

## **Word Problem solving to coincide during the time of Maple Festival (Wahta)**

**Subject Area:** Math

**Suggested Grade Level:** One

**Duration:** 50 min.

### **Standards/Goals:**

The student will isolate important information to solve a word problem.

### **Performance Objectives:**

After the lesson has been completed the student will correctly identify the words that would indicate what operation to use, addition or subtraction, to solve the word problem presented to them either orally or in written form.

### **Readiness of Students:**

The student will be able to...

- recognize the numbers 1- 20.
- recognize the symbols for addition and subtraction and the equal sign.
- identify a number and produce a set indicating that number.
- to do an operation involving addition or subtraction.

### **Preparation Materials:**

- Overhead machine with math number tiles and operation symbols, non-permanent marker. (PDF file available) **Or**
- Chalk board that you can use magnets on. Magnetic numbers and operation symbols, chalk.
- Silhouettes of trees to use for word problems if you are using the magnetic chalkboard you will then need magnets for trees to stay on the board to use as a visual aid. (PDF file available)
- Can also be done on experience chart paper, using markers for each word problem to draw what students are telling you to draw after word problem has been read aloud.
- Index cards or lined paper to record number sentences that are made from word problems.
- Pencils or Markers.
- Prepared cut-outs of tree shapes to be used for the student activity. Make them sturdy so that they may be used again in other lessons. Make enough for 15 trees for every two students as they will be pairing up later to make up word problems. (PDF file available.)

**Vocabulary:**

*Addition*

*Altogether*

*Equal*

*How many in all?*

*How many are left?*

*In all*

*Left over.*

*Subtraction*

*Taken away*

**Delivery of Lesson:**

**Motivation/Introduction:** 15 minutes

The teacher will have students in the area in which the lesson will be take place (at seats, in circle etc.) The teacher will tell the students that she has a problem, and she needs some help to solve it. The teacher will then read the problem\* to the class and ask if any of the students can help her to figure out what to do. The teacher will then say that she has other problems and would like their help to solve them.

\*Sample Problem to be presented to students to help solve

I want to plant some trees in my yard in the spring. I have room for 3 trees in the front and 4 trees in the back, how many trees can I plant in all?

**Discussion Questions:**

- What is the question that I have to answer?
- What information does the problem give me that might help me to solve it?
- Are there words in the problem that give me a clue so that I know if I should add or subtract?
- What operation should I use addition/subtraction?
- How can I rewrite the problem in a number sentence?

Note: During discussion of the Sample Problem information can be recorded on the board or on an acetate for visual cues later on.

**Presentation:** 15 minutes

1. The teacher will review the symbols for addition, subtraction and equals.
2. The teacher would say the key words that students should be listening for in an addition word problem - **how many in all, altogether** - that would be clues to solve the problem using addition.
3. The teacher would say the key words that students should be listening for in a subtraction word problem - **how many are left, taken away** - that would be clues to solve the problem using subtraction.

## NAEP Shared Lessons Project

4. The teacher will read aloud a number of prepared word problems using the names of students in the class. (Questions should be prepared in advance to get all the students involved and to retain their attention throughout the lesson.)
5. Each Problem can be solved by giving some of the students the chance to come up and use the manipulatives provided for the lesson. (Numbers, tree shapes, markers, magnets)

### **Discussion Questions**

1. What does this symbol mean? =,+,-
2. What words tell us that we should be adding to solve a word problem?
3. What words tell us that we should be subtracting to solve a word problem?

### Example word problems:

A.) Connor's mother planted 12 maple trees last fall, 7 were dug up by dogs over the winter, how many trees are left?

B.) Jasmine and Kristine were climbing all the trees in Jasmine's yard. There were 4 in the back and 6 in the front. Kristine said "I have two more trees in my yard than you do." How many trees did Kristine have in her yard?

\*Many word problems can be made up using the names of students in the class.

### **Student Activity:** 15 minutes

Have students pair up and take turns making up word problems for the other to solve. Using the tree-shape counters the students can solve each other's problems. Students should have the opportunity to do at least two problems each. Then have the student/pairs make a group of four and have one pair make up a word problem for the other pair to solve.

These will be recorded on paper or on index cards for further use by the students.

\*Number sentences only, not all the words that went with the problem.

### **Closure:** 5 minutes

Do a random review of key vocabulary words that give us clues to tell us how to solve a word problem. Ask pairs of students to share some of the word problems that they were able to come up with. They can say the problem, and have someone who didn't have a turn earlier come up and solve the problem using the manipulatives that were used at the beginning of the lesson.

### **Follow up lessons/Activities:**

Every time I do this unit I made it a point to organize a trip for all the grade one students and parents to get to a sugar bush to enjoy a meal. If you are unable to get to a Cabane a Sucre, you can always have the parents send in the ingredients needed to make a traditional sugar shack meal. Ham, Pancakes and syrup, Eggs, Homefries, and juice. (there are a lot of math lessons in cooking, measuring, dividing, time, etc...) We also

celebrate the Maple Festival at our school. We practice the social and ceremonial dances in gym classes, the students really enjoy the social dances. The peach stone game is also played and I have the girls play against the boys, rather than clan against clan. They will play the game to see who will have to do some of the duties in the class for the rest of the year. This always gives it a competitive edge.

**Evaluation:** Anecdotal and observational.

The teacher will be observing the students for listening skills, by questioning students with appropriate level of questions as the lesson progresses. The students will be evaluated as well on their ability to solve problems by listening for key vocabulary, and soliciting peer help, or providing assistance to those who ask for help. The team assignments will be evaluated by cooperation shown, and positive comments.

## **Making Connections**

### **Cross Curricular:**

This math lesson should be done during the spring when the sap starts to flow from the maple trees. Most subjects can be tied into the theme, such as Language arts, vocabulary and spelling. Social and Native studies, legends about trees, legends that come from other nations and types of trees, how native people tapped the maple tree for sap long ago as opposed to the process today. Science could show the process of how the tree is tapped then boiled to maple syrup, sequencing the steps or perhaps even using the five senses. There are stories/legends, and art projects that could be done as well.

### **Cultural Connections:**

There are still some nations who collect sap from the maple tree, and many native communities still celebrate the Maple Festival in the spring. Following the ceremonies as they were done long ago. Our science program is based on the Thanksgiving Address, and giving thanks to the trees in particular the Maple Tree in the spring is still done today. The Maple Festival is celebrated in the late winter and early spring when the sap starts to flow from the maple trees. It lasts for one day, the day begins with the Opening Thanksgiving Address (Ohenton Kariwatekwen) The maple sap is then passed around on each side of the house by very young girls. As each individual receives their drink they will immediately stand up and thank the creator for his good health and his good fortune to be amongst the people and the maple ceremony, and the other things in life. After that the women pass out fry bread. Faith keepers or chiefs may speak encouraging words to the people. The songs can then be sung in whichever order the leaders agree to do them: The Old Women's Dance, the Food song, The Pigeon Song, and at the end the Great Feather Dance is done to sanction all that took place for that day. The peach pit game is then played between clans. Then the closing ritual or Thanksgiving Address is recited on behalf of the people and that ends the day.

### **Computers and Other Technologies:**

When I first wrote this unit everything that I prepared was done by word processing and I did not use any websites. This was originally done in 1995 and technology was only starting to work it's way into the classroom for use as a resource. I did take the liberty to check out a few sites, most of them would be for background information for the educator. Depending on what grade and what particular topic you are teaching I would recommend that you go to a search engine and type in Maple Syrup Production in Quebec or Ontario with a dot ca (.ca) ending and then you can check out one of many links provided. There are more English sites available in the U.S.A (.dot com =.com) Good Luck on your searches.

### **Sources:**

#### **Books**

1. Bruchac, Joseph, Caduto Michael J., 1988, *Keepers of the Earth: Chapter 17 Manabozho and the Maple Trees*, Fulcrum, Inc: Golden, CO. ISBN 1-55591-385-7
2. Buszek, Beatrice Ross, 1984, *The Sugar Bush Connection*, Nimbus Publishing Limited: Halifax, Nova Scotia, ISBN 0920852335
3. Burns, Diane, 1992, *Sugaring Season Making Maple Syrup*, Carolrhoda Books (July, 1990), ISBN 0876144202
4. Creative Teaching Press. *Monthly Activities March*. This book has a section titled Maple Syrup Time. <http://www.creativeteaching.com/>
5. Linton, Marilyn, 1983, *The Maple Syrup Book*, Kids Can Press, ISBN 0919964524.
6. North American Travelling College in Akwesasne. Various books provided legends and stories about Mohawk culture.

#### **Electronic Resources**

1. [www.maple-erable.qc.ca](http://www.maple-erable.qc.ca)
2. [www.centracar.qc.ca](http://www.centracar.qc.ca)
3. [www.agr.gouv.qc.ca](http://www.agr.gouv.qc.ca)
4. [www.erable.org](http://www.erable.org)

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