

Triplet Tasks Analysis

Teacher Directions

Overview

Participants will complete a task analysis of three problems in order to evaluate and compare SOL alignment, cognitive depth of the learning experience, and opportunities for student communication of reasoning. Groups will complete the tasks using two different strategies and compare the experience to the Task Analysis Guide descriptors. Participants will consider how they might modify the given problems to meet student learning outcomes. The goal is for teachers to generalize the task selection process to any problem, task, or project.

Materials

1. Task Analysis Guide (Stein & Smith, 2007)
2. Powerpoint Slides
3. VDOE 2009 SOL 7 Curriculum Framework
4. Twin Tasks Solution Recording Sheet
5. Calculators

Teacher Notes

1. Mindstreaming: Partners: 45 sec Partner A Talks; Partner B Listens; 45 sec Partner B Talks; Partner A Listens.

Question: How do you choose the problems, tasks or projects that you plan for students to do?

2. Set Purpose: The goal is for teachers to generalize the task selection planning process to any problem, task, or project.
3. Tools for Task Decisions: Share the VDOE 2009 SOL 7 Curriculum Framework (CF), the Task Analysis Guide (Stein & Smith, 2007) (TAG), and

the NCTM Process Standards (PS) and the Elements of Mathematical Proficiency (MP).

4. Preliminary Task Analysis: Participants will read tasks and individually and as a group check for alignment with the CF and evaluate for cognitive depth on the TAG based on descriptors. Share.
5. Task Completion: Teachers will do both tasks, solving using two different strategies or paths. Share. Which process standards were involved for you as a learner while doing these problems? Which content prerequisites are necessary? Where might students struggle?
6. Reflection in Groups: How would you modify the two problems to better fit the goals of SOL alignment, deeper cognitive depth and student reasoning and communication (PS)? How can a parallel task be written for students who can already solve these problems?
7. Application: Return to the original Task Sort and decide as a table group where each item would fit on the Task Analysis Guide based on the descriptors.

References

- Stein, M., Remillard, J., & Smith, M. (2007). "How Curriculum Influences Student Learning." In *Second Handbook of Research on Mathematics Teaching and Learning*. Edited by Frank K. Lester, pp. 319-70. Greenwich, CT: Information Age Publishing, 2007.
- Stein, M., & Smith, M. (2010). "The Influence of Curriculum on Students' Learning." In *72nd Yearbook on Mathematics Curriculum Issues, Trends, and Future Directions*, edited by Barbara J. Reys, Robert E. Reys, and Rheta Rubenstein, pp. 351-362, Reston, VA: NCTM, 2010.