

# Engage



## Teacher

- Creates interest.
- Generates curiosity.
- Raises questions.
- Elicits responses that uncover what the students know or think about the concept/topic.

## Student

- Asks questions such as, Why did this happen? What do I already know about this? What have I found out about this?
- Shows interest in the topic.

# Explore



## Teacher

- Encourages the students to work together without direct instruction from the teacher.
- Observes & listens to the students as they interact.
- Asks probing questions to redirect the students' investigations when necessary.
- Provides time for students to puzzle through problems.

## Student

- Thinks freely but within the limits of the activity.
- Tests predications and hypotheses.
- Tries alternatives and discusses them with others.
- Records observations and ideas.
- Suspends judgment.

# Explain

## Teacher

- Encourages the students to explain concepts and definitions in their own words.
- Asks for justification (evidence) and clarification from students.
- Formally provides definitions, explanations, and new labels.
- Uses students' previous experiences as basis for explaining concepts.

## Student

- Explains possible solutions or answers to others.
- Listens officially to others' explanations.
- Questions others' explanations.
- Listens to and tries to comprehend explanations the teacher offers.
- Refers to previous activities.
- Uses recorded observations in explanations.



# Elaborate



## Teacher

- Expects the students to use formal labels, definitions, and explanations provided previously.
- Encourages the students to apply or extend the concepts and skills in new situations.
- Reminds the students of alternative explanations.
- Refers the students to existing data and evidence and asks, *What do you already know? Why do you think...?*
- Strategies from *EXPLORE* apply here also.

## Student

- Applies new labels, definitions, explanations, and skills in new, but similar situations.
- Uses previous information to ask questions, propose solutions, make decisions, and design experiments.
- Draws reasonable conclusions from evidence.
- Records observations and explanations.
- Checks for understandings among peers.

# Evaluate

## Teacher

- Observes the students as they apply new concepts and skills.
- Assesses students' knowledge and/or skills.
- Looks for evidence that the students have changed their thinking or behaviors.
- Allows students to assess their own learning and group-process skills.
- Asks open-ended questions, such as: Why do you think...? What evidence do you have? What do you know about x? How would you explain x?

## Student

- Asks questions such as, Why did this happen? What do I already know about this? What have I found out about this?
- Shows interest in the topic.

