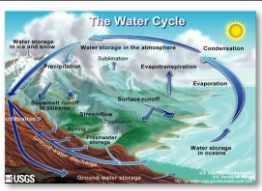

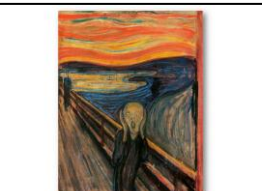


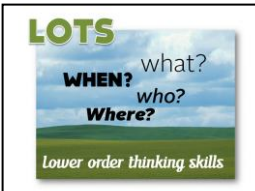




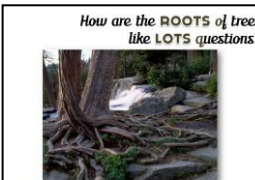

## Questioning: Engaging Students in Class





**Objective:** The following leader notes and corresponding PowerPoint are provided by the Curriculum and Instruction Department to school leaders as a support in training faculty members on timely and important subjects. Please feel free to use as is, or revise to best fit the needs of your faculty/staff.

| <p>1</p>   | <p>Teachers use questions with their students all the time, but how often do they carefully plan those questions with the goals of engaging students, improving understanding, and increasing participation? What we'll be looking at during this short presentation is the idea of using "lower level" questions to move students to "higher level" thinking.</p>   |                   |             |             |            |                |          |             |         |  |  |
|---|--|-------------------|-------------|-------------|------------|----------------|----------|-------------|---------|--|--|
| <p>2</p>   | <p>Remember Bloom's? This taxonomy provides a structure in which to categorize instructional objectives? Sure you do. Teachers have been using it to write objectives for a couple of generations. It's hierarchical and relies on the idea that not all learning objectives and outcomes have equal merit. Bloom worried that in the absence of a classification system, teachers might choose to emphasize simple recall or memorization of facts (which makes for easier testing) rather than emphasizing other (and likely more important) capabilities. It's a good tool for helping teachers notice if their instructional goals are stuck in the lower levels, and teachers have used it to create better learning goals.</p> |                   |             |             |            |                |          |             |         |  |  |
| <p>3</p>   | <p>Bloom was really most interested in objectives and the assessments that measure them. The simplest way to check if a student knows something is to ask a question. So Bloom's taxonomy helps us see that questions can lead toward learning outcomes. You might think that low level questions can only lead to low level outcomes. And teachers rarely set "low level" objectives. So sometimes, simple questions get ignored. It helps to think of low level questions leading to high level questions.</p>   |                   |             |             |            |                |          |             |         |  |  |
| <p>4</p>   | <p>Researchers since Benjamin Bloom have focused more on the process of thinking and less on objectives. What is it that is happening in a student's brain when he or she is thinking about the answer to a question? How do we increase the likelihood that students will want or be able to answer questions? It turns out that we might be able to help a student develop their thinking, increase their ability to move to the higher levels of questions, if we pay attention to all of the levels. But there are six, and they're hard to remember.</p>  |                   |             |             |            |                |          |             |         |  |  |
| <p>5</p>  <table border="1" data-bbox="155 1503 420 1703"> <thead> <tr> <th>LEVELS = LEARNING</th> <th>LEVELS = THINKING</th> </tr> </thead> <tbody> <tr> <td>Remembering</td> <td>Recognition</td> </tr> <tr> <td>Processing</td> <td>Interpretation</td> </tr> <tr> <td>Creating</td> <td>Application</td> </tr> <tr> <td>Judging</td> <td></td> </tr> </tbody> </table> | LEVELS = LEARNING  | LEVELS = THINKING | Remembering | Recognition | Processing | Interpretation | Creating | Application | Judging |  | <p>So researchers have classified these levels in different ways, an in fewer levels, than Bloom did. This slide shows two of them. It is a variation of the chart you see on the front of your handout, the one labeled "Questions in 3 Levels." Take a second and find it. In each case, these educational researches have reduced the number of Bloom's original levels, but not changed much fundamentally. If nothing else, they serve to demonstrate the continued attention research has placed on levels of questioning, and should be a message to teachers about paying attention to the kinds of questions they're asking. Let's think of three levels, much like the column labeled "levels of thinking". We'll call them RECOGNIZE, UNDERSTAND, and EXTEND. You will see it on the table labeled "Hierarchies in Comparison."</p> |
| LEVELS = LEARNING   | LEVELS = THINKING  |                   |             |             |            |                |          |             |         |  |  |
| Remembering   | Recognition  |                   |             |             |            |                |          |             |         |  |  |
| Processing  | Interpretation   |                   |             |             |            |                |          |             |         |  |  |
| Creating  | Application  |                   |             |             |            |                |          |             |         |  |  |
| Judging   |  |                   |             |             |            |                |          |             |         |  |  |
| <p>6</p>   | <p>At this lowest level of questioning – the one we're calling "recognize" – are the questions we often think of as "overly simplistic." Some teachers even disdain to ask these questions. This is where the answer is "right there" in whatever material it is that you're looking at. It should be obvious to students. So why ask it, right? Turns out that there may be good reasons to ask low level questions. If students are working with material, say, a poem or a graph, low level questions can force them to SLOW DOWN and identify simple, basic facts before rushing to "higher order" conclusions. These questions are simple, but not unimportant.</p>   |                   |             |             |            |                |          |             |         |  |  |

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| <p>7</p> <p>level 2</p> <p><b>UNDERSTAND</b></p>  | <p>At the second level are questions which lead to further understanding. These questions aren't found "right there" like level one questions. These require "reading between the lines" or "making inferences." One writer has called these "think and search" questions. Questions at this level ask students to "put the pieces together." If Benjamin Bloom were labeling this level he would probably associate it with analysis. Questions at this level are not easy, but for some students, being able to answer them requires that they've thought about, even if just briefly, the answers to Level 1 questions.</p>   |
| <p>8</p> <p>level 3</p> <p><b>EXTEND</b></p>      | <p>We're calling the highest level of questions "extend." That's because questions at this level require students to come up with information on their own, to brainstorm, to make educated guesses, and to apply their understanding in different situations. These questions change contexts in order to challenge students understanding. Some students may not be comfortable at this level because there are not always "right" answers, though there are sometimes answers which are better than others.</p> <p>Let's take just a minute to explore these three levels of questions.</p>   |
| <p>9</p>    | <p>Find your handout labeled "Beetle Mania." With your neighbors, answer the questions on this sheet using the material on the screen. (It's also on the top of the page.) As you answer, draw horizontal lines to separate the questions into the three levels. They are arranged – more or less – in order of difficulty, so you know the first question is Level 1 and the last question is Level 3.</p> <p>(ALLOW TIME TO FOR EXERCISE.)</p>   |
| <p>10</p>                                        | <p>Here is one possible way of dividing the questions. You may have placed your lines in slightly different places. Don't worry about that now.</p> <ul style="list-style-type: none"> <li>• How comfortable did you feel answering the different questions?</li> <li>• Did your level of uncertainty go up as you progressed?</li> <li>• Did you find people beginning to have different ideas?</li> </ul> <p>Now let me ask you another question about this:</p> <ul style="list-style-type: none"> <li>• Why is BROWN a good color choice for the map key?</li> <li>• What level is this question?</li> </ul> <p>(Teachers may place this question in any of the levels depending on what THEY THINK about it. Emphasize that there are not easily drawn lines between any questions.)</p>  |
| <p>11</p>                                       | <p>Think about the answers to some of the "low level" questions from the beetle activity. If you hadn't been asked, would you have bothered to notice that the Forest Service was the source? Probably not, but it is helpful in determining lots of other things about the material. Does having had to make a mental note about 1/3 of the west is infested (and most forest areas) with the beetle help with the last question about impacts on the economy? Of course.</p> <p>But students are inclined to rush over things when they should SLOW DOWN AND THINK. Asking questions at different levels, from low to high – you might say "scaffolding them" – is one way to help students learn to think.</p>  |
| <p>12</p>                                       | <p>What is the raw material for questioning? We live in a image rich, sound rich, text rich, - a MEDIA RICH - world. Students enjoy working with information-rich material and being asked questions about it. Too often teachers simply TELL students about what they are reading, seeing, or listening to. Even more often, teachers skip right over the simple, basic facts about something in their rush to get to "higher levels of thinking" and in so doing, leave students behind. ' </p> <p>Let's look at some examples of material which could be used in different classes at many different grade levels. For each, take a moment to think about Level 1 questions could lead students to be able to answer Level 2 questions which in turn would promote thinking at Level 3.</p> |

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| <p>13</p>    | <p>The water cycle is pretty basic science stuff. We've all seen diagrams like this before. A teacher asking questions beginning at Level 1 and moving carefully through Level 3 will get a lot more mileage out of this image than a teacher who simply talks to students while showing it.</p>   |
| <p>14</p>    | <p>Political cartoons are deceptively simple looking. Some students think they're "easy" and jump to simplistic conclusions. Other students are timid when analyzing them because the symbolism and analogies they contain are really quite difficult. Only using questions from different levels can effectively help students understand most cartoons.</p>  |
| <p>15</p>    | <p>We all know and love Edvard Munch's "The Scream." That's why we don't think much about it when we see it. But he used color, line, symbolism, and space in very sophisticated ways to create an important message. Asking the right questions, in the right order, leads students to understanding. It's far too tempting to just EXPLAIN the painting to students. And less effective because the students are passive. They just listen. Much better to make them think hard, after warming them up with some basic questions.</p>  |
| <p>16</p>   | <p>We can show students clips from films, news reports, and speeches and they can read textual information. We should mine these for questions from each level as well.</p> <p>NOTE TO PRESENTER: <i>You may want to allow time for participants to work in groups and create a series of leveled questions for the images. Handouts with these images and some suggested questions at each level are provided with this MicroPD.</i></p>  |
| <p>17</p>  | <p>Effective teachers plan their questions to lead students on a pathway to learning. Educational specialists Vacca and Vacca suggest starting with Level 2 questions as you plan. Once you know what you want them to understand, you can search the material (chart, text, map) for the specific Level 1 questions which, after answered, will provide background enabling students to answer those "more important" Level 2 questions.</p> <p>This is important to commit to, because it doesn't seem logical at first. But their research shows that considering Level 2 questions FIRST makes asking the right Level 1 and best Level 3 questions much more likely.</p>   |
| <p>18</p>  | <p>We might want to simplify this just a bit more. We can simply divided questions into Lower Order Thinking Skills and Higher Order Thinking Skills. The division between them is fuzzy, but we can generally discern it. This is shown on your handout in a table labeled LOTS and HOTS.</p> <p>Lower order thinking skills are LOTS. These are Level 1 questions may even be the kind of question that a student simply cannot miss; that is, they may be simple factual questions relating directly to the student's experience:</p> <ul style="list-style-type: none"> <li>• How many siblings do you have (for a lesson on demographics)?</li> <li>• Have you ever heard of Brahms?</li> <li>• Which do you think is harder – copper or iron?</li> </ul> <p>New material should always begin with some LOTS questions. They give students background and get them "in the game."</p> |

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| <p>19</p>    | <p>Think of LOTS questions as WHO, WHAT, WHEN, and WHERE questions along with the questions. Everyone needs to know these basic things about a topic before they can progress to high order thinking. And if you think they already know these so you can skip them, reviewing them briefly simply helps bring any students who might not know a little closer to understanding. And don't forget the "poll type" or "opinion" questions that a student can't miss.</p> |
| <p>20</p>    | <p>HOTS are higher order thinking skills. These are mostly Level 2 and 3 questions. They can only be answered by students who have background knowledge. LOTS questions get them ready for these.</p>   |
| <p>21</p>    | <p>HOTS questions are WHY and HOW questions we associate with Level 2. But also SO WHAT questions – which are clearly in the realm of Level 3. Also included are student opinions, but opinions that are now informed by study and the examination of new material. <b>HOTS questions get DISCUSSED in class. LOTS questions just get ANSWERED.</b></p>   |
| <p>22</p>   | <p>Now that we've described these types of questions, lets apply a technique to check for understanding. We'll use something called the "Analogy Technique" in which we compare two very different things – one more familiar and one which is new to us – to explain how they are alike.</p>   |
| <p>23</p> <p>How is the <b>TIP</b> of an iceberg like <b>HOTS</b> questions?</p>  <p>think of 3 ways</p> | <p>Turn and talk. – Have half the room work on this question.</p>   |
| <p>24</p> <p>How are the <b>ROOTS</b> of trees like <b>LOTS</b> questions?</p>  <p>think of 3 ways</p>   | <p>Turn and talk. – Have half the room work on this question.</p> <p>Debrief quickly by having some participants share responses.</p>   |
| <p>25</p>    | <p>To conclude, I'd like to share three final reasons why it is a good idea to start with Level 1 question and then move toward Level 3 questions when you work with new material with students.</p>  |

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| <p>26</p> <p><i>develop</i><br/><b>CONFIDENCE</b></p>   | <p>First of all, Lower level questions build student confidence. When students don't know the answers to the first questions they are asked about new material, they can become discouraged. If you know which students may struggle with Level 3, let them answer questions from Level 1 in front of the class.</p>  |
| <p>27</p> <p><i>build</i><br/><b>BACKGROUND KNOWLEDGE</b></p>   | <p>Use Lower level questions to build background knowledge. Making sure that students have carefully examined the material – slowed down and thought about it – increases the chances that they'll be able to answer the higher level questions. And that is ultimately what we want. We have to build a foundation before we can ask the “loftier” thinking questions.</p>   |
| <p>28</p> <p><i>encourage</i><br/><b>COMPLETION</b></p>   | <p>Lower level questions get students “in the game.” Studies show that when consumers participate in “customer loyalty” reward programs, they are much more likely to remain loyal if they get a “head start.” When they punch your card 5 times the first time you use it, you'll be coming back. Students who partially complete homework at school - or who answer a few easy questions – are much more likely to finish the homework at home or think carefully about the harder questions.</p>   |
| <p>29</p> <p><b>LOTS</b></p>   | <p>Take a moment and think about ONE THING that you learned, that occurred to you, or that you realized that created an “Aha!” moment for you in today's presentation. Share this with one of your neighbors.</p>   |
| <p>30</p> <p><b>REFERENCES</b></p> <p><small>Bloom, Benjamin S., ed. <i>Taxonomy of Educational Objectives: The Classification of Educational Goals</i>. Susan Fauer Company, Inc., 1956.</small></p> <p><small>Heath, Chip and Dan. <i>Switch: How to Change Things When Change is Hard</i>. Broadway Books, 2010.</small></p> <p><small>Lemov, Doug. <i>Teach Like a Champion</i>. Bostsey-Jones, 2010.</small></p> <p><small>Newcomb, L.H. &amp; Trefz, M.K. Levels of cognition of student tests and assignments in the College of Agriculture at The Ohio State University. <i>National Association of College Teachers of Agriculture Journal</i>, 31(2), 26-30, 1987.</small></p> <p><small>Vacca, Richard T. and Joanne L. <i>Content Area Reading</i>. HarperCollins Press, 1989.</small></p> <p><small>Wormeli, Rick. <i>Summarization in Any Subject</i>. ASCD Press.</small></p> | <p>Bloom, Benjamin S., ed. <i>Taxonomy of Educational Objectives: The Classification of Educational Goals</i>. Susan Fauer Company, Inc., 1956.</p> <p>Heath, Chip and Dan. <i>Switch: How to Change Things When Change is Hard</i>. Broadway Books, 2010.</p> <p>Lemov, Doug. <i>Teach Like a Champion</i>. Bostsey-Jones, 2010.</p> <p>Newcomb, L.H. &amp; Trefz, M.K. “Levels of cognition of student tests and assignments in the College of Agriculture at The Ohio State University.” <i>National Association of College Teachers of Agriculture Journal</i>, 31(2), 26-30, 1987.</p> <p>Vacca, Richard T. and Joanne L. <i>Content Area Reading</i>. HarperCollins Press, 1989.</p> <p>Wormeli, Rick. <i>Summarization in Any Subject</i>. ASCD Press.</p> |