**Standards-Based Lesson Plan Template**

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| **Stage 1 – Desired Results** |
| ESTABLISHED GOALS The enduring understandings and learning goals of the lesson, unit, or course. | ***Standards*** |
| **NCTM Content Standard:** Algebra**Virginia Content Standard of Learning**:8.18 The student will solve multistep linear inequalities in one variable with the variable on one side or both sides of the inequality symbol, including practical problems, and graph the solution on a number line. **NCTM and/or Virginia Process Standard of Learning**: Problem Solving **Length of Lesson:** 70 minutes**Grade Level**: 8th Grade  |
| ***Transfer*** |
| *Students will be able to independently use their learning to…*T1 Make connections between solving equations and inequalities both in and out of real world situationsT2 Use prior knowledge of greater than and less than signs to solve inequalitiesT3 Think flexibly in order to create algebraic expression to solve an inequality when given a real world situationT4 Plot solutions on a number line |
| ***Meaning*** |
| UNDERSTANDINGS *Students will understand that…*U1 Equations have one solution and inequalities can have more than one solution. U2 Inequalities are represented with greater than and less than signs. They can be combined with an equal to sign. U3 A real world situation may allow for more than one solution to have a true context. *Example:* You can have greater than or equal to the amount of an object you want to buy. You do not win a basketball game if your score is less than or equal to the opponent.  | ESSENTIAL QUESTIONS Q1 What is the same about solving equations and solving inequalities and what is different?Q2 How can we represent a problem having more than one solution? Q3 What type of situation may allow for more than one solution?  |
| ***Acquisition*** |
| *Students will know…* K1 Greater than and less thanK2 at least (≥) and at most (≤)K3 Inequality K4 Equality Properties K5 Written responseK6 Number lineK7 Infinity K8 Solution Set  | *Students will be skilled at…* D1 Solving practical problems involving linear inequalitiesD2 Plotting solutions on a number line D3 Relating equations and inequalities   |
| **Stage 2 – Evidence and Assessment** |
| **Evaluative Criteria** | **Assessment Evidence** |
| Refers to the various types of criteria that students will be evaluated on. | Observation ChecklistStudent Work The guided questions and charts for the lesson will allow for me to assess student understanding of independent and dependent variables. It will also inform me on students’ ability to form an inequality based on information provided in the situation. The checklist will allow me to assess a deeper understanding of the data and the graph. Checklist

|  |  |  |  |
| --- | --- | --- | --- |
|  | 0 Inaccurately  | 1 Unclear | 2 Accurately  |
| Solves a real life context using an inequality |  |  |  |
| Provides a written explanation for a solution |  |  |  |
| Displays solutions on a number line |  |  |  |

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| **Stage 3** |
| *Summary of Key Learning Events and Instruction* |
| **The Task** | You want to buy a cell phone and have the option of spending $290, $600, or $720. You have already saved up $50 and have a job where you earn $8.60 per hour. How many hours do you have to work to afford any of these phones? Include a written response to explain your solution. Show your solution on a number line. *This task was selected because the standards state that solving inequalities needs to be applied to real world situations. This task helps students conceptually understand ≤ and ≥. I want students to explore a situation in which one solution is not the only way to make a statement true. This task can be compared to an earlier real world task with solving equations.*  |
| **Anticipating & Analyzing the Task** | Solve the task yourself in as many different ways as you can,to identify the possible ways your students might approach this problem. What do students need to know in order to have access to the content of your lesson? What prior knowledge will students need for this task? Identify 2 Virginia Standards of Learning from prior grades that focus on this prior knowledge.What are the multiple entry points into the task for students at different ability levels? As you are working on the task, think about how student confusions might impact their problem-solving results, and what representations and models they might use. Attach your work to this template. After working on the task, you may need to revise some of the mathematical objectives you listed earlier.  |
| **Before Phase: Launching the task/lesson****(10-20 min.)**  | Address each of the teacher actions for the Before Phase of the lesson plan:* How will you activate prior knowledge?
* How will you be sure the problem is understood?
* How will you establish clear expectations?
* Look in the Van de Walle et al. text for an explanation of each teacher action and examples of ways to address them.
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| **During Phase:** **As students are working on the task****(30-50 min.)** | Address each of the teacher actions for the During Phase of the lesson plan:* Let go! How will students be organized to work on the task while you are free to confer?
* How will you notice children’s mathematical thinking? How will you monitor? Use your formative assessment tool(s) here.
* How will you provide appropriate support?
* How will you provide worthwhile extensions?
* Look in the Van de Walle et al. text for an explanation of each teacher action and examples of ways to address them.
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| **After Phase: Bringing closure to the lesson****(10-20 min.)** | Address each of the teacher actions for the After Phase of the lesson plan:* How will you promote a whole-class community of learners? How will you select who will share?
* How will you listen actively without evaluation? How will you sequence who will share? What questions will you ask to engage students in making connections among shared strategies?
* How will you summarize main ideas and identify connections to future mathematics problems/tasks?
* Look in the Van de Walle et al. text for an explanation of each teacher action and examples of ways to address them.
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Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Cell Phone Extravaganza**

Verizon is having a sale, and you have been working to buy a new cell phone! You have the option of spending $290, 600, or $720. You have already saved up $50 and have a job where you earn $8.60 per hour. How many hours do you have to work to afford to buy a phone?

I would have to work \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to afford this phone.

Insert Image of Flip Phone

$290.00

I would have to work \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to afford this phone.

Insert Image of phone

$600.00

Insert Image of iPhone

I would have to work \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to afford this phone.

$720.00

**Explain how many hours you would have to work to afford the cheapest phone and the most expensive phone.**

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**How could you use the words “at least” or “at most” to describe how many hours you would have to work to afford a phone?**

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