Lesson D1: Bartering for Beginners

It is useful in mathematics to notice similarities and differences in the situations we discuss. Using different perspectives can help us see things that can be helpful for problem solving.

1. Which one doesn't belong? Identify a feature for one animal that is distinct from the other three. To challenge yourself, you can write an explanation why it does not belong with the other three for each animal.

One of the ways we exchange toys, snacks, and services is by trading or bartering.

2. How would you define bartering in your own words? What sort of things do you like to trade or barter with your friends or siblings (e.g., baseball cards, food, chores) and why?

3. Your best friend wants to make a trade with you. They want some video games and are willing to give up some Pokemon cards. Your friend will give you 60 cards for three video games. You are interested in this trade but can only give up 1 video game. How many cards might they be willing to trade with you?
   Use any strategy to help you.

4. a. Why might you have avoided doing this trade with your friend?

    b. If you did not want to make this trade, what could be something to sweeten the deal?

    c. What else might you trade between your friends? Is it always fair (or does your friend always seem to get a better deal for whatever reason)?

These scales show items that are balanced.

5. What could you substitute for the question mark to keep the third scale balanced? Explain your choice.

Imagine you are Gabriel at lunch.
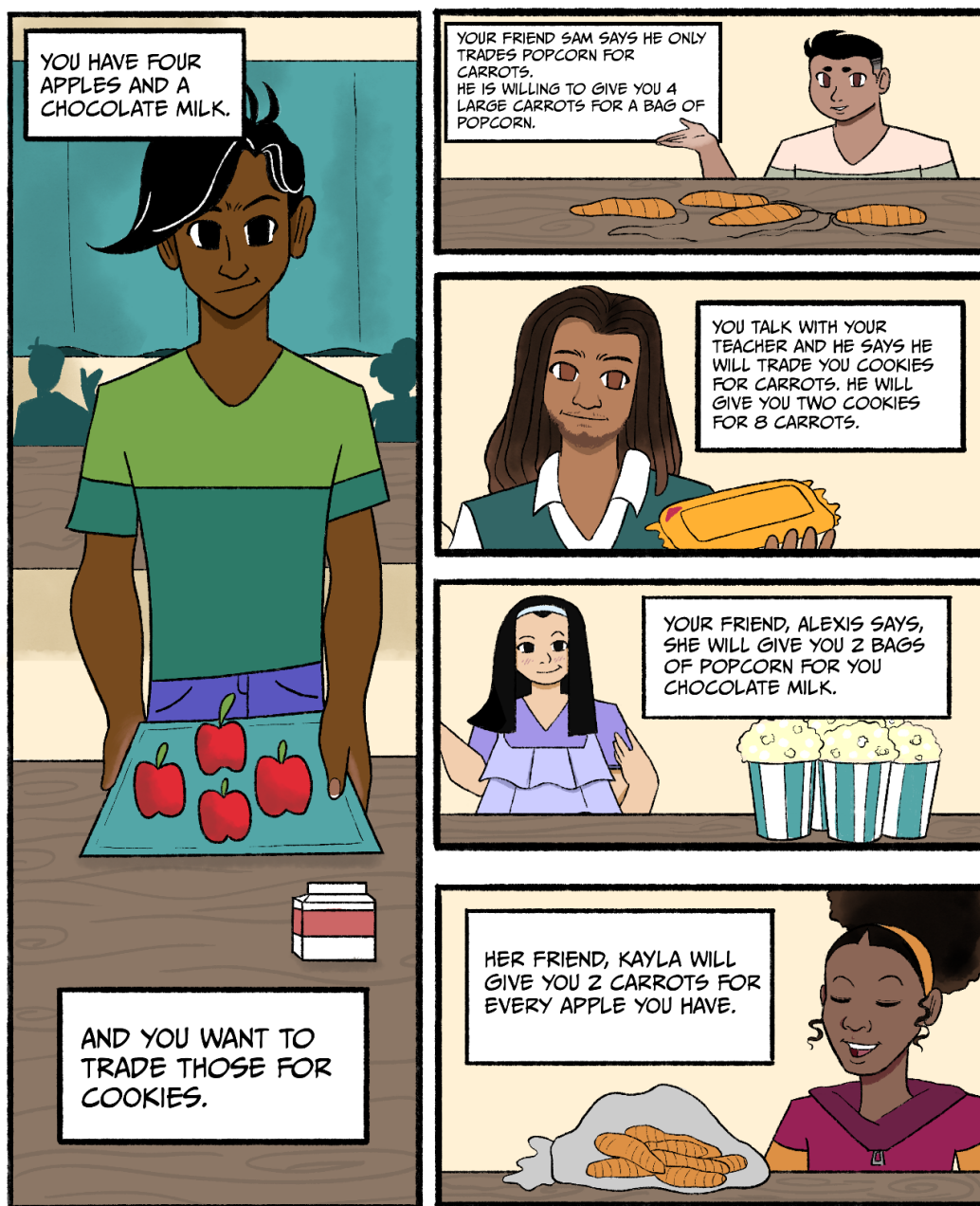
6. With this information, how can Gabriel trade apples and chocolate milk for cookies?

Bartering has gone out of style in the past few centuries. In its place, we created a universal bartering tool, money. Money can be traded for goods and services because of its agreed upon value.

7. Gabriel is shopping and here is his grocery list:

$3
Honey Nut Cheerios
Breakfast Cereal with
Oats, Gluten Free
15.4 oz

$4
Pepperidge Farm®
Goldfish® Flavor
Blasted® Xtra...
11 oz

$ 2 /each
Pineapple

a. Gabriel takes a look at his notes and sees: $3c + 4g + 2p = 16$.
List two or three possible combinations of Cheerios, Goldfish and pineapples that make this true (your combination can use the value of 0 for a variable).

b. You are told that $3g = 6p$. Why is this true?
What do g and p stand for in this question?

c. What is the difference between the way g is used in part a and g is used in part b?

d. Gabriel writes the following on his grocery list: 2(c + g + p) = $20. What might this equation mean?

e. If c, g and p represent the prices for Cheerios, goldfish and pineapples, is the equation 2(c + g + p) = $20 true or false? Explain.

f. What are possible prices for c, g, and p that would make the equation 2(c + g + p) = $20 true?

8. For the Gibson farm, there are 45 farm workers who work the grape harvest in summer. For the month of August this farm pays the workers $101,205. An equation that represents the situation is:

$$45w = \$101,250$$

a) Find the amount each worker receives for one month's work.

b) The grape harvest is sold at market for $180,000. If all the earnings from the market went to the 45 farmers, what equation could represent this new scenario?

c) If all the earnings were split equally among the 45 farmers, how much would each farmer receive?

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Summary
In this lesson we showed that you can think of equality as equal trading. We also showed how the meanings of variables can change in the context of different problems.

Practice Problems

Find the value of the variable to make each equation true:

9. $x + 200 = 350$

10. $16m = 4$

11. $8 + 4 = 12p$

12. $f + 5 = 16 - 3$

13. $9 - 3 = 4 + r$

14. $\dfrac{a}{6} = 24$