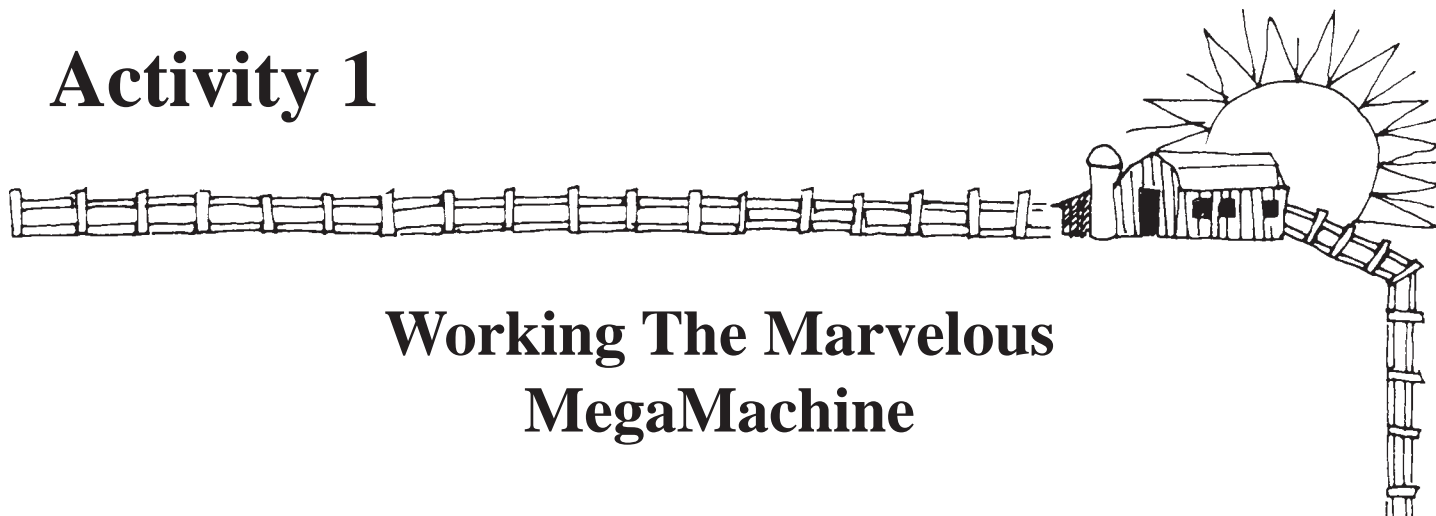


# Activity 1



## Working The Marvelous MegaMachine

- Study Question:** Why is Winnipeg, Manitoba an important part of every grain-raising rural community in Alberta?
- Activity:** Students watch a video about grain exports and transportation in western Canada, then act out the roles of people involved in this process.
- Curriculum Fit:**
- Division Two - Language Arts**
- Demonstrate ability to listen/view attentively for longer periods
  - Speak fluently about increasingly complex subjects
- Grade Four - Social Studies**
- Alberta's links with Canada and the world
  - Interdependence, trade, transportation and communication links
- Grade Six - Social Studies**
- Meeting the physical needs of people in Eastern societies
- Agriculture Concepts:** Production, Processing and Distribution Systems
- Purpose:** To have students act out the roles that make the Canadian grain export system function.
- Materials Required:** game cards and rules (enclosed)  
video: [Marvelous Prairie MegaMachine](#) Alberta Agriculture, Food and Rural Development Multi-Media Library  
or  
ACCESS  
rice or similar granular material  
beakers or small paper cups
- Time Required:** Sixty to ninety minutes (can be in two time blocks).

# Background — For the Teacher

This activity is complex but not overwhelming. Your students will better grasp the Canadian grain export system and its function if you, as the teacher, study the game procedures well and preview the video. This game is at its best the second time around.

## NOTE:

1. The video, while it is not heavily promotional, deals primarily with CN's role in grain transportation.
2. The MegaMachine describes only one method by which farmers market grain. They can also sell it for seed or feed, or they can feed grain to livestock themselves. Decisions on these matters are mainly based on the price being paid for grain. The farmer makes these decisions independently of the workings of the megamachine.

## Procedure

### Preparation

1. Book the video Marvelous Prairie MegaMachine, and reserve a VCR and monitor for the same day.
2. Photocopy the game cards on the Student Resource Sheets. You will want one per student. If there are more than 16 students you can vary the number of farmers to match your class size. If there are fewer than 16, reduce the number of elevator operators.
3. Cut the individual cards apart so students can draw roles to start the simulation.
4. Decide on groups for the introductory demonstration. (You can make each row a group if your class is in rows.) For each group you need a large empty container for one student and small containers filled with grain or rice for each other member.

### Introduction

5. a. Explain the group arrangement to the class and give out the prepared containers.  
b. Ask students to predict how much grain each group has and how much the class has altogether.  
c. Have each supplier pour his/her grain into the group receiver's beaker and estimate their group's volume of rice.

- d. Have the receivers from each group pour their grain into a final container on the teacher's desk and estimate the total volume for the class.
6. Explain to the students that they will be watching a video that illustrates another example of how wide spread small supplies can add up to a vast amount. Explain that this shows one way rural communities interact with communities throughout the world. Stress that they should pay attention to what individuals do in the system.
7. Play the video for the class. (Running time is 25 minutes.)
8. Prepare the flow chart, Student Resource Sheet One, on a bulletin board. This will help the children understand the complex communication routes. Read Student Resource Sheet Two, "How the MegaMachine Works", with students.

### Activity

9. Have each student draw a card to establish their roles for the simulation.
10. Have students read their cards aloud following the sequence on Teacher Resource Sheet One, so that everyone will know what roles will be played out.
11. Play two rounds of the game, proceeding slowly enough that students can follow the sequence of events.
12. If the class is large and has been divided into 2 groups, let the second group play the game.

### Conclusion

13. Once the game is completed have the students describe how a grain farming community in Alberta is affected by actions in Winnipeg and even in capitals of other countries.

### Discussion Questions

1. What does the farmer do while waiting for a call to deliver grain?
2. Which information links help the farmer decide what crops to plant?
3. In this game, a lot of money goes to each farmer. Where do you think a farmer has to spend money in order to keep operating?

### Related Activity

1. Draw the Marvelous Prairie MegaMachine identifying the engine, transmission and output.

## SHEET ONE —

# Real Rules for a Simulated Game



### Preparation

Push classroom desks to sides of room. On the floor use yarn to outline the four western provinces with boundaries between them. Using construction paper, mark the locations of Winnipeg, Manitoba, four grain elevators in Saskatchewan and Alberta, and a grain terminal elevator on the B.C. coast.

1. Roles are distributed by lottery draw. They may be redrawn at your discretion.

#### Student roles include:

- 6 - 8 Farmers
- 4 Elevator Operators
- 2 Railroads
- 1 Canadian Wheat Board
- 1 Grain Terminal Operator
- 1 Ship's Captain

2. The teacher acts as a customer.
3. The customer starts a round by notifying the Canadian Wheat Board that they will buy some amount of wheat.

#### Teacher:

In real life, farmers get to deliver grain 6 - 8 times per year. Each of your students has 1000 tonnes of grain to sell. Set your order size by 100 X -6 and -8 for the upper and lower limits.

4. Now proceed in order as described in "How the MegaMachine Works (Student Resource Sheet Two)." Students will move through the map to fulfil their roles.

#### Note:

- a. The elevator operators must divide the amount of wheat they are buying equally between all the farmers. They must also pay them a \$140 cheque for each tonne they buy.
- b. The Canadian Wheat Board must divide the amount of grain sold by the available elevators (4).
- c. Grain Transport Agency must divide number of tonnes sold by 70 to determine the number of hopper cars needed.

5. A round ends when an order is loaded onto a ship.
6. Have farmers count how many cheques they received. Total the money earned. Did they sell all their grain?

#### Note:

Some students may require help with math calculations.

7. Grain elevators estimate that a farmer will produce about 1 tonne per acre (therefore 2.5 T/ Ha).

#### Note:

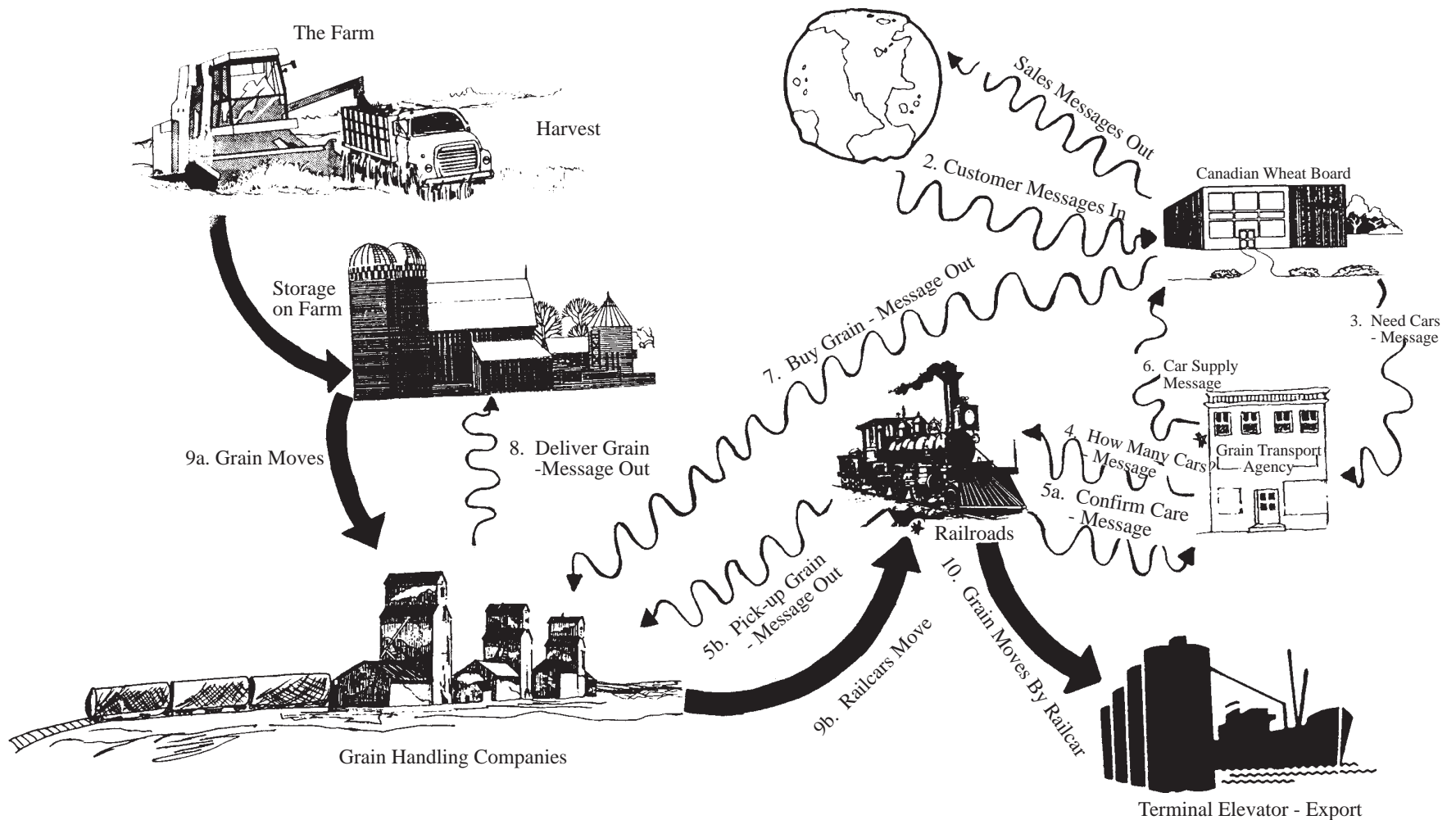
Most farmers continue to calculate their work, land and produce in bushels and acres, although sales to elevators are in tonnes. We have used 1 Ha = 2.5 acres as a conversion factor.

8. A modern grain elevator holds 6400 tonnes.
9. A railcar can carry a maximum of 71 tonnes. Cars may be run with partial loads if a section of track will not support 71 T/car. For easy division in the simulation, cars are filled to 70 T.
10. A typical bulk grain ship carries up to 50-80,000 tonnes.

# SHEET ONE — Flow Chart

# STUDENT RESOURCE

## The Working Parts of the MegaMachine





## SHEET TWO —

# How the MegaMachine Works

1. a. Farmers harvest the grain. The total harvest results in a surplus (more than Canadians need).  
b. The Canadian Wheat Board, the sales representative for Canada's surplus, sends a message to world markets that Canada has wheat to sell.
2. World buyers send in orders and request to have grain shipped.
3. The Canadian Wheat Board calls the Grain Transport Agency (e.g. CN Railway). They tell them that railway cars (hoppers) will be needed to take grain from prairie elevators to a grain terminal to be shipped overseas. They tell the GTA how much wheat has been sold so they can figure out how many cars are needed.
4. The GTA tells the Railroads how many cars are needed to pick up the grain.
5. a. & b. The Railroads agree to send enough hoppers to pick up the grain.
6. The Grain Transport Agency tells the Canadian Wheat Board how many hopper cars are leaving to pick up the grain.
7. The Wheat Board calls the Grain Handling Companies (grain elevators) to buy grain from the farmers.
8. The grain elevators call the farmers to bring in a certain amount of wheat.
9. a. & b. The farmers bring the wheat to the elevators. At the elevators, it is loaded into the hopper cars.
10. The grain moves by train to the correct terminal elevator. At the terminal, the grain is shipped overseas to the country that bought it.

# STUDENT RESOURCE

## SHEET THREE — Game Cards



<b>Grain Farmer</b>				
You have 1000 tonnes of wheat to sell. Your elevator manager will call whenever he needs some of your wheat.				
100	100	100	100	100
T	T	T	T	T
100	100	100	100	100
T	T	T	T	T

<b>Grain Farmer</b>				
You have 1000 tonnes of wheat to sell. Your elevator manager will call whenever he needs some of your wheat.				
100	100	100	100	100
T	T	T	T	T
100	100	100	100	100
T	T	T	T	T

<b>Grain Farmer</b>				
You have 1000 tonnes of wheat to sell. Your elevator manager will call whenever he needs some of your wheat.				
100	100	100	100	100
T	T	T	T	T
100	100	100	100	100
T	T	T	T	T

<b>Grain Farmer</b>				
You have 1000 tonnes of wheat to sell. Your elevator manager will call whenever he needs some of your wheat.				
100	100	100	100	100
T	T	T	T	T
100	100	100	100	100
T	T	T	T	T

<b>Elevator Operator</b>				
When the Wheat Board tells you how much grain you can buy, you must divide that amount equally among your farmers and tell them how much they can deliver. You must pay them \$160 per tonne.				

<b>Elevator Operator</b>				
When the Wheat Board tells you how much grain you can buy, you must divide that amount equally among your farmers and tell them how much they can deliver. You must pay them \$160 per tonne.				

<b>Grain Terminal Operator</b>				
<ol style="list-style-type: none"> <li>1. When trains of grain arrive you must empty each car into your storage bins until they are full.</li> <li>2. When ships arrive you must fill them with grain unless your bins are empty.</li> </ol>				

<b>Ship's Captain</b>				
When your home country buys wheat from Canada you must go to the Grain Terminal Elevator to have your ship filled, then carry the grain to your customer.				

**STUDENT RESOURCE**



**SHEET FOUR — Game Cards**

**Canadian Wheat Board**

When a customer buys wheat you must:

- 1. Tell the Grain Transportation Agency how much needs to be moved.
- 2. Divide your sale by our available elevators and tell each one how much they can buy.

**Grain Transportation Agency (GTA)**

When the Wheat Board calls about a sale, you must:

- 1. Divide the sale by 70 to find out how many railcars are needed.
- 2. Tell each railroad how many cars they must provide and where to send them.

**Railroad One**

- 1. When the GTA tells you where cars are needed you must deliver empty cars there.
- 2. When the cars are full you must move them to the costal terminal elevator.

**Railroad Two**

- 1. When the GTA tells you where cars are needed you must deliver empty cars there.
- 2. When the cars are full you must move them to the costal terminal elevator.

**WHEAT BOARD OF CANADA**

*Pay to the Bearer* \_\_\_\_\_ \$ 160.00

*One Hundred and Sixty* ----- *xx Dollars*

\_\_\_\_\_  
*The Elevator Operator*

**WHEAT BOARD OF CANADA**

*Pay to the Bearer* \_\_\_\_\_ \$ 160.00

*One Hundred and Sixty* ----- *xx Dollars*

\_\_\_\_\_  
*The Elevator Operator*

*Maximum 10 cheques per farmer*