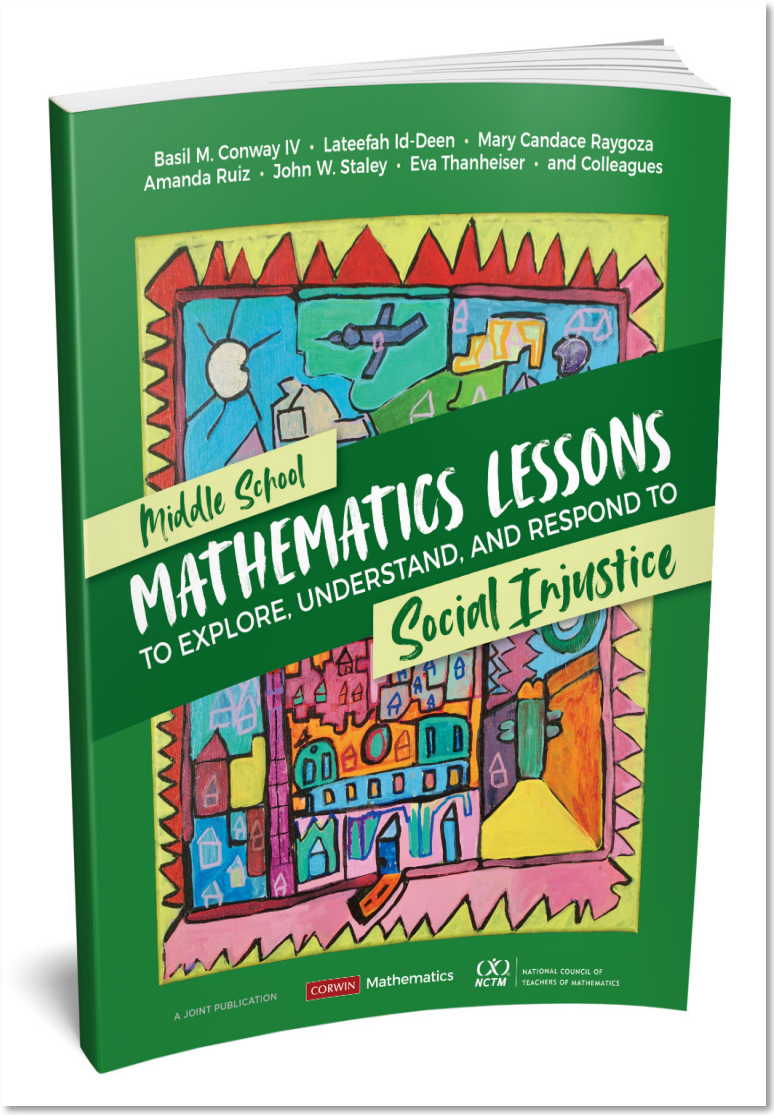


Thank you

FOR YOUR INTEREST IN CORWIN

Please enjoy this complimentary excerpt from Middle School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice.

LEARN MORE about this title!

CORWIN

LESSON 7.2 THE TRUE COST OF THAT $29 T-SHIRT IN THE STORE WINDOW

Bethany Chan, Debasmita Basu, Rebecca Ellis, Frances K. Harper, and Jennifer Ruef

SOCIAL JUSTICE OUTCOMES

- I can recognize and describe unfairness and injustice in many forms including attitudes, speech, behaviors, practices, and laws. (Justice 12)
- I will work with friends, family and community members to make our world fairer for everyone, and we will plan and coordinate our actions in order to achieve our goals. (Action 20)

ESSENTIAL MIDDLE GRADES CONCEPTS

- **Ratio and Proportions—** Grade 6: Understand ratio concepts and use ratio reasoning to solve problems.
- **Ratio and Proportions—** Grade 7: Analyze proportional relationships and use them to solve real-world and mathematical problems.

This lesson gives students a chance to critique the world and explore their own identities, without teachers or other adults imposing their own beliefs.

HUMAN RIGHTS

To lower their production cost and maximize their profit, companies often establish their manufacturing divisions in cheaper and less regulated locations such as Bangladesh, China, Mexico, Cambodia, and other developing countries. The working conditions of the factories, commonly known as sweatshops, are often hazardous and abusive with long working hours and inadequate pay. For example, despite fashion being a $29 billion USD industry, people working in garment factories in Bangladesh are only paid $0.35 USD an hour, which forces them to work for 14–16 hours a day to pay for their daily necessities. In 2013, one such factory on the outskirts of Dhaka, Bangladesh, collapsed, trapping and killing more than a thousand of its employees. The investigation suggested that the factory was under scrutiny because of evidence of unsafe conditions, but no steps were taken to improve them. The goal for this lesson is for students to use mathematics in this social justice context to raise their consciousness about the exploitation being practiced within the four walls of the sweatshops. This lesson gives students a chance to critique the world and explore their own identities, without teachers or other adults imposing their own beliefs.

DEEP AND RICH MATHEMATICS

This lesson is designed for students to apply prior knowledge of percentages and proportions to construct and operate on mathematical models based on real-life scenarios from the clothing industry. Students will use critical thinking skills and problem-solving strategies as they apply and attain mathematical content knowledge. For this reason, teachers should be prepared to share just-in-time information about problem-solving methods others may have used. This preparation will support teachers in recognizing solution strategies and potential challenges in mathematical understandings and preparing to ask focusing questions to guide students' work. Teachers are invited to scaffold the lesson based on anticipation of their students' prior knowledge and experience.

Middle School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice by Basil M. Conway IV, Lateefah Id-Deen, Mary Candace Raygoza, Amanda Ruiz, John W. Staley, Eva Thanheiser, and colleagues. Series Editor Brian R. Lawler.

ABOUT THE LESSON

This lesson uses a launch–explore–summarize instructional model and is intended to take approximately 120 minutes to complete across two class periods.

Lesson 1: Students use ratios, proportions, and percentages to estimate the allocation of money to make a t-shirt.

Lesson 2: Students use ratios, proportions, and percentages to analyze the actual profit allocation of a t-shirt and consider what a fair allocation would be.

Resources and Materials

- Worksheet 1: *How Should Money Be Allocated?* (1 per student)
- Worksheet 2: *How Is Money Allocated?* (1 per student)
- Worksheet 3: *What Is Fair?* (1 per student)
- Highlighters, colored pencils, or crayons
- Video: "True Cost Clothing Industry" (https://francesharper.com/clothing-industry-video/)
- Website: Educational Video Center (https://evc.org/)
- Website: Two Dollar Challenge (http://twodollarchallenge.org/our-story/)

MATHEMATICS PRACTICES

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

LESSON 1 FACILITATION

How Do You Think Money Is Allocated?

Launch (25 minutes)

- Assign stores to students to research the cost of clothing items. Students can bring in advertisements from clothing retailers or look online. Have students share what they found.

  Note: *If students find an item that costs around* $29, *you might highlight that item for the lesson later on.*

- Have students brainstorm ideas about *what the money pays for* when they purchase an item of clothing. Students might find it helpful to pick one of the items of clothing that they found in advertisements or online. The

point of this activity is to get students thinking about the production process, costs, and so on.

- Elicit some ideas from students and then show the video, "True Cost Clothing Industry" (https://francesharper.com/clothing-industry-video/).
- Ask students to reflect on what they noticed or wondered as they watched the video. Then have them share out with the class and make sure students understand the eight different categories involved in the production process. Consider asking the students the categories they remember and writing the list publicly on the board. Thus, students can refer to the list when answering question 1 on Worksheet 1 (*How Should Money Be Allocated?*).

Explore (35 minutes)

- Provide students with Worksheet 1. Ask:
  - *Who and what is involved in the t-shirt-making process?*
  - *How do you think the money is allocated among the eight categories?*
- Tell students to individually complete question 2, which requires them to color/shade the part of the dollar bill that correlates to each category.
- After they complete question 2 and distribute the $100 bill among eight categories, put students in groups of four.
- Ask the students to share their strategies with their group members and discuss the rationale behind the money allocations they choose.
- From each group, ask one student to volunteer for the role of group leader to share what they discussed in their group during the whole-class discussion.

Summarize (10 minutes)

- Facilitate a whole-class discussion. Ask students:
  - *If the $100 bill represents the retail price of a product, how do you think that the $100 bill is distributed among the eight categories? Why?*

  For students who divide the bill nonuniformly, ask:
  - *Who should get the maximum portion of the money? Why?*
  - *Who should get the minimum portion of the money? Why?*

LESSON 2 FACILITATION

How Is Money Allocated? What Is Fair?

Launch (10 minutes)

- Distribute Worksheet 2 (*How Is Money Allocated?*). Lead a brief discussion about how money for an item of apparel is typically distributed.

  Note: *Values are included on the worksheet.*

  - ☐ *Materials: 12%*
  - ☐ *Retailer: 58%*
  - ☐ *Factory profit: 4%*
  - ☐ *Intermediary costs: 4%*
  - ☐ *Transport: 8%*
  - ☐ *Brand profit: 12.4%*
  - ☐ *Overhead cost: 1%*
  - ☐ *Workers: 0.6%*

- Individually, or in pairs, have students color in the $100 bill using the new breakdown.

Explore (35 minutes)

- Divide students into groups of four and assign each group to one of the two group types (see the following table). Students in each group type will focus on some of the percentages given in the Lesson 2 Launch and will calculate how the cost of a $29 t-shirt is distributed across the different categories. Students should each take on one conversion individually and then share their strategies with the other group members.

Group Type 1	Group Type 2
Retail	Intermediary
Profit to brand	Factory profit
Material cost	Overhead cost
Transportation	Payment to the workers

- After students share their strategies within their group, pair up group types and encourage them to compare the amount of money distributed among the eight categories.
- Begin a whole-class discussion by asking, *How does this breakdown differ from what was imagined on Worksheet 1?*
- Use the following questions to further assess students' understanding:
  - *Which among the eight categories received the highest percentage of the retail price of the t-shirt? How much is allotted to that category?*
  - *Which among the eight categories received the lowest percentage of the retail price of the t-shirt? How much is allotted to that category?*

- *How many times more did the retailer earn compared to the workers who are employed to produce the t-shirt?*
- *How do the numbers look when we are talking about portions of* $29 *instead of percentages?*

- Tell students to return to the groups they were in for Worksheet 1 and distribute Worksheet 3 (*What Is Fair?*).
- Have students work in groups as they complete the worksheet and record their reasoning for each question.
- As students work, encourage them to think about both the context and the mathematics as they create their responses.
- Use purposeful selection and sequencing to have students share the key ideas from the questions on Worksheet 3 during a whole-class discussion. Pay particular attention to the students' answers to question 4, as this will guide the transition to the summary portion of the lesson.

Summarize (15 minutes)

- Use the following questions to facilitate a closing discussion:
  - *Other than workers' wages, what other factors impacting the workers should companies consider? What benefits can companies get from being ethical?*
    - Possible Answers: *A positive company image attracts more customers/customer loyalty. It creates a company culture that values being ethical and socially responsible. These companies provide jobs to the local community by not outsourcing.*
- Continue the discussion by saying, *Some students have suggested buying only from ethical companies, but that can get expensive. For families that cannot afford to pay more money for ethically made clothing, what are other actions they can take to fight against unethical companies?*
- Have students brainstorm ways they can fight (not support) sweatshops and the unfair treatment (monetarily, physically, and mentally) of workers in the clothing industry.

TAKING ACTION

- Have students research current companies that sell sweatshop-free clothing (e.g., Patagonia) and create a brief presentation to share with your community (e.g., other students at the school, community members, family).
    - Consider the following questions: *Beyond working conditions, what other questions do you have about these companies? Do sweatshop-free clothing companies distribute money differently and/or fairly?*
- Brainstorm individual and family actions to take in relation to ecojustice (e.g., buy used clothing, buy local, wear clothing until it wears out, repair clothing when possible, make your own clothes).
- Create a video or podcast in which you interview sweatshop workers, organizations, or social justice members who have worked toward gaining more rights for workers. Share your video or podcast with the community. See the Educational Video Center (https://evc.org/).
    - Another possible topic: history of labor laws
- Create a list of questions to ask and find out if local businesses or community members endorse sweatshop-free products. If they don't, brainstorm ways to appeal to the community on the importance of supporting sweatshop-free products.
- Challenge families, community members, other teachers, and others to the Two Dollar Challenge (live on $2 for 5 days; http://twodollarchallenge.org/our-story/) as a way to raise awareness of global poverty and raise money for an organization working for social justice.

Name: _____

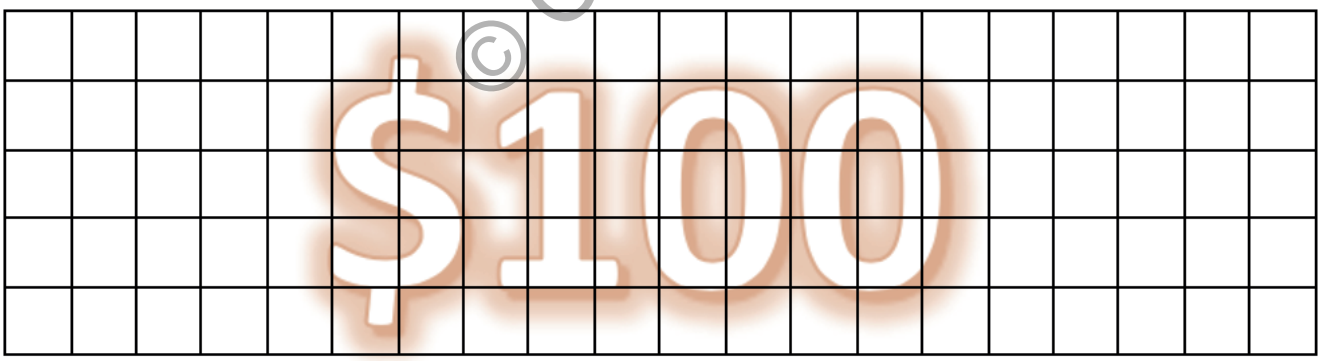
How Should Money Be Allocated?

Imagine that you buy an item of clothing from the store for $100. How should the money be allocated?

1. Who and what is involved in the t-shirt-making process? Create a key matching a color to each category involved in the production process that we discussed as a class.

   Key:

2. The $100 bill below has been subdivided into 100 equal sections, where each section is worth $1. How do you think the money is divided among the eight categories?
   a. Divide the bill among the categories by coloring in the sections on the $100 bill.



3. Discuss how you divided your bill with your group.
   a. Are you in agreement with what others said?
   b. What differed?
   c. If you could change anything in your drawing, what would you change?

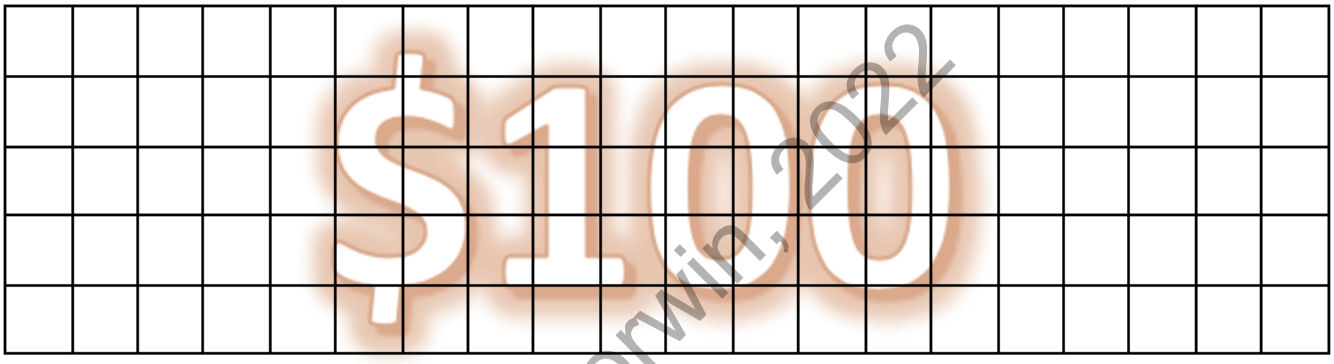
Summarize your discussion here.

Name: _____

How Is Money Allocated?

1. Your teacher has now shown you how money from an item is typically divided. On the $100 bill below, show how the money is actually allocated.

   - ☐ Materials: 12%
   - ☐ Factory profit: 4%
   - ☐ Transport: 8%
   - ☐ Overhead cost: 1%
   - ☐ Retailer: 58%
   - ☐ Intermediary costs: 4%
   - ☐ Brand profit: 12.4%
   - ☐ Workers: 0.6%



2. If a shirt costs $29, and not $100, how much money is allocated to each category involved in the production process based on the percentages in Question 1?

3. Compare and contrast how the money is allocated in your models (Worksheet 1) versus in the model above (Question 1).

Name: _____

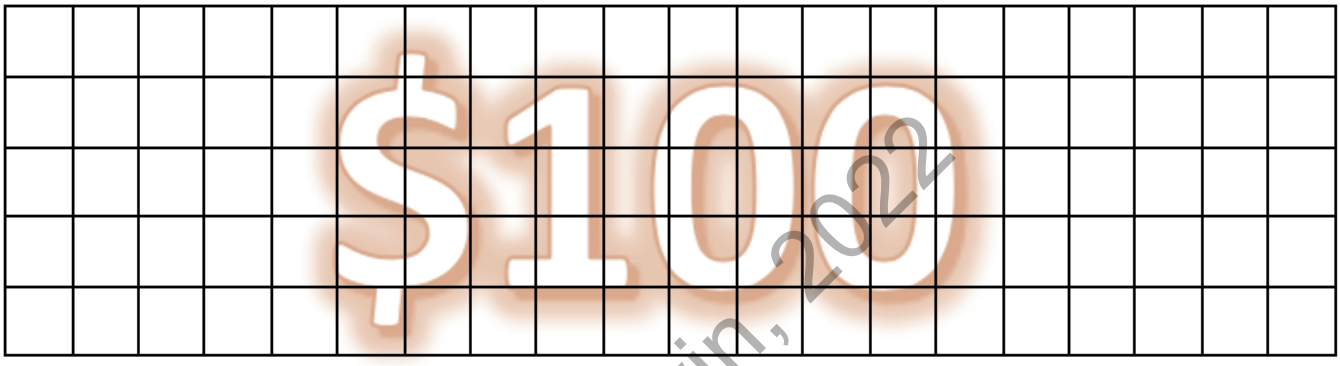
What Is Fair?

In Worksheet 1, you modeled how you think money is divided.

In Worksheet 2, you modeled how money is typically divided.

Now, think about what is ***fair***. How should money be allocated?

1. Divide $100 among the eight categories in a way that you think is fair. Color in the bill and label the key.



- ☐ Materials: _____%
- ☐ Factory profit: _____%
- ☐ Transport: _____%
- ☐ Overhead cost: _____%
- ☐ Retailer: _____%
- ☐ Intermediary costs: _____%
- ☐ Brand profit: _____%
- ☐ Workers: _____%

2. Why do you allocate the money in this way?

3. How does this new allocation differ from the previous two versions?

4. What questions do you have about allocating money among the eight categories involved in the production process?