



# Effective Classroom Instruction: AITC and the Essential Nine

## Classroom Instruction That Works!

In order to meet the goals of Agriculture in the Classroom, it is vital that teachers apply research-based methods to their curriculum. Marzano, Pickering, and Pollock's educational research has demonstrated there are nine essential instructional strategies that show statistically significant improvement in student achievement across all content areas and grade levels (*Classroom Instruction That Works*). In consideration of this research, these nine strategies should be applied to our instruction.

1. Identifying similarities and differences
2. Summarizing and note-taking
3. Reinforcing effort and providing recognition
4. Homework and practice
5. Nonlinguistic representations
6. Cooperative learning
7. Setting objectives and providing feedback
8. Generating and testing hypotheses
9. Cues, questions, and advance organizers

### Identifying Similarities and Differences

Teaching students to compare and contrast relevant characteristics allows them to understand and solve complex problems. Direct teaching with deep discussion and inquiry can lead to the specific identification of desired concepts while student generated classification of similarities and differences tends to broaden understanding. The selected instructional approach can either focus the student outcomes or allow for divergent results.

#### Classroom Practice:

Venn Diagrams, T-charts, other graphic organizers to compare and contrast information; use metaphors and analogies for making comparisons.

### Summarizing and Note-taking

**Summarization:** Students can better understand information when they have the opportunity to analyze material and put it in their own words. Summarization requires students to substitute and delete nonessential material while learning to recognize salient information.

#### Classroom Practice:

Direct teach rules for creating summaries; clarify unclear questions and use prediction.

**Note-taking:** Research has shown that taking more notes is more beneficial than fewer notes as long as the notes are not verbatim. Effective note-taking needs to allow for time to process information.

#### Classroom Practice:

Teacher-prepared notes; present students with a variety of note-taking -- informal outline, webbing, combination, etc.

### Reinforcing Effort and Providing Recognition

**Effort:** Students who believe that effort is the most important factor in achievement are able to use that as a motivational tool to apply in any given situation. Although students may not realize the importance of believing in effort, they can learn to change their beliefs to place an emphasis on effort.

#### Classroom Practice:

Use journals/rubrics for logging daily and weekly efforts; share examples of individuals who succeeded because they persevered.

**Providing recognition:** Rewards are most effective when they are based on attaining a performance standard. Research also indicates that symbolic recognition is more effective than tangible rewards.

#### Classroom Practice:

Use "Pause, Prompt, Praise" (For struggling students, have them pause, provide specific suggestions for improvement, praise when performance improves); personalize recognition by giving awards for individual accomplishments.



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## Homework and Practice

**Homework:** Homework: Purpose of homework should be clear to both student and parent with appropriate feedback given on all assignments. Amount of homework should vary by grade level and should require minimal parent involvement.

### Classroom Practice:

Establish and communicate a homework policy with suggestions for a successful experience; clearly identify whether homework is for practice or preparation for an upcoming unit.

**Practice:** Focused practice is required in order to master a skill, allowing students to adapt and shape learned concepts.

### Classroom Practice:

Use timed quizzes or assignments to improve speed and accuracy; set aside time for modeling the skill and assign independent practice.

## Nonlinguistic Representations

Knowledge is stored in two forms: linguistic and visual. The more students use both systems, the better they are able to think about and recall information; thus, increasing achievement. Studies have shown that the use of nonlinguistic representations stimulates brain activity.

### Classroom Practice:

Use graphic organizers, physical models, pictures, pictographs, kinesthetic activities, etc. to represent information.

## Cooperative Learning

Research has shown that cooperative grouping has a positive effect on overall learning. Groups should be kept small with limited use of ability grouping. Cooperative learning strategies should be applied consistently and systematically, but not overused.

### Classroom Practice:

Use the five defining elements of cooperative learning (positive interdependence, face-to-face interaction, individual and group accountability, social skills, group processing).

## Setting Objectives and Providing Feedback

**Setting Objectives:** Instructional goals provide direction for student learning. Goals should not be too specific; they should be adaptable to the individual.

### Classroom Practice:

Set specific, but flexible goals; use K-W-L charts in order to identify knowledge and personalize goals; use contracts with specific goals and criteria for achieving certain grades (provides students with control over their learning).

**Providing Feedback:** Feedback should be timely, corrective in nature, and reference a specific level of skill or knowledge. Additionally, students may be able to monitor some of their own progress.

### Classroom Practice:

Use rubrics, student-led feedback, self-evaluations, accuracy charts.

## Generating and Testing Hypotheses

While the use of inductive and deductive approaches may be successfully used in the classroom, research has shown that deductive thinking (using a general rule to generate predictions) is most effective. Regardless of the approach used, it is essential that students be required to clearly explain their hypotheses and conclusions.

### Classroom Practice:

Have students predict what would happen if an aspect of a system were changed, consider approaches to various solutions to solve problems, or build something with limited materials; provide students with templates for reporting work or sentence stems to help students articulate explanations.

## Cues, Questions, and Advance Organizers

Cues, questions, and advance organizers help students activate prior knowledge and increase learning. These tools must focus on what is important and utilize higher level thinking skills. When used before a learning experience, questioning becomes most effective by establishing a "mental set".

### Classroom Practice:

Pause briefly after asking a question to increase depth of student answers; vary the style of advance organizers used (tell a story, skim information, summarize new content, create a graphic representation of information).

