Eight big ideas on active learning from evidence-based research

(Meltzer & Thornton, 2012)

Designing Instruction

1) Instruction should be informed and explicitly guided by students' pre-instruction knowledge state [prior knowledge] and learning trajectory [design to scaffold learning]

    a. Activities should explicitly elicit and address student ideas and conceptions/misconceptions [address misconceptions]

2) Design your lesson-plan (in-class work) so as to provide students with a range of the types of activities used in your discipline (or used in evaluating competencies in your course) [opportunity for just-in-time feedback]

3) Design some activities so that students can work together in small groups – i.e., modeling of thinking within the discipline as well as how to learn – innate self-regulation capabilities and skills [application and practice; opportunity for just-in-time feedback; peer modeling & mentoring; ZPD]

4) Design some activities so that students (as individuals) will need to reflect on their own problem-solving practice [self-regulation & other metacognitive skills]

Implementing (Orchestrating) Instruction

5) Orchestrate activities so that students can receive rapid feedback in the course of their investigative or problem-solving activity – ensure this is done within the context of both small group and whole class [supports development of internal models; and other metacognitive skills]

6) Orchestrate activities to encourage students to do the "thinking" and to apply their developing knowledge even if it's not completely correct or perfect [application of prior knowledge; productive failure]

7) Orchestrate activities so that students must express their reasoning explicitly – ideally to classmates [self-explanation; self-regulation & other metacognitive skills]

8) Pose problems in a wide variety of contexts and representations [situated cognition; authentic learning]