| **Task Overview/Description/Purpose:**  |
| --- |
| * In this task, XXX.
* The purpose of this task is
 |

| **Standards Alignment: Strand – *Computation and Estimation*** |
| --- |
| **Primary SOL:** XXX The student will (X). **Related SOL:** XXX |
| **Learning Intention(s):*** **Content -** I am learning to …
* **Language -** I am learning to …
* **Social -** I am learning to …
 |
| **Success Criteria (Evidence of Student Learning):** * I can …
* I can …
* I can …
 |
| **Mathematics Process Goals**  |
| Problem Solving | * Students will …
 |
| Communication and Reasoning | * Students will communicate …
 |
| Connections and Representations | * Students will …
* Students will …
 |

| **Task Pre-Planning** |
| --- |
| **Approximate Length/Time Frame*:***  xx minutes |
| **Grouping of Students:**  |
| **Materials and Technology:** | Vocabulary: |
| Anticipate Responses: See the Planning for Mathematical Discourse Chart (columns 1-3). |

| **Task Implementation (Before)** xxx minutes |
| --- |
| **Task Launch:** |

| **Task Implementation (During)** xxxx minutes |
| --- |
| **Directions for Supporting Implementation of the Task [EDIT AS NEEDED]*** Monitor – Teacher will listen and observe students as they work on task and ask assessing or advancing questions (see the Planning for Mathematical Discourse chart on next page).
* Select – Teacher will decide which strategies will be highlighted (after student task implementation) that will advance mathematical ideas and support student learning.
* Sequence – Teacher will decide the order in which student ideas will be highlighted (after student task implementation).
* Connect – Teacher will consider ways to facilitate connections between different student responses.
* Students work in purposefully planned groups for 20-25 minutes to explore strategies, share ideas and transfer their ideas to paper using pictures, words, and symbols.
* As the teacher is monitoring, teacher will look for strategies that are being used and record on Planning Chart.
* The teacher should use questions to assess or advance student thinking.
* Students should be encouraged to explore different strategies for solving and evaluate effectiveness.
 |
| **Suggestions For Additional Student Support**  |

| **Task Implementation (After) 15-20 minutes** |
| --- |
| **Connecting Student Responses (From Anticipating Student Response Chart) and Closure of the Task: [ EDIT AS DESIRED]*** Based on the actual student responses, sequence and select particular students to present their mathematical work during a whole class discussion. Some possible big mathematical ideas to highlight could include:
	+ A common misconception
	+ Trajectory of sophistication in student ideas (i.e. concrete to abstract; learning trajectories for multiplication or division of decimals)
	+ Connection between multiplication and division (could both operations provide the same outcome?)
* Connect different students’ responses and connect the responses to the key mathematical ideas to bring closure to the task. Possible questions and sentence frames to connect student strategies:
	+ How are these strategies alike? How are they different?
	+ \_\_\_\_\_\_\_\_\_\_’s strategy is similar to \_\_\_\_\_\_\_\_’s strategy because \_\_\_\_\_\_\_\_\_\_
	+ How do these connect to our Learning Intentions?
	+ Why is this important?
* Highlight student strategies to show the connections, either between different ideas for solutions or to show the connection between levels of sophistication of student ideas (connect strategy of repeated addition to strategy of multiplication – what is similar? Different?). Allow students to ask clarifying questions.
* Consider ways to ensure that each student will have an equitable opportunity to share his/her thinking during task discussion.
* Students can participate in a Gallery Walk to view all strategies prior to coming together to discuss selected strategies.
* Students can “Think, Pair, Share” strategies for solving.
* Close the lesson by returning to the success criteria. Have students reflect on their progress toward the criteria.
 |

|  |
| --- |
| **Teacher Reflection About Student Learning** |
| * Teacher will use the chart with anticipated student solutions to monitor which students are using which strategies. This will include: possible misconceptions, learning trajectories and sophistication of student ideas, and multiple solution pathways. Next steps based on this information could include:
* Informing sequence of future tasks. What will come next in instruction to further student thinking in decimal computation?
* Informing small groups based on misconceptions that are not addressed in sharing.
* After task implementation, the teacher will use the Process Goals rubric to assess student understanding in relation to the process goals. The teacher may decide to focus on one category. Next steps based on this information could include:
	+ Informing small groups based on current student engagement with the process goal(s) (i.e. think aloud, using specific sentence frames for communication, etc.).
 |

**Planning for Mathematical Discourse**

Mathematical Task: \_\_\_\_\_\_\_*Task Name*\_\_\_\_\_\_\_\_ Content Standard(s): \_\_\_\_SOL XXX\_\_

| **Teacher Completes Prior to Task Implementation** | **Teacher Completes During Task Implementation** |
| --- | --- |
| **Anticipated Student Response/Strategy***Provide examples of possible correct student responses along with examples of student errors/misconceptions* | **Assessing Questions – Teacher Stays to Hear Response***Teacher questioning that allows student to explain and clarify thinking* | **Advancing Questions – Teacher Poses Question and Walks Away***Teacher questioning that moves thinking forward* | **List of Students Providing Response** *Who? Which students used this strategy?* | **Discussion Order - sequencing student responses** * *Based on the actual student responses, sequence and select particular students to present their mathematical work during class discussion*
* *Consider ways to ensure that each student will have an equitable opportunity to share his/her thinking during task discussion*
 |
| **Anticipated Student Response A:**  | * xxx
 | * xxx
 |  |  |
| **Anticipated Student Response B:**  | * xxx
 | * xxx
 |  |  |
| **Anticipated Student Response C:**  | * xxx
 | * xx
 |  |  |
| **Anticipated Student Response D:**  | * xxx
 | * xxx
 |  |  |
| **Anticipated Student Response E:**  | * xxx
 | * xxx
 |  |  |
| **Anticipated Student Response F:** | * xxx
 | * xxx
 |  |  |

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***TASK NAME***

**Rich Mathematical Task Rubric**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Advanced** | **Proficient** | **Developing** | **Emerging** |
| **Mathematical****Understanding** | Proficient Plus:* Uses relationships among mathematical concepts or makes mathematical generalizations
 | * Demonstrates an understanding of concepts and skills associated with task
* Applies mathematical concepts and skills which lead to a valid and correct solution
 | * Demonstrates a partial understanding of concepts and skills associated with task
* Applies mathematical concepts and skills which lead to an incomplete or incorrect solution
 | * Demonstrates no understanding of concepts and skills associated with task
* Applies limited mathematical concepts and skills in an attempt to find a solution or provides no solution
 |
| **Problem Solving** | Proficient Plus:* Problem solving strategy is well developed or efficient
 | * Problem solving strategy displays an understanding of the underlying mathematical concept
* Produces a solution relevant to the problem and confirms the reasonableness of the solution
 | * Problem solving strategy displays a limited understanding of the underlying mathematical concept
* Produces a solution relevant to the problem but does not confirm the reasonableness of the solution
 | * A problem solving strategy is not evident
* Does not produce a solution that is relevant to the problem
 |
| **Communication****and****Reasoning** | Proficient Plus:* Reasoning or justification is comprehensive
* Consistently uses precise mathematical language to communicate thinking
 | * Demonstrates reasoning and/or justifies solution steps
* Supports arguments and claims with evidence
* Uses mathematical language to communicate thinking
 | * Reasoning or justification of solution steps is limited or contains misconceptions
* Provides limited or inconsistent evidence to support arguments and claims
* Uses limited mathematical language to partially communicate thinking
 | * Provides no correct reasoning or justification
* Does not provide evidence to support arguments and claims
* Uses no mathematical language to communicate thinking
 |
| **Representations** **and** **Connections** | Proficient Plus:* Uses representations to analyze relationships and extend thinking
* Uses mathematical connections to extend the solution to other mathematics or to deepen understanding
 | * Uses a representation or multiple representations, with accurate labels, to explore and model the problem
* Makes a mathematical connection that is relevant to the context of the problem
 | * Uses an incomplete or limited representation to model the problem
* Makes a partial mathematical connection or the connection is not relevant to the context of the problem
 | * Uses no representation or uses a representation that does not model the problem
* Makes no mathematical connections
 |

**Additional Resources/Graphic Organizers/Etc.**