

# **Pencils or Candies?**

## **Planned Economies and Market Allocation**

### **INTRODUCTION**

All economies, whether planned or market-based, face choices about how to allocate resources. There are simply not enough resources – natural, human, or capital – to allow all wants to be met. This constraint results from scarcity rather than from the type of economic structure.

Different economic systems use different methods to decide what combination of goods and services to produce and how to direct resources to their end uses. National economies vary in the extent to which they rely on government directives (central planning) and signals from private markets to allocate scarce goods, services, and productive resources.

In this simulation, student "ministers" find that their ability to distribute goods and services to satisfy consumer wants and needs is severely hampered by their inability to access the information that markets provide. Students compare the level of consumer satisfaction that results from a centrally planned allocation of two goods to the allocation of the same goods by markets.

### **CONCEPTS**

- Command Economy
- Planning
- Markets

### **LEARNING OBJECTIVES**

Student will:

1. Understand that different methods can be used to allocate goods and services. People, acting individually or collectively through government, must choose which methods to use to allocate different kinds of goods and services.
2. Realize the essential differences between a market economy, in which allocations result from individuals making decisions as buyers and sellers, and a command economy, in which resources are allocated according to central authority.
3. Understand that prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.

## MATERIALS:

- Record chart for blackboard or overhead transparency
- 50-75 pencils
- 100 assorted candies or candy bars
- "production chips" (colored paper clips, poker chips, etc.)
- ruble and dollar debit cards, two of each per student (attached, 8 per page)
- two black markers
- prizes for successful factory managers (large candy bar, fast food certificate, badges etc.)

## PROCEDURE

### Part I:

1. Appoint **2 Russian Planning Ministers** and tell them that they must decide how to use available resources to produce 2 consumer goods - pencils and candy. Show the ministers and the class the pencils and candy and then offer the ministers the following information:
  - You have enough resources to produce 25 pencils or 50 pieces of candy or any of the proportionate combinations: 24p and 2c, 23p and 4c etc. (All possible combinations are listed on the Minister's instructions, which follow.)  
Note: These numbers are based on a class of about 25-28 students. Reduce the numbers for smaller classes. Numbers must be small enough that not all the students wants are easily satisfied.
  - You are to decide how much to produce and sell and at what price to sell each item.
  - Your goals are to:
    - use all available resources (no idle resources), and
    - keep consumers as happy as possible
  - Because we are interested in how you made your decision as well as what you decided, I am going to send an observer along to listen to you make your decisions.
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2. Appoint an **observer** who can be counted on to pay attention while staying in the background. Instruct the observer to take notes so that he/she can tell us later how the ministers made their decision, what problems they faced, etc.
  - The observer may NOT participate in your discussion in any way.
  - Tell the class that the observer is only there for purposes of debriefing the exercise and that you will pay candy for his/her time and effort.
3. Appoint **2 Russian Factory Managers**, one for the pencil factory and one for candy factory and offer the factory managers the following information:

- Your classmates will be the consumers in this economy, and each will have 20 rubles to spend.
  - Give each manager a marker and explain how the debit cards work. Each consumer's card has 20 spaces, or rubles. When a purchase is made, simply cross off the number of rubles used.
4. Send the ministers and the observer out in the hall. Tell them they will have only 2-3 minutes to make their decisions.
  5. While the ministers are deliberating, set the factory managers up at the front of the room at two tables, in front of blackboard signs for "Candy" and "Pencils."
  6. Distribute the 20-ruble debit cards to the rest of the class. Tell them that the cards work like debit cards and the amount they spend will be marked off at the store.
    - They are free to buy pencils and/or candy or to not spend their money at all. If they have the money, they may purchase as many items as they wish.
    - Explain to the class that as high school students, they will soon be taking a test to determine whether or not they will be admitted to the elite State University.
    - Remind them that admission to the university is literally the difference between a life of some comfort and a life of poverty.
    - Also tell them that to get into the examination room, each student must **have at least one new, sharpened pencil**. They may want to keep this in mind as they make their purchases. This is the "University" scenario.
  7. Call the ministers back into the room, and have them report to you the production amounts and prices.
    - When they tell you the production amounts, distribute the appropriate amount of candy and pencils to the factory managers, but do not let them announce the production amounts.
    - Post the prices of candy and pencils on the blackboard.
    - Tell the planning ministers that they may stand in the doorway if they would like to, but they may not interact with the consumers. (If your classroom door has a window, close the door and let the ministers observe - if they want to - through the glass.)
  8. Conduct a 2-3 minute selling round in which students can come to the pencil or candy managers and purchase goods at the posted price. (Call time to end the trading session before consumers buy a good other than their first choice just because the factory is out of their first choice and they can't buy it.)
    - Call time and halt the transactions whether or not all the pencils and candy have been sold.
    - Record the numbers of pencils and candy sold on the record chart on the blackboard.
    - Ask how many citizens are dissatisfied because they couldn't buy what they wanted to. Record the number on the chart.
    - Collect any remaining pencils and candy from the 2 factory managers.

9. Instruct the ministers that in planning for the second round, they may change the allocation of pencils and candy if they wish, but that their superiors have decided to hold prices constant to promote stability in the economy.
  - Send the ministers and the observer into the hall to make their decisions.
10. Distribute another 20-ruble debit card to the class.
  - Announce that congratulations are in order. Everyone passed the university exams!
  - The polite thing to do would be to have a party for all your friends and relatives to thank them for their support. Most importantly, **you will need lots of candy for your guests.** This is the “Celebration” scenario.
11. Recall the ministers of planning and have them deliver their allocation information.
  - Provide the required number of pencils and candies to the factory managers. (Do not announce the numbers.)
  - Remind students of the prices of pencils and candy.
12. Conduct the second selling round as you did the first.
  - Call time and record the sales.
  - Count and record the number of unhappy consumers.
  - Collect any remaining "goods."
13. End this portion of the simulation. (To keep down the cost of running the simulation, you may want to collect all the pencils to use with another class.)

#### **DEBRIEF:**

- Ask the ministers and the observer to report.
- How did the ministers of planning make their decisions about the allocation of resources and the prices of the products?
- Did their allocation decision change over the rounds of the activity?
- Why or why not?
- Ask the class how satisfied they were as consumers.
- Did they get all of the pencils and candy that they wanted to buy?
- Did the desire, or demand, for pencils and candy change during the rounds? How?
- Explain the differences between the “University” round and the “Celebration” round.
- Is this realistic? Do the desires of consumers change from week to week in real life?
- Were the planning ministers able to get information about these changes?
- What were some problems created by having central planners do the allocating and pricing of goods?
- Do you think that having ministers of planning decide on allocation and prices of pencils and candy was a good way to make decisions? Why or why not?

Note: In some instances, students may have resorted to secondary sales or even bribery to get pencils and candy. This is OK and should be discussed in the debriefing as a possible

consequence of the frustrations created by the misallocation of pencils and candy by the ministers.

14. At this point, there are two options. The shorter option is to complete the exercise by conducting a large group discussion in which students draw on their own experiences in markets. The teacher's goal is to focus student thinking on a comparison between allocation by planners and allocation by "unplanned" markets. Emphasize to students the responsiveness of markets, and the role of prices in providing the information makes that responsiveness possible.

15.

If your class has little opportunity to examine markets, you may want to run the (optional) second part of the activity, in which the students actually create a market for pencils and candy.

### **Discussion Questions (or homework worksheet to be discussed the next day):**

- Suppose that the sellers of pencils and candy had been in Canada. What would have been different?
- What would determine the quantity and price of pencils and candy in each store?
- What would have happened if there had suddenly been a big increase in the number of people wanting to buy pencils? Or candy?
  - How would the store manager know that people's desires or products had changed?
  - What might he or she do?
  - Suppose he raises the price and people still buy pencils; what information does the manager have about people's desire for pencils?
  - Would the store manager need to know why people's desires had changed?
- Suppose the store manager made a mistake and had too many pencils (like the ministers did). What would happen?
- Is the store manager better able or worse able than the planner to gather information that lets him provide the things customers want? Why? How does he get that information?

### **Part 2 (Optional)**

16. Explain to students that in the second part of the simulation they try another way to allocate pencils and candy, and then compare the results with the planning ministry method.

- Tell the former planning ministers that they have inherited a store in Canada that sells pencils and candy. (Note: Use the same 2 students because they do not have the information about why the consumer demand for pencils and candy changed. It is important in the debriefing to be able to show that they could make effective market decisions even without this knowledge.)

- The store is large and employs 4 checkout clerks. (Appoint students to take these roles.) The former owner of the store had set the price of candy at \$5 and the price of pencils at \$15.
  - Tell the two owners (the former Ministers) that you will give them 5 pencils, 10 pieces of candy, and 15 production chips that can be turned into the warehouse (you) for more products. (Reduce these numbers for classes smaller than 25 students.)
  - One production chip = 1 pencil or 2 pieces of candy.
  - Tell the store owners that you will decide how successful they are by observing 2 criteria:
    - whether consumers are upset because they have to wait in long and/or slow lines, and
    - whether they have shortages or surpluses of candy and pencils.
  - If their store is well run, they will be rewarded at the end of the simulation.
17. While the owners are setting up their checkout clerks in the front of the room, distribute 20-dollar debit cards to the rest of the students.
18. When the store is ready and all the consumers have their dollars, explain that when the store is open, the owners can come to you at any time during the round and exchange their production chips for more products.
- Also, it is very important to let the owners know that they can change the prices of their products at any time during the round.
  - Explain that because the selling round might be chaotic, the owners may call a "time out" to make production and pricing adjustments.
19. Run 2 or 3 rounds.
- Give consumers a \$20 card at the beginning of each round, and give the store-owners 25 production chips at the beginning of each round.
  - Ask consumers to keep track of the prices of their purchases on the back of their dollar cards.
  - At the end of each round, record quantities purchased (and prices) by tabulating a show of hands from the consumers.
20. At the beginning of one round, ask the consumers to pretend that it's the "university situation" from the last simulation again. (Don't tell the store-owners what this means and don't let other students tell them. We want to see if they adjust, even though they don't know why consumers' demand changed.)
21. At the beginning of another round, ask the consumers to pretend it's the "congratulations situation" from the last simulation. (Again, don't tell the store-owners what this means.)
22. End the simulation. (Don't forget to pay the clerks and observer with candy.)

## DEBRIEF:

- How did the owners of the store make their decisions about the numbers of pieces of candy and pencils (allocation of resources)?
- How did they know what to turn in their production chips for?
- How did the owners of the store decide what price to charge for pencils and for candy?
- Did the allocation and/or pricing decisions change over the rounds, or even during the rounds? Give examples of how it changed.
- Store owners - Why did you make that change?
- Was there information that the store-owners could use in their decisions that was not available in the planned rounds?
- What was this information and where did it come from?
- Why was this information available to the store-owners and not to the planners?
- Would it have helped the planners to know about the university entrance exams and the celebration parties? *(Yes, although they still might not have been able to adjust very quickly and/or very accurately)*
- Did the store-owners need the information about the university entrance exams or the celebration parties to make effective decisions? Why? *(No - all they had to know was that there were long lines for one or the other product. It was of no importance to them why the lines occurred.)*
- Refer to the blackboard and the records of sales and prices from the 2 parts of the simulation. What do they reveal about the importance of the feedback loop of information in enabling producers to adjust to consumers' demands?
- Were you, as consumers, more or less satisfied in the store phase or in the central planning phase of the simulation? Why?
- Did the store-owners run the store successfully - that is, did they keep lines to a minimum and have the right mix of goods on hand? *(Have the class decide whether store-owners deserve their rewards.)*
- Store owners / central planners - were you more or less satisfied in the store phase or in the central planning phase? Why?
- Which method is better for making allocation and pricing decisions? Defend your choice in terms of benefits and costs of 2 alternatives.
- List the benefits of each.
- What is the opportunity cost of choosing a centrally planned economy? *(Giving up the benefits of the market economy – especially the responsiveness to consumers shown in this simulation.)*
- From your experience in this simulation, who would you say bears that cost? *(consumers)*

## CONCLUSION

Markets provide important information about price and consumer demand that is not available to planners who must make allocation decisions in centrally directed (command) economies. Scarce goods and services are allocated in a market economy through the influence of prices on production and consumption decisions.

Changes in supply or demand cause relative prices to change; in turn, buyers and sellers adjust their purchase and sales decisions. Government-enforced price ceilings set below the market clearing price and government-enforced price floors set above the market clearing price distort price signals and incentives to producers and consumers.

The price ceilings cause persistent shortages, while the price floors cause persistent surpluses.

*Source: Foundation for Teaching Economics – The Economic Demise of the Soviet Union – teacher’s resources (www.fte.org)*

## Background Reading

The following story appears in Meltdown (by Paul Craig Roberts and Karen LaFollette, Washington D.C.: The Cato Institute, 1990, p. 19-20):

*"Although demand for boots had been falling, shoe factories concentrated on premium-maximizing [heavy woolen] boots. During the first year, the Russian Shoe Trade Association (Rosobuvtorg) imposed 10,000 extra pairs on retailers, filling warehouses and stores. The next year the same thing happened, except this time the trade association manager insisted that sellers take 38,300 more pairs of boots, on top of the 13,000 pairs that now languished in storage. So shoe sellers ended up with the boots, knowing full well that they could never sell them. At last count, retailers were buried under 200,000 pairs of boots that filled every imaginable space."*

Suppose that, instead of the Russian Trade Association, Nike had made the first 10,000 pairs of women’s woolen boots. Rewrite the above description to include the changes in:

- the flow of information,
- the resulting allocation and pricing decisions that Nike would have made, and
- the impact of those decisions on the consumers.

**Teacher guide to the assessment:**

**A sample scenario:**

Source: The Fraser Institute, [www.fraserinstitute.ca](http://www.fraserinstitute.ca)



Nike shipped 10,000 pairs of women's boots to its retailers in late October. Unfortunately, consumers didn't buy. The retailers canceled all further orders with Nike and the factory got the message. The producer also noticed that retailers were ordering more and more cross-trainers, so they stopped making boots and increased production of cross-trainers to meet the holiday demand. The woolen boots, which never did seem to generate any excitement, were cluttering up storerooms, so retailers started half-price sales to get rid of them and make space for the new cross-trainers that started to arrive from the factory. Consumers were happy – some bought cheap boots and others found more cross-trainers available.

Student scenarios should reflect the following:

- Information; The failure of the retailers to sell the first 10,000 pairs of boots would have provided important information on several levels. Retailers would have ordered no more boots and/or canceled previous orders.
- Decisions: At the same time, retailers would have made the decision to lower the price until the boots sold. If the lower price caused the boots to sell, retailers might have ordered more from the suppliers at a lower price. Suppliers would then have had to decide whether they were willing to produce boots at the lower price or whether they would rather use their resources to produce something else.
- Impact on Consumers: There were 2 impacts: 1) lower price as a result of lower demand and 2) freeing up resources to produce something consumers want more.

## Student handout

### Ministers' Instructions

#### Goals:

- Use all available resources (no idle resources).
- Keep consumers as happy as possible.

#### Procedures:

1. You have enough resources to produce either \_\_\_\_\_ pencils **OR** \_\_\_\_\_ pieces of candy.
  - If you produce \_\_\_\_\_ pencils, you may produce no candy.
  - If you produce \_\_\_\_\_ pieces of candy, you may produce no pencil.
  - You may produce combinations of pencils and candy in a ratio of 1 pencil: 2 candy.
  - For example, you may produce \_\_\_\_\_ pencils and \_\_\_\_\_ candy  
\_\_\_\_\_ pencils and \_\_\_\_\_ candy  
\_\_\_\_\_ pencils and \_\_\_\_\_ candy, etc.
  - Price of Candy \_\_\_\_\_ (1-20 Rubles)
  - Price of Pencils \_\_\_\_\_ (1-20 Rubles)
2. You are to instruct the production managers at the pencil and candy factories how much to produce and sell.
3. You are to instruct the production managers at the pencil and candy factories as to the price at which they may sell each item.
4. Your classmates, the consumers in this economy, each have 20 rubles to spend.
5. **You have 3 minutes to make your decisions.**

Report your decisions to me. **Do not tell production amounts to the consumers.**

25 pencils **or** 50 candies. ( a 1:2 ratio)

For example, you may produce:

PENCILS	CANDIES
25	0
24	2
23	4
22	6
21	8
20	10
19	12
18	14
17	16
16	18
15	20
14	22
13	24
12	26
11	28
10	30
9	32
8	34
7	36
6	38
5	40
4	42
3	44
2	46
1	48
0	50

## Simulation Records

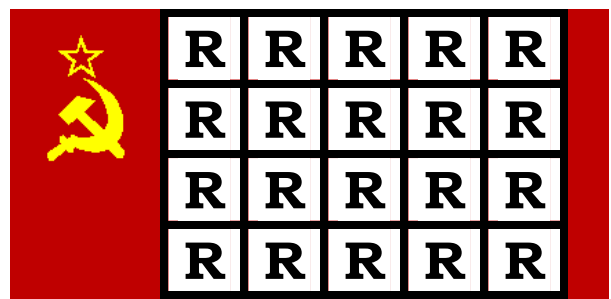
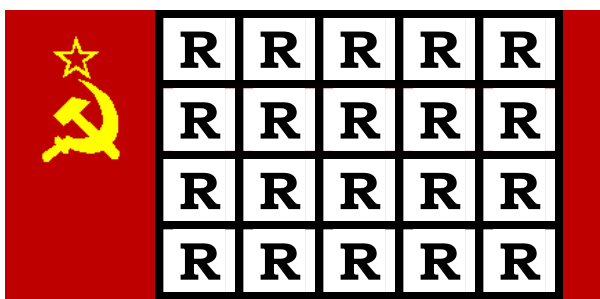
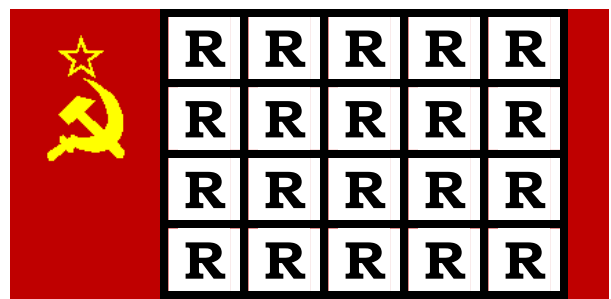
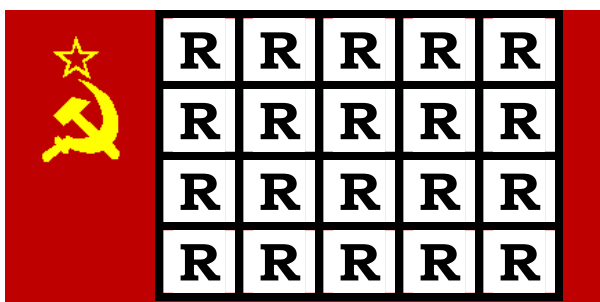
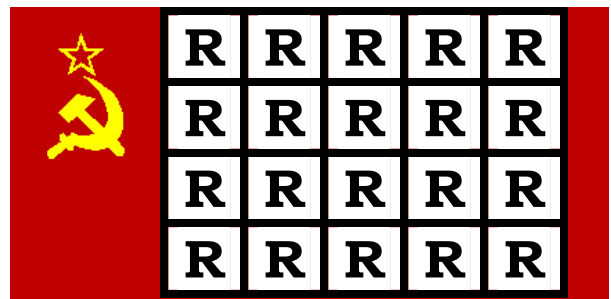
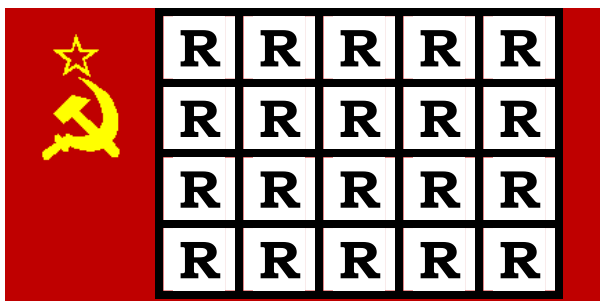
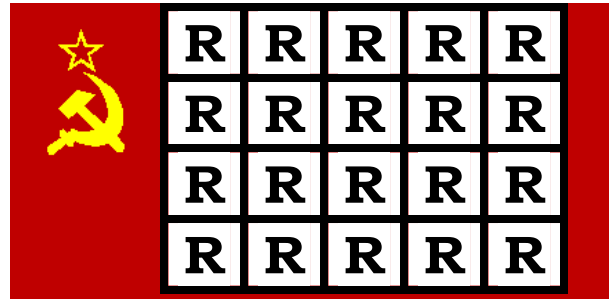
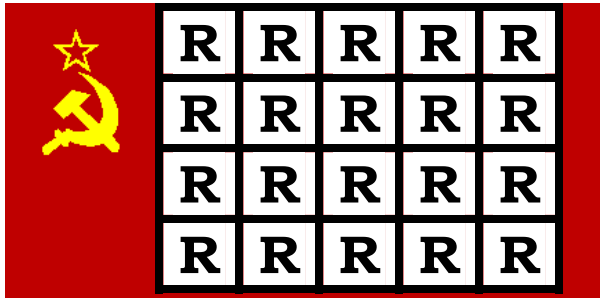
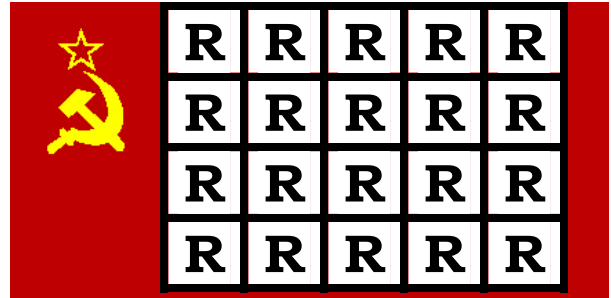
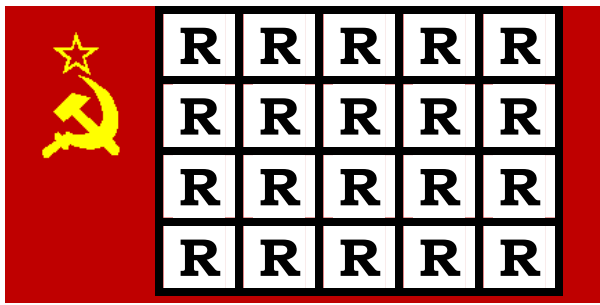
### Planning Ministers

Round#	Pencil price	#pencils sold	#pencils left	Candy price	#candies sold	#candies left	#unhappy consumers
1							
2							
3							

### Store Owners

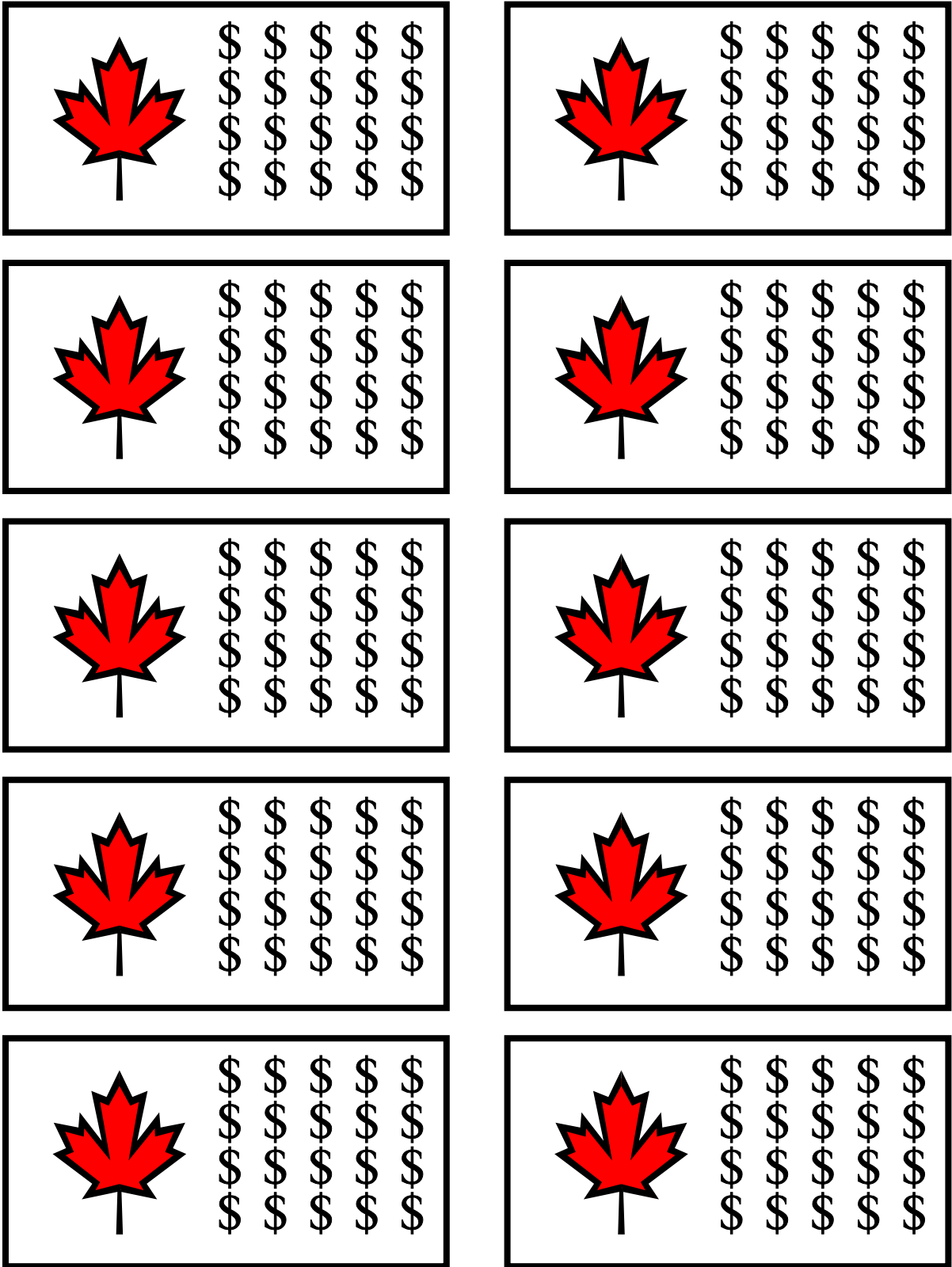
Round#	Pencil price	#pencils sold	#pencils left	Candy price	#candies sold	#candies left	#unhappy consumers
1							
2							
3							

20 Ruble Debit cards – For Part 1 of Central Planning/Market Game



Directions: Duplicate and cut out individual cards. You will need one debit card for each student for each round. When students present card to pay for purchases, the store clerk marks off the rubles spent.

\$20 Debit cards - For Part 2 (optional) of Central Planning/Market Game



Directions: Duplicate and cut. One debit card for each student for each round. When students present card to pay for purchases, store clerk marks off the dollars spent.