### CMP PLANNING GUIDE: Unit ______________________ Investigation ____ Problem _____

#### Mathematical Goals and Focus Question
- What is the fundamental mathematical idea that is important to this lesson? (Primary learning goal)
- What are some secondary mathematical goals that may arise?
- What is the Focus Question (FQ) for this problem?
- What is the relationship between the goals, the FQ (Focus Question), and the questions in the Problem?

#### Launch

**Connecting to Prior Knowledge**
- What prior knowledge will students need to do the problem?
- How can I connect to previous problems or knowledge?

**Presenting the Challenge**
- Do I need to introduce any contextual information? Any mathematical information?
- How can I keep from giving away how to do the problem?
- How will I have student share their learning from the Explore portion of the lesson?

#### Explore

**Providing for Individual Needs**
- What is the most effective student arrangement for this problem? (individual, pair, group, whole class)
- What are different strategies that I anticipate students using?
- What struggles do I anticipate? (Areas of difficulty or misconceptions or underdeveloped ideas)
- What questions might I ask to:
  - Stimulate thinking and reasoning? Encourage student conversation and sharing of ideas?
  - Focus thinking if students are off-task or become frustrated?
  - Help students sort out the ideas? How will I scaffold without lowering the mathematical task?
  - Make students probe further into the mathematics if the initial question is “answered”?
  - Check for understanding? Extend their learning?

**Planning for the Summary**
- What progress should all students make on the mathematical goals before I end the Explore?
- How will I keep track of student thinking and strategies?
- How will I transition the class from the Explore to the Summary of the lesson?

#### Summarize

**Orchestrating the Discussion: Making the Mathematics Explicit**
- What are the key questions that maximize the mathematical opportunities in the problem?
- What concepts, processes, or strategies need to be emphasized?
- What ideas do not need closure at this time?
- Are there definitions or strategies that we need to generalize?
- What thinking or strategies from individuals/pairs/groups should the whole class hear? How can the order of the presentations contribute to the students’ understanding?
- What question(s) could I ask to check for understanding?
- What question(s) could I ask to connect their thinking to prior learning or extend the learning?
- What will I count as evidence that my students can sufficiently answer the Focus Question?

**Orchestrating the Discussion: Encouraging Participation**
- How will I have students share what they have learned?
- What questions can I ask to:
  - Get students to talk about what they have made sense of?
  - Help students clarify their thinking and justify their reasoning?
  - Have students show mathematical misconceptions so the whole class can address them?
- How can I help students to:
  - Listen to and appreciate each other’s thinking? Challenge ideas that are incomplete/not clear?
  - Ask questions of each other and me?
  - Take notes on the essential idea for future reference?

**Reflecting on Student Learning**
- How will I know if my students understand the mathematics?
- How will I revisit and connect the concepts and skills from today in other lessons?
- What will I do to follow-up on, practice, or apply the ideas after the summary?

**Homework:** Is there a reason to assign homework? If so, which problems will I assign?
Reflections on the Lesson

As you consider each reflection question, the natural follow up to each question is, “What is my evidence?”

Reflecting on the Launch and Explore

• Did I make sure students had enough information to do the problem?
• Did I keep the Launch short?
• Did I give away too much? Was the mathematical potential of the problem left intact?
  o Did my students know what to do from what was said or asked? My answer should be: “Yes.”
  o Did my students know how to do it from what was said or asked? (Did I tell them how to do the problem?) My answer should be: “No.”
• Did I provide time to think individually before students heard thinking from others?
• Did students present new strategies from those that I had anticipated?
• Did I help students manage their time and how to share ideas with others?
• Did I make sure that students had enough of the problem done so that they could follow the thinking of others in the summary of the lesson?
• Did I attend to individual needs without giving away the challenge?
• Did the Focus Question help to guide when students were ready for the Summary?

Reflecting on the Summarize

• How did the lesson go compared to what I had expected?
• What do my students know as a result of the lesson?
• Did we reach the mathematical goal of the problem?
• Did all the students or just some students understand the mathematics? What is my evidence?
• Did students have the opportunity to clarify any incomplete ideas or misconceptions? What is my evidence?
• Did students ask questions to clarify, challenge, show understanding, connect ideas, or go beyond?
• Do students have a record of the mathematical learning to reference later? (notes, vocabulary)
• Did I have all students actively engaged in the summary – presenting ideas, asking questions, answering questions, considering others’ thinking, clarifying thinking, taking notes, etc.
• What mathematical questions do students still have?
• What concepts or skills from this lesson do students need to learn, refine, and/or practice?
• What will I do to follow up on, practice, or apply the ideas of today’s lesson?
• How will I connect these concepts to related ideas in future problems?
• How will the evidence from this lesson help me plan the next lesson? The next Investigation? The next unit?