

LESSON 6.6: WHAT'S A FAIR LIVING WAGE?

Frances Harper

SOCIAL JUSTICE OUTCOMES

- I can recognize, describe, and distinguish unfairness and injustice at different levels of society. (Justice 12)

MATHEMATICS ESSENTIAL CONCEPTS

- Algebra—The structure of an equation or inequality (including, but not limited to, one-variable linear and quadratic equations, inequalities, and systems of linear equations in two variables) can be purposefully analyzed (with and without technology) to determine an efficient strategy to find a solution, if one exists, and then to justify the solution. (A.3)

MATHEMATICAL PRACTICES

- Reason abstractly and quantitatively.

ECONOMIC INEQUALITY

The lesson was designed for students living in Chicago*, where some students may have experience living in an apartment with a monthly rent and parents who do not make a livable wage. Students use personal experiences to make decisions about fair living wages. Thus, students who have limited experience with renting or earning hourly wages can familiarize themselves with current debates about minimum and livable wages during the lesson's launch.

DEEP AND RICH MATHEMATICS

The lesson focuses on solving systems of linear equations with connection to meaning. Students compare graphs, tables, and equations by identifying slope and y -intercept, and they recognize that two nonparallel lines have a point of intersection—a solution for the equations of both lines.

ABOUT THE LESSON

The lesson is a launch–explore–summarize instructional model and is intended to take approximately 90 minutes to complete. The lesson is adapted from “The Big Race” in Sallee, Kysh, Kasimatis, and Hoey (2002).

Resources and Materials

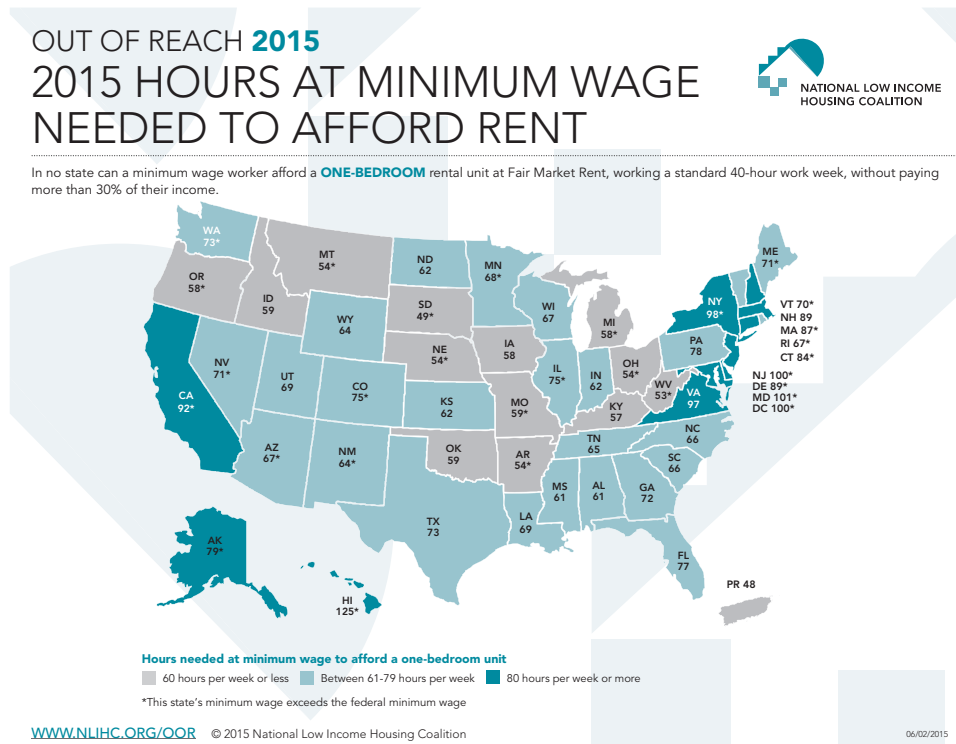
- Student Task Cards (1 set per group)
- Student worksheet, *What's a Fair Living Wage?* Part 1 and Part 2 (1 per student)
- Red, green, blue, yellow, orange, and purple colored pencils or markers
- Large graph paper and/or chart paper for the group graphs; or alternatively, use technology

*Note: You can adjust the monthly rents and wages to reflect authentic values in your local community.

LESSON FACILITATION

Launch (20 minutes)

- Start the lesson by asking, *What do you already know about “living wages” or the minimum wage debate?* or *What do you think is a living wage?*
- Teachers might initiate the conversation by
 - + showing an infographic about living wages/minimum wages:



A living wage is a wage that is high enough to maintain a normal standard of living.

A minimum wage is the lowest an employer can pay an employee for their work.

Source: © 2015 National Low Income Housing Coalition. Find this year's report at WWW.NLIHC.ORG/OOR.

- + showing a video such as this one from CNBC.com titled “Here’s How Much You Have to Earn to Live Comfortably in Every US State,” cnb.cx/2IYwxLJ
- + providing time for students to explore the Living Wage Calculator, which can be found online at livingwage.mit.edu/.
- Afterward, brainstorm a list of questions students have about living wage.

A fair living wage is the amount of income needed to provide for a suitable standard of living.

Explore (40 minutes)

- Ask students, *How many hours does each family need to work to pay rent for the type of apartment you think is best for the family?*
- Tell students that they will work in groups to answer the question as you distribute the worksheet *What's a Fair Living Wage?* and Task Cards for them to begin Part 1.
- As students complete Part 1 and check in with you, remind them to justify their answers as they complete Part 2 and to be prepared to share their responses.
- Use the following questions as you monitor group work and check student understanding:
 - + *What percentage of income do you think people usually spend on housing, food, and other essentials in our area? Why is this fair and just? Financial advisors recommend 30 percent of monthly income on housing.*
 - + *According to the National Low Income Housing Coalition, a family in (YOUR STATE) needs to make \$n per hour to afford a moderate two-bedroom home. Based on your experiences and this task, why does this seem reasonable or unreasonable? If not, what hourly wage do you think is necessary (or did you find from the task) for a family to afford a two-bedroom home?*
 - + *How did you decide how many hours was enough to pay rent on the graph, the table, and/or the equation? How can you determine how much the [color] family makes if they don't work? How can you determine how much the [color] family makes if they don't work?*
 - + *What does it mean when the two colors intersect? Do they make the same wage? Who makes more money? Will other lines cross? How do you know? What would be a fair hourly wage for our city/state/community? How do you know that wage would be fair? Use the graph, table, or equation to explain how you know.*

Summarize (30 minutes)

- During the whole-class discussion, select groups to present in order to highlight particular mathematical ideas used to find how many hours each family needs to work to pay rent. Consider how student solution pathways may be selected, sequenced, and connected to promote understanding of the mathematical and social justice objectives.
- Use worksheet questions 4 and 5 to connect the mathematics and social justice topics. Select groups to share whether or not they found that families in the area can afford rent using only 30 percent of their monthly income and whether the recommended living wage would allow a family

to afford housing. During this discussion, students should support their arguments with mathematical evidence to justify their conclusions. Use the following questions to make connections between the mathematics and social justice issue:

- + *Based on your experiences or this activity, why do you think that a minimum wage is a livable wage? How does your state tax policy help or hinder the situation?*
- + *There have been recent efforts to raise the minimum wage to \$15 per hour. Why would this be a fair or unfair livable wage in our state/community/city?*
- + *What steps can people take to demand a fair living wage?* This can be an opportunity to explore local labor efforts, through unions or other organizations, or to consider larger advocacy efforts to advocate for a living wage.

TAKING ACTION

The particular action will depend on what conclusions students make regarding whether or not the wages in their local community, city, or state are fair and livable. Some possible action steps include the following:

- Invite community stakeholders to talk to students about potentially ongoing efforts to increase wages in the community, city, or state. For example, if there are local organizations, such as unions, who advocate for workers, students might reach out to them about ongoing labor justice efforts. Teachers can invite these stakeholders to speak to the class, and students might elect to join ongoing efforts.
- Have students explore various petitions and recent news articles about increasing the minimum wage, then decide whether or not to sign an existing petition or create an informed script, brochure, video, website, social media post, and so on to share what they learned about labor issues with others who might also be interested in signing a petition.
- Have students write their own letters to city, state, or federal representatives, sharing what they learned from this task and advocating for the fair living wage that they determined.
- Have students investigate arguments for and against increasing the minimum wage using the mathematics discovered in the lesson, and hold a mock debate in class. This would allow them to practice communicating with others who might have different views about wage and labor issues, including future employers.

WORKSHEETS AND TEACHER RESOURCES



These downloadable resources can be found online at resources.corwin.com/TMSJ-highschool

<p>RED Family 1 adult</p> <p>You are a Filipino American male who just graduated from high school and need to move out on your own. You found a job making minimum wage for nontipped employees in Chicago, \$10.50 per hour, as a line cook at a nearby restaurant. You work forty hours per week.</p>	<p>GREEN Family 1 adult; 1 child</p> <p>You are a young, single white mom with one child working as a server at a nearby restaurant. Minimum wage is different if you receive tips, \$5.95 per hour. You make minimum wage, and you average about \$360 per week in tips. You work forty hours per week.</p>
<p>BLUE Family 2 adults; 2 children</p> <p>You are a Latino family with two children under the age of five. Mom stays home to take care of the children. Dad works forty hours per week at a construction company that pays two times minimum wage for nontipped employees.</p>	<p>YELLOW Family 1 adult</p> <p>You are a young, single Black woman who is going to school part time and working full time (forty hours per week). You work at the same construction company as the dad of the BLUE family, but most Black women (including you) make 64 percent of what men at the company make.</p>
<p>ORANGE Family 1 adult</p> <p>You are a Palestinian American female who is a full-time student working about twenty hours per week. You have a minimum wage job working in the library (no tips). However, you also have a scholarship that provides \$1,000 at the beginning of every month.</p>	<p>PURPLE Family 2 adults; 2 children</p> <p>You are a two-mom Black family with two children. Both of your children are in school, so both moms work full time (forty hours per week). Both found jobs working for Amazon in Romeoville, Illinois. Amazon pays employees \$13.00 per hour.</p>

Student Task Cards

What's a Fair Living Wage?

Part 1

Today, your group will figure out the hourly wage necessary for a family in Chicago to afford housing. You will look at real data about hourly wages (the amount of money you make per hour) and the cost of renting each month. Your goal is to use mathematics to decide whether or not you think six families in Chicago are paid fair wages.

Your Task: As a team, do the following: Figure out *how many hours each family needs to work to pay rent* for the type of apartment you think is best for the family.

Guidelines

- Draw a graph and write an equation for each family's earnings over time.
- Use a different color pencil/marker for each family.
- Identify the dependent and independent variables.
- Use the following data about fair housing rental prices for monthly rent:

Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom
\$860	\$1,001	\$1,176	\$1,494	\$1,780

Data source: Huduser.gov

- Your team must work cooperatively to solve the problems. No team member has enough information to solve the problems alone!
- Each member of the team will select a family—Red, Green, Blue, Yellow, or Orange. **DO NOT SHOW** your card to your team. You may only communicate the information on the card.
- Everyone can see the PURPLE family card.
- Assume there are four weeks in one month.
- You might not need to use all the information on your card to solve the task.



Check in with your teacher before you answer the next questions.

Student Worksheet