LINEAR RELATIONSHIPS

ALG 1

algebra project
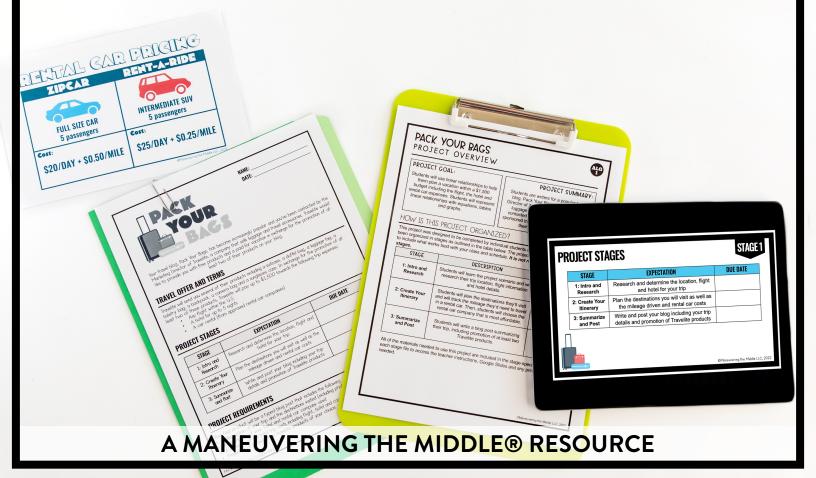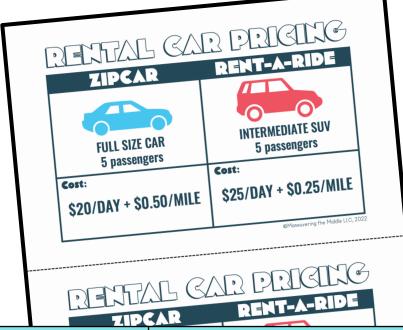
The problem: Your travel blog, Pack Your Bags, has been asked to exchange free products and a paid-for vacation by a company named Travelite in exchange for the promotion of their products on your blog.

The investigation: Students will use linear relationships to help them plan a vacation within a budget and represent linear relationships with equations, tables and graphs.

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RENTAL CAR PRICING

ZIPCAR	RENT-A-RIDE
FULL SIZE CAR 5 passengers	INTERMEDIATE SUV 5 passengers
Cost: $20/DAY + $0.50/MILE	Cost: $25/DAY + $0.25/MILE

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RENTAL CAR PRICING
ZIPCAR	RENT-A-RIDE

how is this project organized?

materials needed:

computer + internet access

STAGE	DESCRIPTION	TIME FRAME
1: Intro and Research	Students will learn the project scenario and will research their trip location, flight information and hotel details.	1-2 days
2: Create Your Itinerary	Students will plan the destinations they'll visit and will track the mileage they'd need to travel in a rental car. Then, students will choose the rental car company that is most affordable.	1-2 days
3: Summarize and Post	Students will write a blog post summarizing their trip, including promotion of at least two Travelite products.	1 day

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PACK YOUR BAGS

Seattle, Washington is the ideal city to visit as it offers a number of city attractions and beautiful nature landscapes to explore. With great food and great surroundings, there is something for everyone to enjoy!

I flew from Memphis to Seattle and packed all I needed in my new favorite duffle bag from Travelight. The duffle bag is durable, high quality material and easy to carry, too! The flight I found was $545 which left me with $955 in my budget to put towards my hotel and car rental. The Edgewater Hotel is located right on the water and reasonably priced at $216/night, so I knew it would be the perfect place to stay!

rubrics are provided to streamline grading

PACK YOUR BAGS
ALGEBRA 1 PROJECT RUBRIC

Name_____

Total Points _____

	ABOVE STANDARD
MATHEMATICAL CONTENT	Uses linear relationships to plan a trip within a budget without errors 40 points
MATHEMATICAL THINKING	Demonstrates appropriate reasoning and problem solving while selecting trip details in order to stay within a budget 15 points
PARTICIPATION	Participates fully 15 points
FOLLOWS TEACHER INSTRUCTIONS AND PROJECT CRITERIA	Follows directions and criteria fully 15 points
FINAL PRODUCT	Blog post is well organized and includes all required details 15 points

Pack Your Bags
Algebra 1 Project Rubric

Name_____
Date _____ Pd _____

PROJECT RUBRIC

	ABOVE STANDARD	MET STANDARD	BELOW STANDARD
MATHEMATICAL CONTENT	Uses linear relationships to plan a trip within a budget without errors 40 points	Uses linear relationships to plan a trip within a budget with few errors 30 points	Uses linear relationships to plan a trip within a budget with multiple errors 20 points
MATHEMATICAL THINKING	Demonstrates appropriate reasoning and problem solving while selecting trip details in order to stay within a budget 15 points	Demonstrates some reasoning and problem solving while selecting trip details in order to stay within a budget 10 points	Demonstrates little reasoning and problem solving while selecting trip details in order to stay within a budget 5 points
PARTICIPATION	Participates fully 15 points	Participates with minor redirects from teacher 10 points	Participates with major redirects from teacher 5 points
FOLLOWS TEACHER INSTRUCTIONS AND PROJECT CRITERIA	Follows directions and criteria fully 15 points	Follows directions and criteria with few errors 10 points	Follows directions and criteria with multiple errors 5 points
FINAL PRODUCT	Blog post is well organized and includes all required details 15 points	Blog post is somewhat organized and includes most required details 10 points	Blog post lacks organization and is missing several required details 5 points

TEACHER NOTES:

TOTAL POINTS:

PACK YOUR BAGS
ALGEBRA 1 PROJECT RUBRIC

	ABOVE STANDARD
MATHEMATICAL CONTENT	Uses linear relationships to plan a trip within a budget without errors 40 points
MATHEMATICAL THINKING	Demonstrates appropriate reasoning and problem solving while selecting trip details in order to stay within a budget 15 points
PARTICIPATION	Participates fully 15 points
FOLLOWS TEACHER INSTRUCTIONS AND PROJECT CRITERIA	Follows directions and criteria fully 15 points
FINAL PRODUCT	Blog post is well organized and includes all required details 15 points

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PLANNING IS DONE FOR YOU

STAGE 2 - CREATE YOUR ITINERARY
TEACHER INSTRUCTIONS

ALG 1

STAGE OUTLINE

The table below provides a suggested outline for this project stage. The accompanying slide deck follows the outline shown.

STAGE 2 - CREATE YOUR ITINERARY (Estimated time: 1-2 days)	
WARM-UP	1. Give each student a Stage 2: Warm-Up sheet to answer the following: "When someone visits a new city or location, describe various ways they might determine the best spots and attractions to see."

STAGE 2: STEPS	2. Give each student a Stage 2: Recording Sheet and each group a Car Rental Pricing Information Sheet.
	
	3. Using the pricing information and their remaining trip budget amount after Stage 1, students should write and solve an inequality to determine the maximum number of miles they can afford to travel with each car rental company. This is intended to give them a reasonable number of miles that they should be careful to not exceed when creating their itinerary.
	
	4. Students will use the Car Rental Pricing Information sheet to write an equation and create a graph for each car rental company representing the total cost of the rental car, y, with respect to the number of miles traveled, x. Consider using technology (a graphing calculator, Desmos, etc.) to allow students to create ... desired.
	
	5. Students should ... and record the pl... ending location a...
	  • In Google M...
	  • Use the site...
	
	6. Based on the tota... determine which ... rental will cost.
	
	7. Students should ... completing the "T...
	
	8. Students can spe... blog post summa... information.

EXIT TICKET	9. Give each studen... "Describe when eac... two c..."

RENTAL CARS: WRITING COST EQUATIONS

STAGE 2

- For each rental car company:
  - Write an equation to represent the total cost of the rental car, y, with respect to the number of miles traveled, x.
  - Graph each cost equation on the coordinate grid. Be sure to consider axis titles and appropriate intervals for each axis.
- Consider how you can use your graph to determine which rental car company will be cheaper based on the number of miles you will drive during your trip.

each of the three stages includes teacher lesson plans

and a slide deck to present the material

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STAGE 2: EXIT TICKET Name: _____ Date: _____

Describe when each rental car company cost less than the other. When did the two car rental companies cost the same amount?

PACK YOUR BAGS: STAGE 2 EXIT TICKET ©Maneuvering the Middle LLC, 2022

STAGE 2: EXIT TICKET Nan

Describe when each rental car comp companies cost the same amount?

PACK YOUR BAGS: STAGE 2 EXIT TICKET

STAGE 2: EXIT TICKET Nan

Describe when each rental car comp companies cost the same amount?

PACK YOUR BAGS: STAGE 2 EXIT TICKET

✓ **student materials**

✓ **warm-ups**

✓ **exit tickets**

STAGE 2: WARM-UP Name: _____ Date: _____

When someone visits a new city or location, describe various ways they might determine the best spots and attractions to see.

PACK YOUR BAGS: STAGE 2 WARM-UP

STAGE 2: WARM-UP Nan

When someone visits a new city or loc spots and attractions to see.

PACK YOUR BAGS: STAGE 2 WARM-UP

PACK YOUR BAGS

NAME: _____
DATE: _____

STAGE 2 RECORDING SHEET

REMAINING TRIP BUDGET AMOUNT:

CAR RENTAL COMPANY #1: _____	CAR RENTAL COMPANY #2: _____
PRICING INFO:	PRICING INFO:
MAXIMUM MILES:	MAXIMUM MILES:

CAR RENTAL COMPANY #1
EQUATION:

CAR RENTAL COMPANY #2
EQUATION:

PACK YOUR BAGS: STAGE 2 RECORDING SHEET ©Maneuvering the Middle LLC, 2022

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