



**Objective:** To demonstrate and communicate an understanding of solving a multi-step equation visually and algebraically.

**How to do it:**

1. Choose a linear equation that ***requires at least 3 steps*** to solve for the unknown.
2. Represent the equation using a balance scale and algebraically.
3. Create a 90-second video communicating how to solve your 3-step algebra problem
4. Show the step-by-step solution to the problem using ***BOTH*** a balance scale and using algebra.

**Rough Draft:**

The rough draft will be on the loose-leaf paper and just be a sketch of what your final copy will look like. It must also contain a script for you video explanation for solving your problem! All work should be completed by this date.

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Final Copy:**

For the good copy an 11 x 14 sheet of paper will be provided. ***Your video should run through the process of solving the problem both algebraically and using a balance***. The video must be a MAXIMUM of 90 seconds long and ***clearly*** show how to solve an algebraic problem stepwise. Please take this as an opportunity to be as CREATIVE as possible.

*Your video should be posted on YouTube and the URL sent to your teacher before the Due Date!*

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Solution with a Balanced Scale should include the following:**

1. A legend provided
2. Equation shown using a balance scale
3. Equation shown using balance scale after the first step to solving
4. Equation shown using balance scale after the second step to solving
5. Equation shown using balance scale after the second step to solving (Note: This should be the answer\_

**Solution solved Algebraically should include the following:**

1. Full equation
2. Steps ***solved stepwise*** with the correct answer
3. An explanation of each step
4. Common mistakes students make when solving algebra problems
5. Final answer boxed

**Performance-Based Assessment:**

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| **Criterion B: Investigating Patterns** | | | |
| **Beginning (1-2)** | **Developing (3-4)** | **Accomplished (5-6)** | **Exemplary (7-8)** |
| *I am able to:*  **apply**, with teacher support, mathematical problem-solving techniques to discover simple patterns  **state** predictions consistent with patterns. | *I am able to:*  **apply** mathematical problem-solving techniques to discover simple patterns  **suggest** general rules consistent with findings. | *I am able to:*  **select** and apply mathematical problem-solving techniques to discover complex patterns  **describe** patterns as general rules consistent with findings  **verify** the validity of these general rules. | *I am able to:*  **select** and **apply** mathematical problem-solving techniques to discover complex patterns  **describe** patterns as general rules consistent with correct findings  **prove**, or **verify** and **justify**, these general rules. |

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| **Criterion C: Communicating** | | | |
| **Beginning (1-2)** | **Developing (3-4)** | **Accomplished (5-6)** | **Exemplary (7-8)** |
| *I am able to:*  **use** limited mathematical language  **use** limited forms of mathematical representation to present information  **communicate** through lines of reasoning that are difficult to interpret.  Few to no titles used  Section unclear  Diagrams unclear  Little to no use of colour  Video is not creative and engaging | *I am able to:*  **use** some appropriate mathematical language  **use** appropriate forms of mathematical representation to present information adequately  **communicate** through lines of reasoning that are complete  adequately **organize** information using a logical structure.  Some title missing  Some sections unclear  Diagrams do not standout  Colour used but is not effective in making the connections memorable  Video is somewhat creative and engaging | *I am able to:*  usually **use** appropriate mathematical language  usually **use** appropriate forms of mathematical representation to present information correctly  usually move between different forms of mathematical representation  **communicate** through lines of reasoning that are complete and coherent  **present** work that is usually organized using a logical structure.  Most titles included  Section made clear  Diagrams are clear  Colour coding for the components or steps is clear will only minor    Video is both creative and engaging | *I am able to:*  consistently **use** appropriate mathematical language  **use** appropriate forms of mathematical representation to consistently present information correctly  move effectively between different forms of mathematical representation  **communicate** through lines of reasoning that are complete, coherent and concise  **present** work that is consistently organized using a logical structure.  Clear titles and sections  Logical flow  Diagrams stand out  The use of colour is effective in making the connections memorable  Video is both extremely creative and extremely engaging |

*Optional Template – Use Landscape Format*

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| PROBLEM… | |
| Balance Scale Solution | Algebra Solution |