Curriculum Sample Template – 8 Pages Max. (12 pages for integrated ELA sample)

Grade Level	7	**Content Area**	Mathematics
Course Title (grades 9-12 Only)	n/a		
Expected Prior Knowledge *List the knowledge/skills mastered earlier in the year that are foundational to the mastery of the Required Standard(s).*	Add, Subtract, Multiply, Divide Rational Numbers Create Expressions and Equations from Real World Problems		
Alignment to Program of Instruction *Describe how the methods of instruction found in this sequence of lessons align to the Program of Instruction described in the application package.*	Pensar Academy utilizes an educational model that include Direct Instruction (Madeline Hunter), Blended Leaning (BL) and Projects Based Learning (PBL) for the students to achieve mastery and knowledge utilization of the AZ State Standards. Lesson components include the 4Cs which are Critical Thinking, Collaboration, Communication, and Creativity. We ensure that all students can reach mastery through the use of Universal Design for Learning (UDL), which incorporate multiple learning style such as visual, auditory, tactile and kinesthetic. Our rotational model uses BL to ensure that students who did not meet mastery are provided intervention that day to increase their understanding of the material. Students who are at the mastery level after the direct instruction will have the opportunity for enrichment through the use of Study Island and other computer programs. All student will be exposed to using the knowledge learned in DI and the rotational model to complete projects during their PBL session of their schedule. All the components at Pensar Academy will allow students to receive an individualized education.		
Standard Number* and Description *The standard number and description of the Required Standard(s) being instructed and assessed to mastery in the curriculum sample.*	**7.NS.A.3.** Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)		
Materials/Resources Needed *List all items the teacher and students will need for the entire sequence of instruction (excluding common consumables)*	Computer Projector, Document Camera, Whiteboards, Computers,		

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Cluster, Standard (e.g., 6.EE.B.7). For HS Math, use Conceptual Category-Domain, Cluster, Standard (e.g., A-REI.C.6).*

Lesson (add as needed)	**Instructional Strategies -** *List and describe teacher actions, lesson by lesson, which will provide students with opportunities to engage the grade-level rigor defined by the Required Standard(s). Indicate alignment of instructional strategies to specific component(s) or content/skill(s) of the Required Standard/component.*	**Student Activities -** *Describe the activities, lesson by lesson, in which students will engage to allow them to master the grade-level rigor defined by the Required Standard(s). Indicate alignment of student activities to specific component(s) or content/skill(s) of the Required Standard/component.*
1	**Objective:** Students will be able to (SWBAT) Apply understanding of operation with fractions to solve real-world problems. **Anticipatory Set (AS):** Direct students to complete the following problem: Suzanne runs $\frac{3}{4}$ mile and then $\frac{1}{2}$ mile. $\frac{3}{4} + \frac{1}{2} =$ $\frac{3}{4} + \frac{2}{4} = \frac{5}{4} =$ $1 + \frac{1}{4} = 1\frac{1}{4}$ **1.** Explain how the model shows that $\frac{3}{4} + \frac{1}{2} = 1\frac{1}{4}$. **2.** Draw a model to show that $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$. **Teacher Model/Inquiry:** 1) Discuss the AS. 2) Model problems involving each of the four operations (i.e. addition of fraction followed by a check for understanding of adding fractions, etc.) **Guided Practice:** Solve a problem of each kind taking turn between completing a step and asking students for the next step. **Check for Understanding:** 1) Assign a problem per each type of operation. 2) Direct students to share with their shoulder partner. 3) Provide clarification and correct misconceptions if needed. **Independent Practice:** Assign 10 real-world problems involving operations with fractions (i.e. A blacksmith has 6½ pounds of iron with him. If it takes ¼ of a pound to make one lock, how many locks can he make from the iron?) **Closure:** Ask students to write a real-life problem involving at least two mathematical operations with fractions. One must be addition or subtraction and the other must be multiplication or division. Solve it. **Small Group Re-teaching:** Use conceptual understanding through the use of manipulatives and pictorial representations. Reteach the type of problems students are struggling with solving. **Extension:** Monitor students' progress and ensure the appropriate activities are being completed.	**Objective:** Students will restate the learning objective… I will be able to apply understanding of operation with fraction to solve real-world problems. **Anticipatory Set (AS):** Complete the problem(s) on the A.S. as directed by the teacher. **Teacher Model/Inquiry:** 1) Answer or ask questions as the teacher discussed the A.S. 2) Take notes as the teacher discusses each type/operation problem. **Guided Practice:** Listen to teacher and provide direction on next step to solve the problem. **Check for Understanding:** 1) Solve each problem assigned and share responses with their shoulder partner. 2) Ask questions if needed. **Independent Practice:** Solve problems as directed by teacher. **Closure:** Write a real-life problem according to the specification provided by the teacher and solve it. **Small Group Re-teaching:** Students who did not reach mastery will attend a small group session. **Extension:** Students will use the computer program Study Island to complete questions pertaining to real-world problems with fractions.

2	**Objective:** Students will be able to (SWBAT) Apply knowledge of unit rates to compare cellphone plans to determine best value within the given circumstances. **Anticipatory Set (AS):** 1) Post the following problem on the board: *A supermarket sells orange juice in three sizes. The 32 fl oz container costs $1.99, the 64 fl oz container cost $3.69, and the 96 fl oz container costs $5.85. Which size orange juice has the lowest price per fluid ounce?* 2) Direct students to solve the problem. **Teacher Model/Inquiry:** 1) Explain to the students they will evaluate cellphone plans for a given company to determine the one with the best value for particular circumstances. 2) Assign a cellphone company to each group (i.e. Verizon, AT&T, T-Mobile, etc.). 3) Model the comparison for best prices using the anticipatory set problem. **Guided Practice:** Ask the students for directions on how solve the following problem: *During a car trip, the Webers buy gasoline at three different stations. At the first station, they pay $18.63 for 9 gallons of gas. At the second, they pay $29.54 for 14 gallons. At the third, they pay $33.44 for 16 gallons. Which station offers the lowest price per gallon?* **Check for Understanding:** Ask students to order the cards with different deals from the best value to least value – left to right. **Independent Practice:** 1) Direct students to complete the cellphone plans comparison. 2) Monitor students' progress as they complete the task. 3) Answer students' questions. **Closure:** Direct students to complete the following Exit Ticket based on the calculation for the Anticipatory set: *While grocery shopping with your parent they decide to buy 3 containers of the 32 fl oz of orange juice claiming it will be a better deal than any combination of the other sizes available. Write a paragraph explaining to your parent why that is **not** accurate.* **Small Group Re-teaching:** Use conceptual understanding through the use of manipulatives and pictorial representations to support the students who did not reach mastery through the independent practice. **Extension:** Monitor students' progress and ensure the appropriate activities are being completed.	**Objective:** Students will restate the learning objective… I will be able to apply knowledge of unit rates to compare cellphone plans to determine best value within the given circumstances. **Anticipatory Set (AS):** Complete the problem as directed by the teacher. **Teacher Model/Inquiry:** 1) Listen and follow along as the teacher explains the task for the day. 2) Ask questions if needed. **Guided Practice:** 1) Share directions on how to solve the best value problem. **Check for Understanding:** Order the card with the best value to the left and the least value to the farthest right. **Independent Practice:** 1) Calculate the unit prices/rates for the given cellphone plans. 2) Ask/answer clarifying questions. 3) Complete the comparison of plans for the given circumstances. **Closure:** Complete the Exit Ticket. **Small Group Re-teaching:** Students who did not reach mastery will attend a small group session. Use manipulatives and pictorial representations to solve the problems. **Extension:** Students will use the computer program Study Island to complete questions pertaining to unit/rate for best value.
3	**Objective:** Students will be able to (SWBAT) Apply knowledge of percentage usages to solve real-world problems. **Anticipatory Set (AS):** Direct students to complete the following problem: *In a survey, 80 students were asked to name their favorite subject. Thirty students said that English was their favorite. What percent of the students surveyed said that English was their favorite subject?*	**Objective:** Students will restate the learning objective… I will be able to apply knowledge of percentage usages to solve real-world problems. **Anticipatory Set (AS):** Complete the problem(s) on the A.S. as directed by the teacher. **Teacher Model/Inquiry:** 1) Participate in the discussion of the A.S. 2) Take notes of the application of percentage. 3) Ask clarifying questions – if needed.

	Teacher Model/Inquiry: 1) Discuss the A.S. 2) Model problems involving application of percentage (i.e. calculation of % of a number, % discount, sale tax, commissions, etc.) 3) Check for understanding after each example problem is modeled. **Guided Practice:** Present students with partially completed problems and wrongfully solve problems of each type discussed during the Teacher Model component and ask student on how to complete or correct the errors. **Check for Understanding:** 1) Assign a problem in which students use one of the application of percentage. 2) Direct students to solve the problem. 3) Ask students to share the problem with their face partner. 4) Check for correct solutions and provide clarification/correction – if needed. **Independent Practice:** Assign 10 real-world problems involving operations with fractions (i.e. A real-estate agent is paid a monthly salary of $900 plus commission. Last month he sold one condominium for $65,000, earning a 4% commission on the sale. How much was his commission? What was his total pay last month?) **Closure:** Present the following Exit Ticket problem: *Julie has been offered two jobs. The first pays $400 per week. The second job pays $175 per week plus 15% commission on her sales. How much will she have to sell in order for the second job to pay as much as the first?* **Small Group Re-teaching:** Re-teach the application of percentage using partially complete problems in a progression towards independent practice. **Extension:** Monitor students' progress and ensure the appropriate activities are being completed.	**Guided Practice:** Listen to teacher and provide direction on next step to solve the problem. **Check for Understanding:** 1) Solve each problem assigned and share responses with their shoulder partner. 2) Ask questions if needed. **Closure:** Complete the Exit Ticket. **Independent Practice:** **Small Group Re-teaching:** Students who did not reach mastery will attend a small group session. Using partially solve problems works towards independent practice. **Extension:** Students will use the computer program Study Island to complete questions pertaining to percentage application.
4	**Objective:** Students will be able to (SWBAT) Apply knowledge of operations with decimals to solve real-world problems. **Anticipatory Set (AS):** Ask students to complete the following problem: *Mrs. Lee bought 50 shares of Wiget stock. She paid a total of $1,200, which included a $25 commission fee. Two years later she sold all 50 shares for a total of $1,500. This included a $25 commission fee to the broker. What was the cost and selling price per share of the stock?* **Teacher Model/Inquiry:** 1) Discuss the AS. 2) Model problems involving each of the four operations (adding, subtracting, multiplying, and dividing) decimals. **Guided Practice:** Solve a problem of each operation taking turn between completing a step and asking students for the next step.	**Objective:** Students will restate the learning objective… I will be able to **Anticipatory Set (AS):** Complete the problem(s) on the A.S. as directed by the teacher. **Teacher Model/Inquiry:** 1) Participate in the discussion of the A.S. 2) Take notes of the operations with decimals. 3) Ask clarifying questions – if needed. **Guided Practice:** Listen to teacher and provide direction on next step to solve the problem. **Check for Understanding:** 1) Solve each problem assigned and share responses with their shoulder partner. 2) Ask questions if needed. **Independent Practice:** 1) Work collaboratively with teammates in calculating the price per product on the grocery list. 2) Determine the total price of the products on the grocery list including a 9.8% of sale tax. 3) Ask clarifying questions if needed.

	Check for Understanding: 1) Assign partially completed problems for the students to complete. 2) Provide clarification and correct misconceptions if needed. **Independent Practice:** 1) Distribute a grocery list – 10 products – and assign a grocery store to each group. 2) Provide the "ads" for each store to the appropriate group. 3) Direct students to determine the price per product and the total bill including the sales tax of 9.8%. **Closure:** Ask students to complete the following Exit Ticket: *Write a paragraph explaining to your parents how to apply the operations with decimals to determine the price for vegetables/fruits sells by the weight and provide an example.* **Small Group Re-teaching:** Re-teach using simple decimals – no more than hundredths place value – and allowing students to use calculators for computations. As students' progress reduce the level of support until students can work independently. **Extension:** Monitor students' progress and ensure the appropriate activities are being completed.	**Closure:** Complete the Exit Ticket by writing an explanation paragraph and an example. **Small Group Re-teaching:** Students who did not reach mastery will attend a small group session. Using partially solve problems works towards independent practice. **Extension:** Students will use the computer program Study Island to complete questions pertaining to operations with decimals.
	Project Based Learning	
S.A.	*Provide an opportunity for the student to complete the summative assessment items which is clearly separate from instruction and guided or independent practice, and in which the student is assessed independently. In the Student Activities column, provide a brief description of the summative assessment (S.A.) items that will allow students to demonstrate mastery of the rigor of the Required Standard(s)/components, and the context in which the items will be administered.*	The S.A. assesses mastery in the student's knowledge to solve real-world and mathematical problems involving the four operations with rational numbers is composed of one, choose two answers, multiple choice question and four problems with multiple parts to be scored using a rubric. The total value of the S.A. is 20 points of which students need 16 points to demonstrate mastery.

Summative Assessment Items and Scoring: *Below, provide at least three Summative Assessment Items that together accurately measure student mastery of the application of the content and/or skills as defined by the grade-level rigor in the Required Standard(s). For each assessment item, provide an answer key or scoring rubric which clearly describes how assessment items are to be scored and how points will be awarded, such that mastery of the application of the content and/or skills as defined by the grade-level rigor in the Required Standard is clearly demonstrated by an acceptable score.*

Summative Assessment Item 1 (clearly identify answer key/scoring rubric, and acceptable score): **4 Points**
Sally wants to buy an assortment of candy. She has $7 dollars she can spend in the candy store. The candy store sells chocolate bars, lollipops and gumballs at the prices shown below.

Chocolate bars cost $1.50 per bar.
Lollipops cost $0.75 per lollipop.
Gumballs cost $0.25 per gumball.

Sally wanted to find the cost of combinations of candies she could buy. Enter the cost, in dollars, of each candy assortment in the table below.

Candy Assortment	Cost in dollars

2 chocolate bars + 3 lollipops + 4 gumballs	
3 chocolate bars + 4 gumballs	
1 chocolate bar + 5 lollipops + 2 gumballs	
2 chocolate bars + 2 lollipops + 8 gumballs	

Input #1 Answers
■ *6.25*
Input #2 Answers
■ *5.50*
Input #3 Answers
■ *5.75*
Input #4 Answers
■ *6.50*

Summative Assessment Item 2 (clearly identify answer key/scoring rubric, and acceptable score): **2 Points**

Marcus ate half of a pizza on Monday night. He then ate one third of the remaining pizza on Tuesday. Which of the following expressions show how much pizza Marcus ate in total? **Select two that apply**.

A. $1 - \frac{1}{2} \cdot \frac{1}{3}$

B. $\frac{1}{2} \cdot \frac{1}{3}$

C. $\frac{1}{2} + \frac{1}{2} + \frac{1}{3}$

D. $\frac{1}{2} + \frac{1}{3}$

E. $\frac{1}{2} + \frac{1}{2} \cdot \left(\frac{1}{3}\right)$

F. $1 - \frac{1}{3}$

Answers: E & F

Summative Assessment Item 3 (clearly identify answer key/scoring rubric, and acceptable score): (add as needed): **3 Points**

Robert's Reliable Flooring charges the following amounts per square foot for their premium flooring:

Carpet $4.25 **Laminate $1.50** **Hardwood $7.75**

Cecelia's new 2000 square foot house will have 60% of its floors covered with hardwood and 40% of its floors covered with carpet.

Part A: How many square feet of carpet will Cecelia's house have? Show your work.

Part B: Cecelia has hired Robert's to install flooring for her entire house. How much will this cost? Show your work.

Part C: How much money would Cecelia save on flooring if she installed laminate instead of hardwood flooring? Show your work.

Rubric: 3 Point(s)

3 *– The student shows thorough understanding of adding, subtracting, and multiplying rational numbers and how this can be used to solve problems in real–world contexts. The student solved all three parts correctly.*

Part A: *2000 · 40% = 800 ft2*

Part B:

Carpet: 800 ft2 · $4.25 = $3400

Hardwood: 1200 ft2 · $7.75 = $9300

Total: $3400 + $9300 = $12,700

Part C:

Laminate: 1200 ft2 · $1.50 = $1800

Savings: $9300 – $1800 = $7500

***2** – The student shows partial understanding of adding, subtracting, and multiplying rational numbers and how this can be used to solve problems in real–world contexts. The student solved two out of the three parts correctly OR got them correct based on work done in a previous part.*

***1** – The student shows limited understanding of adding, subtracting, and multiplying rational numbers and how this can be used to solve problems in real–world contexts. The student solved one out of the three parts completely correct OR got it correct based on work done in a previous part.*

Summative Assessment Item 4 (clearly identify answer key/scoring rubric, and acceptable score): (add as needed): **3 Points**

Trevor is looking at purchasing a new cellular phone plan. Company A charges $35.25 a month, plus $.11/min for local calls. Company B charges $14.25 a month, plus $.32/min for local calls. Trevor stated that if he used *x* amount of minutes, the cost of the phone companies would be the same.
For what amount of minutes, *x*, would Trevor's argument be true? Show your work.
Trevor is planning to use at least 100 minutes for local calls a month. Which company would be cheaper for Trevor to use? Explain your reasoning.

Rubric: 3 Point(s)

***3** – Student has thorough understanding of using the four operations with rational numbers. Students also display thorough understanding of determining under what conditions an argument is true. Students correctly determine that the price would be the same at 100 minutes and show their work. Students also correctly explain that Company A would be cheaper if Trevor uses more than 100 minutes. Student show all the work to support his answers.*
Trevor's argument would be true for 100 minutes.
35.25 + .11x = 14.25 + .32x
21.00 + .11x = .32x
21.00 = .21x
100 = x
If Trevor uses any more than 100 minutes, plan A would be cheaper. This is because the $.11/min is less than $.32/min. Also
35.25 + .11(101+) < 14.25 + .32(101+).
***2** - Student has thorough understanding of using the four operations with rational numbers. Students also display thorough understanding of determining under what conditions an argument is true. Students correctly determine that the price would be the same at 100 minutes and show their work. Students also correctly explain that Company A would be cheaper if Trevor uses more than 100 minutes.*
Trevor's argument would be true for 100 minutes.
***1** – Student displays moderate understanding of using the four operations with rational numbers. Students also display moderate understanding of determining under what conditions an argument is true. Students correctly determine the price would be the same at 100 minutes and show their work OR students correctly explain that Company A would be cheaper if Trevor uses more than 100 minutes.*

Summative Assessment Item 5 (clearly identify answer key/scoring rubric, and acceptable score): (add as needed): **3 Points**

Alicia is moving her office to another town. She has 1402 files, each of which is half an inch thick on average and she needs to purchase enough filing cabinets to hold all of her files. At a local office supply store, Alicia finds two different cabinets that could meet her needs.

Cabinet Type	Price	Amount of Drawers	Length of each Drawer
Deluxe Cabinet	$179	4	2 feet

Standard Cabinet	$119	2	2 feet

Part A: How many of her files will the Deluxe Cabinet hold? Show your work.
Part B: How many of her files will the Standard Cabinet hold? Show your work.
Part C: How many of each type of filing cabinet should Alicia purchase to spend the least amount of money? Show your work and explain your reasoning.

Rubric: 3 Point(s)

3 *– The student shows thorough understanding of multiplying, dividing, and adding rational numbers and how this can be used to solve problems in real–world contexts. The student correctly calculated the amount of files that each cabinet will hold AND how many cabinets Alicia should purchase.*

Part A: 192 files
4 drawers · 2 feet per drawer = 8 feet per cabinet
8 feet · 12 inches per foot = 96 inches
96 inches/(1/2 inch thick files) = 192 files per cabinet
Part B: 96 files
2 drawers · 2 feet per drawer = 4 feet per cabinet
4 feet · 12 inches per foot = 48 inches
48 inches/(1/2 inch thick files) = 96 files per cabinet
Part C: Alicia should purchase 7 Deluxe Cabinets and 1 standard Cabinet.
192 files · 7 Deluxe Cabinet = 1344 files
96 files · 1 Standard Cabinet = 96 files
1344 + 96 = 1440 total files
Alicia should purchase more Deluxe Cabinets than standard cabinets since the cost per drawer of a Deluxe Cabinet is cheaper than a Standard Cabinet.
$179/4 = $44.75 per drawer for the Deluxe
$119/2 = $59.50 per drawer for the Standard

2 *– The student shows partial understanding of multiplying, dividing, and adding rational numbers and how this can be used to solve problems in real–world contexts. The student correctly calculated 2 of the 3 parts. Part C could be counted as correct if it is based off of incorrect work done in Part A or B.*

1- *The student shows limited understanding of multiplying, dividing, and adding rational numbers and how this can be used to solve problems in real–world contexts. The student correctly calculated 1 of the 3 parts. Part C could be counted as correct if it is based off of incorrect work done in Part A or B.*