**Multiple Representations Assignment Scoring Rubric**

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| --- | --- | --- | --- | --- |
|  | **4** | **3** | **2** | **1** |
| **Prerequisite Knowledge** | demonstrates an  excellent understanding of the pre-requisite knowledge for the key concept and makes clear connections between the knowledge and the key concept | demonstrates an  understanding of the pre-requisite knowledge for the key concept and makes connections between this knowledge and the key concept | demonstrates some  understanding of the pre-requisite knowledge for the key concept and makes limited connections between this knowledge and the key concept | demonstrates little  understanding of the pre-requisite knowledge for the key concept and does not make connections between this knowledge and the key concept |
| **Concrete Materials** | demonstrates an excellent ability to use a variety of concrete materials appropriately and correctly, gives clear and detailed explanations of each manipulative with accompanying models | demonstrates an ability to use a variety of concrete materials appropriately and correctly, gives clear and detailed explanations of each manipulative with accompanying models | demonstrates some ability to use a limited variety of concrete materials appropriately and correctly, gives a partially complete explanation of each manipulative with accompanying models | demonstrates a limited ability to use concrete materials appropriately and correctly, gives partial or no explanations of each manipulative, possibly without accompanying models |
| **Collection of Activities, Problems, and Investigations** | the resources *strongly* connect to the key concept and direct a range of *rich* mathematical activity (content and  processes) | the resources connect to the key concept and direct a range of *rich* mathematical activity (content and  processes) | the resources either connect to the key concept or direct a range of *rich* mathematical activity, but not both | the connections  between the resources and the key concept is loose, and they do not engage a range of  mathematical  processes |
| **Relational Explanation** | Includes more than one clear and detailed relational explanation that demonstrates a deep understanding of the rules behind the reasons | Includes one clear and detailed relational explanation that demonstrates a deep understanding of the rules behind the reasons | Includes one relational explanation that demonstrates some understanding of the rules behind the reasons | Includes one relational explanation that demonstrates little to no understanding of the rules behind the reasons |
| **Algorithms** | Presents a wide variety of possible algorithms with clear explanations of each strategy, demonstrating a clear understanding of the values of alternative algorithms | Presents a several possible algorithms with clear explanations of each strategy, demonstrating a good understanding of the values of alternative algorithms | Presents limited possible algorithms with some explanations of each strategy, demonstrating a some understanding of the values of alternative algorithms | Presents no alternative algorithms without explanations, demonstrating little to understanding of the values of alternative algorithms |
| **Depth and breadth of exploration** | demonstrates an  excellent understanding of the key concept and demonstrates evidence of extensive research related to the key concept | demonstrates a very  good understanding of the key concept and demonstrates evidence of a good amount of research related to the key concept | demonstrates some  understanding of the key concept and demonstrates minimal evidence of research related to the key concept | demonstrates a lack of understanding of the key concept and demonstrates little to no evidence of research related to the key concept |
| **Communication of ideas** | engaging and  knowledgeable  presentation of the  key concept and of the  accompanying writing | solid and clear  presentation of the  key concept and of the  accompanying writing | some aspects of the  presentation of the  key concept and the  accompanying writing showed professionalism | the presentation of the key concept and the  accompanying writing lacked professionalism |