

# CCSS-Aligned Mathematical Task

## Fundraising to Save Our Planet, Grade 4

By Susan Ferdman, Janny Kim (Janie Yoo), Kayoung Park

### Task

This is information from a recycling center:

| Recycling Goods | Price Paid Per Pound | Price per 10 pounds |
|-----------------|----------------------|---------------------|
| Cans            | \$2                  | \$25                |
| Plastic Bottles | \$1                  | \$14                |
| Batteries       | \$0                  | \$0                 |
| Paper           |                      | \$2                 |

1) A fourth grade class is trying to raise \$300 by collecting recycling goods. On Monday, they collected 24 pounds of cans. On Tuesday, they collected 3 times as many pounds of plastic bottles as pounds of cans. On Wednesday, they collected  $\frac{1}{2}$  as many pounds of paper as cans.

- How many pounds of cans, plastic bottles, and paper did they collect so far?
- If they take all the recycling goods to the recycling center now, how much money would they get?
- How many more pounds of cans, plastic bottles, and/or paper do they need to collect to raise \$300? Show at least two different ways. Explain your reasoning using pictures, graphs, numbers, and/or words.

2) The class collected 24 pounds of cans on Monday, 12 pounds of cans on Tuesday, and 16 pounds of cans on Wednesday. Sandy says they should wait until Wednesday to take the cans to the recycling center because they will get more money. Daniel says that they can take the cans each day and still get the same amount. Who do you agree with? Explain your answer.

### Rationale for Lesson

Students explore ways to solve multiplicative comparison problems using a

variety of strategies and discuss how they got their answer. Students also explore “add to” situational problems with different unknowns and explain how they got their answer.

## Common Core State Standards for Content

|         |                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.OA.1  | Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7. Represent verbal statement of multiplicative comparisons as multiplication equations.                                                                                                                                                        |
| 4.OA.2  | Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.                                                                                                                              |
| 4.OA.3  | Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. |
| 4.NBT.5 | Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculations using equations, rectangular arrays, and/or area models.                                                                                              |
| 4.NF.4c | Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.                                                                                                                                                                                                                         |
| 4.MD. 2 | Use the four operations to solve word problems involving intervals of money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.                            |

## Common Core State Standards for Mathematical Practice

- MP1 Make sense of problems and persevere in solving them
- MP2 Reason abstractly and quantitatively
- MP3 Construct viable arguments and critique the reasoning of others
- MP4 Model with mathematics
- MP5 Use appropriate tools strategically
- MP6 Attend to precision
- MP7 Look for and make use of structure

## DOK Level: 3

### Strategic Thinking

This task requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels. Students are required to explain their thinking.

## Enduring Understandings

- There are multiple interpretations of addition, subtraction, multiplication, and division of rational numbers, and each operation is related to other operations.
- For a given set of numbers, there are relationship that are always true called properties, and these are the rules that govern arithmetic and algebra.
- Any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways with the same value.
- There is more than one algorithm for each of the operations with rational numbers. Some strategies for basic facts, and most algorithms for operations with rational numbers, both mental math and paper and pencil, use equivalence to transform calculations into simpler ones.

## Materials Needed

Optional: Two pre-task problems to ensure students understand variable pricing.

Student task reproducible

Pictures of destroyed forest habitat

Hundreds chart

Base-ten blocks or other appropriate manipulative

Student recording sheet

## Set-Up Phase

| Rationale                                                                                                                                                                                                                                                                      | Suggested teacher questions/actions and possible student responses                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <u>Setting the Context for the Task</u><br>Consider showing photos of highly impacted ecosystems and having a brief discussion about the current state of forest environments so that students understand why the fundraiser is taking place, to restore (fix) forest habitat. | <u>Setting the Context for the Task</u><br><b>Show:</b> Pictures of destroyed rainforest habitat. |

| Rationale                                                                                                                                                                                            | Suggested teacher questions/actions and possible student responses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Ensure students understand the table.<br/>NOTE: When recyclables are brought to the recycling center in increments of ten, more money is paid out than when individual pounds are brought in.</p> | <div data-bbox="824 310 1250 588" data-label="Image"> </div> <p data-bbox="824 588 1404 646"><a href="http://nimbuseco.com/2013/01/deforestation-and-pollution-facts/">http://nimbuseco.com/2013/01/deforestation-and-pollution-facts/</a></p> <p data-bbox="824 682 1422 867"><b>Inform:</b> In the last 200 years, about half of the world's original forests have been destroyed. As a result, millions of animals and living things have become endangered or have died.</p> <p data-bbox="824 903 1105 940"><u>Opening Questions:</u></p> <p data-bbox="824 940 1321 978">T: What are we trying to figure out?</p> <p data-bbox="824 978 1295 1016">T: What information do we know?</p> <p data-bbox="824 1052 1422 1157">T: What do you notice about the table?<br/>What questions might you have about the table?</p> <p data-bbox="824 1157 1404 1236">S: Why would anyone bring in batteries?<br/>They don't give you any money.</p> <p data-bbox="824 1236 1404 1316">T: People bring in batteries to keep them out of the landfills.</p> <p data-bbox="824 1316 1404 1421">T: That is an excellent question. Why don't you research why recycling centers collect batteries.</p> <p data-bbox="824 1457 1404 1562">S: Why are there 2 prices for cans?<br/>What happens if you only have 3 pounds of paper (less than 10 pounds)?</p> <p data-bbox="824 1562 1372 1667">S: If you have less than 10 pounds of paper, you don't get any money for the paper.</p> <p data-bbox="824 1667 1349 1824">S: The recycling center pays out 2 different prices for cans. You get one price if you have 10 pounds and a different price for single pounds.</p> <p data-bbox="824 1860 1127 1896"><u>Set the Expectations:</u></p> |

| <b>Rationale</b> | <b>Suggested teacher questions/actions and possible student responses</b>                                                                                                                                                                                                                                                                                                                                    |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | <ul style="list-style-type: none"> <li>- Write number sentences that show how you figured out the number of pounds of recyclables collected and the amount of money to be collected.</li> <li>- Select a strategy and tools to help you solve this problem. (tape model, number line, base 10 blocks, chart, part-part-whole model)</li> <li>- Be prepared to explain how you figured things out.</li> </ul> |

## Explore Phase

Independent Problem Solving Time

T: Work on the problem by yourself for a few minutes.

Independent Problem Solving/Struggle Time

- Give students private think time to understand and make sense of the problem for themselves.
- As you are circulating, clarify any confusion students may have, but do not tell students how to solve the problem.

Partnership Work

Work with your elbow partners. Explain your thinking to each other.

| <b>Possible Student Strategies</b> | <b>Focusing Questions</b>                                                                                                                                                                                       | <b>Assessing Questions</b> | <b>Advancing Questions</b> |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------|
| <b>Can't get started</b>           | What do you understand about the problem?<br>What are you trying to find out?<br>How would you represent the number of cans using base 10 blocks.<br>What other tools could you use to help you?<br>What number |                            |                            |

| Possible Student Strategies                                                             | Focusing Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Assessing Questions                                                                  | Advancing Questions |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------|
|                                                                                         | <p>sentence can you write that tells how many pounds of ___ were collected?</p> <p>Read the first sentence. What is it telling you?</p>                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                      |                     |
| <p><b>Students may not be able to read or understand <math>\frac{1}{2}</math>.</b></p>  | <p>T: Read this number (<math>\frac{1}{2}</math>)</p> <p>S: one two.</p> <p>S: one out of two</p> <p>- If I have 4, what is <math>\frac{1}{2}</math> of that?</p> <p>- What does it mean then by "<math>\frac{1}{2}</math>" as many?</p> <p>- How might you use a picture to show the relationship?</p> <p>- Pick up 4 objects (like pencils) and ask student to take half. Then pick up 6 objects and ask student to take half. What picture can you draw to show this?</p> <p>- What number sentence can you write to express this?</p> |                                                                                      |                     |
| <p><b>Students calculate \$122 (instead of \$160) for the total amount received</b></p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>How did you get \$122?</p> <p>How might you draw a picture (eg: tape model or</p> |                     |

| Possible Student Strategies                                                                                                      | Focusing Questions | Assessing Questions                                                                                                                                                                                                                                                                                                                                                              | Advancing Questions |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| for the recyclables in part b. (They do not calculate the larger amount given for 10-pound increments.)                          |                    | chart) showing how you calculated \$122? Is \$160 the most they can get for the recycling goods? Explain: if you take the recycling goods to the center every 10 pounds collected, does it change the amount you need to collect? Explain how you might use _____ (equation, graph, etc.) to organize your information.                                                          |                     |
| When figuring out the number of pounds collected through plastic bottles, students calculate $3 + 24$ instead of $3 \times 24$ . |                    | What does three times as many mean?<br>- Pick up 2 objects (like pencils). Ask student to show 3 times as many pencils and record with a number sentence ( $2 \times 3 = 6$ ). Then pick up 3 objects and ask student to pick up and record 3 times as many ( $3 \times 3 = 9$ ).<br>Then pick up 2 objects and have student add 3 more and record ( $2 + 3 = 5$ ). Have student |                     |

| Possible Student Strategies                                                                                                                       | Focusing Questions                                                                                                                  | Assessing Questions                                                                                                                                                                                                                                                                                                              | Advancing Questions                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                   |                                                                                                                                     | <p>differentiate between <math>2 \times 3</math> and <math>2 + 3</math>.</p> <p>- If you have 3 cans and I have 2 more, how is that different than if you have 3 cans and I have 2 times more?</p> <p>- How might you use a bar model to show the relationship?</p> <p>- What number sentence can you write to express this?</p> |                                                                                                                                                                                                        |
| For part b, student adds the numbers in the table ( $\$25 + \$14 + \$2$ ). Student does not understand that money is given based on the poundage. | <p>T: How did you get \$41?</p> <p>T: How much money would you get if you brought in one pound of cans? Two pounds? Ten pounds?</p> |                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                        |
| Student views their work as completed.                                                                                                            |                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                  | <p>What might be a more efficient strategy that you could use to solve this problem?</p> <p>T: When would Daniel and Sandy both be correct?</p> <p>S: If they take in the cans in increments of 10</p> |

| Possible Student Strategies | Focusing Questions | Assessing Questions | Advancing Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------|--------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                             |                    |                     | <p>every week and save the extra pounds to take in the following week.</p> <p>T: What else can the class do with the 2 pounds of paper?<br/> S: Turn in the extra 2 pounds and forfeit the money.<br/> S: Hold onto the 2 pounds until they have 8 more pounds (<math>8+2=10</math>) to turn in with the original 2 pounds.</p> <p>T: In part 2, which will have a bigger environmental impact, buying acres or planting trees? Find evidence to support your response.</p> <p>T: If you were running a fundraiser to purchase rainforest acreage, what would be your goal and why?</p> |

## Alternate Moves to Traditional Explore Phase

To develop perseverance in children, try this alternative method.

| Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Suggested Teacher Questions/Actions and Possible Student Responses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>In a traditional Share/Discuss/Analyze (SDA), at the end of the Explore Phase, the solution is shared out and the task comes to an end. The students are all exposed to the “answer” at this point.</p> <p>In this method, students work together to solve problems. Next they critique each other’s work and obtain ideas from each other. And then they go back and continue to work on their own group’s work.</p> <p>In this manner, students who are stuck do not just wait to be told the answer during SDA. They know that they will receive support, but that they will continue working to solve the problem.</p> <p>This method also helps to grow students’ mathematical toolboxes.</p> | <p>Have a short period of independent struggle time.</p> <p>Then in small groups, students solve the problem together on poster paper.</p> <p>Display posters around the room with blank post-it notes on them.</p> <p>With their group, students rotate around the room taking a minute or 2 at each poster. (Eg: You can set a timer for 1 ½ minutes, and students rotate when the timer goes off.)</p> <p>Students write positive comments and questions on the post-it notes.</p> <p>When students get back to their own poster, they read the feedback on the post-it notes.</p> <p>They take the information on the post-it notes, in conjunction with what they have seen as they walked around the room, and spend some more time revising their own group’s work.</p> |

## Share, Discuss, Analyze Phase

| Rationale                                                                                                                                             | Suggested Teacher Questions/Actions and Possible Student Responses                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Students share out their solutions and make connections between various strategies in order to help grow all students’ mathematical toolboxes.</p> | <ul style="list-style-type: none"> <li>- Please show us how you figured it out.</li> <li>- Why did you choose that way/strategy?</li> <li>- How did you calculate the amount of money the students received for the cans?</li> </ul> |

| Rationale                                               | Suggested Teacher Questions/Actions and Possible Student Responses                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Make connections between pictures and number sentences. | <ul style="list-style-type: none"> <li>- For someone who understands the method that was just shared, please put the method into your own words?</li> <li>- What relationship between the last 2 solutions shared out do you see? Where is ____ shown in the other person's work?</li> <li>- What is the same and what is different in the solutions shared?</li> </ul> <p>How is your number sentence represented in your picture?</p> <p>How is your picture represented by your number sentences or calculations?</p> |

## Application

World Land Trust is an organization that helps protect the environment by buying land or planting trees. One acre of rain forest can be bought for \$50 to create nature reserves and sanctuaries across the world. A tree can be planted for \$5 to reconnect habitat.

If they collect \$300, how might the students decide to donate their money to World Land Trust? Explain your mathematical reasoning using pictures, graphs, numbers, and/or words. Describe the impact it will have on the environment-provide scientific evidence from research. (Science and ELA integration-standards below)

## Summary

Depending on students' answers and reasoning:

There are a variety of ways to solve and represent a problem. Sometimes, solving a problem in real life takes more than one day and we need to persevere.

There are multiple ways to represent an equation and we have tools that will allow us to make sense of the mathematics.

When you multiply a factor by a whole number greater than 1, you get a greater amount; when you multiply a factor by fraction less than 1, you get a smaller amount.

Multiplying by a fraction less than 1 is like dividing.

There are real math problems all around us.

## **Quick-Write**

What did you learn about mathematics through this lesson? How can you use what you learned in other mathematics?

## **Additional Standards**

### **Next Generation Science Standards**

#### **4-ESS3 Earth and Human Activity**

Students who demonstrate understanding can:

**4-ESS3-1.** Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. [Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.]

### **NGSS Disciplinary Core Ideas**

#### **ESS3.A: Natural Resources**

§ Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)

### **NGSS Crosscutting Concepts**

#### **Cause and Effect**

§ Cause and effect relationships are routinely identified and used to explain change. (4-ESS3-1)

§ Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS3-2)

#### **Influence of Science, Engineering and Technology on Society and the Natural World**

§ Over time, people's needs and wants change, as do their demands for new and improved technologies. (4-ESS3-1)

§ Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands. (4-ESS3-2)

### **ELA Standards**

**W.4.7** Conduct short research projects that build knowledge through investigation of different aspects of a topic.

- W.4.8** Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.
- W.4.9** Draw evidence from literary or informational texts to support analysis, reflection, and research.

## Student Task Sheet

This is information from a recycling center:

| Recycling Goods | Price Paid Per Pound | Price per 10 pounds |
|-----------------|----------------------|---------------------|
| Cans            | \$2                  | <b>\$25</b>         |
| Plastic Bottles | \$1                  | <b>\$14</b>         |
| Batteries       | \$0                  | <b>\$0</b>          |
| Paper           |                      | <b>\$2</b>          |

1. A fourth grade class is trying to raise \$300 by collecting recycling goods. On Monday, they collected 24 pounds of cans. On Tuesday, they collected 3 times as many pounds of plastic bottles as pounds of cans. On Wednesday, they collected  $\frac{1}{2}$  as many pounds of paper as cans.
  - a) How many pounds of cans, plastic bottles, and paper did they collect so far?
  - b) If they take all the recycling goods to the recycling center now, how much money would they get?
  - c) How many more pounds of cans, plastic bottles, and/or paper do they need to collect to raise \$300? Show at least two different ways. Explain your reasoning using pictures, graphs, numbers, and/or words.
2. The class collected 24 pounds of cans on Monday, 12 pounds of cans on Tuesday, and 16 pounds of cans on Wednesday. Sandy says they should wait until Wednesday to take the cans to the recycling center because they will get more money. Daniel says that they can take the cans each day and still get the same amount. Who do you agree with? Explain your answer.

## Pre-Task Problems:

Students had difficulty understanding the recycling table in Part 1 of the task. Specifically, they did not understand that the same item could pay out 2 different amounts of money based on the quantity of pounds brought to the recycling center. Many of the students simply ignored one column of the table. These problems will give students exposure to the idea that bundling changes the price; the same item will sell for a different price based on the quantity bought. Also, the students need to understand that if something costs “3 for \$5,” then the fourth item will be charged at the regular price.

---



Maria wants to buy 7 boxes of granola bars for her birthday party. How much will they cost?

---

Stephen has been asked to buy a tube of sunscreen for every member of his soccer team. There are 23 or 26 boys on his team. How much will Stephen spend?



$$\begin{array}{r} 160 \\ + 140 \\ \hline 300 \end{array}$$

1

$$\begin{array}{r} 2 \text{ paper} \\ 3000 \\ \underline{128} \\ 172 \end{array}$$

## Fourth Grade Save Our Planet Fundraiser

This is information from a recycling center:

| Recycling Goods | Price Paid Per Pound | Price per 10 pounds |
|-----------------|----------------------|---------------------|
| Cans            | \$2                  | \$25                |
| Plastic Bottles | \$1                  | \$14                |
| Paper           | <del>10 cents</del>  | \$2                 |

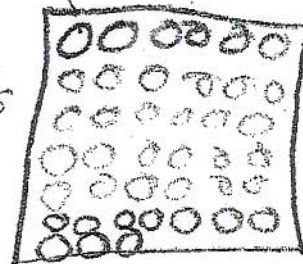
1) A fourth grade class is trying to raise \$300 by collecting recycling goods. On Monday, they collected 24 pounds of cans. On Tuesday, they collected 3 times as many pounds of plastic bottles as pounds of cans. On Wednesday, they collected  $\frac{1}{2}$  as many pounds of paper as cans.

a) How many pounds of cans, plastic bottles, and paper did they collect so far?

I need to figure out how much Recycling goods they collected?

24 cans 25 Plastic bottles  
 24 cans 2  
 24 cans 1

$$\begin{array}{r} 96 \\ 78 \\ + 24 \\ \hline 192 \end{array}$$



|      | Plastic bottles | Paper |
|------|-----------------|-------|
| Cans |                 |       |
| mon  | 24              | 10    |
| tues | 72              |       |
| wed  |                 |       |

b) If they take all the recycling goods to the recycling center now, how much money would they get?

I need to figure how much they get?

24 cans 25 Plastic bottles 10 Paper  
 58\$ 100 25

|                 | mon | tues | wed |
|-----------------|-----|------|-----|
| Cans            | 24  | 72   | 10  |
| Plastic bottles |     |      |     |
| Paper           |     |      |     |

c) Sandy says they should wait to collect all the cans, plastic bottles, and paper to take it to the recycling center because they will get more money. Daniel says that they can take the recycling goods as they collect them and still get the same amount. Who do you agree with? Explain your answer.

I agree with Sandy because they might get past \$300.

$$\begin{array}{r} 160 \\ + 140 \\ \hline 300 \end{array}$$

$$\begin{array}{r} 140 \\ 1 \end{array}$$

$$\begin{array}{r} 72 \\ + 70 \\ \hline \end{array}$$

$$\begin{array}{r} 70 \\ + 70 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 72 \\ + 72 \\ \hline 144 \end{array}$$

d) How many more pounds of cans, plastic bottles, and/or paper do they need to collect to raise \$300? Show at least two different ways. Explain your reasoning using pictures, graphs, numbers, and/or words.

|                                  |                               |                                  |                               |
|----------------------------------|-------------------------------|----------------------------------|-------------------------------|
| 25<br>14<br>25<br>14<br>32<br>32 | 24 lb<br><u>Cans</u><br>58 \$ | 72 lb<br><u>bottle</u><br>100 \$ | 12 lb<br><u>Paper</u><br>2 \$ |
|----------------------------------|-------------------------------|----------------------------------|-------------------------------|

$$\begin{array}{r} 72 \\ 24 \\ + 12 \\ \hline 108 \end{array}$$

$$\begin{array}{r} 100 \\ 58 \\ + 2 \\ \hline 150 \end{array}$$

$$\begin{array}{r} 268 \\ + 108 \\ \hline 376 \end{array}$$

$$\begin{array}{r} 100 \\ 58 \\ + 2 \\ \hline 160 \end{array}$$

$$\begin{array}{r} 376 \\ - 268 \\ \hline 108 \end{array}$$

## Fourth Grade Save Our Planet Fundraiser

This is information from a recycling center:

| Recycling Goods | Price Paid Per Pound | Price per 10 pounds |
|-----------------|----------------------|---------------------|
| Cans            | \$2                  | \$25                |
| Plastic Bottles | \$1                  | \$14                |
| Paper           | 10 cents             | \$2                 |

1) A fourth grade class is trying to raise \$300 by collecting recycling goods. On Monday, they collected 24 pounds of cans. On Tuesday, they collected 3 times as many pounds of plastic bottles as pounds of cans. On Wednesday, they collected  $\frac{1}{2}$  as many pounds of paper as cans.

a) How many pounds of cans, plastic bottles, and paper did they collect so far?

I need to figure out how many pounds they've collected.

$$\begin{array}{r} 72 \\ 24 \\ + 12 \\ \hline 108 \end{array}$$
 72 pounds of cans  
 24 pounds of plastic bottles  
 12 pounds of paper  
 108 pounds together

$$\begin{array}{r} 24 \\ 24 \\ 24 \\ \hline 72 \end{array}$$
 24 pounds of cans  
 24 pounds of plastic bottles  
 24 pounds of plastic bottles = 72 bottles

$$\begin{array}{r} 24 \\ 24 \\ \hline 48 \end{array}$$
 24 pounds of cans  
 24 pounds of plastic bottles = 12 pounds of paper

b) If they take all the recycling goods to the recycling center now, how much money would they get?

I need to figure out how much money they will get from taking it to the recycling center.

$$\begin{array}{r} 108 \\ 24 \\ \hline 132 \end{array}$$
 108 pounds of cans  
 24 pounds of plastic bottles

$$\begin{array}{r} 108 \\ 108 \\ 108 \\ 108 \\ 108 \\ 108 \\ \hline 648 \end{array}$$
 108 pounds of cans  
 108 pounds of plastic bottles  
 108 pounds of plastic bottles  
 108 pounds of plastic bottles  
 108 pounds of plastic bottles  
 108 pounds of plastic bottles

$$\begin{array}{r} 50 \\ + 8 \\ \hline 58 \end{array}$$
 50 + 8 = 58

$$\begin{array}{r} 25 \\ + 25 \\ \hline 50 \\ + 8 \\ \hline 58 \end{array}$$
 25  
 25  
 50  
 8  
 58

They got 58\$ for taking it to the recycling center.

c) Sandy says they should wait to collect all the cans, plastic bottles, and paper to take it to the recycling center because they will get more money. Daniel says that they can take the recycling goods as they collect them and still get the same amount. Who do you agree with? Explain your answer.

I agree with sandy  
because if they wait  
they can get their  
\$300 and make even  
more. I disagree  
with Daniel because if  
they go now they won't  
get their \$300.

d) How many more pounds of cans, plastic bottles, and/or paper do they need to collect to raise \$300? Show at least two different ways. Explain your reasoning using pictures, graphs, numbers, and/or words.

**This is information from a recycling center:**

1) A fourth grade class is trying to raise \$300 by collecting recycling goods. On Monday, they collected 24 pounds of cans. On Tuesday, they collected 3 times as many pounds of plastic bottles as pounds of cans. On Wednesday, they collected  $\frac{1}{2}$  as many pounds of paper as cans.

a) How many pounds of cans, plastic bottles, and paper did they collect so far?

I need to figure out how many pounds did they collect so far. They collected 41 pounds.

2911 7211 7211  
2911 7211 7211  
2911 7211 7211

15

$$\begin{array}{r} 24 \\ \times 3 \\ \hline 72 \end{array}$$

b) If they take all the recycling goods to the recycling center now, how much money would they get?

I need to figure out how much money they are gonna get.

72  
48  
48

25 75 400  
 25 75 80  
 25 75 50



c) Sandy says they should wait to collect all the cans, plastic bottles, and paper to take it to the recycling center because they will get more money. Daniel says that they can take the recycling goods as they collect them and still get the same amount. Who do you agree with? Explain your answer.

d) How many more pounds of cans, plastic bottles, and/or paper do they need to collect to raise \$300? Show at least two different ways. Explain your reasoning using pictures, graphs, numbers, and/or words.

2004 of paper give you 140

72 lb of bottle gives rough 100

140

H 168

300

little Z

13/20 Paper

\$100 140 \$10

160 + 140 = 300