Show Me the Numbers

Comparing linear equations using income

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Grade Level	11th – 12th Grade	**Time Frame**	120 - 150 Minutes
Subject	Mathematics	**Duration**	2 - 3 Periods
Course	Math of Finance		

Essential Question

How do linear equations model the relationship between income and the cost of living, and how can they help us make informed financial decisions?

Summary

In this lesson, students use linear equations to compare and contrast living wage and minimum wage in their community. Through collaborative brainstorming, graphing linear equations, and analyzing local data from the MIT Living Wage Calculator, students apply algebraic concepts to understand financial realities. Students then extend their learning by exploring career paths and post-secondary options through multimedia resources, ending with a reflection on their learning through a One Pager.

Snapshot

Engage

Students explore an infographic about minimum wage and living wages and brainstorm personal experiences with living wage/salary.

Explore

Students predict what salary and living wage looks like in their community then create linear equations to support their findings.

Explain

Students present their findings and formalize their understanding of relevant concepts.

Explain 2 (optional)

To better scaffold and add more mathematical context to the lesson, consider using all or part of this optional second Explain content.

Extend

Students relate what they have learned about linear equations and wages by comparing PSE's using a Wakelet or career websites and creating a One-Pager.

Evaluate

Students practice peer reviewing each other's One-Pagers while reflecting on what they have learned

about salaries and living wages.

Attachments

- Help Me, Help You—Show Me the Numbers.docx
- Help Me, Help You—Show Me the Numbers.pdf
- Lesson Slides—Show Me the Numbers.pptx
- You Had Me At Reflection—Show Me the Numbers.docx
- You Had Me At Reflection—Show Me the Numbers.pdf

Materials

- Lesson Slides (attached)
- Help Me, Help You (attached; one per student)
- You Had Me At Reflection (attached; one per student)
- Pen/pencil
- Scratch paper

15 minutes

Engage

Use the attached **Lesson Slides** to guide the lesson. Start by presenting the title, posing the essential question, and explaining the learning objectives on **slides 2-4**.

Show **slide 5** and introduce the Collective Brain Dump strategy to the class. Have students get into small groups (3-4). Ask groups to draw from their own experience or prior knowledge to write everything they know about minimum wage, living wage, and/or income. Allow students time to work.

After students have created their own list, move to **slide 6** and facilitate a whole class discussion on what students have written on their paper, finding similarities and trends among student responses.

Move to **slide 7** to share and display the Living Wage vs Minimum Wage infographic comparing minimum wage and living wage. Allow time for groups to review the infographic and compare the information to what they shared in the collective brain dump.

Teacher's Note: Infographic

If the content is hard to read on slide 7, consider using the infographic linked above for a clearer and more interactive viewing of the content.

15 minutes

Explore

Transition to **slide 8**. Give each student a copy of the **Help Me, Help You** handout and introduce the Preflections strategy. In this activity, students will consider and respond to the following questions:

- What types of jobs might you find in your local community?
- What do you expect to learn about the cost of living in your community?
- What relationship exists between hourly pay and living wage?

Allow students time to answer each question.

Next, transition to **slide 9** and ask students to access the resource from the MIT Living Wage Calculator (https://livingwage.mit.edu/states/40/locations) and look up the living wage for the county where they live.

Show **slide 10** and instruct students to use their handouts to guide this activity by writing two equations in slope intercept form to represent the paycheck one would earn with minimum wage and the income one would earn with a living wage. After writing those equations, students will graph both equations on the same coordinate plane, assuming a 40-hour work week.

After graphing, students will revisit their Preflections to compare and contrast what they thought they would learn with what they actually learned.

20 minutes

Explain

Using **slide 11**, randomly choose a group to present their findings, explaining the equations they wrote and the graphs they created. As students present, encourage them to discuss the meaning of the slope and y-intercept in the context of income and living wages.

After all groups have shared, use **slide 12** to facilitate a class discussion on how linear equations can be used to represent real-world financial situations, specifically the relationship between income and cost of living.

Move to **slide 13** and guide students in comparing the algebraic equations to their graphical representations, discussing which method provides clearer insights depending on the context. Invite students to revisit their graphs and equations and make edits as needed. Clear up any misconceptions as they arise.

Encourage students to make connections between their findings and real-world financial decision-making, setting the stage for deeper application in the next phase of the lesson.

15 minutes

Explain 2 (optional)

Depending on the time you have in class and your students' interest, consider unhiding the following slides to add more mathematical context to the lesson.

Unhide **slides 14-16** to review interpreting graphs. This is a good opportunity to review skills like *reasoning* and *prediction* based on what a student can visually see happening with a graph and its data.

Unhide **slide 17** to define Wants and Needs in the context of a budget. Participate in a whole class digital Card Sort by exiting out of presentation mode on your slide deck. Then, click and drag the blue boxes to the column they belong to based on student input. To reset for the next class, simply click the “undo” button on your toolbar or use the shortcut “ctrl + Z” until all the cards are back to their original orientation.

Unhide **slides 18** to introduce and define the concept of Gross and Net Income. Inform students that all of the wages presented in this lesson reflect gross income and not the actual take-home pay of an individual.

55 minutes

Extend

Have students get into groups of 4 and pass out one **You Had Me At Reflection** handout to each student. Show **slide 19** and introduce the Jigsaw strategy. Then move to **slide 20** and ask students to access and explore the Wakelet collection: "Math Your Path." The Wakelet contains resources on various aspects of post-secondary education and career pathways.

Each group member will be assigned to investigate post-secondary learning opportunities, such as career tech, associate's degree, and bachelor's degree, and how they all compare. Students will also examine the lifestyle considerations and key differences between different education levels, including trade school, two-year, and four-year colleges.

As students work through their assigned section, encourage them to choose 2-3 resources from their column to take notes on using the front side of their handout. Use the GramIt strategy to summarize resources so that they will be ready to share their learning with the group.

Teacher's Note: Purpose of Wakelet

As they engage with the resources, students will analyze the impact of specialization and adaptability in career choices. For example, they may learn how trade school graduates often develop specific, practical skills for particular jobs, while college graduates may have a broader knowledge base that allows for more flexibility in career transitions. By providing these resources, students gain a context for the math they are learning about.

After exploring the resources, move to **slide 21** and ask each group member to describe their section to the group. Include main ideas, details, and relevant statistics. Once everyone has had an opportunity to speak, ask students to turn over their Reflection handout. Then, transition to **slide 22** and introduce the One-Pager strategy. The One-Pager should include insights on the pros and cons of each level of post-secondary education, personal reflections on which pathway interests them most, and important lessons they've learned so far. Allow students time to peer review each other's One-Pager.

15 minutes

Evaluate

Teacher's Note: Optional Activity

To increase student awareness of post-secondary learning opportunities and their impact on the lifetime of an individual, consider setting aside class time for students to play "Get A Life," a college and career awareness game. For help setting up an account, use our Game Portal Guide.

Transition to **slide 23** and pose the question, "What does it take to live comfortably in our community?"

Hold a whole class discussion on the question and key takeaways students have from the lesson.

Resources

- Glasmeier, A. K. (2025). Living Wage Calculator. Massachusetts Institute of Technology. https://livingwage.mit.edu/
- K20 Center. (n.d.). Card Sort. Strategies. https://learn.k20center.ou.edu/strategy/147
- K20 Center. (n.d.). Collective brain dump. Strategies. https://learn.k20center.ou.edu/strategy/111
- K20 Center. (n.d.). Game Portal Guide. Games. https://games.k20center.ou.edu/resources/game-portal-guide.pdf
- K20 Center. (n.d.). Get a Life. Games. https://learn.k20center.ou.edu/game/602
- K20 Center. (n.d.). GramIt. Strategies. https://learn.k20center.ou.edu/strategy/2554
- K20 Center. (n.d.). Jigsaw. Strategies. https://learn.k20center.ou.edu/strategy/179
- K20 Center. (n.d.). One-pager. Strategies. https://learn.k20center.ou.edu/strategy/72
- K20 Center. (n.d.). Preflections. Strategies. https://learn.k20center.ou.edu/strategy/191