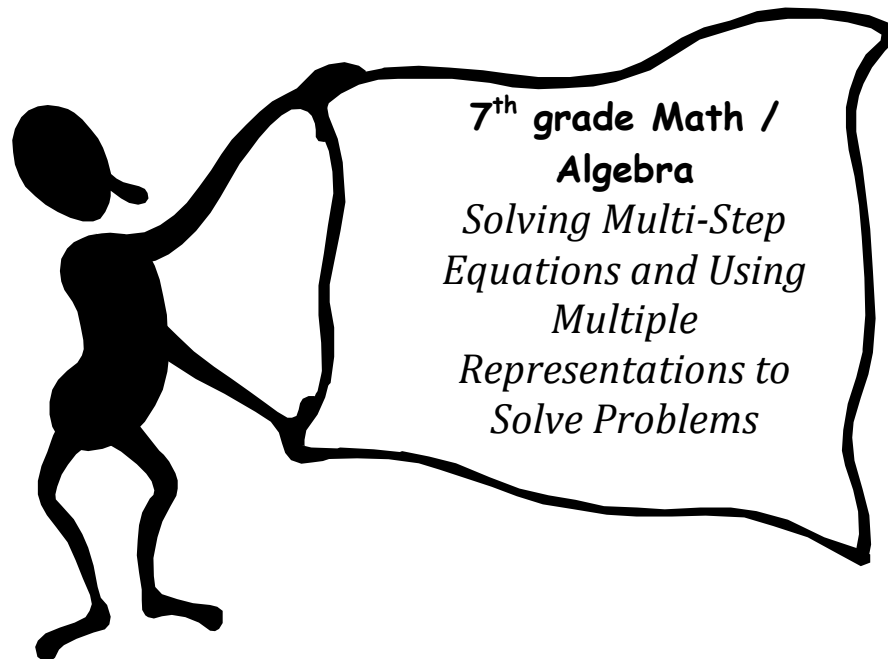


Backwards Design Unit Planning

Teacher/School: Lyman/Dollard Aspires JHS185 Magnet School

**New York City Department of Education  
Magnet Program District 25 & 28**

ASPIRES JHS185 Magnet School



**Essential Question:** How do we use problem solving in medicine and research?

**Suggested Time Frame:** 1 month

**Theme:** Medicine and Research

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Stage 1- Desired Results	
<p><b><u>Standards-Based Learning Goals:</u></b></p> <p>7.A.2 Add and subtract monomials with exponents of one</p> <p>7.A.3 Identify a polynomial as an algebraic expression containing one or more terms</p> <p>7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation</p> <p>7.A.7 Draw the graphic representation of a pattern from an equation or from a table of data</p> <p>7.A.8 Create algebraic patterns using charts/tables, graphs, equations, and expressions</p> <p>7.A.9 Build a pattern to develop a rule for determining the sum of the interior angles of polygons</p> <p>7.A.10 Write an equation to represent a function from a table of values</p> <p>8.A.15 Understand that numerical information can be represented in multiple ways: arithmetically, algebraically, and graphically</p> <p>8.A.19 Interpret multiple representations using equation, table of values, and graph</p> <p>8.G.15 Graph a line using a table of values</p>	
Concepts	
<p><b>Big Ideas for this Unit</b></p> <ul style="list-style-type: none"> <li>• <b>Patterns can be used to solve problems.</b></li> <li>• <b>Relationships can be used to solve problems.</b></li> <li>• <b>Communication may be done in different ways.</b></li> <li>• <b>Simplification is a good way to start solving problems.</b></li> <li>• <b>Finding balance helps us solve problems.</b></li> </ul>	<p><b>Magnet School Theme:</b> Applied Sciences and Problem Solving; 7<sup>th</sup> Grade: Health and Medicine</p> <p><b>Relevant/Connected Big Idea:</b> We can use problem solving in the medical field. We can communicate patient data in different ways. We can discover relationships and patterns between data of different patients.</p>
<p><b>Enduring Understandings</b></p> <p>Identifying and simplifying information is a good way to start solving problems. We can use patterns and relationships to solve problems. We can use graphs to model and communicate real-world situations.</p>	<p><b>Overarching Essential Question(s):</b> <b>How do we use problem solving in medicine and research?</b></p> <p>When is balance necessary? When is simplification useful? How does simplification help us solve problems? Why are there different ways to communicate information?</p>
Content and Skills	
<p><b>Content</b> <b>Students will know...</b></p> <p>Vocabulary:</p> <ul style="list-style-type: none"> <li>• Monomial</li> <li>• Binomial</li> <li>• Trinomial</li> <li>• Term</li> <li>• Constant</li> </ul>	<p><b>Skills</b> <b>Students will be able to...</b></p> <p>Identify Polynomials Combine Like Terms Apply Distributive Property Solve and check equations Read and Interpret Charts and Tables Develop a pattern to find the interior angles</p>

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<ul style="list-style-type: none"><li>• Like Terms</li><li>• Variable</li><li>• Distributive Property</li><li>• Inverse Operations</li><li>• Polygon</li><li>• Characteristics of Polygons</li><li>• Rate</li><li>• Constant</li></ul>	<p>of polygons</p> <p>Create graphs from function tables and equations</p>
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### **Stage 2- Summative Assessment Evidence**

**If students understand, know and are able to do the items in Stage 1, they should be able to show their understanding by completing an authentic task found in the world beyond the classroom.**

G- (goal) Your goal is to create a table/chart to facilitate administration of medicine according to size data of different animals.

R- (role) You are a veterinary technician or a veterinarian/ animal care-taker at a zoo, vet's office, animal shelter, aquarium, etc. (student's choice).

A- (audience) It will be used by your co-workers who care for and also treat animals (other veterinarians/ care givers).

S- (situation) In your setting where animals are treated, you have to determine the amount of medicine for every single animal you treat.

P- (purpose and product) You want to save time and energy so you will create a spreadsheet and equation to organize the data for the animals (size of animal will determine the amount of medication they need). Then you can display the data in a chart to facilitate your daily work.

S- (standards for performance) ) You need to create a chart on Excel that clearly organizes data from a range of sizes of animals and then determine the appropriate dosage of medication for each size. Then you will create an equation to represent this information and a graph to display the data visually to your coworkers. You will also need a verbal explanation for the owners of the animals. (Follow up with visit to Queens Zoo & meet with animal caretakers)

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### Student Task

Name: \_\_\_\_\_

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

Class: \_\_\_\_\_



- *Your Situation:* You and your partner are veterinarians/animal technicians who work with and care for animals. You prescribe the pain medication, Rimadyl, for the animals that you are treating. This medicine is administered in doses according to the weight of the animal.
- *Your Problem:* Every time you see a new animal, you spend a lot of time figuring out how much medicine the animal needs. You want to figure out a method that will make your life easier.
- *Your Task:* Pick a setting that you work in (zoo, animal shelter, aquarium, veterinarian office). *Display the information in an Excel spreadsheet* of all the different weights of animals, from small to large, and the amount of medication you should prescribe for each weight. Then *determine an equation* that corresponds with this data and *present the data in a graph* that you can share with your coworkers. Lastly, *explain clearly in words* to the patients why you are prescribing this particular amount of medication and how to read the chart and graph.

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• *Due*

*Date:* \_\_\_\_\_

\_\_\_\_\_

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