CCSS: F.BF.1A, F.IF.8B, F.LE.1B, F.LE.2 TEKS: A.4C, A.9B, A.9C, A.9E

The problem: As a skilled mathematician, you can predict the future cost of college tuition. You will use the functions to create a presentation about the estimated cost of attending colleges of interest.

The investigation: Students will analyze a realworld data set to determine the type of function that provides a reasonable fit for the data set. Students will write a function to represent the data and use the function to make predictions.

HIME HERESINGE HERES	VIDEO REFLECTIONS
The cost of content and the deministration of a content of a cost	COLLEGE #1:
A MANEUVERING	COLLEGE #2: made your selections? THE MIDDLE® RESOURCE COLLEGE #3:

TIME FRAME: 4-6 DAYS



how is this project organized?

materials needed:

computer

+ internet access

STAGE	DESCRIPTION	TIME FRAME	
1: Intro	Students will be introduced to the project scenario and will select colleges of interest.	1 day	
2: Investigation	Students will investigate how the cost of college has changed over time and make a conjecture about the type of function that best represents the data.	1 day	
3: Writing Functions	Students will write functions to model the cost of tuition over time. Students will use the functions to predict the total cost of their college education.	1-2 days	
4: Summarize and Present	Students will summarize their information by creating a presentation that outlines the predicted cost of their education at each college of interest.	1-2 days	

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WHAT IS THE FINISHED PRODUCT?



	APOVE							
MATHEMATICAL	Writes and uses functions to estimate the cost of colleges without errors	The Rising Cost of Col Algebra 1 Project Rubr	Pd					
CONTENT	40 points							
	Provides appropriate explan							
MATHEMATICAL Thinking	of the type of Function used what the values in the function represent		APOVE STANDARD	MET STANDARD	PELOW STANDARD			
	15 points		Writes and uses	Writes and uses	Writes and uses			
PARTICIPATION	15 points	MATHEMATICAL	functions to estimate the cost of colleges without errors	functions to estimate the cost of colleges with few errors	functions to estimate the cost of colleges with multiple errors			
OLLOWS TEACHER	Follows directions and criter fully		40 pointo	20 pointo	30 pointe			
ROJECT CRITERIA	15 points		40 points	SU points	20 points			
			Provides appropriate	Provides some	Does not provide			
FINAL PRODUCT	Final product is well organize and includes all required det	MATHEMATICAL	of function used and what the values in the	of function used and what the values in the	of function used and what the values in the			
FINAL PRODUCT	Final product is well organizi and includes all required det 15 points	MATHEMATICAL THINKING	of function used and what the values in the function represent 15 points	of function used and what the values in the function represent 10 points	of function used and what the values in the function represent 5 points			
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rubrics are provided to streamline grading



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PLANNING IS DONE FOR YOU

each of the four ALG 1 **STAGE 2 - INVESTIGATION** TEACHER INSTRUCTIONS stages includes STAGE OUTLINE teacher The table below provides a suggested outline for this project stage. The accompanying slide deck follows the outline shown. lesson plans STAGE 2 - INVESTIGATION (Estimated time: 1 day) WARM-UP 1. Give each student a Stage 2: Warm-Up sheet to categorize the given situations as linear or exponential. 2. Provide each student with a Stage 2: Recording Sheet MINI-3. Inform students that they will investigate how the cost of tuition has changed over the past 10 years. In preparation for their investigation, use the LESSON accompanying slide deck to lead students through a mini-lesson on types of functions. Consider a teacher-led lesson or a "Think-Pair-Share" model 4. Introduce the website that students will use to find data on the cost of tuition for their selected colleges. Choose an example school, enter the college name and select the "Tuition & Fees" link. Then, have students brainstorm ways to determine the type of function that can be used to model a real-world data set Suggested site for r 5. Students will res their selected cc **EXPONENTIAL** STAGE 2: 6. As students ana STEPS function that cor Encourage students struggling to get sta • The equation of the graph is $y = a \cdot b^x$ perform GRAPH investia researc reporte The y-values will change by a common creating factor over equal intervals of x-values 7. Give each stude "What type of functi time for each of yo EXIT The rate of change varies TICKET Note: This exit ticke teacher feedback b€ models may be an e function type with a ©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

STAGE 2: EXIT TICKET Name: What type of function did you determine of your schools? Summarize your process THE RISING COST OF COLLEGE: STAGE 2 EXIT TICK	Date: would best model the cost of tuition over time for for selecting the type of function.	each	student m warm-ups exit ticke	ateria ; ts
STAGE 2: EXIT TICKET Nar What type of function did you determ of your schools? Summarize your proc	STAGE 2: WARM-UP Name :	Date: I. Justify your reasoning.		
THE RISING COST OF COLLEGE: STAGE 2 EXIT I	Parker has collected 1 seashells and finds 2 seashells each minute	ERISING COST OF COLLEGE	NAME: DATE: EXPONENTIAL	FUNCTIONS
STAGE 2: EXITTICKET Nar What type of function did you determ of your schools? Summarize your proc	THE RISING COST OF COLLEGE: STAGE 2 WARM	GRAPH: EQUATION: RATE OF CHANGE:	GRAPH: EQ	VATION:
THE RISING COST OF COLLEGE: STAGE 2 EXIT 1	STAGE 2: WARM-UP Nan Classify each situation as linear or expo	COLLECE.		
	Parker has collected 1 seashells and finds 2 seashells each minute	SCHOOL YEAR COST OF TUI	ION & FEES NOTES AND WORK	
	THE RISING COST OF COLLEGE: STAGE 2 WARM		CONJECTURE	
		THE RISING COST OF COLLEGE: STAGE 2 R	CORDING SHEET @	Maneuvering the Middle LLC, 2022