## What the Teacher Does

<table>
<thead>
<tr>
<th>Stage</th>
<th>That is consistent with the BSCS 5E Instructional Model</th>
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</table>
| Engage | • Piques students’ curiosity and generates interest  
        • Determines students’ current understanding (prior knowledge) of a concept or idea  
        • Invites students to express what they think  
        • Invites students to raise their own questions | • Introduces vocabulary  
        • Explains concepts  
        • Provides definitions and answers  
        • Provides closure  
        • Discourages students’ ideas and questions |
| Explore | • Encourages student-to-student interaction  
        • Observes and listens to the students as they interact  
        • Asks probing questions to help students make sense of their experiences  
        • Provides time for students to puzzle through problems | • Provides answers  
        • Proceeds too rapidly for students to make sense of their experiences  
        • Provides closure  
        • Tells students that they are wrong  
        • Gives information and facts that solve the problem  
        • Leads the students step-by-step to a solution |
| Explain | • Encourages students to use their common experiences and data from the Engage and Explore lessons to develop explanations  
        • Asks questions that help students express understanding and explanations  
        • Requests justification (evidence) for students’ explanations  
        • Provides time for students to compare their ideas with those of others and perhaps to revise their thinking  
        • Introduces terminology and alternative explanations after students express their ideas | • Neglects to solicit students’ explanations  
        • Ignores data and information students gathered from previous lessons  
        • Dismisses students’ ideas  
        • Accepts explanations that are not supported by evidence  
        • Introduces unrelated concepts or skills |
| Elaborate | • Focuses students’ attention on conceptual connections between new and former experiences  
        • Encourages students to use what they have learned to explain a new event or idea  
        • Reinforces students’ use of scientific terms and descriptions previously introduced  
        • Asks questions that help students draw reasonable conclusions from evidence and data | • Neglects to help students connect new and former experiences  
        • Provides definitive answers  
        • Tells the students that they are wrong  
        • Leads students step-by-step to a solution |
| Evaluate | • Observes and records as students demonstrate their understanding of the concepts and performance of skills  
        • Provides time for students to compare their ideas with those of others and perhaps to revise their thinking  
        • Interviews students as a means of assessing their developing understanding  
        • Encourages students to assess their own progress | • Tests vocabulary words, terms, and isolated facts  
        • Introduces new ideas or concepts  
        • Creates ambiguity  
        • Promotes open-ended discussion unrelated to the concept or skill |
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| Engage | • Become interested in and curious about the concept or topic  
• Express current understanding of a concept or idea  
• Raise questions such as, What do I already know about this? What do I want to know about this? How could I find out? | • Ask for the “right” answer  
• Offer the “right” answer  
• Insist on answers or explanations  
• Seek closure |
| Explore | • “Mess around” with materials and ideas  
• Conduct investigations in which they observe, describe, and record data  
• Try different ways to solve a problem or answer a question  
• Acquire a common set of experiences so they can compare results and ideas  
• Compare their ideas with those of others | • Let others do the thinking and exploring (passive involvement)  
• Work quietly with little or no interaction with others (only appropriate when exploring ideas or feelings)  
• Stop with one solution  
• Demand or seek closure |
| Explain | • Explain concepts and ideas in their own words  
• Base their explanations on evidence acquired during previous investigations  
• Record their ideas and current understanding  
• Reflect on and perhaps revise their ideas  
• Express their ideas using appropriate scientific language  
• Compare their ideas with what scientists know and understand | • Propose explanations from “thin air” with no relationship to previous experiences  
• Bring up irrelevant experiences and examples  
• Accept explanations without justification  
• Ignore or dismiss other plausible explanations  
• Propose explanations without evidence to support their ideas |
| Elaborate | • Make conceptual connections between new and former experiences  
• Use what they have learned to explain a new object, event, organism, or idea  
• Use scientific terms and descriptions  
• Draw reasonable conclusions from evidence and data  
• Communicate their understanding to others | • Ignore previous information or evidence  
• Draw conclusions from “thin air”  
• Use terminology inappropriately and without understanding |
| Evaluate | • Demonstrate what they understand about the concept(s) and how well they can implement a skill  
• Compare their current thinking with that of others and perhaps revise their ideas  
• Assess their own progress by comparing their current understanding with their prior knowledge  
• Ask new questions that take them deeper into a concept or topic area | • Disregard evidence or previously accepted explanations in drawing conclusions  
• Offer only yes-or-no answers or memorized definitions or explanations as answers  
• Fail to express satisfactory explanations in their own words  
• Introduce new, irrelevant topics |