Three-Phase Structure for Problem Solving

BEFORE (5 minutes)

Role of the Teacher

- Activate prior knowledge
- Review vocabulary
- Pose the problem
- Ensure that students understand the task

Student Questions

- What am I trying to find?
  - I am trying to find…
- What do I know?
  - I know that…

DURING (20 MINUTES)

Role of the Teacher

- Let students independently work in pairs or groups
- Observe and facilitate as students work
- Ask questions to focus, assess, and advance student thinking
- Decide which solutions will be selected for sharing

Student Checklist

- ❑ I solved the problem in more than one way.
- ❑ I explained my solution to my partner.
- ❑ I asked my partner questions so that I understand his/her solution.
- ❑ I made my solution or answer to the problem clear so that others will understand it.

AFTER (15 minutes)

Role of the Teacher

- Have two to three students share their thinking and work with the whole group
- Orders selected solutions to help generate mathematically productive discussion
- Asks specific questions so that students will:
  - Develop understanding of the concept
  - Add on to and question the solutions shared
  - Make connections between the solutions presented
  - Identify patterns
  - Find generalized characteristics within the problem
- Listen actively without evaluation
- Summarize the main idea and identify next steps, future problems

Student Questions

- What questions do you have for the mathematician?
  - I'm wondering… Why did you… How did you…
- Who can restate how ____ solved the problem?
  - First… Next… Then…
- What is the same about the solutions shared? What is different?
  - One similarity is… Both solutions… One difference between the solutions is…