Training on Strategies for Successful Math Instruction

Training Structure:

- Introduction: 15 min
- Segment 1: 50 min
- Segment 2: 180 min
- Segment 3: 100 min
- Review/Wrap-up: 15 min
- Materials: pen, paper, scissors, wipe board, markers, calculators, slides, flipchart

This training will:

- Give trainees a clear objective of what they can expect to learn
- Include discussion, examples, and application of ideas.
- Provide trainees with first-hand experience using the practices discussed in training (For example, group work is listed under “effective activities”, so teachers would get into groups to create the goal setting sheet)
- Address multiple learning styles
- Present research and data to validate concepts

Training Outline

Objective: Trainees will be able to create math lessons and implement activities that promote the successful application of concepts and skills to their learners.

1. Introduction (15 min)
   a. Trainer introduces self
   b. Trainees introduce selves to their tables
   c. Trainer states and writes objective of training so it is clear to participants
   d. Each table brainstorms and decides on one component of successful math instruction
   e. Trainer creates master list of each tables component
      i. Uses components to lead into first segment

2. Setting Students Up for Success (60 min)
   a. Setting Goals (40 min)
      i. Discuss importance of goal setting for ABE learners
      ii. Discuss how to help students create realistic goals
      iii. Construct individual goal to be obtained from training
      iv. Group Activity
         1. Create a goal setting sheet for their classroom
   b. Building Confidence (20 min)
i. Discuss math anxiety
   1. Trainees discuss their own personal anxieties with math

ii. Brainstorm strategies to help students with anxiety
   1. Take strategies from individual lists to create a cumulative list

3. **Successful Lessons (180 min)**
   a. Direct Instruction (30 min)
      i. Discuss benefits of direct instruction with ABE learners
      ii. Discuss teaching the “why” in mathematics
      iii. Discuss how to promote discussion during instruction
      iv. Create a list of essential components to successful direct instruction
   b. Systematic Instruction (30 min)
      i. Draft a step-by-step process for solving a particular type of math problem
      ii. Make a list of mnemonic devices used for certain math procedures
      iii. Highlight key words in a practice problem
      iv. Discuss how to model these strategies to ABE learners during instruction
   c. Effective Activities (120 min)
      i. Group and Pair work
         1. Discuss how group/pair work benefits student learning
         2. Provide examples of pair/group work
            a. Trainees will perform various group and pair work throughout training
      ii. Creating and Using Visuals/Graphics
         1. Manipulatives
            a. Discuss why manipulatives are useful
            b. Think-pair-Share: Create manipulatives to use in the classroom and compare with a partner
         2. Graphic organizers
            a. Create graphic organizers to use in the classroom
               i. Trainees create an organizer
               ii. Trainees compare organizers
            b. Discuss how graphic organizers are useful in mathematics instruction
         3. Graphs and Charts
            a. Group work:
               i. Each group is assigned a different graphic
               ii. Groups create a problem that involves building the graphic assigned to their group
               iii. Groups write a paragraph to explain what is being seen in the graph
b. Discuss how creating the graph or chart and writing about it improved understanding

iii. Real-life problems
1. Discuss how relevant and meaningful content can improve understanding of concepts and skills
2. Choose a relevant, real-life topic that would allow students to create their own math problem about the topic
   a. Draft an aggregate list of the topics

4. Assessing Success (100 min)
   a. Formative (20 min)
      i. Define and discuss the importance of formative assessment
      ii. Brainstorm various methods of formative assessment
         1. Draft a group list
      iii. Discuss when assessments could be used during instruction

   b. Self Assessment (40 min)
      i. Brainstorm methods that can be used to monitor self progress
         1. Discuss how these methods can be modeled to ABE learners
      ii. Checking work
         1. Trainees are:
            a. Given a problem to solve
            b. Asked to “check” their work
            c. Asked to explain in words how they checked themselves
            d. Asked to discuss different methods for checking various types of math problems
            e. Asked to discuss the importance of checking work and why learners need to use these skills

   c. Tracking Progress (40 min)
      i. Discuss importance of monitoring learner progress
      ii. Create a student tracking form

5. Review (15 min)
   a. Setting up for Success
      i. Learners need goals
      ii. Learners need Confidence

   b. Successful Lessons
      i. Direct instruction
      ii. Systematic Instruction
      iii. Effective Activities

   c. Assessing Success
      i. Formative Assessment
      ii. Self-Assessment
      iii. Tracking Progress