LINEAR RELATIONSHIPS collaborative project

CCSS: 8.F.4 | TEKS: 8.4C, 8.5I, 8.5B

The problem: Your name has been drawn as a winner for a once-in-a-lifetime vacation anywhere in the United States. With the right planning, the vacation of your dreams is within reach!

The investigation: Students will plan a vacation in order to explore linear relationships. Students will also apply discount options to their vacation expenses in order to explore the effect on the linear relationship.





LINEAR RELATIONSHIPS

TIME FRAME: 3-5 DAYS

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STAGE	DESCRIPTION	TIME FRAME
1: Intro and Research	Students will learn the project scenario and wi determine the location, flight and hotel details for their trip. Students will also explore the relationship between the number of nights and the cost of their trip.	ll 1-2 days d
2: Cost Comparison	Students will observe how the linear relationship between the number of nights of their trip and the total cost of the trip is affecte by each voucher option. Students will then select the voucher option they want to redeem	d 1-2 days I.
3: Submit Applications	Students will complete and submit a trip application for review and approval.	1 day

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LINEAR RELATIONSHIPS 2000 Collaborative project

WHAT IS THE FINISHED PRODUCT?

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ADVENTURE /	AWAITS	Name					
BTH PROJECT	RVBRIC	Total Points					
	APOVE						
MATHEMATICAL CONTENT	Creates equations, tables an graphs representing the trip (with and without discounts applied) without errors	Adventure Awaits 8 th Grade Project Rub	Name Date	Pd			
	40 points	PDOJECT PUPPIC					
MATHEMATICAL THINKING	Uses appropriate reasoning select trip details and youch						
	option 15 points		ABOVE STANDARD	MET STANDARD	PELOW STANDARD		
PARTICIPATION	Participates fully 15 points		Creates equations, tables and graphs representing the trip	Creates equations, tables and graphs representing the trip	Creates equations, tables and graphs representing the trip		
OLLOWS TEACHER STRUCTIONS AND OJECT CRITERIA	Follows directions and criter fully 15 points	CONTENT	cost (with and without discounts applied) without errors	cost (with and without discounts applied) with few errors	cost (with and without discounts applied) with multiple errors		
	Trip Application is neatly wri		40 points	30 points	20 points		
INAL PRODUCT	ana includes all required deti 15 points	MATHEMATICAL	Uses appropriate reasoning to select trip details and voucher	Uses some reasoning to select trip details and voucher option	Does not provide reasoning to select trip details and voucher		
					1.		
		THINKING	option 15 points Participates fully	10 points	5 points		
VENTURE A	AWAITS RUPRIC	THINKING PARTICIPATION	option 15 points Participates fully	10 points Participates with minor redirects from teacher	option 5 points Participates with major redirects from teacher		
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VENTURE A PROJECT ATHEMATICAL CONTENT ATHEMATICAL THEINKING ARTICIPATION	ACT S EVDEIC STANDARD Corrects equivalence of graphs personning the traj graphs personning the traj within all entropy 40 points ealert traj definition of vocable option 10 points Participates fully 15 points	THINKING PARTICIPATION FOLLOWS TEACHER INSTRUCTIONS AND PROJECT CRITERIA FINAL PRODUCT	option 15 points Participates fully 15 points Follows directions and criteria fully 15 points Trip Application is neafly written and includes all required defails	10 points Participates with minor redirects from teacher 10 points Follows directions and ariteria with few errors 10 points Trip Application is somewhat need and includes most of the required defails	option 5 points Participates with major redirects from teacher 5 points Follows directions and criteria with multiple errors 5 points Trip Application lacks missing several required details		
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rubrics are provided to streamline grading



LINEAR RELATIONSHIPS

PLANNING IS DONE FOR YOU

each of the **STAGE 2 - COST COMPARISON** 8th TEACHER INSTRUCTIONS three stages STAGE OUTLINE includes teacher The table below provides a suggested outline for this project stage. The accompanying slide deck follows the outline shown lesson plans STAGE 2 - COST COMPARISON (Estimated time: 1-2 days) 1. Give each student a Stage 2: Warm-Up sheet to answer the following in order to prepare students to correctly apply and calculate voucher options: WARM-UP "You are considering a new suitcase for your trip that normally costs \$50. If the suitcase is marked as 30% off, find the new price. Be sure to show your work. 2. Give each student a Stage 2: Recording Sheet. At the top of their sheet, have students write the two voucher offers 3. In the table on the recording sheet, students will transfer their original cost information from Stage 1. Then, students will apply each voucher option and record the new flight cost or hotel nightly rate depending on the offer. 4. Students will write an equation showing the relationship between y, the total cost and x, the number of nights for each voucher offer. Allow students to make observations about the effect each voucher option had on the original cost equation 5. Students will then use each equation to complete a table representing the linear relationshir. each voucher opt STAGE 2: **STAGE 2** 6. Students will last **VOUCHER OPTIONS: GRAPHS** STEPS This graph should of their trip and w Consider the follc What titles sho · Should your gr · How can the g expensive for a Graph the three equations on the same coordinate grid. Consider · Do your graph Are any graphe using different colors to graph each equation, if possible. Groups will end th the voucher offer As you create your graphs, be sure to consider axis titles, and the total cost receive peer feed appropriate intervals for each axis and whether your graph should 8 Give each studen be continuous or discrete. EXIT "Which representation TICKET the length of y ©Maneuvering the Middle LLC, 2022 and a slide deck to present the material

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EVERYTHING YOU NEED TO KEEP STUDENTS ON TRACK

Name Which representation (equation, table or your trip and the voucher offer you woul	: Date: graph) helped you the most in selecting the length d use? Explain. ©Maneuvering the Middle	of	stude warm exit t	nt m n-ups icke	ateric s
Which representation (equation, table wour trip and the voucher offer you w	STAGE 2: WARM-UP Name: You are considering a new suitcase for your tr as 30% off, find the new price. Be sure to s	Date:Date: ip that normally costs \$50. If the how your work.	suitcase is marked		
DVENTURE AWAITS: STAGE 2 EXIT TICKET TAGE 2: EXIT TICKET Which representation (equation, table your trip and the voucher offer you w		VOUCHER OFFER	NAME: #1 LIGHT COST HOT	VOUCHER O	FFER #2
 DVENTURE AWAITS: STAGE 2 EXIT TICKET	STAGE 2: WARM-UP Nan You are considering a new suitcase for as 30% off, find the new price. Be su	ORIGINAL COSTS VOUCHER OFFER #1 VOUCHER OFFER #2 EQUATION OBSERVATIONS			
		ORIGINAL EQUATION: 	OFFER #1 EQUAT	ION: OFF	ER #2 EQUATION:
	ADVENTURE AWAITS: STAGE 2 WARM-UP	TABLE OBSERVATIONS			