Designing Powerful Questions

One of the central principles of *guiding* rather than *providing* an answer to a math problem is designing powerful questions. Questions are not just statements that end in an inquisitive inflection and a question mark – they are challenges to “student intellect...to help students collect and recollect information, process that information into meaningful relationships, and apply those relationships in different or novel situations” (Costa, 359).

The three characteristics of a powerful question are:

- **They are invitational. So...**
  - An approachable tone is used.
  - Plurals are used rather than singular concepts i.e. *What are alternatives you are considering?*
  - Invitational stems are used to enable the behavior to be performed i.e. *As You Plan on...*

- **They engage in internal and external content that is relevant to the learner.** What's the difference between the two? Well...
  - Internal content is what is occurring in the tutor's mind, such as frustration, satisfaction, and metacognition.
  - External content is something that appears in the daily environment of the tutor, such as a childhood memory, a home experience, or a common experience (such as grocery shopping, getting a slice of pizza, etc.)

- **They engage specific cognitive operations at various levels of complexity.**
  - Turn the page for a helpful little graphic!

No guide on questions is complete without a definition of **active listening** – how you engage and listen to the tutee while they approach your questions. Active listening entails **paraphrasing** (rewriting the tutee’s words in your own), **encouraging** (using short phrases such as “uh huh,” and “yeah”) and **summarizing** (fully recapping a whole thought or conversation).
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_The Three Story Intellect_ by Oliver Wendell Holmes

The are one-story intellects, two-story intellects, and three-story intellects with skylights. All fact collectors, who have no aim beyond their facts are one-story men. Two-story men compare, reason, generalize, using the labors of the fact collectors as well as their own. Three-story men idealize, imagine, predict – their best illumination comes from above, through the skylight.
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Sample “Processing-Level” Questions:

Compared to “Input-Level” Questions:

References – The following resources were referred to during the creation of this handout: Arthur L. Costa’s “Teacher Behaviors That Enable Thinking,” in Developing Minds; Images from Developing Minds.