**Performance Task Development Template**

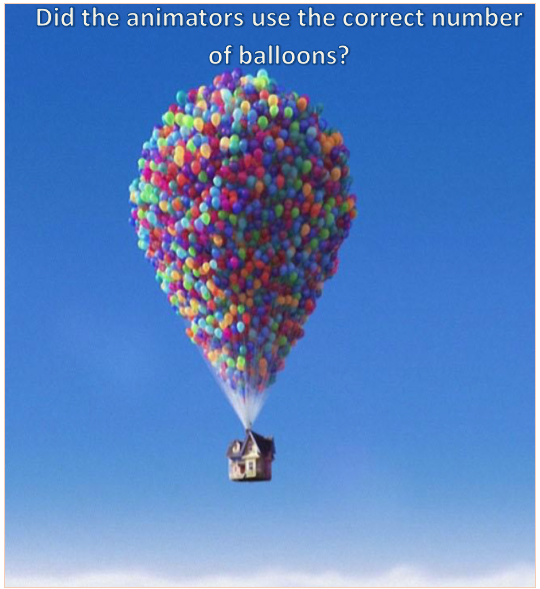
**Grade** \_\_\_\_\_\_\_ **Course** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Topic** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| POINTS TO CONSIDER: Determining the Assessment Focus   * All assessment must be based on learner expectations. * Student engagement will increase when the assessment task addresses the ‘big ideas’ of the discipline. * The complex language of the expectations needs to be focused into a concise action statement (criteria). This provides clarity for both teachers and students as to what will be assessed. |

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| **Course Expectations** | | **CRITERIA: concise action statements beginning with strong verbs that identify the learning to be achieved** | |
| **Number** | **Expectation (copy directly from the curriculum)** | **Know** | **Write, Do, or Say** |
| Overall | **Solve problems** involving proportional reasoning |  |  |
| 2.2 | **Represent**, using equivalent ratios and proportions, directly proportional relationships arising from realistic situations | A ratio represents a comparison of two different quantities  Identify a proportional relationship in a within context | Represent ratios with   * Numbers * Pictures * Manipulatives   Represent relationships by equating ratios |
| 2.5 | **Solve for the unknown value** in a proportion, using a variety of methods | There are many equivalent representations for a numerical relationship.  The same proportion can be represented in different ways | Represent ratios using expressions  Represent unknown values using variables  Connect and compare ratios using equations (e.g. x/4 = 15/20)  Choose a method for solving equations arising from ratios |
| 2.6 | **Solve problems** involving ratios, rates and directly proportional relationships in various contexts, using a variety of methods | A ratio compares two different quantities  Identify a proportional relationship in a within context  The constant of proportionality is invariant (i.e. doesn’t change as the scale of the situation changes) | Select and apply problem solving strategies  Recognize relationships, make conjectures and justify conclusions  Reflect on the reasonableness of results  Connect mathematical concepts to contexts drawn from realistic situations  Communicate mathematical thinking |
| Overall | Solve problems involving the measurements of two dimensional shapes and the volume of three dimensional figures. |  |  |
| 2.5 | **Solve problems** involving the volume of prisms, pyramids, cylinders, cones and spheres. | Formulas for volumes of various shapes | Select appropriate formulas for the situation  Apply the formulas to find unknown values  Combine and connect formulas to calculate volumes of complex figures  Use mathematical reasoning to plan calculations  Assess the reasonableness of results |

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| POINTS TO CONSIDER: Designing the Student Task   * Student engagement increases when the assessment task reflects a real-life context. Consider how students might take on a role and create a product or performance for an audience. See samples on the AAC website [www.aac.ab.ca](http://www.aac.ab.ca) under the Assessment Materials tab. * Be sure the student task provides clear instructions so students will see the criteria reflected in what they are asked to do/produce. * At the same time, be cautious about making the task too prescriptive. A performance task should be open-ended enough that students can reflect their individuality. This is easier to accomplish when the task is focused on the ‘big ideas’ of the discipline. |

**STUDENT ASSESSMENT TASK**



**R**ole: Technical advisor to Disney Pixar

**A**udience: Producers for the movie Up (2009)

**F**ormat: A technical report

**T**opic: Are there enough balloons?

**Assignment:**

As a technical advisor to the producers of the movie, you have been asked to provide comment on the number of balloons that the artists have animated. Please provide insight into whether or not you believe that the number of balloons shown is a reasonable approximation of what might be required to lift the house.

-This photo can be used for estimation purposes-You can provide a scale if needed (1cm  = 10m)​-Have students determine scale through photo **Materials**  
-Helium  
-Balloons  
-Electronic scale  
-string  
-cups  
-integer chips for mass

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| POINTS TO CONSIDER: Creating the Rubric   * Criteria are listed in the left hand column. * The descriptors focus on levels of quality. * Further support for writing effective rubrics is found in the AAC publication, *Building Better Rubrics* and on the AAC website under the Professional Learning tab. |

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| **Level**  **Criteria** | **Level 1** | **Level 2** | **Level 3** | **Level 4** |
| Thinking |  |  |  |  |
| Problem Solving | Technical report articulates a limited understanding of the producer’s request  Technical report explains an incomplete plan for drawing an appropriate conclusion, with few supporting details | Technical report articulates some understanding of the producer’s request  Technical report explains a general plan for drawing an appropriate conclusion, with some supporting details | Technical report articulates considerable understanding of the producer’s request  Technical report explains a clear plan for drawing an appropriate conclusion, including details of   * required information * how it will be collected * calculations to be made | Technical report articulates a thorough understanding of the producer’s request  Technical report explains a clear and concise plan for drawing an appropriate conclusion, including details of   * required information * how it will be collected * calculations to be made * the evidence that will be used to draw the conclusion |
| Reasoning & Proving | Draws a conclusion based on relevant details about the balloons and house depicted without specifying the relationships that exist | Draws a conclusion that connects the mass a single a balloon might lift to the mass of the house | Draws a conclusion that connects an estimated number of balloons with the mass those balloons might lift | Draws a conclusion that connects an estimated number of balloons with the mass those balloons might lift, with consideration for the estimation of the mass of the house. May also connect other pertinent information |
|  | Makes limited connections to the diagrams, equations and/or calculations presented when justifying answers | Makes some connections to the diagrams, equations and/or calculations presented when justifying answers | Makes direct connections to the diagrams, equations and/or calculations presented when justifying answers | Makes insightful connections to the diagrams, equations and/or calculations presented when justifying answers |
| Reflecting | Supports mathematical models with unrealistic estimation of balloon size, house size, scale factor, etc  Makes minimal connections between prior estimates and the conclusion | Supports mathematical models with reasonable estimates for balloon size, house size, etc. based on intuition  Makes some connections between prior estimates and the conclusion | Supports mathematical models with reasonable estimates for balloon size, house size, etc. based on research or reasoning  Makes appropriate connections between prior estimates and the conclusion | Supports mathematical models with reasonable estimates for balloon size, house size, etc. based on data, research and reasoning  Makes appropriate connections between prior estimates and the conclusion, and suggests how changes to estimates may affect the conclusion |
| Communication |  |  |  |  |
| Representing | Uses multiplicative thinking to represent relationships between a single balloon and the total balloons  Represents unknown values using blank spaces or pictorially  Represents the animated balloons using a sketched model without reference to scale | Uses ratios to represent some relationships between a single balloon and the total balloons  Represents unknown values with generic undeclared variables  Represents the animated balloons using a scale model | Uses ratios to represent relationships between a single balloon and the total balloons  Represents unknown values using generic variables, providing definitions  (let x represent …)  Represents the animated balloons using a scale model justified through assumptions | Uses equations based on ratios to represent relationships between a single balloon and the total balloons  Represents unknown values using specific variables  (let N represent the total number of balloons)  Represents the animated balloons using a scale model justified through connections to other problem details |
| Communicating | Uses unclear language to explain and justify conclusions   * Slang terms * Unconventional short forms * Calculations only | Use unclear language to explain and justify conclusions   * Point form explanations | Uses clear language to explain and justify conclusions, appropriate for a technical report to a producer | Uses clear and precise language to explain and justify conclusions, appropriate for a technical report to a producer |
|  |  |  | Use of mathematical symbols, labels and conventions. |  |
| Application |  |  |  |  |
| Selecting Tools and strategies | Selects and applies formulas for estimating volume based on standard figures with major errors or omissions | Selects and applies formulas for estimating volume based on standard figures, with minor errors or omissions (unstated assumptions) | Selects and applies formulas for estimating volume based on standard figures, justified with model assumptions. | Selects, adapts and applies formulas for estimating volume based on compound figures |
| Connecting | Makes limited connections between the balloon model and realistic balloons | Connects relationships in the balloon model with realistic situations using simple reasoning | Connects relationships in the balloon model with reasonable data, using proportional reasoning | Connects relationships in the balloon model with realistic data, using proportional reasoning |

* When work is judged to be limited or insufficient, the teacher makes decisions about appropriate intervention to help the student improve.