WAMC Lab Template

Math Concept(s):

Source / Text: https://www.hsh.com/finance/mortgage/salary-home-buying-25-cities.html

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Attach the following documents:

- Lab Instructions: Attached
- Student Handout(s): Excel sheet- Exit ticket (both available on Google classroom)
- Rubric: Attached

Short Description (Be sure to include where in your instruction this lab takes place):

Lab Plan

Lab Title: The Numbers Speak to me.

Prerequisite skills: Reading an amortization table.

Lab objective: To develop an understanding of the cost of a home within the context of a local market and the cost of living.

Standards: *(Note SPECIFIC relationship to Science, Technology, and/or Engineering)*

Mathematics K–12 Learning Standards:

- A-SSE-1A, A-REI-1

Standards for Mathematical Practice:

- Look for and make use of structure.
- Make sense of problems and persevere in solving them,
- Attend to precision.

K-12 Learning Standards-ELA (Reading, Writing, Speaking & Listening):

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Finance

- Internet usage, 12-CD-1

Leadership/21st Century Skills:

21st Century Interdisciplinary themes (Check those that apply to the above activity.)
- ☐ Global Awareness
- ☒ Financial/Economic/Business/Entrepreneurial Literacy
- ☐ Civic Literacy
- ☐ Health/Safety Literacy
- ☐ Environmental Literacy

21st Century Skills (Check those that students will demonstrate in the above activity.)

LEARNING AND INNOVATION	INFORMATION, MEDIA & TECHNOLOGY SKILLS	LIFE & CAREER SKILLS	Productivity and Accountability
Creativity and Innovation	**Information Literacy**	**Flexibility and Adaptability**	☐ Manage Projects
☒ Think Creatively	☒ Access and Evaluate Information	☐ Adapt to Change	☒ Produce Results
☐ Work Creatively with Others	☐ Use and manage Information	☐ Be Flexible	**Leadership and Responsibility**
☐ Implement Innovations	**Media Literacy**	**Initiative and Self-Direction**	☐ Guide and Lead Others
Critical Thinking and Problem Solving	☒ Analyze Media	☐ Manage Goals and Time	☐ Be Responsible to Others
☐ Reason Effectively	☐ Create Media Products	☒ Work Independently	
☐ Use Systems Thinking	**Information, Communications and Technology (ICT Literacy)**	☐ Be Self-Directed Learners	
☐ Make Judgments and Decisions	☒ Apply Technology Effectively	**Social and Cross-Cultural**	
☐ Solve Problems		☐ Interact Effectively with Others	
Communication and Collaboration		☐ Work Effectively in Diverse Teams	
☐ Communicate Clearly			
☐ Collaborate with Others			

Teacher Preparation: (What materials and set-up are required for this lab?)

Materials
- Top 50 Cities and income needed to buy a house there. Excel sheet.
- Google Form Exit Ticket

Set-Up Required:
- Share all forms in classroom.

Lab Organization Strategies:

Leadership (Connect to 21st Century Skills selected):
- Thinking Creatively- Looking at the numbers and coming to a complex decision.

Cooperative Learning:
- When using partners

Expectations:
- Students will engage with the numbers to discover other pertinent information to be better informed as they make decisions.

Timeline:
- Lab should talk anywhere from 20 to 50 minutes

Post Lab Follow-Up/Conclusions:

Discuss real world application of learning from lab:
- Decision making from data provided,
- Reviewing and critiquing data

Career Applications
- Managerial accounting, Data manipulation

Optional or Extension Activities
- Students that struggle may work with a partner, but both must turn in an excel worksheet and exit ticket.
- DO a further study of living in different areas of our town, costs, and income needed.
- Continue to use the map from this assignment to create a more detailed look at costs of living in those five cities.

https://wa-appliedmath.org/

Lab Instructions for Lesson 2

The numbers speak to me

1- Get a copy of the salary you must earn to buy a home in the 50 largest metropolitan areas.
2- Look at your chart and tell me what the numbers are saying to you?
3- What city looks like it would be a good place to live according to this chart?
4- What city looks like it would be a bad place to live according to this chart?
5- Look through the chart and choose 5 cities you might like to live in?
6- Record those cities on the map of the USA that was provided.
7- Google the median income for each of the 5 cities you chose and place it on the excel spreadsheet. (What is the median income in _____, __.)
8- Use Indeed.com to find jobs with the salary needed for the house in each city.
9- Record two jobs that you might be interested in doing in that area.
10- From the five cities available chose a city to live in. Place a #1 in the win column for the place you chose.
11- On the google form respond to the question.
   a. Why did you choose the city you did?
   b. What did the numbers say to you?

Metro Area	30-Year Fixed Mortgage Rate	% Change from 4Q20	Median Home Price	% Change from 4Q20	Monthly Payment (PITI)	Salary Needed	Win	Median Income	Job that Pays needed Salary	Job that Pays needed Salary
National	3.04%	0.10%	$319,200	1.11%	$1,436.00	$61,542.82				
Atlanta	3.04%	0.10%	$279,300	1.49%	$1,231.77	$52,790.07				
Austin	3.04%	0.10%	$437,900	13.45%	$2,092.78	$89,690.64				
Baltimore	3.04%	0.10%	$329,800	-2.43%	$1,498.32	$64,213.80				
Birmingham	3.04%	0.10%	$254,300	3.16%	$1,053.86	$45,165.27				
Boston	3.04%	0.10%	$582,700	0.62%	$2,570.00	$110,143.02				
Buffalo	3.04%	0.10%	$176,100	-6.58%	$1,025.67	$43,957.12				
Charlotte	3.04%	0.10%	$320,700	2.79%	$1,322.63	$56,684.00				
Chicago	3.04%	0.10%	$303,500	3.90%	$1,568.73	$67,231.43				
Cincinnati	3.04%	0.10%	$212,400	-1.67%	$995.48	$42,663.31				
Cleveland	3.04%	0.10%	$175,600	-6.15%	$918.89	$39,380.90				
Columbus	3.04%	0.10%	$242,000	-1.79%	$1,155.66	$49,528.20				
Dallas	3.04%	0.10%	$300,000	1.04%	$1,513.62	$64,869.35				
Denver	3.04%	0.10%	$554,400	8.18%	$2,191.31	$93,913.43				
Detroit	3.04%	0.10%	$216,800	-4.28%	$1,050.98	$45,041.88				
Hartford	3.04%	0.10%	$275,600	-0.58%	$1,528.73	$65,517.11				
Houston	3.04%	0.10%	$281,800	2.96%	$1,432.75	$61,403.63				
Indianapolis	3.04%	0.10%	$232,400	0.00%	$999.61	$42,840.55				
Jacksonville	3.04%	0.10%	$290,000	0.00%	$1,298.13	$55,634.30				
Kansas City	3.04%	0.10%	$258,100	3.86%	$1,187.82	$50,906.67				
Las Vegas	3.04%	0.10%	$360,800	5.04%	$1,422.65	$60,970.87				
Los Angeles	3.04%	0.10%	$682,400	-0.91%	$2,762.58	$118,396.35				

City								
Louisville	3.04%	0.10%	$213,900	-2.46%	$947.81	**$40,620.53**		
Memphis	3.04%	0.10%	$221,600	-3.27%	$989.17	**$42,392.84**		
Miami	3.04%	0.10%	$445,000	4.71%	$1,902.60	**$81,540.06**		
Milwaukee	3.04%	0.10%	$290,600	0.83%	$1,380.75	**$59,175.04**		
Minneapolis	3.04%	0.10%	$332,300	2.78%	$1,496.04	**$64,115.80**		
Nashville	3.04%	0.10%	$312,100	0.45%	$1,292.47	**$55,391.65**		
New Orleans	3.04%	0.10%	$250,500	-0.20%	$1,124.22	**$48,181.03**		
New York City	3.04%	0.10%	$514,200	2.33%	$2,553.28	**$109,426.32**		
Oklahoma City	3.04%	0.10%	$177,000	-2.26%	$899.13	**$38,534.31**		
Orlando	3.04%	0.10%	$325,000	3.17%	$1,429.29	**$61,255.18**		
Philadelphia	3.04%	0.10%	$275,000	-2.72%	$1,416.42	**$60,703.64**		
Phoenix	3.04%	0.10%	$373,700	5.36%	$1,465.97	**$62,827.27**		
Pittsburgh	3.04%	0.10%	$159,900	0.56%	$832.00	**$35,656.98**		
Portland	3.04%	0.10%	$489,100	4.42%	$2,026.11	**$86,833.10**		
Providence	3.04%	0.10%	$362,600	0.06%	$1,738.53	**$74,508.59**		
Raleigh	3.04%	0.10%	$346,700	1.79%	$1,446.02	**$61,972.28**		
Richmond	3.04%	0.10%	$324,000	1.85%	$1,344.15	**$57,606.32**		
Riverside/San Bernardino	3.04%	0.10%	$475,000	5.56%	$1,946.72	**$83,430.93**		
Sacramento	3.04%	0.10%	$465,000	5.44%	$1,964.15	**$84,178.02**		
Salt Lake City	3.04%	0.10%	$435,400	7.11%	$1,702.47	**$72,963.13**		
San Antonio	3.04%	0.10%	$266,700	0.68%	$1,330.64	**$57,027.59**		
San Diego	3.04%	0.10%	$763,500	3.18%	$3,020.35	**$129,443.71**		
San Francisco	3.31%	0.04%	$1,200,000	5.26%	$4,853.69	**$208,015.40**		

San Jose	3.31%	0.04%	$1,500,000	7.14%	$5,939.07	**$254,531.75**
Seattle	3.04%	0.10%	$653,400	6.30%	$2,646.27	**$113,411.50**
St Louis	3.04%	0.10%	$207,300	-1.57%	$1,017.19	**$43,593.76**
Tampa	3.04%	0.10%	$295,000	2.79%	$1,307.08	**$56,017.89**
Virginia Beach	3.04%	0.10%	$265,000	-3.64%	$1,172.21	**$50,237.74**
Washington, D.C.	3.04%	0.10%	$498,100	2.96%	$2,148.28	**$92,069.28**

name of job
and salary

Washington Applied Math Council

https://wa-appliedmath.org/
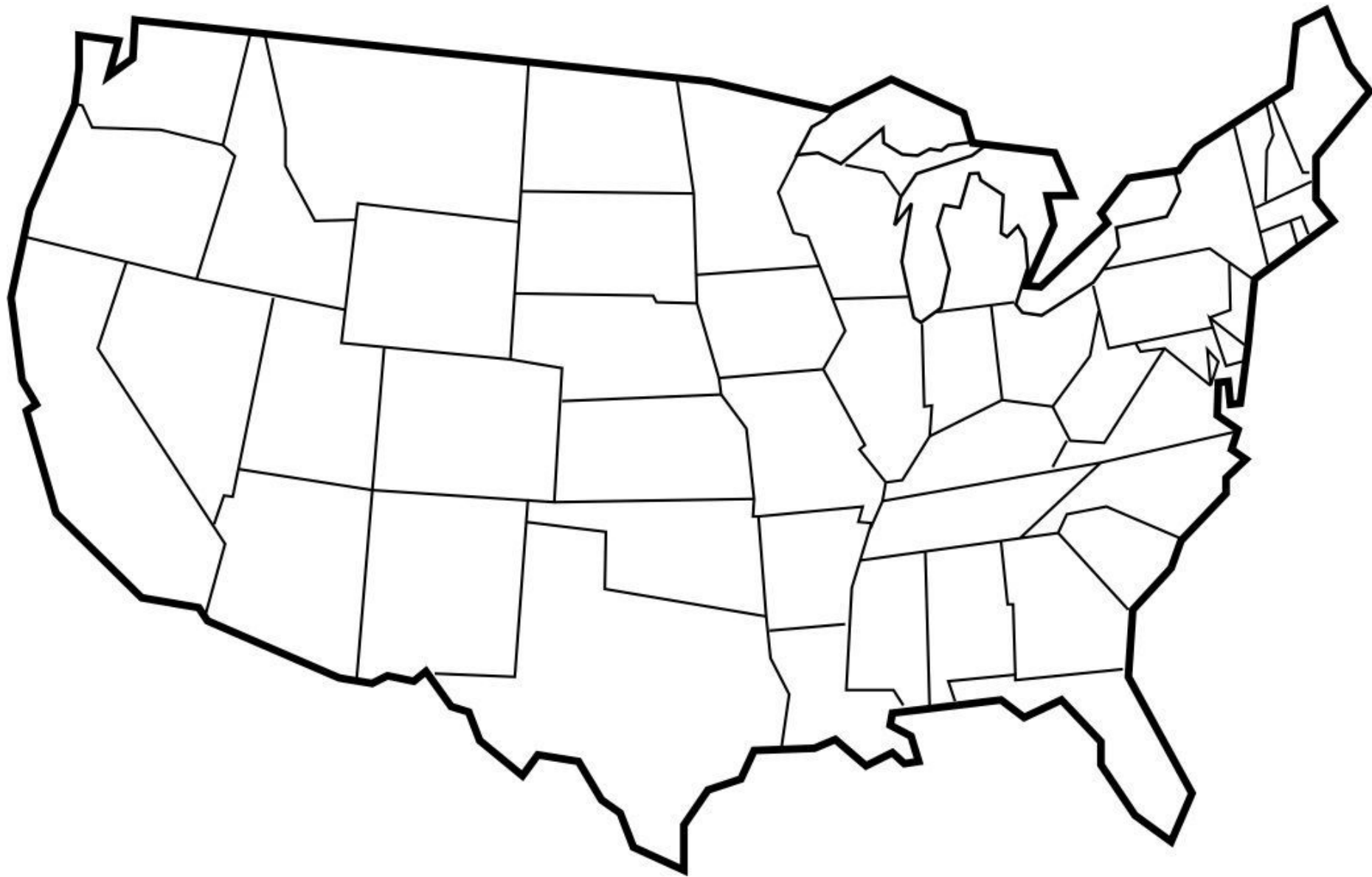
Exit Ticket

Before you leave class today, answer the following questions.

*Required

1. Name *

   _____

2. Email

   _____

3. Where would you live based on the information you studied today? *

   _____

4. What did the numbers say to you? *

   _____

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Google Forms

Rubric for income needed to purchase a home: Lesson 2

20 points Available for this Lab

POINTS	1	2	3	4
Five Cities Chosen	1-2 cities	3 Cities	4 Cities	5 Cities
Job #1	1-2 cities	3 Cities	4 Cities	5 Cities
Job #2	1-2 cities	3 Cities	4 Cities	5 Cities
Median Income of 5 cities	1-2 cities	3 Cities	4 Cities	5 Cities