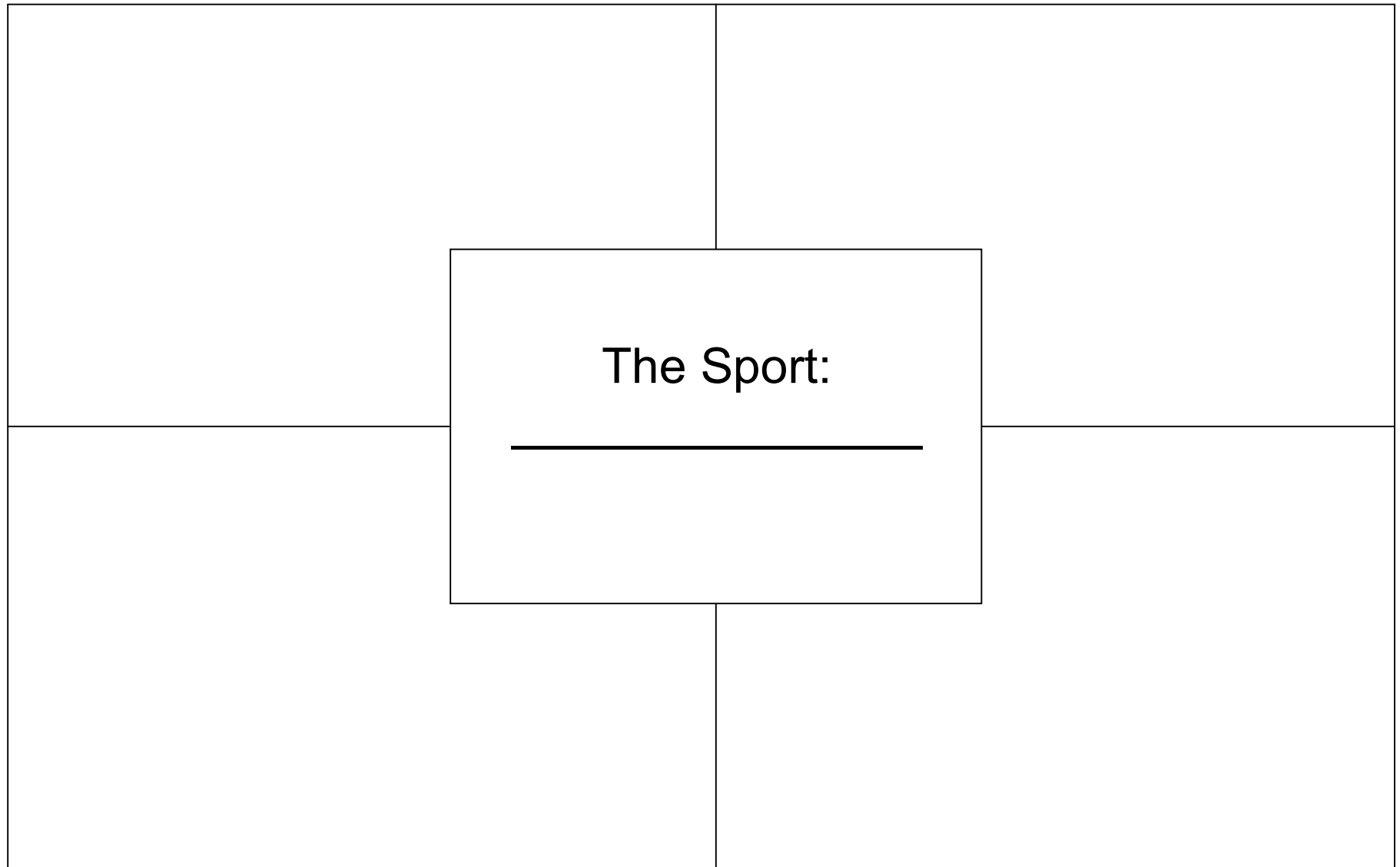


Unit 6 : Day 1 : Is the “World Series” fixed?		MEL4E
Minds On: 15	<p>Math Learning Goals:</p> <ul style="list-style-type: none"> • Explore the possibility that the “World Series” in baseball is fixed by simulating the series tossing coins to track wins and losses (pairs, 20 trials) • Demonstrate the effect of sample size by combining class results • Compare bar graph of experimental data to actual World Series data and discuss how this relates to whether or not the World Series is fixed 	<p>Materials</p> <ul style="list-style-type: none"> • Fair coins • BLM 6.1.1 • BLM 6.1.2 • BLM 6.1.3
Action: 40		
Consolidate:20		
Total=75 min		
Assessment Opportunities		
Minds On...	<p>Groups of 4 → Placemat</p> <p>Choose a world class sport that is familiar to your school population (e.g. cricket, soccer, hockey, etc.). Instruct students to record on a placemat (BLM 6.1.1) everything that they know about the chosen sport.</p> <p>Whole Class → Discussion</p> <p>Discuss the characteristics of this sport and introduce the idea of simulating the series finals and decide on a class which two teams will be in the finals. Let heads represent the first team, and tails represent the second team. Have all pairs students in the class (or pairs) flip a coin to see who would win. And tally the results. As a class discuss the results, and their realistic value.</p>	
Action!	<p>Whole Class → Discussion</p> <p>Discuss important parts of the World Series in baseball, including the fact that there are seven games in the finals, and the winning team of the American League plays the winning team for the National League. Record these points on the board for reference throughout the activity.</p> <p>Pairs → Experiment</p> <p>Ask students to predict the outcome of the experiment before they simulate the World Series using a coin for 10 trials. Handout BLM 6.1.2 and have students complete the experiment in pairs.</p> <p>Learning Skills/Observation/Mental Note: Observe students working in pairs and assess their learning skills, in particular their team work skills.</p> <p>Whole Class→Data Collection and Graphing</p> <p>Correlate the class data on a class version of BLM 6.1.2 and create a bar graph to represent the class data.</p> <p>Mathematical Process Focus: Reflecting-students will reflect upon their predictions after completing the investigation.</p>	
Consolidate Debrief	<p>Whole Class → Discussion</p> <p>Ask students to compare their graph with the class data. Was there a significant difference by adding more trials?</p> <p>Compare this data to the actual data of the World Series. See BLM 6.1.3.</p> <p>Discuss the fairness of the World Series results by comparing the class bar graph with the real data for the World Series (i.e. Is it fixed or fair?)</p>	
<i>Reflection</i>	<p>Home Activity or Further Classroom Consolidation</p> <p>Write a reflection in your journal by answering the following questions:</p> <ul style="list-style-type: none"> • How did my prediction fair with my results, the class results? • Are simulations a good predictor? • Is the World Series fixed? 	

6.1.1: What do I know about this sport?

MEL4E



6.1.2: World Series Simulation

MEL4E

Let **heads** represent a **win** by the **American League** Team. When this team wins write **“AL”** under the game number.

Let **tails** represent a **win** by the **National League** Team. When this team wins write **“NL”** under the game number.

As soon as a team wins **4 out of the 7 games** they have **won the World Series**.

You will simulate the World Series ten times:

- Out of 10 trials, I predict that the largest number of games needed to complete the World Series will be _____
- I predict that the league that will win the World Series most often will be _____

Trial #	Game #							Number of Games
	1	2	3	4	5	6	7	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

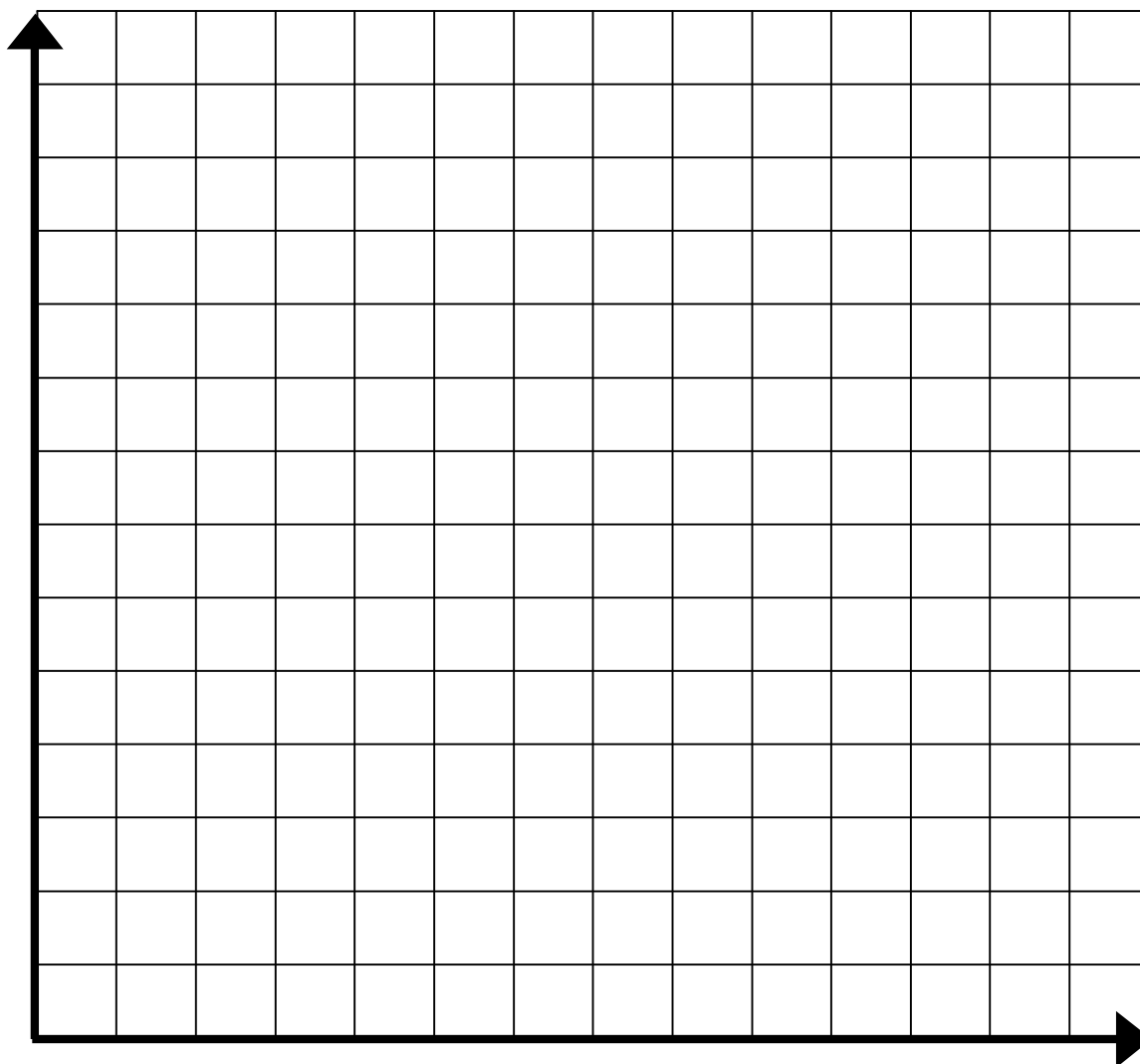
Summarize your results on the next page.

6.1.2: World Series Simulation (continued)

MEL4E

Number of Games in the World Series	Frequency
4	
5	
6	
7	

Draw a bar graph for the results of the World Series Simulation. Be sure to label all parts of your graph.



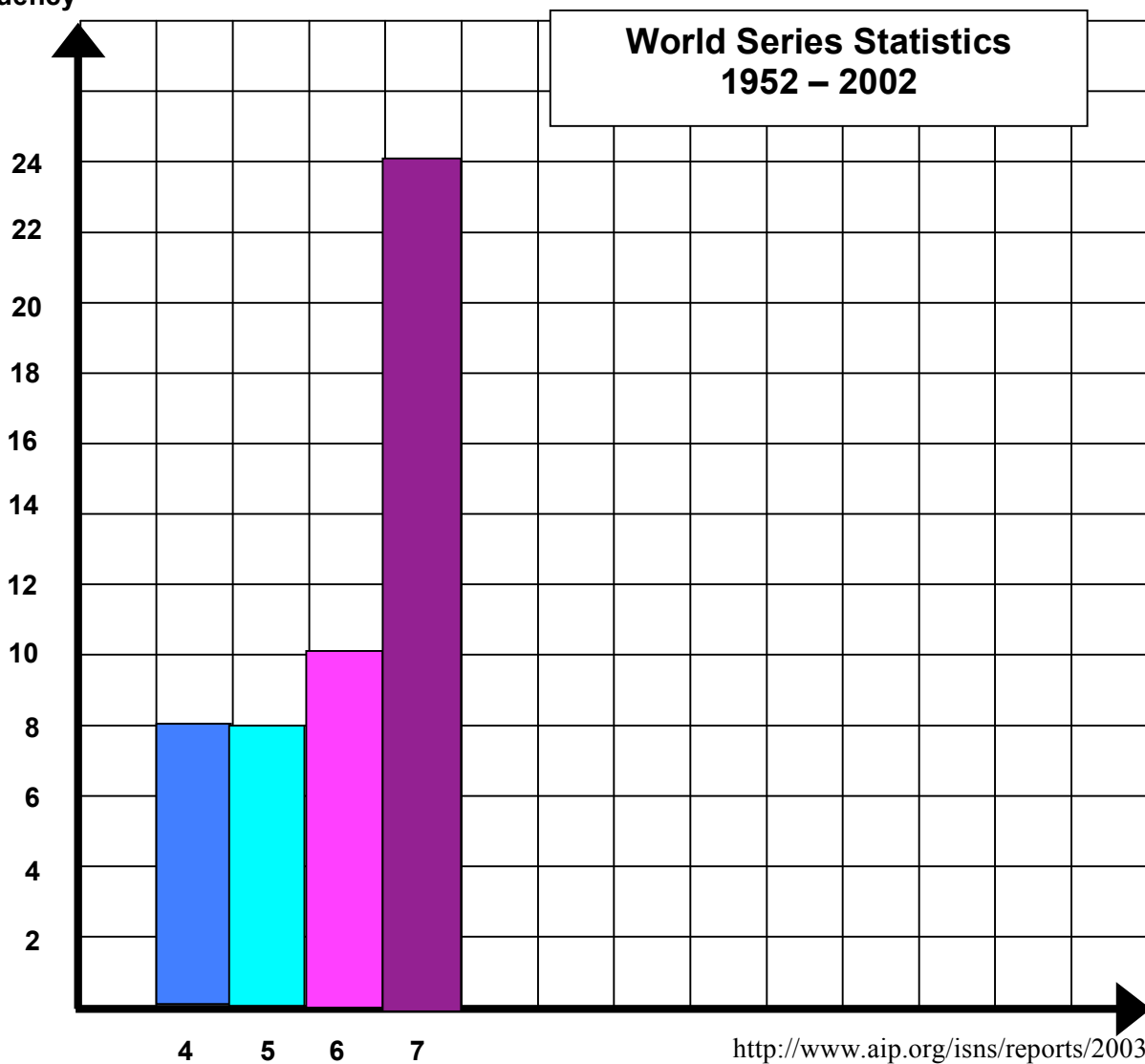
6.1.4: World Series

MEL4E

**World Series Statistics
1952 – 2002**

Number of Games in the World Series	Frequency
4	8
5	8
6	10
7	24

frequency



Number of Games

Unit 6 : Day 2 : Is it based on chance?		MEL4E
Minds On: 10	<p><u>Learning Goals</u></p> <ul style="list-style-type: none"> Summarize the activity in day one by defining and distinguishing between theoretical and experimental probability Place new terms on the word wall. Discuss the current concerns about issues based on chance (e.g. too many vendors winning the lottery and compare to discussion of World Series and using simulations) Explore other examples in the media. 	<p><u>Materials</u></p> <ul style="list-style-type: none"> BLM6.2.1 – BLM6.2.3 Highlighters calculators
Action: 50		
Consolidate:15		
Total=75 min		
Assessment Opportunities		
Minds On...	<p><u>Whole Class → Guided Discussion</u></p> <p>Use BLM 6.2.1 to establish theoretical probability as the number of favourable outcomes ÷ the number of possible outcomes.</p>	<p>Add the following to the Word Wall: Experimental Probability Theoretical Probability Outcomes/Events</p>
Action!	<p><u>Whole Class → Guided Discussion</u></p> <p>Connect the understanding developed on BLM 6.2.1 to the theoretical probability of the World Series on BLM 6.2.2. Compute the experimental probability for the World Series Statistics 1952 – 2002 and record them on BLM 6.2.2 Compare the theoretical probability of the World Series to the experimental probability.</p> <p><u>Individual → Reading</u></p> <p>Provide students with BLM 6.2.3 or another article from the media that discusses concerns with the games of chance. Students highlight in the reading key points that relate to probability.</p> <p>Mathematical Process Focus: Connecting students will connect real-world ideas to the mathematical probability being taught to them in the classroom.</p>	
Consolidate Debrief	<p><u>Whole Class → Debate</u></p> <p>Allow students an opportunity to debate their reading with the students in the class. Discuss factors that affect real life situations so that they don't appear fair.</p> <p>Learning Skills/Observation/mental note: Observe the students interactions during the debate ensure that the students stay on task and keep their discussion appropriate</p>	
<i>Exploration</i>	<p><u>Home Activity or Further Classroom Consolidation</u></p> <p>Find another example in the media (i.e. newspaper clipping or internet article) of events that seem fixed or unfair and bring this to class.</p>	

6.2.1: Theoretical Probability

MEL4E

Example 1: Draw a tree diagram showing the possible gender outcomes for a family with 3 children.

There are ___ possible outcomes which are:

Let's suppose we are interested in the following probabilities: none of the children are males; one of them is a male; two of them are males and all three of them are males. The chart below is a way to organize our work.

Number of Males in a Family of Three Children	Frequency	Probability
0		
1		
2		
3		

Example 2: Let's suppose we are only interested in the cases that two out of the three children are males.

What are all the possible outcomes?

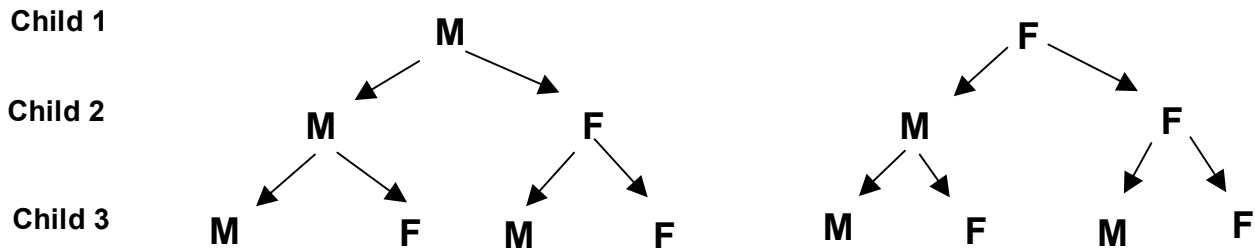
What is the probability that the first two children are males?

6.2.1: Theoretical Probability (Teacher Copy)

MEL4E

Example 1: Use a tree diagram to list all the possible outcomes for a family having three children.

Let M represent male, and F represent female.



There are **8** possible outcomes which are:
 MMM, MMF, MFM, MFF, FMM, FMF, FFM, FFF

Let's suppose we are interested in the following probabilities: none of the children are males; one of them is a male; two of them are males and all three of them are males. The chart below is a way to organize our work.

Number of Males in a Family of Three Children	Frequency	Probability
0	1	$\frac{1}{8} = 12.5\%$
1	3	$\frac{3}{8} = 37.5\%$
2	3	$\frac{3}{8} = 37.5\%$
3	1	$\frac{1}{8} = 12.5\%$

Example 2: Let's suppose we are only interested in the cases that two out of the three children are males.

What are all the possible outcomes? MMF, FMM

What is the probability that the first two children are males? $\frac{1}{2}$

6.2.2: World Series Theoretical Probability

MEL4E

The following are all the possible outcomes for the World Series:

W represents a win L represents a loss

W W W W	W L L W L W W
W W W L W	W L L L W W W
W W W L L W	L W W W W
W W W L L L W	L W W W L W
W W L W W	L W W W L L W
W W L W L W	L W W L W W
W W L W L L W	L W W L W L W
W W L L W W	L W W L L W W
W W L L W L W	L W L W W W
W W L L L W W	L W L W W L W
W L W W W	L W L W L W W
W L W W L W	L W L L W W W
W L W W L L W	L L W W W W
W L W L W W	L L W W L W W
W L W L L W W	L L W W W L W
W L W L W L W	L L W L W W W
W L L W W W	L L L W W W W
W L L W W L W	

Complete the following table regarding all the possible outcomes for the World Series outlined above.

Number of Games	Frequency	Probability
4		
5		
6		
7		

6.2.2: World Series (Teacher Copy)

MEL4E

Complete the following table regarding all the possible outcomes for the World Series outlined on the previous page.

Number of Games	Frequency	Probability
4	1	$\frac{1}{35} = 3\%$
5	4	$\frac{4}{35} = 11\%$
6	10	$\frac{10}{35} = 29\%$
7	20	$\frac{20}{35} = 57\%$

World Series Statistics 1952 – 2002

Number of Games in the World Series	Frequency	Probability
4	8	
5	8	
6	10	
7	24	

Lottery retailers enjoying luck of the draw: Fifth Estate probe

Dated: Tuesday, October 24, 2006 | 10:45 PM ET

[CBC News](#)

The CBC's *The Fifth Estate* has learned that in the past seven years Ontario clerks and retailers have claimed lottery victories nearly 200 times, a statistical anomaly according to one expert.

In a disputed ticket case involving a Coboconk, Ont., senior, the Ontario Lottery and Gaming Corporation (OLGC) said there were about 60,000 people selling lottery tickets in the province.



Luck of the Draw airs on *The Fifth Estate* on Wednesday at 9 p.m. ET on CBC-TV.

Through the Freedom of Information Act, the CBC has learned that retailers won close to 200 times, winning on average \$500,000.

Dr. Jeffrey Rosenthal, a statistician with the University of Toronto and author of *Struck by Lightning: The Curious World of Probabilities*, said statistically retailers should have been expected to win around 57 times.

"So we can say the chance, to be precise, is about one chance in a trillion, trillion, trillion, trillion, so it's just inconceivable they'd be winning that many more times than we'd expect them to," said Rosenthal.

Last week, the OLGC revised its total, claiming there are actually about 140,000 retailers and clerks in Ontario.

Rosenthal argued even with that total, the number of wins was "extremely unlikely."

"It seems like there's almost certainly over a hundred people out there who've actually won a major lottery prize but they didn't collect it."

OLG spokeswoman Teresa Roncon said the corporation has upped its security measures to prevent any possible fraud.

"I think we have an excellent system in place," said Roncon.

Bob Edmonds, 81, contested a ticket he purchased at a Coboconk store in August 2001. He was given a free ticket by the store owner, but said he heard the machine ring twice, indicating a payout.

His suspicions were raised after reading a newspaper report indicating the store owner had won.

The store owners later paid Edmonds \$150,000 as part of a settlement that did not admit any wrongdoing on their part.

Edmonds reached a confidential settlement with the OLGC in 2005, with the corporation spending \$425,000 in legal costs on the case.

Luck of the Draw airs Wednesday night on *The Fifth Estate* at 9 p.m. ET.

<http://www.cbc.ca/canada/story/2006/10/24/lottery-winners.html>

Unit 6 : Day 3 : Experimenting		MEL4E
Minds On: 5	Description/Learning Goals <ul style="list-style-type: none"> • Perform a series of probability experiments to collect data (e.g., partners in carousel featuring: spinners, aboriginal stick-and-stone, dice, coins, drawing cards, picking marbles, rock paper scissors, including using technology) • Compile class data to examine the effect of sample size and compare to the theoretical probability (could be supplied by teacher) of each experiment. 	Materials <ul style="list-style-type: none"> • BLM 6.3.1- BLM6.3.2 • Coins • Dice • Playing cards • Colour tiles • Large Coloured Spinner board
Action: 60		
Consolidate:10		
Total=75 min		
Assessment Opportunities		
Minds On...	Whole Class → Carousel Instructions Provide students a quick overview of the activities that they will be doing in the Carousel. Establish that each student will take on the role of recorder, counter and doer at least once when they rotate through the stations. Provide each group with a number so that they know what the order of their stations will be. Give one copy of BLM 6.3.1 to each group . Clarify any questions students have with the activity.	The following websites may be useful for additional stations: http://www.betweenwaters.com/probab/keys/keymainD.html http://mathcentral.uregina.ca/RR/database/RR.09.00/treptau1/game6.html Students share their work on Day 4.
Action!	Small Groups → Carousel Students rotate through the six stations collecting data for the probability experiments. One of the stations could be at an interactive white board using interactive dice etc.	
Consolidate Debrief	Small Groups → Practice Assign each group one of the stations to determine the experimental probability for all the possible outcomes for that experiment and give them a copy of the appropriate card to answer questions on (from BLM 6.3.2). Mathematical Process Focus: Reflecting – students will reflect on the relationship between the experimental and the given theoretical probability Expectations/task/anecdotal comments –Instruct each group to hand in their work when finished and assess the work submitted for correctness and good form/communication. Give the work back with feedback next day.	
<i>Application</i>	Home Activity or Further Classroom Consolidation Think of an experiment of your own. <ol style="list-style-type: none"> 1. Describe your experiment in one or two sentences 2. Conduct the experiment and record the results of ten trials. 3. Calculate the theoretical probability for your experiments. 4. Write a sentence or two discussing the experimental outcomes and decide whether the outcomes are close to the theoretical outcomes or not. 	

6.3.1: Carousel: Probability Experiments

MEL4E

PASSPORT

Group #: _____

Members: _____

Station	Order to Visit	Doer	Counter	Recorder
A: The Coin Toss				
B: Rolling a Die				
C: Drawing a Card				
D: Spinner				
E: Colour Tile				
F: Rock, Paper, Scissors				

Station A: The Coin Toss

**Toss a coin 10 times.
Record "H" for heads and "T" for tails.**

Group	Trial #										Total	
	1	2	3	4	5	6	7	8	9	10	# of Heads	# of Tails
1												
2												
3												
4												
5												
6												
7												
8												

6.3.1: Carousel: Probability Experiments (Cont)

MEL4E

Station B: Rolling a Die

Roll a single die 20 times.
Record your results on the tally chart.
State the frequency when you are done.





Group #		Number Rolled					
		1	2	3	4	5	6
1	Tally						
	Frequency						
2	Tally						
	Frequency						
3	Tally						
	Frequency						
4	Tally						
	Frequency						
5	Tally						
	Frequency						
6	Tally						
	Frequency						
7	Tally						
	Frequency						
8	Tally						
	Frequency						
Total	Frequency						

6.3.1: Carousel: Probability Experiments (Cont)

MEL4E

Station C: Drawing a Card

Draw a card from a well shuffled deck of 52 cards (no jokers).
Record its suit in the chart below:
Return the card to the deck and shuffle.
Repeat 10 times.

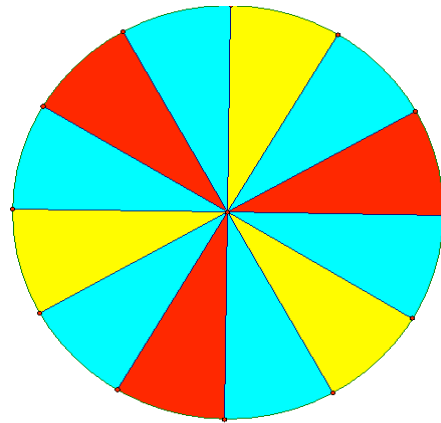
Group	Suit Drawn			
	Hearts 	Spades 	Clubs 	Diamonds 
1				
2				
3				
4				
5				
6				
7				
8				

6.3.1: Carousel: Probability Experiments (Cont)

MEL4E

Station D: Spinner

Place a paper clip with your pencil through it through the centre point.
Spin the clip and record which colour it lands on.
Repeat 20 times.



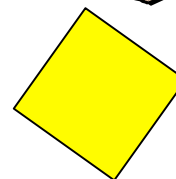
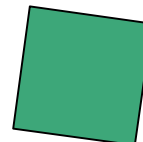
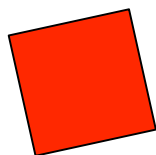
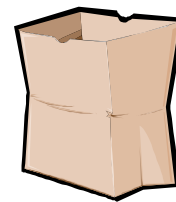
Group #		Colour Spinned		
		Red	Blue	Yellow
1	Tally			
	Frequency			
2	Tally			
	Frequency			
3	Tally			
	Frequency			
4	Tally			
	Frequency			
5	Tally			
	Frequency			
6	Tally			
	Frequency			
7	Tally			
	Frequency			
8	Tally			
	Frequency			
Total	Frequency			

6.3.1: Carousel: Probability Experiments (Cont)

MEL4E

Station E: Colour Tile

In a paper bag there are 2 red tiles, 3 blue tiles
6 green tiles, and 4 yellow tiles.
Randomly draw a tile from the bag and record its colour.
Return the tile back into the bag.
Repeat 20 times.



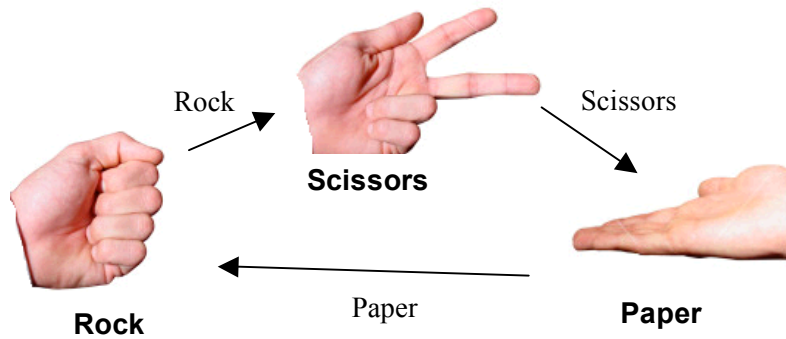
Group	Tile Drawn			
	Red	Blue	Green	Yellow
1				
2				
3				
4				
5				
6				
7				
8				

6.3.1: Carousel: Probability Experiments (Cont)

MEL4E

Station F: Rock, Paper, Scissors

Two group members are needed to play this game.
Randomly select rock, paper or scissors.
Play 20 times and record who wins each time or if it was a tie.
Winner indicated on arrow.



Group #	Winner		# Ties
	Member 1	Member 2	
1			
2			
3			
4			
5			
6			
7			
8			

Station A: The Coin Toss

Experimental probability for tossing a head is: _____.

Experimental probability for tossing a tail is _____.

The theoretical probability of tossing a head is $\frac{1}{2} = 0.5 = 50\%$.

How close was the experimental probability?

Would more trials change the result? Explain.

Station B: Rolling a Die

Experimental probability for rolling a 1 is: _____.

Experimental probability for rolling a 2 is _____.

Experimental probability for rolling a 3 is _____.

Experimental probability for rolling a 4 is _____.

Experimental probability for rolling a 5 is _____.

Experimental probability for rolling a 6 is _____.

The theoretical probability of rolling any number is $\frac{1}{6} = 0.17 = 17\%$.

How close was the experimental probability?

Would more trials change the result? Explain

Station C: Drawing a Card

Experimental probability for drawing a heart is _____.

Experimental probability for drawing a spade is _____.

Experimental probability for drawing a club is _____.

Experimental probability for drawing a diamond is _____.

The theoretical probability for drawing any suit is $\frac{1}{4} = 0.25 = 25\%$

How close was the experimental probability?

Would more trials change the result? Explain.

Station D: Spinner

Experimental probability for the spinner landing on red is _____.

Experimental probability for the spinner landing on blue is _____.

Experimental probability for the spinner landing on yellow is _____.

The theoretical probability for spinning a red is $\frac{3}{12} = \frac{1}{4} = 0.25 = 25\%$.

The theoretical probability for spinning a blue is $\frac{6}{12} = \frac{1}{2} = 0.5 = 50\%$

The theoretical probability for spinning a yellow is $\frac{3}{12} = \frac{1}{4} = 0.25 = 25\%$.

How close was the experimental probability?

Would more trials change the result? Explain.

Station E: Colour Tiles

Experimental probability for selecting a red tile is _____

Experimental probability for selecting a blue tile is _____

Experimental probability for selecting a green tile is _____

Experimental probability for selecting a yellow tile is _____

The theoretical probability for selecting a red tile is $\frac{2}{15} = 0.13 = 13\%$.

The theoretical probability for selecting a blue tile is $\frac{3}{15} = 0.2 = 20\%$.

The theoretical probability for selecting a green tile is $\frac{6}{15} = 0.4 = 40\%$

The theoretical probability for selecting a yellow tile is $\frac{4}{15} = 0.26 = 26\%$

How close was the experimental probability?

Would more trials change the result? Explain.

Station F: Rock, Paper, Scissors

Experimental probability for Member 1 to win is _____

Experimental probability for Member 2 to win is _____

Experimental probability for the outcome to be a tie is _____

The theoretical probability for member 1 to win is $\frac{1}{3} = 0.33 = 33.3\%$.

The theoretical probability for member 2 to win is $\frac{1}{3} = 0.33 = 33.3\%$.

The theoretical probability for a tie to occur is $\frac{1}{3} = 0.33 = 33.3\%$.

How close was the experimental probability?

Would more trials change the result? Explain.

Unit 6 : Day 4 : We're getting closer.		MEL4E
Minds On: 15	Math Learning Goals • Explore the tendency of the experimental probability to approach the theoretical probability as the number of trials increases using technology-based simulations (e.g. graphing calculators, spreadsheets, computer simulations)	Materials • Graphing calculators • BLM 6.4.1 • BLM6.4.2 • Graph paper
Action: 40		
Consolidate:20		
Total=75 min		
Assessment Opportunities		
Minds On...	Small Groups → Sharing Each group shares their results from the experiment they were assigned last day. Post results for students to use for simulation activity Whole Class → Discussion Discuss any similarities and any differences between the types of experiments. Station D and E have different probabilities due to a different number of objects or a different size of the region for the experiment. Also, make note of students' response to their opinion on the impact of the experimental probability if more trials were used.	Explore the various settings to adjust the objects in the simulation.
Action!	Whole Class → Demonstration Model how to use the probability simulator on the graphing calculator. See BLM6.4.1. Provide students with a copy of BLM 6.4.1 and a graphic calculator. Explore the affect of many trials for the coin toss: Station A. Individual → Investigation Handout BLM 6.4.2. Students should use the probability simulator on the graphing calculator to explore the effect of the experimental probability with at least 200 trials for two different stations from Day 3. Mathematical Process Focus: Selecting Tools and Computational Strategies – students will learn about how to use a new computational tool for creating simulations. Learning Skills/Observation/Mental Note – circulate to assist students and ensure they stay on task during the investigation.	
Consolidate Debrief	Whole Class → Discussion Discuss the results of the simulations for the various experiments. Did the experimental probability get closer to the theoretical probability? Discuss reasons for any unusual results.	
<i>Reflection</i>	Home Activity or Further Classroom Consolidation Write a journal entry about how people might use probability to predict outcomes in life. In two or three sentences give an example of how you could use probability to predict the outcome of one event in your life.	

6.4.1: We're getting closer.

MEL4E

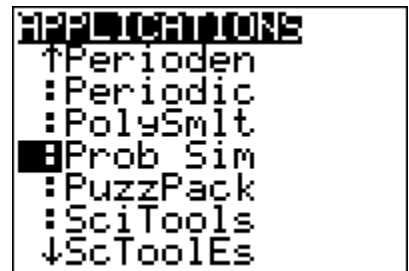
Using the Probability Simulator on the TI83/84

Press the **APPS** key

To find **Prob Sim** press **ALPHA** then the number **8** key (to find P)

You will see the following screen. You may have some different options.

Scroll down then press **ENTER** to select **Prob Sim**.

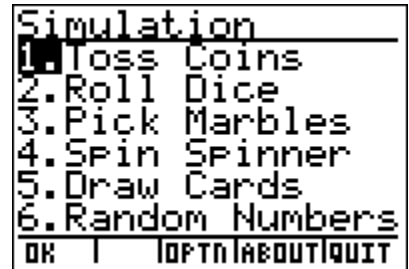


In the Simulation Menu,

You will see the following screen.

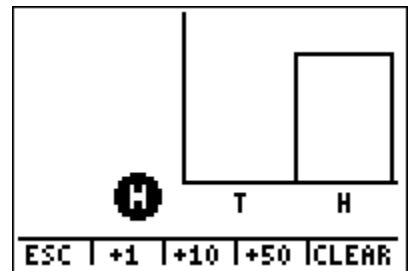
Press **ENTER** to select the type of simulation you want.

Let's choose: **1. Toss Coins**.



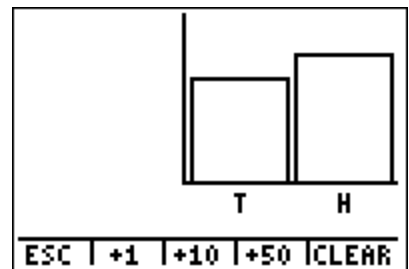
After the Screen appears you will Toss a coin by selecting the key located directly below **TOSS**.

When the Toss is complete you will see the following screen if your toss was a head.



To roll ten more times, select the key directly below **+10**.

The following screen will appear and you can compare the results.

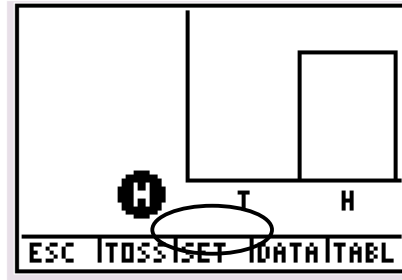


6.4.1: We're getting closer.(continued)

MEL4E

Using the Probability Simulator on the TI83/84

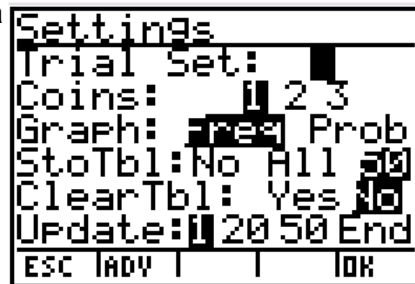
To make adjustments to the Coin Toss, select the key directly below **SET**.



Trial Set: Input a different number so that your simulation will be different from others in the class.

Coins: You can pick up to three coins to be tossed.

Graph: The graph can be displayed with the frequency or probability on the vertical axis.



NOTE You can perform other simulations in the same fashion as the one above.

6.4.2: Probability Simulator

MEL4E

Instructions: Select to two stations to investigate the effect of the number of trials on the experimental probability through the use of the TI83/84 probability simulator.

Choice 1: Station _____ Experiment: _____

- a) State the theoretical and the experimental probabilities for the various outcomes of the experiment on the table. Extend table if needed.
- b) Perform at least 200 trials for your experiment and record results on the table.

Outcome	Theoretical Probability	Experimental Probability	Probability from Simulation

Reflection: How does the experimental probability simulator fair from the class experimental probability and the theoretical probability for this experiment?

Unit 6: Day 5: We need to make informed decisions.		MEL4E
Minds On: 15	<p>Learning Goals:</p> <ul style="list-style-type: none"> Brainstorm choices we make that involve chance (weather, smoking, riding with an impaired driver, lotteries and gambling) Discuss uncertainty with respect to the difference of experimental and theoretical probability. Apply probability to large numbers (e.g. hospital lotteries) Reflect on subjective interpretation of statistics (e.g. 1 in 5 chance of winning a lottery compared to 1 in 5 chance of getting cancer) Apply proportional reasoning using statistics and identify benefits and consequences to decision making 	<p>Materials</p> <ul style="list-style-type: none"> BLM 6.5.1- BLM 6.5.3. Highlighters Chart paper markers
Action: 40		
Consolidate:20		
Total=75 min		
Assessment Opportunities		
Minds On...	<p>Whole Class → Brainstorm</p> <p>Brainstorm choices that we make that involve chance. Ask students to categorize the choices as high, medium, or low risk. Identify what the effect of each choice would be. Students should use BLM6.5.1 to organize to summarize their final results.</p> <p>Example: Buying a lottery ticket for \$1, once every week versus buying a lottery ticket for \$100 every week. First choice may be considered as a low risk due to the cost versus the possible outcome of winning. Second case is a higher risk for those who cannot afford to spend \$100 a week on lottery tickets, if it affects putting food on the table for their children.</p>	Emphasis the proportional relationship between discretionary and non-discretionary items in their budget.
Action!	<p>Small Groups → Debate</p> <p>Students analyse three case studies from BLM 6.5.2 and debate about which choice they would take between the two provided. Students indicate as well what the probability is for each of the two options and what the probability means.</p> <p>Possible probing questions: What probabilities do you need to know to help you make a decision? If they are not all in the case study, where do you think you could find them?</p> <p>Whole Class → Discussion</p> <p>Each group shares their selected choice for each case study providing rationale.</p> <p>Mathematical Process Focus: Reasoning and Proving – students will use reasoning to debate their point of view.</p> <p>Team work/Observation/Rubric: Use the learning skills rubric to assess students teamwork during the debating sessions</p>	
Consolidate Debrief	<p>Small Group → Reflection</p> <p>Provide students with the additional piece of information for each case study. See BLM6.5.3. Students reflect on their response and adjust if applicable.</p>	
<i>Application</i>	<p>Home Activity or Further Classroom Consolidation</p> <p>Students identify two choices that they need to make in their everyday life that is linked to probability. Explain why and how.</p>	

BLM6.5.1: Choices

MEL4E

Type of Choice	Low Risk	Medium Risk	High Risk
Purchasing a Lottery Ticket	\$1/week/month/year No real impact on budget	\$10 a week Adjust some budget item	\$100 a week May impact providing food for family

Case 1: You and your friend would like to go to the movies on Friday night. You can't make up your mind between two movies so you decide to check out the movie reviews. One of the movies has scored 10/10 and the other has scored 8/10. Which one will you go see?

Probability for option 1 is: _____

which means _____

Probability for option 2 is: _____

which means _____

My choice is option ____ because _____

Case 2: Sierra and her mother are going to go to the city for a concert. They would like to stay in the city overnight after the concert because it will be late. Sierra's mother checked the internet for the ratings on two different hotels that were near the concert. One hotel had a rating of 3.5/5 and the other had a rating of 4/5. Which hotel should they stay at?

Probability for option 1 is: _____

which means _____

Probability for option 2 is: _____

which means _____

My choice is option ____ because _____

Case 3: Nicky and Miles are on their way to visit their grandmother, and have decided to stop for dinner on the way. Since they do not know the location very well they decided to take a survey between two restaurants that are beside each other. After thirty minutes, Green Leaf had 55 people enter the restaurant, and Fine Tai Cuisine had 45 people enter the restaurant. Which restaurant should Nicolette and Miles eat at?

Probability for option 1 is: _____

which means _____

Probability for option 2 is: _____

which means _____

My choice is option ____ because _____

BLM6.5.3: Additional Information for Case Studies **MEL4E**

Additional Information for Case 1: Only two people voted for the movie that got 10/10 and 24 people voted for the movie that scored 8/10.

(circle response)

Based on the additional information, my decision has/hasn't changed, because...

Additional information for Case 2: The hotel with a rating of 3.5/5 cost is \$150/night and the other hotel that had a rating of 4/5, cost \$250/night.


(circle response)

Based on the additional information, my decision has/hasn't changed, because...

Additional information for Case 3: In the thirty minutes, no one left Green Leaf and 10 people left Fine Tai Cuisine.

(circle response)

Based on the additional information, my decision has/hasn't changed, because...

Unit 6 : Day 6 : We need to make informed decisions.		MEL4E
Minds On: 5	Learning Goals: <ul style="list-style-type: none"> • Apply probability to large numbers (e.g. hospital lotteries) • Interpret the information of statistics used in the media to make decisions • Reflect on subjective interpretation of statistics (e.g. 1 in 5 chance of winning a lottery compared to 1 in 5 chance of getting cancer) • Apply proportional reasoning using statistics and identify benefits and consequences to decision making 	Materials <ul style="list-style-type: none"> • BLM 6.6.1 • BLM6.6.2 • Highlighters
Action: 40		
Consolidate:30		
Total=75 min		
Assessment Opportunities		
Minds On...	Whole Class→Discussion Pose the following to the students, "Would you rather have a 1 in 5 chance to win a lottery were the maximum prize is \$1000 or have a 1 in 10 chance to win a lottery were the maximum prize is \$10 000?" And discuss as a class. Encourage students to use proportional reasoning in the discussion. Expectations/Observation/Anecdotal comments – Listen as the students discuss the above question and make anecdotal comments to clarify misunderstanding or encourage understandings.	
Action!	Small Groups→ Research and Analysis Provide each group with a different article that deals with statistics. See sample articles, BLM6.6.1. Students answer questions on BLM6.6.2 to reflect on their reading and make some decisions based on the statistics they found in the article. Mathematical Process Focus: Reflecting – students will reflect on the readings when writing responses on BLM 6.6.2.	
Consolidate Debrief	Small Groups→ Sharing Each group shares a summary of the article and some of their thoughts on the article and what impact the statistics could have.	
<i>Exploration</i>	Home Activity or Further Classroom Consolidation Research in your local newspaper to find an article that is important to you and has some statistical information. Insert or copy the article into your journal and reflect on why you think this information is important.	

Article 1

More Canadians find a shopping getaway to Buffalo is worth the time, gasoline and even a hotel room

Aug 07, 2007 04:30 AM

FRANCINE KOPUN
FEATURE WRITER

BUFFALO, N.Y.—Browsing the bulging discount racks at Macy's at Walden Galleria mall in Buffalo, Elizabeth Katsavos had two words to explain the reason for her weekend shopping visit across the Canadian border, the first time she's ever done it.

"The dollar. That's pretty much it. And we have a long weekend available," said Katsavos, 36, a medical lab technologist from King City. She and five friends rented hotel rooms for one night in Buffalo to take advantage of the long weekend, summer sales and strong Canadian dollar.

After dropping like a stone following the terrorist attacks of 9/11, cross-border car trips to the U.S. are up, thanks in part to the lofty loonie. The dollar closed Friday at 94.83 cents. Six years ago it stood at 62.76 cents, making cross-border shopping and travel unappealing to the budget-minded.

Thousands of Canadians jammed border crossings and flooded into U.S. border malls on the weekend, snapping up housewares and summer clothes at 70 per cent off and back-to-school merchandise they can't find in Canada. Traffic into the U.S. at border crossings was heavy, with two-hour waits at Lewiston, N.Y., on Sunday afternoon. By nightfall, travellers headed over the Peace Bridge into the U.S. were stuck in a traffic jam more than a kilometre long.

The parking lots at Walden Galleria in Buffalo and Fashion Outlets of Niagara Falls, U.S.A., were crammed with vehicles bearing Ontario plates. Inside, GTA shoppers congratulated themselves on their finds.

"I know it's not good for Canada, but it's good for shopping," said Bryan Hammond, of Ajax, shopping at Walden with his wife and two sons, Ryan, 24, and Rob, 20. Bryan was happy to have found an elusive pair of navy snakeskin shoes.

The lead singer and bassist in a band called Addison Drive, Ryan and Rob like the fact they can buy clothes in Buffalo that look distinctive in Toronto.

"It's better, when you're on stage you don't want to look like everyone else in the crowd," said Ryan.

Jay and Tanya Onishenko, of Woodstock, celebrated their 10th wedding anniversary with a shopping trip to Buffalo on the weekend. They rented a hotel room across from the Walden Galleria and on Sunday drove half an hour to the Fashion Outlets of Niagara Falls to hunt for bargains. Tanya's mission: back-to-school clothes for their children, ages 8 and 4. Jay's mission: "To keep my wife happy." But he seemed pleased to have scooped up seven men's shirts on sale.

"There's definitely some good deals here. It's hard to stay within your (exemption) limit going across the border," said Jay, 33.

Dianne Giliforte, tourism director for Fashion Outlets of Niagara Falls, said business at the mall this weekend exceeded all expectations. It was even up over the same weekend last year. "In a word, extraordinary," said Giliforte.

Retailers report that, in the past couple of months, 60 to 70 per cent of their business has been from Canadian shoppers, she said.

The resurgence of interest in cross-border shopping convinced the mall operators, who took over in November 2005 and renovated and added stores, to launch a shuttle service to bring visitors at hotels in Canada across the border to shop.

6.6.1: Sample Articles (continued)

Article 1 (cont)

MEL4E

At the height of business on Sunday, patrons at Fashion Outlets of Niagara Falls were lined up at every outlet in the food court, in front of store changing rooms and at cash registers at stores like Coach, GAP and Geoffrey Beene. They lined up 20-deep to buy housewares at a closing sale at Pfaltzgraff. By 2 p.m. on Sunday, one of the few things left to buy there was an iron tea-light holder in the shape of a miniature rooster, at 70 per cent off \$19.99.

GAP jeans were 30 per cent off \$40; at Saks Fifth Avenue's Off 5th, M. Kors leather jackets for women were reduced to \$200 from \$350; Calvin Klein men's coats were half price. Geoffrey Beene was selling T-shirts for \$6.99.

Paterno Macandog of Scarborough, who visits Our Lady of Fatima Shrine in Lewiston with his family twice a year and stops at the Fashion Outlets of Niagara Falls as part of the trip, came equipped this weekend with a walkie-talkie to keep in touch with his wife and two children as they shopped. "I have a cellphone, but this is cheaper," he said of the walkie-talkie, which has a three-kilometre range.

Many shoppers said more stores and better selection draw them to the U.S. to shop. Buffalo tourism officials are heartened by the trend, but would like to find a way to bring more of those shoppers into the downtown area.

"Without a doubt there has been a surge over the past year," said Ed Healy, director of communications for the Buffalo Niagara Convention and Visitors Bureau.

"The sense we've gotten is people know their route to the Walden Galleria, they do their shopping there and they get back in the car and they head back home. The impact could be that much greater if we could let these shoppers know that there's a world-class art gallery in Buffalo, there's some great architecture, beautiful neighbourhoods."

Those things may be true. But getting 16 water glasses for \$10 at the Pfaltzgraff closing sale is reason enough for Angela Escobar, 44, of Oakville, to keep coming back.

"You get better prices here. I never get the quality of clothes you get here. Even if you have to pay taxes (at the border), it's cheaper," she said, referring to the sometimes dreaded declaration at the border. If a shopper spends more than the exempted \$50 Cdn. for a 24-hour stay or \$400 for a 48-hour stay, PST, GST and duty taxes may apply.

<http://www.thestar.com/News/Canada/article/243796>

6.6.1: Sample Articles (continued)

MEL4E

Article 2

Vitamin B reduces birth defects but may increase rate of colon cancer

Aug 07, 2007 04:30 AM

DENISE GELLENE

LOS ANGELES TIMES

Adding folic acid to flours, pastas and rice has reduced the rate of spina bifida and anencephaly, sparing 1,000 U.S. babies each year from these devastating birth defects.

But a new study suggests those health gains may have come at a cost: an extra 15,000 cases of colon cancer annually.

The report, from Tufts University, is the latest caution about a public-health policy that has been largely viewed as a success.

"Have we done more harm than benefit?" says Dr. John Potter, a colon cancer expert at the Fred Hutchinson Cancer Center in Seattle, who was not connected to the latest research.

Writing last month in the journal *Cancer Epidemiology Biomarkers and Prevention*, scientists reported that colon cancer cases in the U.S. spiked after manufacturers began fortifying cereal grains with folic acid in the late 1990s.

They saw a similar trend in Canada, which began fortification with the B vitamin around the same time.

The pattern was surprising, researchers said, because colon cancer rates had been steadily dropping since the mid-1980s. Greater consumption of folic acid looked like the explanation.

Joel Mason, lead author and professor of nutrition science and policy at Tufts, said the report does not prove that extra dietary folic acid causes colon cancer but does suggest fortification may have unforeseen trade-offs.

One-third to one-half of adults older than 50 have precancerous cells in their intestines, Mason said, so too much folic acid could put them at even greater risk. About 130,000 Americans are diagnosed with colon cancer each year; 56,000 of die from it.

Nutritionists have long known that younger women need 400 micrograms of folic acid daily to reduce their chances of giving birth to infants with neural tube defects, caused by the failure of the fetal spinal column to fully close.

Spina bifida can cause paralysis, and infants with anencephaly – in which much of the brain

does not develop – are stillborn or die soon after birth.

Since 1998, U.S. food manufacturers have been required to add 140 micrograms of folic acid to each 100 grams of cereal grains that are labeled "enriched." Breads, cereals and other grain-based foods shipped across state lines are all fortified with folic acid, a B vitamin naturally found in green leafy vegetables, fruits, dried beans and nuts.

In only a few years, the rate of neural tube defects in the U.S. fell, from 10.6 per 10,000 births in 1996, before fortification, to 7.6 per 10,000 births in 2000.

Canada also saw a sharp decline: to 8.6 per 10,000 births in 2002 from 15.8 per 10,000 births in 1993, according to a report last month. Those results deepened the desires of some scientists and health advocates for even greater improvements.

The nonprofit March of Dimes will ask the U.S. Food and Drug Administration to further boost folic acid levels in cereal grains.

The March of Dimes said U.S. government surveys show that many women 18 to 45 do not receive adequate amounts of folic acid in their diets. In fact, the majority of those women consume about 130 micrograms of folic acid daily, well below the recommended dose, according to R.J. Berry, an epidemiologist at the U.S. Centers for Disease Control and Prevention.

But some researchers have cautioned against increased fortification because of possible downsides. Folic acid can mask symptoms of vitamin B-12 deficiency, common in the elderly. Unaddressed, a B-12 lack can lead to neurological problems.

Some researchers now caution against adding more folic acid to the diet until the possible cancer link is better understood.

"This is not the right time to be moving ahead and increasing the level of folic acid in the food supply," Mason said.

<http://www.thestar.com/living/article/243624>

Article 3

Stalking the GTA's greenest T-shirt



GRASS T-SHIRT CREATED BY BARTOSZ GAWDZIK FOR THE TORONTO STAR. PHOTO BY RICK EGLINTON. DESIGN BY SHARIS SHAHMIRYAN/TORONTO STAR

Jul 12, 2007 04:30 AM

ERIN KOBAYASHI
LIVING REPORTER

It is one of the most iconic and ubiquitous garments of the 20th century.

Made eternal by Marlon Brando and James Dean, it has survived corporate branding, wet T-shirt contests, tourist destinations and political slogans.

Somehow, though, we always manage to return to the clean, blank statement of a white cotton T-shirt.

Yet the classic white cotton tee is not as clean as it looks: conventional cotton accounts for about 25 per cent of the global insecticides market by value and about 10 per cent of the pesticides market. Their use has contaminated water, poisoned farm workers, killed birds, fish and even farmers who use chemicals in order to get farm subsidies.

"Some (farmers) go ahead and use the pesticides, then commit suicide with them because of the debt forced upon them," says Stephenie Hendricks, spokesperson for Pesticide Action Network North America. The cotton T-shirt is not even as all-American as it pretends to be, with areas of production typically done in developing countries.

Inspired by the classic cotton staple, U.K. think-tank company Better Thinking Ltd. began a consumer and manufacturing project in 2005 called The Perfect T-Shirt, which aspires to produce a socially positive and environmentally responsible shirt.

The Perfect T-Shirt would be locally and naturally made under the fairest and safest working conditions in factories that are solar-powered. It would be transported without using fossil fuel and can endure wear and spillage. Eventually, the T-shirt will decompose and completely disappear, returning to the earth it came from. Better Thinking hopes to manufacture a T-shirt that follows these guidelines as closely as possible by 2008.

With a mission to track down the greenest T-shirt in the GTA, we consulted American Apparel, the Gap and Canadian-owned and operated Cotton Ginny, Joe Fresh, New Organic and The Organic Cotton Company on how each company makes a simple crew neck cotton T-shirt. Almost all the companies outsourced at least one part of their production overseas – except for The Organic Clothing Company, which left the smallest carbon footprint behind. Here's how they made the closest thing to a perfect T-shirt for local shoppers:

6.6.1: Sample Articles (continued)

MEL4E

Article 3 continued

The Organic Cotton Company was the only company we could find that grew, spun and sewed their organic cotton T-shirts within the boundaries of North America. Since cotton cannot grow in Canada, the closest local source for Canadian companies is the southern U.S. states that have a warm enough climate to produce the fibre. The fact that the cotton was organic raised its sustainable value.

"Absolutely none of it is made overseas," says Jon Cloud, founder of The Organic Cotton Company. "It ain't cheap. It's more expensive. I hate to say it but it's true."

At a retail price of roughly \$25.99 depending on the store, his company's men's crew neck natural colour T-shirt ranks as one of the more expensive out of the six companies. Joe Fresh offers the cheapest white conventional cotton T-shirt at \$7.

Cloud uses 100 per cent certified organic pima cotton, an extra-long staple fibre that originates from an Egyptian cotton and U.S. seed breeding program developed 40 years ago. The certified organic farms he purchases the fibre from are in Texas and New Mexico.

After the cotton is harvested, The Organic Cotton Company trucks roughly 70 per cent of the raw cotton to Georgia and North Carolina to be spun while the remaining 30 per cent is spun in Montreal. At these plants, the raw cotton is cleaned, aligned and spun.

(Incidentally, the "greenest" white T-shirt can't actually be white. Although vegetable and clay dyes exist, the purest cotton colour remains an unbleached, natural off-white shade.)

All the material then ends up in Montreal, where it is made into fabric and inspected for defects. It's then sent by truck to Toronto to be cut and sewn into T-shirts.

In the Toronto factory, the shirts are packaged with recycled cardboard, recycled paper and are folded in resealable plastic bags that Cloud hopes will be reused. From the Toronto inventory station, the company sends T-shirts to retail locations via Canada Post.

Pietra Rivoli, author of *The Travels of a T-Shirt in the Global Economy*, is impressed with The Organic Cotton Company's manufacturing process, because most T-shirt companies produce at least part of their garments in developing countries.

"It's not unheard of," Rivoli says of the entire production process being done in North America. "But the typical T-shirt has cotton yarn and often fabric that is manufactured in the United States and then the fabric is sent to Central America and the cutting and sewing is done there. The biggest suppliers of T-shirts to the United States are Central American countries, particularly Honduras."

"It took a good year to make the T-shirt a reality," says Cloud of his local and organic tee. "I don't know if they are the best T-shirts. I haven't seen every T-shirt in the world but I know that it is manufactured using the highest-quality cotton in the world."

He adds, "I think I am most proud of my customers, though. It sends shivers over me to know people will use their money to bring a substantial amount of change to the environment."

T-shirts by The Organic Cotton Company are available at: comondi.com; I'm For Real, 216 Queen St. S., Unit 2, Streetsville; and Nature's Emporium, 16655 Yonge St., Weston Produce Plaza, Newmarket.

<http://www.thestar.com/living/Fashion/article/234825>

Article 4

Manitoba man dies of West Nile

Province orders more spraying

DAWN WALTON - From Tuesday's Globe and Mail

August 7, 2007 at 4:26 AM EDT

CALGARY — After an elderly Manitoba man became the first Canadian to die from the West Nile virus this year, the province beefed up measures over the holiday weekend to combat disease-carrying mosquitoes and ordered chemical spraying for additional communities.

The man in his 80s, who lived in the Assiniboine Health Region in the southwest corner of the province, contracted West Nile virus neurological syndrome, the most severe type of the virus.

Spraying, a controversial issue in Manitoba, especially in Winnipeg where \$1.4-million is spent each year on chemical control of the bug, has now been ordered for the regions of Carberry and Sioux Valley First Nation. Similar orders were previously issued for the communities of Boissevain, Brandon, Carman, Deloraine, West St. Paul, Winkler and Winnipeg.

Manitoba has become the country's hotbed for infection this summer.

Forty-two people have tested positive for the virus. In previous years, the number of cases has ranged from one to 35 a summer. The spike this year has been linked to hot, wet weather on the prairies that has created ideal breeding conditions for mosquitoes.

In Saskatchewan, 17 people are either under investigation or have tested positive for the virus and the province is only now entering its highest risk period for the disease to spread. One of those patients, who lives in the Saskatoon Health Region, has the severe neurological form of the disease.

"We have had a very warm summer, which provides optimal conditions for the *Culex tarsalis* mosquitoes, the species that carries the West Nile virus," Saskatchewan's Chief Medical Health Officer, Dr. Ross Findlater, said in a statement.

Alberta reported its first human case of the virus last month. British Columbia has also counted one case, but that patient likely contracted it while travelling outside the province, according to the Public Health Agency of Canada.

One in five people who are bitten by an infected mosquito will develop mild symptoms that can include headaches and a fever or a rash, according to experts. But the virus can make some people seriously ill, causing encephalitis, paralysis, coma or death. The virus is particularly dangerous for the young, elderly and those with weakened immune systems.

West Nile virus first appeared in North America in 1999 in New York and moved into Canada in 2001. The virus, usually transmitted to people from mosquitoes that feed on infected birds, was first detected in Southern Ontario in dead birds and mosquito pools. According to the U.S. Centers for Disease Control and Prevention, as of July 31, there have been 185 human cases of the virus in 22 states and five people have died.

Since spread of the virus is contingent on climate, mosquito populations and different susceptibility levels of people, scientists have trouble predicting when or where the virus will show up.

In California, Governor Arnold Schwarzenegger declared a state of emergency last week in three counties and earmarked up to \$1.35-million (U.S.) to curb spread of the disease through programs such as spraying.

<http://www.theglobeandmail.com/servlet/story/RTGAM.20070807.wnile07/BNSStory/National/home>

Article 5**What's happening to Canada's belugas?**

INGRID PERITZ - From Tuesday's Globe and Mail - August 7, 2007 at 3:53 AM EDT

MONTREAL — The threatened belugas of the St. Lawrence have failed to grow in number despite decades of protection efforts, fuelling worry among scientists who fear for the animals' survival.

The pearly white whales, known as the canaries of the sea for their whistled song, were the object of international alarm in the 1980s when they were brought to the edge of extinction.

According to new estimates, the beluga population at the time had dipped to 1,100 - the same number that survives today.

"The beluga population isn't growing, and it's cause for concern. We don't like to see a species disappear," said biologist Véronique Lesage, a beluga specialist at the Department of Fisheries and Oceans.

"If a population is stable at six million, it isn't serious," Dr. Lesage said in an interview yesterday. "But when it's stable at 1,000 and it's been that way for 20 years and it's confined to the St. Lawrence estuary, then the population is vulnerable to all sorts of catastrophes."

Scientists say the reason for the whale population's stagnation remains a mystery, but pollution and human harassment remain leading possibilities.

A study led by Quebec researcher Michel Lebeuf, published in the September issue of the journal *Science of the Total Environment*, found that contaminants such as DDT and PCBs had decreased slightly in the St. Lawrence belugas after years of pollution controls.

But Dr. Lebeuf, an environmental chemist at the federal Fisheries Department, has also discovered non-controlled chemicals such as polybrominated diphenyl ethers, widely used as flame retardants, in St. Lawrence belugas. Their toxic presence in the animals has grown substantially.

"I believe the contamination of belugas is probably more significant today than it was in the past," said Dr. Lebeuf, who works along with Dr. Lesage at the Maurice Lamontagne Institute. "It certainly hasn't improved."

Experts say they continue making startling discoveries about the beguiling mammals. New analysis this year indicates belugas live twice as long - up to 80 years or more - as had previously been believed. Their longevity may explain why long-standing pollutants still remain in their bodies.

And it means a relatively young beluga may be afflicted by pollutants in its body because it was weaned by its contaminated mother, "who is older than we thought," Dr. Lebeuf said.

When protective measures were launched in the 1980s, scientists optimistically expected the beluga population to grow at a rate of 3 per cent a year. "We expected the population to regenerate and grow substantially," Dr. Lebeuf said. "Yet the population today isn't showing signs of growth. That worries us."

Human harassment of belugas, which have been the object of fascination since P. T. Barnum captured them for display in 1861, remains a problem. In an attempt to curtail the effects of tourism on the whales, federal regulations in 2002 forbade viewing belugas at closer than 400 metres.

However, individual boaters at the popular Saguenay St. Lawrence Marine Park routinely breach the rule, said Jean Desaulniers, the park's manager of research conservation. He said he's seen pleasure crafters plow directly into groups of belugas.

"Some people either don't want to know the rules or couldn't care less, or say to themselves, 'I just want to see the belugas,'" Mr. Desaulniers said. "It happens regularly."

On July 21 this year, a sailboat approached to within 200 metres of a beluga, and kept circling near the whale to stay close by. "A lot of people don't respect the distances," he said.

Exacerbating the problem is a dispute this year over arming federal park wardens, which has left no one on site to enforce regulations. Even last year, when the wardens were applying the law, only seven violations were issued to scofflaw boaters, Mr. Desaulniers said.

He said the department still favours education.

"There are people who don't have the kind of environmental consciousness we'd like," Mr. Desaulniers said.

Year after year, an average of 15 beluga carcasses wash up on the shores of the St. Lawrence, where some are recovered and taken to laboratories for analysis to determine the cause of death.

Canada shifted the beluga's status from "endangered" to the less serious "threatened" in 2004.

<http://www.theglobeandmail.com/servlet/story/RTGAM.20070807.wbelugas07/BNStory/Science/home>

Article 6

Coffee may slow memory declines in women: study

By Ishani Ganguli Mon Aug 6, 4:56 PM ET

WASHINGTON (Reuters) - Drinking more than three cups of coffee a day helped protect older women against some age-related memory decline, French researchers said on Monday, giving women more reason to love the world's most popular stimulant.

Men did not enjoy the same benefit, they said.

"The more coffee one drank, the better the effects seemed to be on (women's) memory functioning in particular," said Karen Ritchie at the French National Institute of Medical Research, whose work appears in the journal *Neurology*.

The researchers followed more than 7,000 men and women in three French cities, checking their health and mental function and asking them about their current and past eating and drinking habits, their friends, and their daily activities.

They used this information to sort out the specific role caffeine played in these women's lives.

They found that women who drank more than three cups of coffee per day, or its caffeine equivalent in tea, retained more of their verbal and -- to a lesser extent -- visual memories over four years.

These women had a 33 percent lower odds of having verbal memory declines and 18 percent lower odds of having visual and spatial memory declines, compared to women who drank one cup or fewer per day.

The effect also depended on age, with women over 80 reaping more benefits from these beverages than those who were 10 to 15 years younger, Ritchie's team wrote. It was unclear whether current or former coffee consumption made the difference.

Some studies in mice have suggested that caffeine might block the buildup of proteins that lead to mental decline.

Ritchie is not sure why only women benefited in her study.

"Our best guess is that women don't metabolize coffee in the same way (as men)," she said in a telephone interview.

Ritchie plans to follow the women longer to see if caffeine delays the onset of dementia -- the mental confusion that signals Alzheimer's disease and other brain disorders.

She said people should weigh any brain gains derived from caffeine against other effects of the stimulant, including raised blood pressure.

The average American drinks one to two cups of coffee a day, according to the National Coffee Association.

http://news.yahoo.com/s/nm/20070806/hl_nm/caffeine_memory_dc

BLM6.6.2: What is the Article Telling Us?

MEL4E

Article: _____

Description: _____

Statistics in the article: _____

Who is interested in these statistics? Who is the audience?

What are some of your thoughts regarding the information in the article?

What kind of decisions, would someone make after they have read the article?

Unit 6 : Day 7 : How does it really work?		MEL4E
Minds On: 10	Description/Learning Goals: <ul style="list-style-type: none"> • Use understanding of probability to explore a current/local issue(s) in the community (environment, health, gambling) 	Materials <ul style="list-style-type: none"> • Presenter on a local issue • Poster paper • Markers
Action: 50		
Consolidate:15		
Total=75 min		
Assessment Opportunities		
Minds On...	Whole Class → Discussion Provide students with a statistic that reflects an issue within your community. The 2005 OSDUS Mental Health and Well-Being Report Executive Summary, has statistics on teenagers for various issues. Select from their data ones that are relevant to your students.	2005 Summary: http://www.camh.net/Research/Areas_of_research/Population_Life_Course_Studies/OSDUS/OSDUS2005_mental_detailed_fnl.pdf
Action!	Whole Class → Speaker Invite a speaker from one of the services that is important to your community. For example Addiction Research, Gambling, Health support people. The focus of their talk should be on the statistics, probability and how this impacts their community and what possible decisions can be made. Mathematical Process Focus: Connecting – students will connect ‘real life’ issues to what they are learning in the classroom to find relevance in the mathematics.	
Consolidate Debrief	Whole Class → Discussion Summarize key information that has been presented to the class and post on larger poster paper. Students write inside of clouds made from poster paper, possible decisions and questions raised from the speaker’s presentation. Learning Skills/Observation/mental note –Assess students learning skills during and after the presentation and make a mental note to discuss any issues with students after the presenter has left.	
<i>Application</i>	Home Activity or Further Classroom Consolidation Share the information you have learned from the speaker with a friend.	