

Title of Task: Monthly Budget_(2 Day? Day 1 Create Budget Day 2 Write the Checks)

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. "Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks." *Mathematics Teaching in the Middle School 14* (October 2008): 132-138.

PART 1: SELECTING AND SETTING UP A MATHEMATICAL TASK	
What are your mathematical goals for the lesson? (i.e., what do you want students to know and understand about mathematics as a result of this lesson?)	Understand how measurements of place value are written in both words and standard numbers. Adding and subtracting decimals
<ul style="list-style-type: none"> • What are your expectations for students as they work on and complete this task? • What resources or tools will students have to use in their work that will give them entry into, and help them reason through, the task? • How will the students work— independently, in small groups, or in pairs—to explore this task? • How will students record and report their work? 	<ul style="list-style-type: none"> • Writing numbers to thousands with decimals to hundredths in both Numerical and Word Form • Blank “checks”/ Packets of money with \$1000, \$100, \$10, \$1 bills, Dimes, and Pennies • Pictures of different housing with estimated monthly payment / Gas/ Electricity • Advertisements for different phone / internet/ and cable companies • Monthly Grocery Store List (basic, regular, premium, eating out) • Pictures of different vehicles and monthly cost estimates /insurance & gas prices per month • Netflix / Video Games • Pairs or small groups • Record work on “bills log” & “checks”
How will you introduce students to the activity so as to provide access to <i>all</i> students while maintaining the cognitive demands of the task?	<ul style="list-style-type: none"> • Play the game “life” • Needs vs wants – as students what are some things kids will be using or doing today phone, eating, sleeping etc.) • Discuss where these things come from & who pays for them. • Discuss needs vs wants • Explain they are going to be the adults and come up with the budget for the month

PART 2: SUPPORTING STUDENTS' EXPLORATION OF THE TASK

As students work independently or in small groups, what questions will you ask to—

- help a group get started or make progress on the task?
- focus students' thinking on the key mathematical ideas in the task?
- assess students' understanding of key mathematical ideas, problem-solving strategies, or the representations?
- advance students' understanding of the mathematical ideas?

- What is the most important thing you will need?
- What will you be doing for fun?
- If you pay this bill how much do you have left to work with?
- What money is represented by this (place value system)?
- If you have money left over after everything is paid, how much do you have and what would you do with it?
- Estimate if you could buy this house and still have enough for food
- How would you line up these numbers so it makes sense when you add them?
- The check says "dollars" on the word line, so there is no place for cents how can we write the cents as a part of the dollars?

How will you ensure that students remain engaged in the task?

- What assistance will you give or what questions will you ask a student (or group) who becomes quickly frustrated and requests more direction and guidance is solving the task?
- What will you do if a student (or group) finishes the task almost immediately? How will you extend the task so as to provide additional challenge?

- What is the most important things you would need?
- Estimate which one would be reasonable
- Can you show me that with the money?
- How does this budget compare to how you currently live? Is it better or worse? Are there things you would want to change to make your life easier?
- If you got your spouse to work and had twice as much income, what changes would you make?

PART 3: SHARING AND DISCUSSING THE TASK

How will you orchestrate the class discussion so that you accomplish your mathematical goals?

- Which solution paths do you want to have shared during the class discussion? In what order will the solutions be presented? Why?
- What specific questions will you ask so that students will—
 5. make sense of the mathematical ideas that you want them to learn?
 2. expand on, debate, and question the solutions being shared?
 3. make connections among the different strategies that are presented?
 4. look for patterns?
 5. begin to form generalizations?

What will you see or hear that lets you know that *all* students in the class understand the mathematical ideas that you intended for them to learn?

- What was the most important thing to you and how did that affect what you chose for your bills?
- When you wrote your checks, why did you put (example 45 hundredths instead of 4 dimes and 5 pennies?)
- How is $.30$ different from $.03$?
- When writing your checks were there any patterns you noticed that made writing them easier?

