

## RUSH HOUR

by Zuzana Krakova (Slovakia),  
Steven Lauridsen (Illinois),  
Tom Roby (Virginia),  
Eka Sepashuli (Georgia)

### LESSON DESCRIPTION

Incentives that people face influence their everyday decisions. Using a road-map game board, the students simulate driving to work and choose driving routes based on incentives. The students analyze how changes in incentives cause changes in behavior. They also learn the difference between monetary and non-monetary incentives.

### AGE LEVEL

12-14 years old

### CONCEPTS

Incentives  
Monetary incentives  
Non-monetary incentives

### CONTENT STANDARD

Standard 4 – People respond predictably to positive and negative incentives.

### BENCHMARKS

- **Benchmark 1 for 8th Grade:** Responses to incentives are predictable because people usually pursue their self-interest.
- **Benchmark 2 for 8th Grade:** Changes in incentives cause people to change their behavior in predictable ways.
- **Benchmark 3 for 8th Grade:** Incentives can be monetary or non-monetary.

### OBJECTIVES

The students will:

- ◆ Define and give examples of incentives.
- ◆ Distinguish between monetary and non-monetary incentives.
- ◆ Predict the changes in people’s behavior that result from changes in incentives.
- ◆ Explain why people’s behaviors change as incentives change.

### TIME REQUIRED

90 minutes

### MATERIALS

- Enough copies of Activity 1, cut apart, to provide one paper car for each student
- One pencil for each student
- One set of colored pencils or markers for each student
- One pair of dice for each group of six students
- Transparent tape for taping road map together
- One copy of Activity 2 for every six students in the class  
→ Assemble the road-map game board before the class begins.
- Visuals 1, 2 and 3
- Enough copies of Activity 3, cut apart, to provide one dollar for each student
- Visuals 4 and 5
- One copy of Activity 4 for each student
- Lined paper for each student

(NOTE: Before reading the scenario in procedure step 3, decide how many extra-credit points the winner of the “driving to work” game will receive, or have another prize available.)

### PROCEDURE

1. Read the following scenario to the students:

*This morning a teacher was running late for school, so he decided to take a shorter route to school.*

*Unfortunately, taking a different route meant he had to pay a \$1 toll that he usually did not pay. This bothered him, but it was more important that he not be late for school.*

2. Ask the students why they think the teacher made the decision to take the toll road. *Not wanting to be fired, it would be unprofessional to arrive late, needed to prepare for class, not wanting students to arrive without a teacher in the classroom* Remind the students that economics is about how and why

## LESSON FOUR

---

individuals and groups make decisions.

3. Present the following scenario:

*You are leaving home to go to work. You have two routes that you may take. The first route, Main Street, goes through the center of town, and the second route, The Bypass, goes around the town. This means that the Main Street route is shorter.*

4. Explain to the students that they are going to play a game in which they will simulate driving to work. Tell the students they will each receive a “car” to drive on a “road-map” game board. Explain that the first person to arrive at work will be the winner and will receive extra credit (or another prize chosen by the teacher). Regardless of the route a student takes, he or she may roll two dice per turn.

5. Distribute one paper car from Activity 1 to each student. Distribute pencils and colored pencils or markers to each student. Tell the students to write their names on their car, and allow a couple of minutes for the students to decorate their cars with colored pencils or markers.

6. Divide the students into groups of six. Distribute one pair of dice and one road-map game board from Activity 2 to each group.

7. Display Visual 1 and review the directions for the road-map game. Instruct the students to roll the dice and move their cars along the spaces on the road map toward “Work” according to the numbers showing on their dice. The students may use either Main Street or the Bypass.

8. Rotate turns among the students. Each student gets the same number of turns. Play stops when one car arrives at work. Declare the winner (the first car to arrive at work). (**NOTE:** The winner will receive extra credit, with the amount to be decided by the teacher, or will win another prize selected by the teacher.)

9. Display Visual 2. Count and record the number of cars that took each route in the first round.

10. Discuss the following questions:

- A. How many students chose the Bypass? *Few or none*
- B. How many students chose Main Street? *All or almost all*
- C. Why did most of the students choose Main Street? *Main Street is the shorter route, as students can determine by counting the number of spaces on the map.*

11. Explain that the students’ decisions to take Main Street and not the Bypass were based on incentives. **Incentives** are factors that motivate and influence human behavior. Explain that incentives can be monetary and non-monetary. **Monetary incentives** are financial rewards or penalties designed to influence people’s behavior. The financial reward or penalty affects how many goods and services people are able to claim (buy). For example, if taxes on tobacco are increased, consumers of tobacco are able to claim (buy) fewer tobacco products with the same amount of money. Ask the students for other examples of monetary incentives. *Responses might include clearance sales on last season’s fashions to attract more buyers, higher interest rates on savings accounts to encourage people to save, etc.*

12. Explain that not all human behavior is motivated by monetary incentives. **Non-monetary incentives** include other factors that influence our behavior, without involving money. Give an example of a non-monetary incentive, such as moving to live closer to the ocean. Other examples might include firms and government using special awards, such as employee of the month as well as cash to motivate and recognize workers. People who want to hold a political office are often motivated by such things as leaving historical legacies, public service, or the power to change the way things are done in a

country. Patriotism, friendship, and so forth motivate people to participate in and to watch holiday parades.

13. Discuss the following questions:

- A. What incentive influenced your choice in the first round of Rush Hour? *Responses should indicate an understanding of the term “incentive.” The primary incentive was to get to work in less time, which meant winning the game and receiving the extra-credit points or other reward.*
- B. Give examples of other non-monetary incentives that influence your behavior. *Taking a driver’s education class to obtain a driver’s license, doing extra-credit work to raise grades*

14. Explain that the students will participate in a second round of the Rush Hour game. Read the following scenario:

*Again, you are leaving home to go to work. The two routes that you may take are the same, but as we saw in round one, Main Street is becoming crowded. Therefore, the Bypass has become the faster route. If you choose this route, you may roll two dice. If you choose Main Street, you may use only one die. Again, the winner will be the first car to arrive at work, and will receive extra credit (or another incentive as determined by the teacher).*

15. Display Visual 3 and review the instructions for round 2 of the game. Instruct the students to roll the dice and move their cars along the spaces toward “Work” on the road map, according to the number showing on the dice. The students may use either route. Those who choose Main Street roll one die; those choosing the Bypass roll two.

16. Rotate turns among the students. Each student gets the same number of turns. Play stops when one car arrives at work. Remember that cars along Main Street roll one die per turn, and that cars along the Bypass roll two dice.

17. Declare the winner. The winner will be the first car to arrive at work, and will receive extra credit (amount to be decided by the teacher) or another reward selected by the teacher.

18. Display Visual 2 again and record the number of cars that took each route in the second round.

19. Discuss the following questions:

- A. How many students took the Bypass? *Answers will vary, but many students should have taken the Bypass.*
- B. Why did more people take the Bypass in this round? *The conditions/rules of the game changed. The Bypass route had two dice, making it faster.*
- C. Why did you choose another route? *Because it is faster to get to work*
- D. What incentive changed drivers’ behaviors in this situation? *Rolling two dice instead of one*
- E. Were you influenced by the opportunity to drive faster? *Yes* Why? *The goal was to get to work faster, and using two dice made it easier to achieve that goal.*
- F. Were you influenced by money in this situation? *Not directly. However, being to work earlier may be related to earning more income. Using less gasoline is related to saving money.*

20. Present the following scenario for the third round:

*You are leaving home to go to work. The two routes that you may take are the same, but the government has decided that you must pay a toll for driving on the Bypass. If you choose the Bypass, you may roll two dice, but you will pay a \$1 toll. If you choose Main Street, you may use only one die, but you will not have to pay a toll. Each of you has \$1. There will be two winners. The first car to arrive at work will be declared a winner. The first driver to arrive at work with \$1 will also be a winner. Both*

## LESSON FOUR

---

*winners will receive extra credit* (or another prize selected by the teacher).

21. Distribute \$1 from Activity 3 to each student. Display Visual 4 and review the directions for the third round. Instruct the students to roll the dice and move their cars along the spaces toward “Work” according to the number showing on the dice. Remind the students that if they choose Main Street, they roll one die; if they choose the Bypass, they roll two dice. They may use either route.

22. Have the students take turns. Each student gets the same number of turns. Play stops when a car taking each route reaches work. The two winners receive extra credit (amount to be decided by the teacher) or another reward selected by the teacher.

23. Display Visual 2 again and record the results of the third round of Rush Hour. Discuss the results of the third round:

- A. What changed in the third round? *A toll was added, and it was possible to have two winners.*
- B. How did these changes influence drivers’ decisions? *For some students, avoiding the toll was more important, and for others it was more important to get to work quickly.*
- C. Were these changes monetary or non-monetary incentives? *The toll was a monetary incentive. Adding a second way to win was a non-monetary incentive.*
- D. Predict what would happen if the toll on the Bypass were doubled to \$2, and explain why. *More students would decide to use Main Street, responding to the monetary incentive. Some would still choose the Bypass.*
- E. Predict what would happen if Main Street were widened to make traffic flow more efficient and explain why.

*Even more students would decide to use Main Street because it would be possible to get to work faster and to save money at the same time.*

24. Display Visual 5. Review the changes that were made in each round. Ask the students to explain why the outcomes in each round changed. *In each round, the incentives changed. As a result, the drivers’ behaviors changed.*

### CLOSURE

25. Review the main points of the lesson with the following questions:

- A. What are incentives? *Incentives are factors that motivate and influence human behavior.*
- B. What are the two kinds of incentives? *Monetary and non-monetary*
- C. Give examples of incentives that were used in the lesson. *Speed of travel on each route and the presence or absence of a toll*
- D. Generate some further examples of monetary and non-monetary incentives that we encounter in everyday life. *Responses will vary. An example would be special taxes on products like tobacco and gasoline to discourage their use.*
- E. Determine which of the preceding examples are monetary and which are non-monetary incentives. *Answers will vary according to the examples students generated. The case of special taxes is an example of monetary incentives.*
- F. Predict what will happen if the incentives in the preceding examples are changed. *Answers will vary according to the examples students generated. The case of tobacco taxes being increased would lead people to buy less tobacco.*

### ASSESSMENT

Distribute a copy of Activity 4 to each student. Tell the students to read the directions and complete the assessment.

A student's answer should identify what incentives are; whether the student's solution involves monetary incentives, non-monetary incentives or both; and explain how the incentives will change behavior.

Visual 1

**Directions for Round One**

---

# **RUSH-HOUR GAME**

## **Game Directions, Round ONE**

- **Each player determines which route to take to work – Bypass or Main Street.**
- **Each player rolls two dice each turn and moves his or her car along the spaces on the board, toward “Work,” according to the total of the numbers showing on the dice.**
- **Players rotate turns. Each player gets the same number of turns.**
- **The first player to arrive at “Work” is the winner. The winner will receive extra credit or another prize selected by the teacher.**

Visual 2  
**Tally Sheet**  
**Results of Rush Hour**

<b>Round #</b>	<b>Main Street</b>	<b>Bypass</b>
<b>First round</b>		
<b>Second round</b>		
<b>Third round</b>		

## Visual 3

### Directions for Round Two

---

# RUSH-HOUR GAME

## Game Directions, Round TWO

- Each player decides whether to take the Bypass route or the Main Street route.
- Players choosing the Main Street route roll one die each turn. Players choosing the Bypass route roll two dice each turn.
- Each player rolls dice (one die for Main Street route and 2 dice for Bypass route) and moves his or her car along the spaces on the board, toward “Work,” according to the total of the numbers showing on the dice.
- Players rotate turns. Each player gets the same number of turns.
- The first player to arrive at “Work” is the winner. The winner will receive extra credit or another prize selected by the teacher.

## Visual 4

**Directions for Round Three**

---

# **RUSH-HOUR GAME**

## **Game Directions, Round THREE**

- **Each player decides whether to take the Bypass and pay a \$1 toll or to take Main Street and pay no toll.**
- **Players who take the Bypass roll two dice each turn. Those who take Main Street roll one die.**
- **Each player rolls the dice (one die for Main Street route and two for Bypass route) and moves his or her car along the spaces on the game board, toward “Work,” according to the total of the numbers showing on the dice.**
- **Players rotate turns. Each player gets the same number of turns.**
- **The game ends when one player traveling each route reaches “Work.” The winner taking the Bypass route pays a dollar to the teacher. The two winners receive extra credit or another prize selected by the teacher.**

# Visual 5

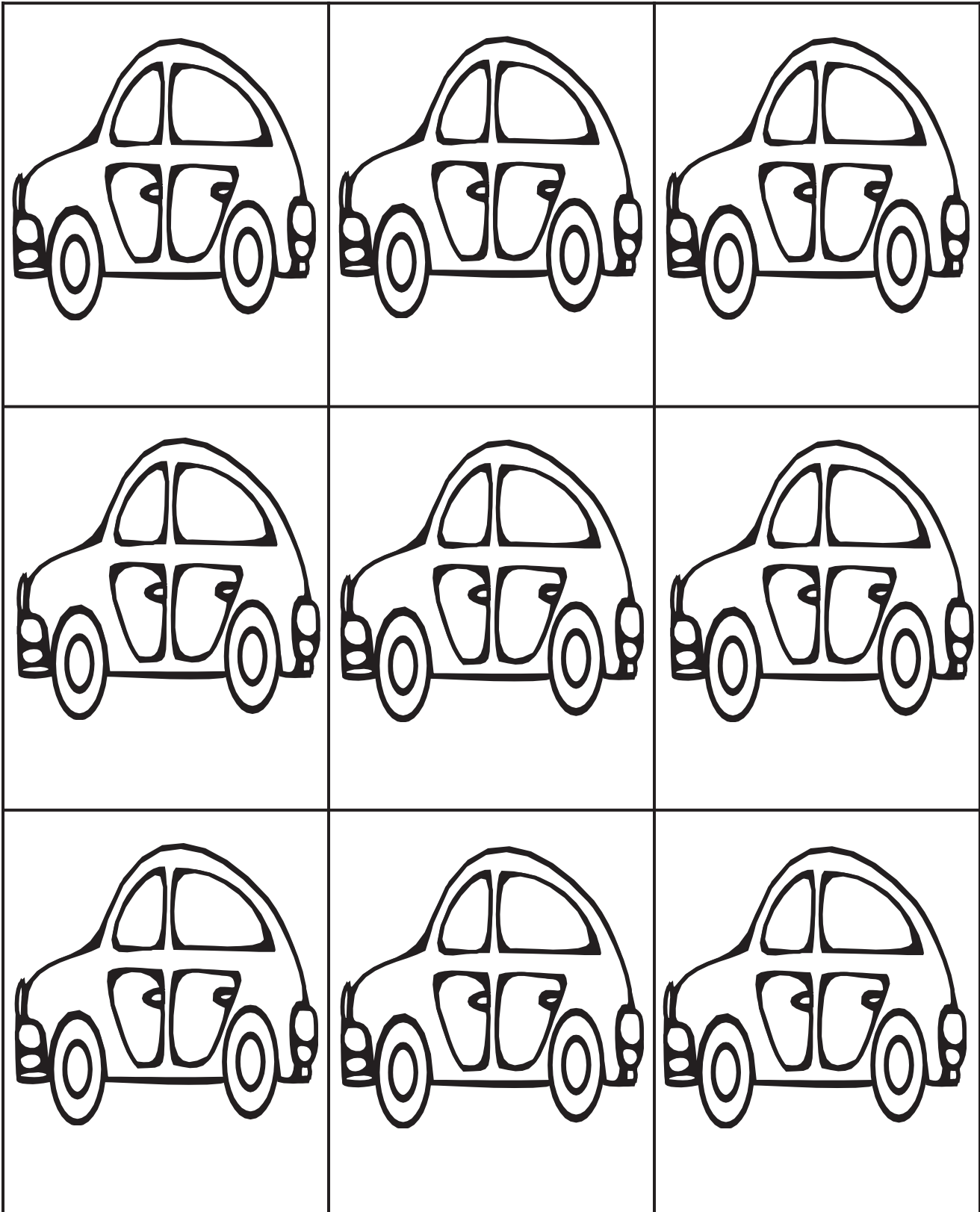
## Rush Hour

### Game Changes

---

<b>Round</b>	<b>Toll on Bypass</b>	<b>Number of Dice on Main Street</b>	<b>Number of Dice on Bypass</b>
<b>First round</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Second round</b>	<b>0</b>	<b>1</b>	<b>2</b>
<b>Third round</b>	<b>1</b>	<b>1</b>	<b>2</b>

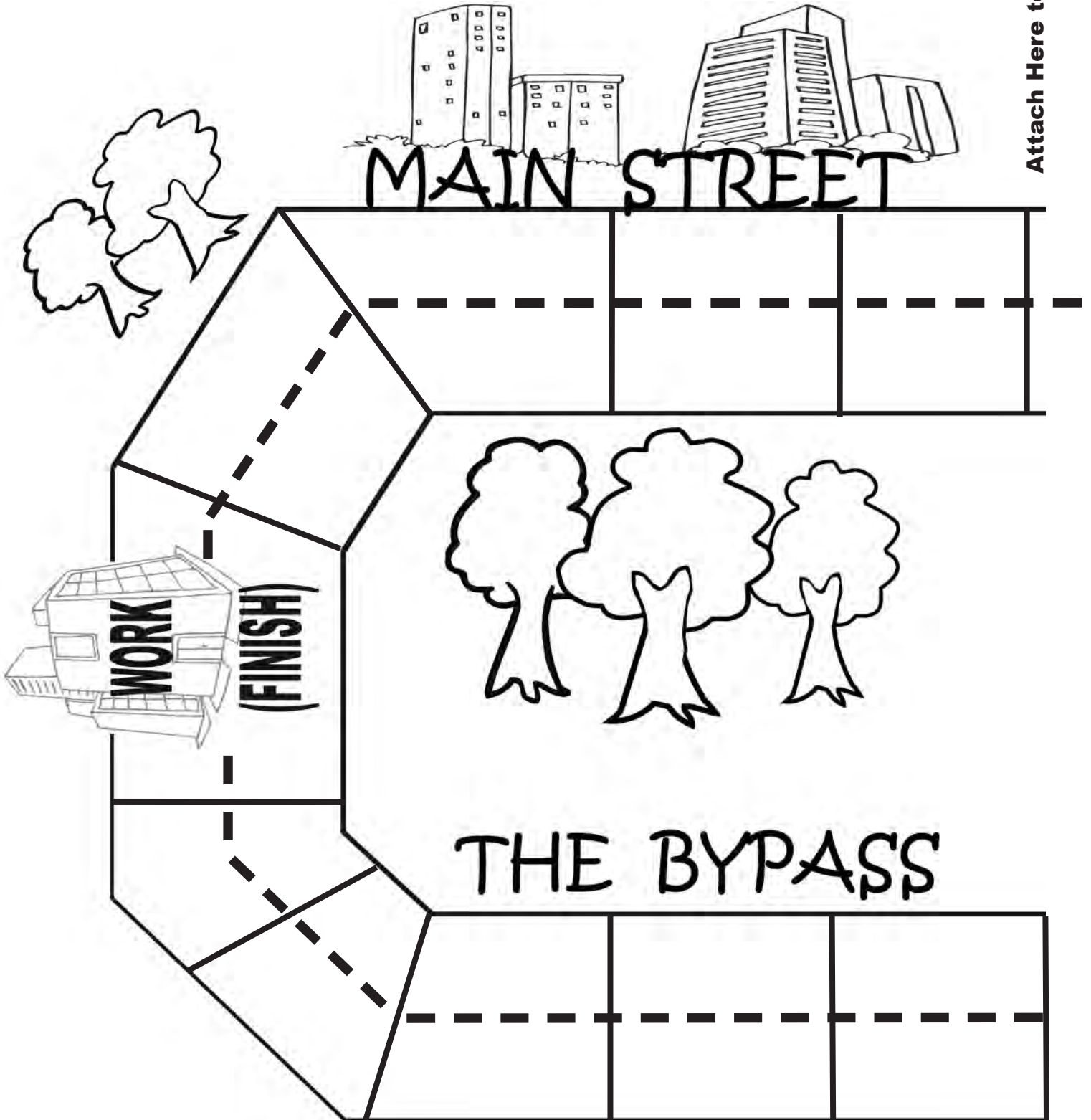
Activity 1  
**Paper Cars**



Activity 2

Road Map – Sheet 1

Attach Here to Sheet 2



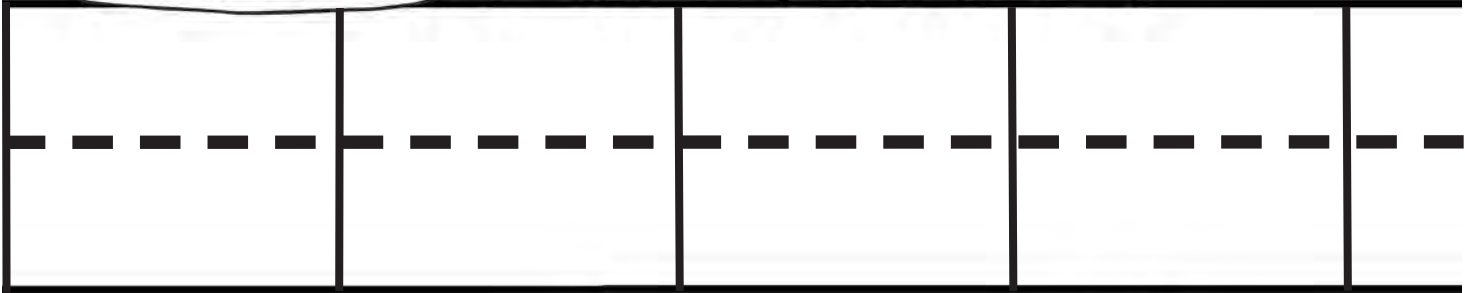
Activity 2 (continued)  
**Road Map – Sheet 2**

Attach Here to Sheet 1

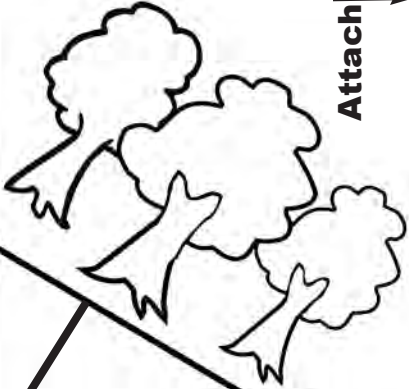


**MAIN STREET**

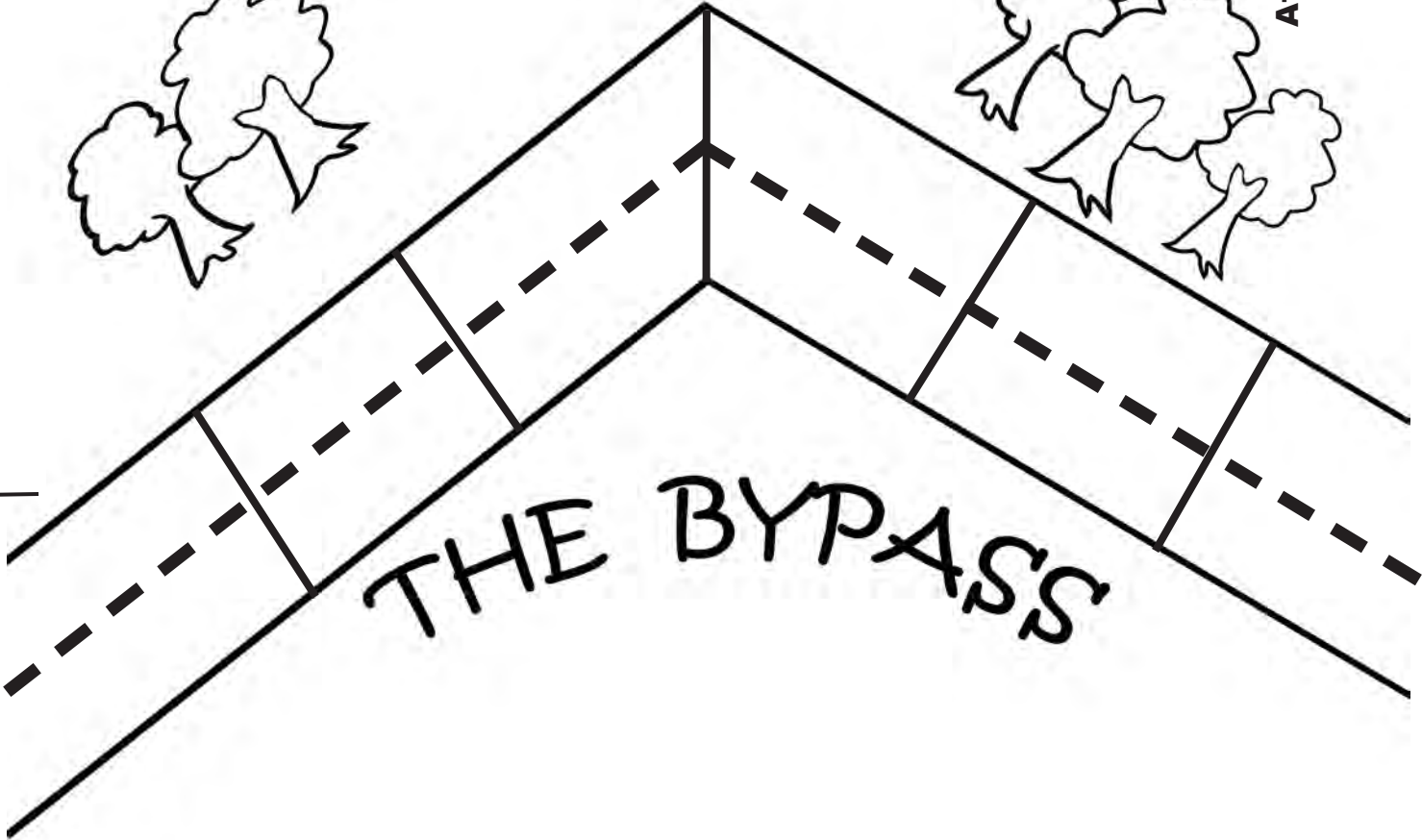
Attach Here to Sheet 3



Attach

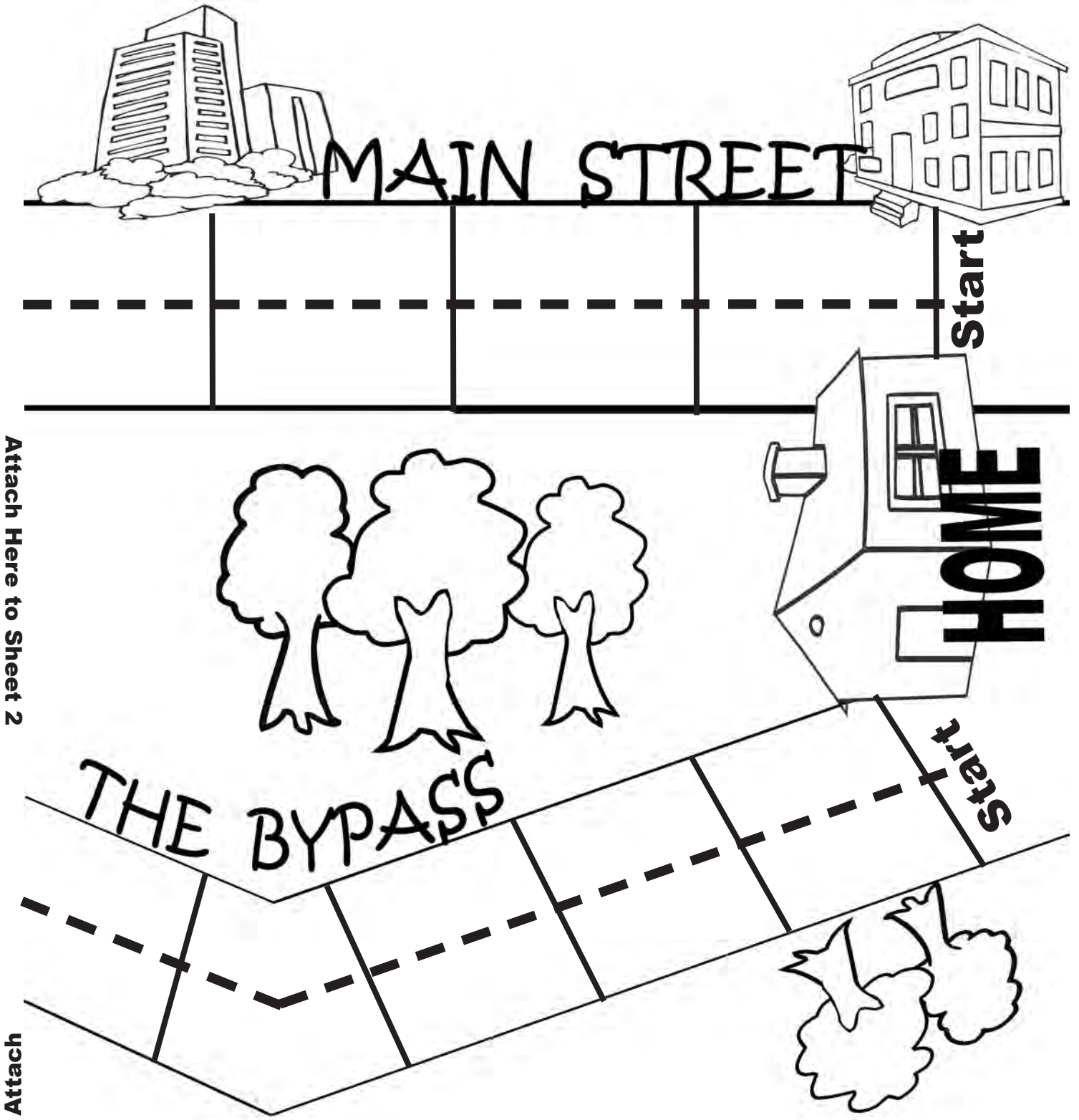


Attach



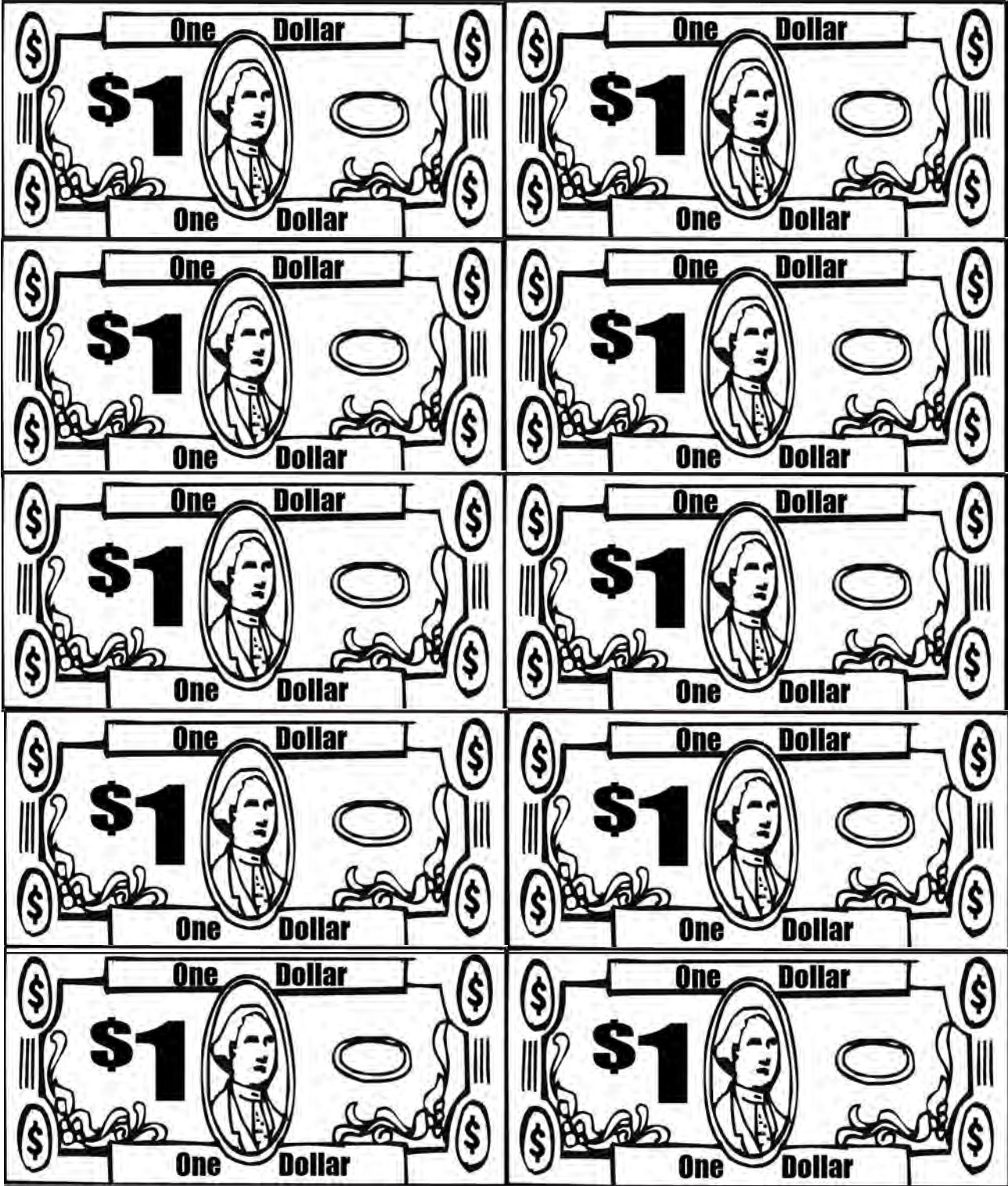
**THE BYPASS**

Activity 2 (continued)  
Road Map – Sheet 3



# Activity 3

## Dollars



## Activity 4

### Assessment

---

**Choose one of the following scenarios and write a response. Regardless of your choice, your answer must include the following:**

- **An explanation of what incentives are**
- **Whether your incentives are monetary, non-monetary or both**
- **How the incentives you have chosen will affect student behavior as desired**

- 1. School administrators want to increase student participation in after-school activities. Design an incentive program that would help school administrators achieve this goal. Explain why and how the incentives you choose would change student behavior.**
  
- 2. School administrators want to increase the number of books students read outside of school. Design an incentive program that would help school administrators achieve this goal. Explain why and how the incentives you choose would change student behavior.**