

## Engage

The first phase is to engage the student in the learning task. The student mentally focuses on an object, problem, situation, or event. The activities of this phase should make connections to past and future activities. The connections depend on the learning task and may be conceptual, procedural, or behavioral.

Asking a question, defining a problem, showing a discrepant event, and acting out a problematic situation are all ways to engage the students and focus them on the instructional activities. The role of the teacher is to present a situation and identify the instructional task. The teacher also sets the rules and procedures for the activity.

The Student...	Explain Activities	The Teacher...
<ul style="list-style-type: none"> <li>Asks questions such as:                             <ul style="list-style-type: none"> <li>Why did this happen?</li> <li>What do I already know about this?</li> <li>What can I find out about this?</li> <li>How can this problem be solved?</li> </ul> </li> <li>Shows interest in topic.</li> <li>Responds to questions demonstrating their own entry point of understanding</li> </ul>	<p>Initiate the learning task. The activity should make connections between past and present learning experiences, and anticipate activities and organize students' thinking toward the learning outcomes of current activities.</p> <ul style="list-style-type: none"> <li>Generate interest</li> <li>Access prior knowledge</li> <li>Connect to past knowledge</li> <li>Set parameters of the focus</li> <li>Frame the idea</li> </ul>	<ul style="list-style-type: none"> <li>Raises questions and problems.</li> <li>Elicits responses that uncover students' current knowledge about the concept/topic.</li> <li>Generates interest.</li> <li>Generates curiosity.</li> </ul>

## Explore

Once the activities have engaged students, they need time to explore their ideas. Exploration activities are designed so that all students have common, concrete experiences upon which they continue building concepts, processes, and skills. This phase should be concrete and meaningful for the students. The aim of exploration activities is to establish experiences that teachers and students can use later to formally introduce and discuss content area specific concepts, processes, or skills. During the activity, the students have time in which they can explore objects, events, or situations. As a result of their mental and physical involvement in the activity, the students establish relationships, observe patterns, identify variables, and question events.

The teacher's role in the exploration phase is first and foremost to select activities that lead to *substantive concept building*. The teacher's role, then, is that of facilitator or coach. The teacher initiates the activity and allows the students time and opportunity to investigate objects, materials, and situations based on each student's own ideas and phenomena. If called upon, the teacher may coach or guide students as they begin constructing new explanations.

The Student...	Explain Activities	The Teacher...
<ul style="list-style-type: none"> <li>Thinks creatively within the limits of the activity.</li> <li>Tries alternatives to solve a problem and discusses them with others.</li> <li>Suspends judgment.</li> <li>Conducts activities, predicts, and forms hypotheses or makes generalizations</li> <li>Becomes a good listener</li> <li>Shares ideas and suspends judgment</li> <li>Records observations and/or generalizations</li> <li>Discusses tentative alternatives</li> </ul>	<p>Provide students with a common base of experiences which current concepts, processes, and skills are identified and developed.</p> <ul style="list-style-type: none"> <li>Experience key concepts</li> <li>Discover new skills</li> <li>Probe, inquire, and question experiences</li> <li>Examine their thinking</li> <li>Establish relationships and understanding</li> </ul>	<ul style="list-style-type: none"> <li>Elicits responses that uncover students' current knowledge about the concept/topic.</li> <li>Raises questions and problems.</li> <li>Acts as a facilitator</li> <li>Observes and listens to students as they interact</li> <li>Asks good inquiry-oriented questions</li> <li>Generates interest.</li> <li>Generates curiosity.</li> </ul>

## Explain

Explanation means the act or process in which concepts, processes, or skills become plain, comprehensible, and clear. The process of explanation provides the students and teacher with a common use of terms relative to the learning experience. In this phase, the teacher directs student attention to specific aspects of the engagement and exploration experiences. First, the teacher asks the students to give their explanations. Second, the teacher introduces explanations in a *direct and formal manner*. Explanations are ways of ordering and giving a common language for the exploratory experiences. The teacher should base the initial part of this phase on the students' explanations and clearly connect the explanations to experiences in the engagement and exploration phases of the instructional model. The key to this phase is to present concepts, processes, or skills briefly, simply, clearly, and directly, and then continue on to the next phase.

The Student...	Explain Activities	The Teacher...
<ul style="list-style-type: none"> <li>Explains possible solutions or answers to other students.</li> <li>Listens critically to other students' explanations.</li> <li>Questions other students' explanations.</li> <li>Listens to and tries to comprehend explanations offered by the teacher.</li> <li>Refers to previous activities.</li> <li>Uses recorded observations in explanations.</li> <li>Uses previous observations and findings</li> <li>Provides reasonable responses to questions</li> </ul>	<p>Focus students' attention on a particular aspect of their engagement and exploration experiences, and provide opportunities to demonstrate their conceptual understanding, process skills, or behaviors. This phase also provides opportunities for teachers to introduce a concept, process, or skill.</p> <ul style="list-style-type: none"> <li>Connect prior knowledge and background to new discoveries</li> <li>Communicate new understandings</li> <li>Connect informal language to formal language</li> </ul>	<ul style="list-style-type: none"> <li>Formally provides definitions, explanations, and new vocabulary.</li> <li>Uses students' previous experiences as the basis for explaining concepts.</li> <li>Encourages students to explain their observations and findings in their own words</li> <li>Provides definitions, new words, and explanations</li> <li>Listens and builds upon discussion from students</li> <li>Asks for clarification and justification</li> <li>Accepts all reasonable responses</li> </ul>

## Elaborate

Once the students have an explanation of their learning tasks, it is important to involve them in further experiences that apply, extend, or elaborate the concepts, processes, or skills. Some students may still have misconceptions, or they may only understand a concept in terms of the exploratory experience. Elaboration activities provide further time and experience that contribute to learning. The teacher should provide opportunities for students to practice their learning in new contexts.

The Student...	Explain Activities	The Teacher...
<ul style="list-style-type: none"> <li>Applies new labels, definitions, explanations, and skills in new, but similar, situations.</li> <li>Uses previous information to ask questions, propose solutions, make decisions, design experiments.</li> <li>Draws reasonable conclusions from evidence.</li> <li>Provides reasonable conclusions and solutions</li> <li>Records observations, explanations, and solutions</li> </ul>	<p>Challenge and extend students' conceptual understanding and skills. Through new experiences, the students develop deeper and broader understanding, more information, and adequate skills.</p> <ul style="list-style-type: none"> <li>Apply new learning to a new or similar situation</li> <li>Extend and explain concept being explored</li> </ul> <p>Communicate new understanding with formal language</p>	<ul style="list-style-type: none"> <li>Expects students to use vocabulary, definitions, and explanations provided previously in new context.</li> <li>Encourages students to apply the concepts and skills to new situations.</li> <li>Reminds students of alternative explanations.</li> <li>Refers students to alternative explanations.</li> <li>Uses previously learned information as a vehicle to enhance additional learning</li> <li>Encourages students to apply or extend the new concepts and skills</li> <li>Encourages students to use terms and definitions previously acquired</li> </ul>

## Evaluate

At some point, it is important that students receive feedback on the adequacy of their explanations. Informal evaluation can occur from the beginning of the teaching sequence. The teacher can complete a formal evaluation after the elaboration phase. As a practical educational matter, teachers must assess educational outcomes. This is the phase in which teachers administer formative or summative evaluations to determine each student's level of understanding. This also is the important opportunity for students to use the skills they have acquired and evaluate their understanding. This is also the time when the teacher determines whether students have met the performance indicators.

The Student...	Explain Activities	The Teacher...
<ul style="list-style-type: none"> <li>• Demonstrates an understanding or knowledge of concepts and skills</li> <li>• Answers open-ended questions by using observations, evidence, and previously accepted explanations.</li> <li>• Evaluates his or her own progress and knowledge.</li> <li>• Asks related questions that would encourage future investigations.</li> <li>• Provides reasonable responses and explanations to events or phenomena</li> </ul>	<p>Encourage students to assess their understanding and abilities and provide opportunities for teachers to evaluate student progress.</p> <ul style="list-style-type: none"> <li>• Demonstrate understanding of new concept by observation or open-ended response</li> <li>• Apply within problem situation</li> <li>• Show evidence of accomplishment</li> </ul>	<ul style="list-style-type: none"> <li>• Assesses students' knowledge and skills</li> <li>• Observes students as they apply new concepts and skills.</li> <li>• Looks for evidence that students have changed their thinking.</li> <li>• Allows students to assess their learning and group process skills.</li> <li>• Asks open-ended questions such as, Why do you think...? What evidence do you have? What do you know about the problem? How would you answer the question?</li> <li>• Encourages students to assess their own learning</li> </ul>