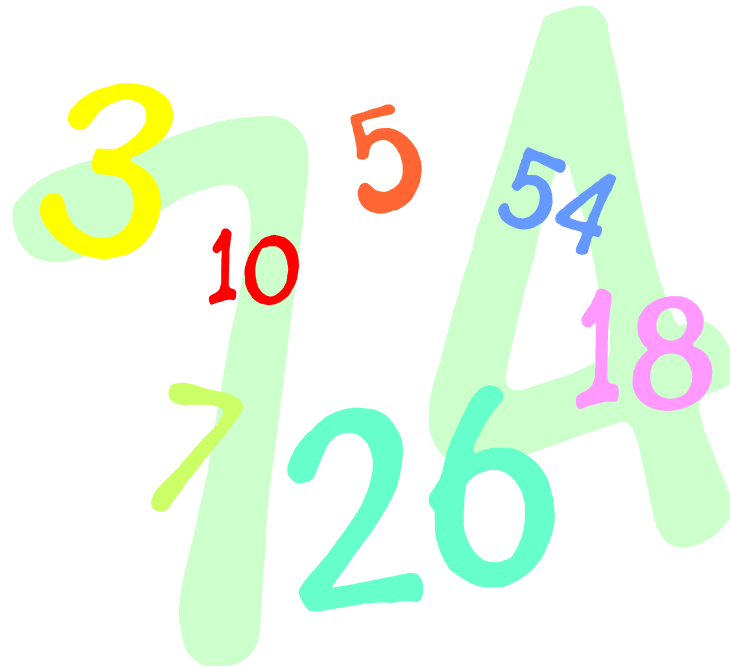
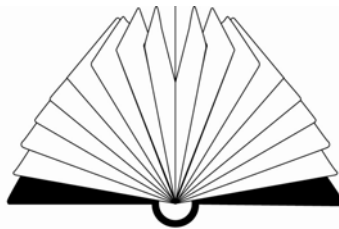


How to Kit



Family Math



NWT Literacy Council

Celebrate Literacy in the NWT

Other How to Kits & Literacy Activities

This How to Kit was developed to help organizations celebrate literacy in the NWT. It is one in a series of How to Kits that you can download from the NWT Literacy Council website at www.nwt.literacy.ca. You are welcome to photocopy and use the activities in your programs, or adapt them to your needs.

Other How-to-Kits you will find on our website:

- 1-2-3 Rhyme with Me
- Community Book Swap
- Family Reading Party
- Games Night
- Literacy Treasure Hunt
- Pyjamas and Book Party
- Reading Circles and Story Extenders
- Scattergories
- Storytime on the Radio
- Family Literacy Activities Night
- Book Making
- Literacy Games for Adults
- Get Caught Reading & Other Promotion Ideas
- Election
- Environmental Print Games
- More Literacy Games
- Read for 15
- Writing and Publishing Children's Books
- Involving Families in Children's Learning
- Literacy Activities for Holidays – Thanksgiving, Halloween, Christmas, Valentine's Day, Easter, Birthdays
- Puppet Making
- Writing Contest
- Culture and Traditions
- Books in the Home
- Facilitating a Workshop
- Talking Books
- Readers Theatre
- Family Literacy Activities Night 2
- Books in the Home Kit – *Love You Forever*
- Word & Picture Bingos
- Plan a Family Literacy Fair
- Storysacks
- Literacy Survivor

You are welcome to download and use these kits.

NWT Literacy Council

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NWT Literacy Council

Family Math Overview

We have had many requests to develop a math resource for teachers, family literacy facilitators and families. This resource has a variety of activities that you can use for families with children from ages 7 – 10. We will develop another math resource for younger children for Family Literacy Day.

The way schools teach math has probably changed a great deal from when most parents were students themselves. For many parents, math is about worksheets and multiplication tables. Today we teach that math is everywhere. Math is about:

- Doing activities and playing games.
- Working and talking with others.
- Estimating and number sense.
- Taking a risk.
- Solving problems.

Research shows that students do better at school when their parents are involved in their education. This How-to-Kit provides an opportunity to engage families in developing positive attitudes towards math. The activities are easy, fun and hands-on. Families work and learn together to solve math problems.

This kit has the following. Look for these symbols.

- ✓ How you can use Family Math



- ✓ Instructions for the facilitator or teacher



- ✓ Handouts for participants



- ✓ Answer keys for the facilitator or teacher



How can you use the Family Math How to Kit



There are many ways that you can use this kit. You can use it in your classroom or use it at a family math fun night. Parents can also use many of the activities with their children at home.

If you choose to do a community event, below are some helpful hints to getting organized.

Get the community involved.

Meet with other people and organizations in your community that are interested in supporting and celebrating literacy. Work together to plan the event. Ask businesses and organizations to sponsor your Family Math Night. They can donate money to buy prizes and provide snacks.

Decide the date

NWT Literacy Week is a good time to do a community event. Choose a different date if these dates don't work for your community. Choose a date that will not clash with other community events so more people can attend.

Find a location

Find a space in the community to hold the event – the school, band office, friendship centre, youth centre, nursing station, library, or community hall.

Advertise

Begin advertising well in advance!

- Put up posters around the community.
- Advertise on the local radio station or green screen.
- Hand out invitations at school.
- Tell everyone about it.
- Advertise at least one week before the event.
- Ask families to sign up for the event.

Invite the local newspaper

Tell the local paper about the event. Invite them to attend and to do a story about the event.

Prepare the activities

Prepare all of the materials and things you'll need ahead of time. Check that you have everything, and then check again!

Plan and prepare snacks and drinks

Keep it simple with cut up veggies or crackers and cheese. Or you may decide the time is right for a community feast. You decide.



Have prizes

Collect prize donations. Have draws throughout the event for prizes and give prizes to individuals as well as the winning team. Be sure to have paper and pens ready for people to enter their name.

Take pictures

Take pictures of the event. After the event make posters using the photos and hang them around town so everyone can see what a great time it was. Share your pictures with the NWT Literacy Council. We like to report on literacy events in communities and would love to include photos in our newsletter.



can

Contact the NWT Literacy Council

In the Northwest Territories, the NWT Literacy Council can provide free books for prizes, share some ideas, and help you plan your event.



Family Math Night



Here are some suggestions for a Family Math Night.

- Choose the activities you want to do.
- Set up stations around the room and have families go to each station. Using this kit you could set up four math stations: math games, math problems, Math Ad Libs and time problems. Each station will need instructions for each math activity and additional tools (cards, coins, paper, pencils, etc.)
- Consider starting your event with a group activity. There are several activities to choose from in this kit.
- Let families go to the stations they are interested in.
- Circulate around the room helping families at each station. If possible, have a volunteer at each station to help families.
- End your event with a group activity.

Please note: You could also do all the activities as a group. Explain all the activities to the group and give each family time to play math games, solve problems, write wacky Math Adlibs and have fun with time.

Included in this kit:

1. Group Activities
2. Math Games
3. Math Adlibs
4. Math Problems
5. Time Activities
6. Tip Sheet for Parents

Instructions for Each Station

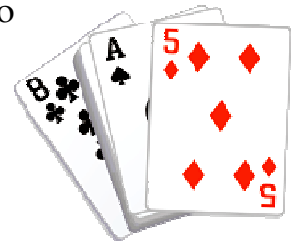


1. Group Activities

There are many group activities to choose from in this kit. Choose at least two to start with and one to end the evening with. Read the instructions carefully and make sure you have all the materials you need for the activities.

2. Math Games

There are lots of math games in this section. You will need to read carefully the instructions for each game. You should photocopy the instructions for each game at the station. Consider laminating the instructions so you can use them another time. We suggest that you choose four to six games from this section. Many of the games use playing cards and some games have charts and graphs you will need to copy and laminate. Try the games out first so you can help families get started.



3. Math Adlibs

Math Adlibs combine reading and math skills. Children find them fun and entertaining. For each story you have to fill in the blanks with the words you have written down. After you have filled in the blanks you solve the math problem.

In addition to providing practice with multiplication and division, the Math Adlibs introduce children to the concept of parts of speech, giving them a basic understanding that each word in a sentence has a different function.

Make sure you have a volunteer at this station to help families. Photocopy the handouts for families to write on. The answers to each Math Ad Lib are included on the answer sheet at the end of this kit.

4. Math Problems

The math problems section has word problems, a calculator quiz, coin math problems, and math riddles. The answers to the problems are on the answer sheet at the end of this kit.



Most of the activities are self explanatory. We suggest that you choose two to three activities for this station. Families will not be able to complete all the activities for this section. You will need to have coins available for the coin word problems.

Please note for the calculator quiz each family will need a calculator. Each family finds the answer to the riddle by using the calculator to solve the number sentences. Then they turn the calculator upside down to see the word answer to the riddle. Families then make up their own riddles using the information on the handout.

5. Time Activities

This section includes time lines, making a calendar and fun activities using a clock and watch. Families will need a clock with moveable hands and a watch with a second hand. Other materials that you will need are: magazines, glue, paper, calendar handout, scissors and markers.



Again, please read the activities carefully and choose the ones you would like to do.

6. Tip Sheet for Parents

This handout for parents includes information on being positive about math, making math a part of your everyday life and tips for using math at home.



Group Activities¹

You can start your event with any of these activities or use them all!

Reading about Math

Read a book about math. There are many books that incorporate math ideas and concepts. Some suggestions are:

- *Counting with Frank* by Rod Clement
- *Math Curse* by Jon Scieszka and Lane Smith
- *G is for Googol: a math alphabet book* by David Schwartz
- *How Much Is A Million* by David Schwartz
- *Grandfather Tang's Story* by Ann Tompert
- *One Hundred Hungry Ants* by Elenor J. Pincze
- *Anno's Counting House* by Mitsumasa Anno
- *Mouse Count* by Walsh
- *The Village of Round and Square House* by Ann Grifalconi

Estimation

Estimation is a good math skill to learn. Here are some ideas for activities for estimation:

- Fill a jar with cookies, small balls, candies, rocks, or anything that is related to your theme for the night. Ask families to estimate how many items are in the jar. Ask each family to write down their estimate on a stickie note and put it on the jar. At the end of the night count out the number of items and announce the winner. Give each child a cookie, ball, etc.
- How long will a birthday candle burn? Ask families to make a guess to how long a birthday candle will burn. They can write down their estimations on a post-it note. Ask families to talk about their estimating strategies. Ask families to share their ideas with the group. Burn the candle in some earth or sand. Time how long the candle burns.

¹ Many of these activities came from the *Esso Family Math Program: Resources for Grades 2 – 5 Children and their Parents*, written by Barry Onslow and Nancy Chapple, November 2004

Finding Math

Using newspapers and magazines, ask each family to find each of the following:

- A time
- A date
- A child's age (who is playing the game)
- An adult's age (who is playing the game)
- A number greater than 1, 000
- A number greater than 100, 000
- A number that represents a temperature
- A page number over 40
- A price
- A graph

The family to find all the items first wins!

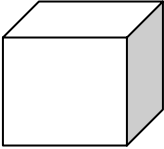
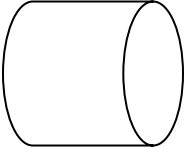
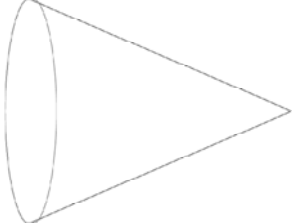
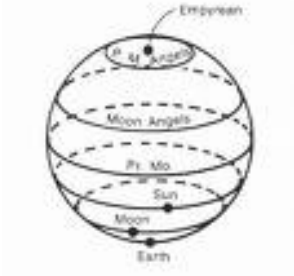
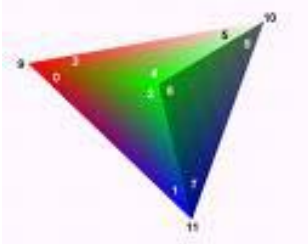
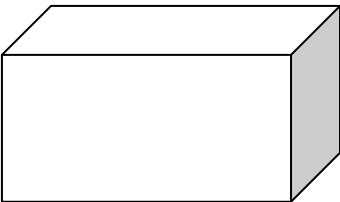
Geometry Walk (3 handouts)

Ask families to go on a geometry hunt. Give families the handout on the next page. Go over the handout together with families. Gather some 'real world' three dimensional shapes to show families. For example: a ball, ice cream cone, Toblerone box, sugar cube, toothpaste box, etc. Ask families to walk around the classroom and or school and find some examples of the geometric figures on the handout. Discuss what people found when they return.

Ask families to do a geometric walk around their house. Give them the two handouts provided so they can fill them in at home.

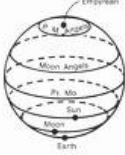
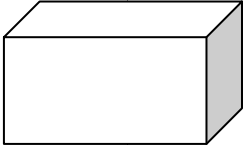
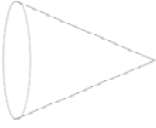
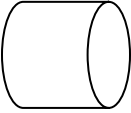
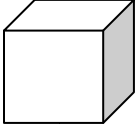
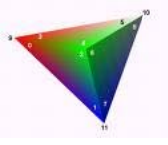
Family Math Walk – Geometry

List the objects that look like these geometric figures.

Geometry Math Walk in my House

Fill in the table below with things you find at home that look like these 3D figures.

 Sphere	 rectangular prism	 cone	 cylinder	 cube	 triangular prism
Living Room					
Bedroom					
Kitchen					

Math Walk Stats

On my math walk at my house I noticed _____
_____.

There were more _____ in my house than
_____. There were many _____
because _____. There
were a lot of _____ because
_____. My favourite 3D
shape is the _____ because
_____.

On the math walks I was good at _____
_____.

On the math walks what I found hard to do was _____
_____.

The Name Game (1 handout)

Make a poster or distribute the chart below. Each person in the group introduces him or herself with first names and spelling. Someone writes the name on the board or a flipchart. Families work together to add the numbers that correspond with the letters in the person's name. For example: Lisa = 11. The first person or family to call out the sum wins. Play until everyone has been introduced. Give a small prize to the person who has the name with the largest number.

A1	B2	C3	D3	E4	F2
G6	I5	J3	K2	L4	M1
N4	O6	P2	Q3	R5	S1
T6	U3	V1	W4	X7	Y6
Z7					

Bingo (bingo cards)

Play a math bingo to get everyone in the mood to do math! Bingo is always fun and it is a good way to make families feel comfortable. You can play many versions of math bingo – number bingo, addition bingo, subtraction bingo, multiplication bingo, division bingo, etc. Included in this package is a general bingo with different numbers and a blank bingo card that you can photocopy to make your own bingo cards.

You can give many different hints. You will have to tailor your hints and questions to suit the age group. Here are some ideas for calling bingo:

- What number comes after 3?
- What is 8×4 ?
- Mark off all the multiples of 10
- Mark off all the multiples of 5
- What is $25/5$?

Calling Cards - Cut out and put in a hat

5	15	10	9
4	8	3	18
2	7	20	1
25	6	11	13
30	33	17	22
35	40	31	36
21	28	32	16
45	50	42	49

Number Bingo

<i>45</i>	<i>5</i>	<i>9</i>	<i>8</i>	<i>33</i>
<i>3</i>	<i>18</i>	<i>2</i>	<i>40</i>	<i>32</i>
<i>11</i>	<i>45</i>	NWT Literacy Council	<i>15</i>	<i>25</i>
<i>1</i>	<i>50</i>	<i>21</i>	<i>20</i>	<i>31</i>
<i>30</i>	<i>17</i>	<i>7</i>	<i>22</i>	<i>32</i>

Number Bingo

<i>6</i>	<i>28</i>	<i>18</i>	<i>49</i>	<i>45</i>
<i>16</i>	<i>13</i>	<i>42</i>	<i>33</i>	<i>5</i>
<i>10</i>	<i>8</i>	NWT Literacy Council	<i>1</i>	<i>9</i>
<i>35</i>	<i>22</i>	<i>50</i>	<i>36</i>	<i>30</i>
<i>3</i>	<i>2</i>	<i>45</i>	<i>4</i>	<i>7</i>

Number Bingo

<i>2</i>	<i>21</i>	<i>3</i>	<i>4</i>	<i>20</i>
<i>25</i>	<i>40</i>	<i>49</i>	<i>9</i>	<i>10</i>
<i>8</i>	<i>50</i>	NWT Literacy Council	<i>45</i>	<i>35</i>
<i>15</i>	<i>5</i>	<i>22</i>	<i>17</i>	<i>1</i>
<i>18</i>	<i>7</i>	<i>32</i>	<i>42</i>	<i>11</i>

Number Bingo

<i>30</i>	<i>31</i>	<i>49</i>	<i>13</i>	<i>1</i>
<i>16</i>	<i>7</i>	<i>45</i>	<i>20</i>	<i>42</i>
<i>17</i>	<i>40</i>	NWT Literacy Council	<i>28</i>	<i>6</i>
<i>15</i>	<i>36</i>	<i>5</i>	<i>18</i>	<i>4</i>
<i>45</i>	<i>3</i>	<i>2</i>	<i>35</i>	<i>50</i>

Number Bingo

<i>3</i>	<i>4</i>	<i>20</i>	<i>50</i>	<i>8</i>
<i>10</i>	<i>16</i>	<i>35</i>	<i>49</i>	<i>11</i>
<i>33</i>	<i>42</i>	NWT Literacy Council	<i>21</i>	<i>7</i>
<i>25</i>	<i>32</i>	<i>30</i>	<i>5</i>	<i>9</i>
<i>2</i>	<i>13</i>	<i>45</i>	<i>18</i>	<i>45</i>

Number Bingo

<i>45</i>	<i>40</i>	<i>42</i>	<i>4</i>	<i>50</i>
<i>6</i>	<i>45</i>	<i>49</i>	<i>17</i>	<i>10</i>
<i>1</i>	<i>31</i>	NWT Literacy Council	<i>16</i>	<i>18</i>
<i>15</i>	<i>28</i>	<i>20</i>	<i>2</i>	<i>25</i>
<i>30</i>	<i>35</i>	<i>3</i>	<i>36</i>	<i>22</i>

Number Bingo

<i>1</i>	<i>21</i>	<i>6</i>	<i>45</i>	<i>49</i>
<i>45</i>	<i>11</i>	<i>13</i>	<i>4</i>	<i>33</i>
<i>35</i>	<i>50</i>	NWT Literacy Council	<i>40</i>	<i>5</i>
<i>9</i>	<i>10</i>	<i>3</i>	<i>32</i>	<i>42</i>
<i>20</i>	<i>8</i>	<i>18</i>	<i>16</i>	<i>2</i>

Number Bingo

<i>33</i>	<i>42</i>	<i>3</i>	<i>1</i>	<i>2</i>
<i>36</i>	<i>45</i>	<i>18</i>	<i>28</i>	<i>5</i>
<i>17</i>	<i>50</i>	NWT Literacy Council	<i>31</i>	<i>15</i>
<i>25</i>	<i>6</i>	<i>4</i>	<i>45</i>	<i>7</i>
<i>10</i>	<i>16</i>	<i>22</i>	<i>49</i>	<i>35</i>

Number Bingo

<i>18</i>	<i>50</i>	<i>30</i>	<i>5</i>	<i>45</i>
<i>42</i>	<i>7</i>	<i>13</i>	<i>4</i>	<i>49</i>
<i>45</i>	<i>32</i>	NWT Literacy Council	<i>21</i>	<i>3</i>
<i>11</i>	<i>2</i>	<i>8</i>	<i>9</i>	<i>1</i>
<i>15</i>	<i>20</i>	<i>40</i>	<i>16</i>	<i>10</i>

Number Bingo

<i>3</i>	<i>36</i>	<i>6</i>	<i>4</i>	<i>10</i>
<i>5</i>	<i>28</i>	<i>7</i>	<i>42</i>	<i>1</i>
<i>50</i>	<i>45</i>	NWT Literacy Council	<i>33</i>	<i>5</i>
<i>15</i>	<i>8</i>	<i>31</i>	<i>17</i>	<i>49</i>
<i>25</i>	<i>18</i>	<i>2</i>	<i>45</i>	<i>16</i>

Number Bingo

<i>13</i>	<i>42</i>	<i>50</i>	<i>6</i>	<i>7</i>
<i>1</i>	<i>20</i>	<i>49</i>	<i>8</i>	<i>4</i>
<i>21</i>	<i>2</i>	NWT Literacy Council	<i>5</i>	<i>18</i>
<i>30</i>	<i>3</i>	<i>11</i>	<i>40</i>	<i>45</i>
<i>16</i>	<i>10</i>	<i>35</i>	<i>32</i>	<i>9</i>

Number Bingo

<i>7</i>	<i>49</i>	<i>25</i>	<i>45</i>	<i>10</i>
<i>17</i>	<i>16</i>	<i>5</i>	<i>1</i>	<i>4</i>
<i>2</i>	<i>36</i>	NWT Literacy Council	<i>42</i>	<i>22</i>
<i>33</i>	<i>13</i>	<i>50</i>	<i>6</i>	<i>2</i>
<i>18</i>	<i>28</i>	<i>15</i>	<i>3</i>	<i>31</i>

Number Bingo

<i>2</i>	<i>5</i>	<i>18</i>	<i>11</i>	<i>6</i>
<i>22</i>	<i>42</i>	<i>45</i>	<i>49</i>	<i>1</i>
<i>7</i>	<i>16</i>	NWT Literacy Council	<i>45</i>	<i>4</i>
<i>40</i>	<i>3</i>	<i>21</i>	<i>20</i>	<i>50</i>
<i>9</i>	<i>10</i>	<i>8</i>	<i>32</i>	<i>13</i>

Number Bingo

<i>18</i>	<i>4</i>	<i>45</i>	<i>1</i>	<i>7</i>
<i>17</i>	<i>36</i>	<i>5</i>	<i>28</i>	<i>30</i>
<i>6</i>	<i>45</i>	NWT Literacy Council	<i>16</i>	<i>50</i>
<i>31</i>	<i>25</i>	<i>42</i>	<i>13</i>	<i>9</i>
<i>3</i>	<i>49</i>	<i>10</i>	<i>22</i>	<i>2</i>



Number Bingo

<i>20</i>	<i>16</i>	<i>3</i>	<i>45</i>	<i>4</i>
<i>33</i>	<i>32</i>	<i>10</i>	<i>18</i>	<i>6</i>
<i>2</i>	<i>50</i>	NWT Literacy Council	<i>4</i>	<i>21</i>
<i>35</i>	<i>1</i>	<i>5</i>	<i>45</i>	<i>8</i>
<i>15</i>	<i>42</i>	<i>11</i>	<i>49</i>	<i>22</i>

Number Bingo

<i>4</i>	<i>31</i>	<i>17</i>	<i>42</i>	<i>13</i>
<i>5</i>	<i>45</i>	<i>49</i>	<i>25</i>	<i>1</i>
<i>6</i>	<i>50</i>	NWT Literacy Council	<i>36</i>	<i>40</i>
<i>18</i>	<i>10</i>	<i>9</i>	<i>7</i>	<i>45</i>
<i>3</i>	<i>16</i>	<i>2</i>	<i>30</i>	<i>28</i>

Number Bingo

<i>22</i>	<i>10</i>	<i>35</i>	<i>32</i>	<i>1</i>
<i>8</i>	<i>45</i>	<i>15</i>	<i>4</i>	<i>18</i>
<i>11</i>	<i>20</i>	NWT Literacy Council	<i>5</i>	<i>49</i>
<i>16</i>	<i>2</i>	<i>33</i>	<i>42</i>	<i>4</i>
<i>3</i>	<i>21</i>	<i>50</i>	<i>7</i>	<i>6</i>

Number Bingo

<i>3</i>	<i>49</i>	<i>36</i>	<i>22</i>	<i>1</i>
<i>17</i>	<i>40</i>	<i>33</i>	<i>18</i>	<i>28</i>
<i>10</i>	<i>42</i>	NWT Literacy Council	<i>45</i>	<i>4</i>
<i>50</i>	<i>5</i>	<i>31</i>	<i>9</i>	<i>2</i>
<i>25</i>	<i>16</i>	<i>13</i>	<i>7</i>	<i>6</i>

Number Bingo

<i>1</i>	<i>10</i>	<i>3</i>	<i>42</i>	<i>11</i>
<i>32</i>	<i>16</i>	<i>17</i>	<i>2</i>	<i>40</i>
<i>18</i>	<i>45</i>	NWT Literacy Council	<i>35</i>	<i>4</i>
<i>6</i>	<i>13</i>	<i>49</i>	<i>20</i>	<i>7</i>
<i>15</i>	<i>50</i>	<i>30</i>	<i>21</i>	<i>5</i>

Number Bingo

<i>2</i>	<i>31</i>	<i>25</i>	<i>49</i>	<i>16</i>
<i>22</i>	<i>28</i>	<i>50</i>	<i>4</i>	<i>10</i>
<i>35</i>	<i>1</i>	NWT Literacy Council	<i>6</i>	<i>45</i>
<i>7</i>	<i>36</i>	<i>18</i>	<i>17</i>	<i>40</i>
<i>33</i>	<i>5</i>	<i>3</i>	<i>42</i>	<i>15</i>

Number Bingo

<i>21</i>	<i>18</i>	<i>45</i>	<i>2</i>	<i>4</i>
<i>20</i>	<i>40</i>	<i>32</i>	<i>5</i>	<i>2</i>
<i>30</i>	<i>50</i>	NWT Literacy Council	<i>16</i>	<i>3</i>
<i>3</i>	<i>10</i>	<i>42</i>	<i>11</i>	<i>49</i>
<i>17</i>	<i>9</i>	<i>1</i>	<i>7</i>	<i>13</i>



Math Bingo



Math Games

Card Games

Super sums

Each player writes numbers 1 – 12 on a piece of paper. The object of the game is to be the first one to cross off all the numbers on this list. Use only the cards Ace – 6. Each player picks two cards and adds up the numbers on them. The players can choose to mark off the numbers on the list by using the total value or crossing off two or three numbers that add up to that value.



For example, if a player picks a 5 and a 6, the player can choose to cross out 11, or 5 and 6, or 7 and 4, or 8 and 3, or 9 and 2, or 10 and 1, or 1, 2, and 8. If a player cannot cross off a number, the player loses a turn. The first player to cross off all the numbers wins.

Adding cards

Use cards from Ace to 10. The first player draws three cards and lays them face up for all players to see. Each person adds the numbers and the first to say the sum aloud gets a point. Shuffle the cards and play 10 times to see who gets the most points. Younger children can draw two cards. Older children can multiply the three numbers.

How many numbers can we make?

Give each player a piece of paper and a pencil. This game is played with cards from Ace to 9. Ace equals one. Deal four cards out with the numbers showing. Have each player see how many different numbers they can get in five minutes. Players get one point for each answer. For example, suppose the cards drawn are 4, 8, 9, and 2. What numbers can be made? 4892, 8942, 2489, 9248, etc. Many numbers can be made. Use a stop watch to time the game. For an added twist, players can add and subtract from the number. For example using the digits 4892: $489-2$, $89-42$, $48 + 92$, etc.

Place value cards

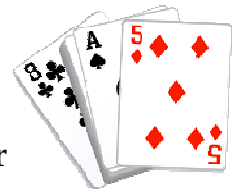
Give each player a piece of paper and a pencil. This game is played with cards from Ace to 9. Ace equals one. Deal three cards out with the numbers showing. Each player writes three digit numbers using these cards. Each player orders the numbers from least to greatest. The first player to write the numbers down in order from least to greatest wins.

For example: 4 6 7 467, 476, 647, 674, 746, 764

This can be played with two-digit numbers for younger children.

Make the most of it

This game is played with cards from Ace to 9. Ace equals one. Each player tries to make the largest five-digit number possible. When a player draws a card, they put the card down in the ten thousands, thousands, hundreds, tens, or ones place. Once placed, a card cannot be moved. The first player with the largest five-digit number wins. For example, if a two was drawn first, the player might place it in the ones' place, but if the number had been an eight, it might have been put in the ten thousands' place.



Double the fun (1 handout)²

You will need a deck of cards with the Jacks, Queens and Kings removed. Ace equals one. Players will also need a doubles chart handout. You can play with two or three players. Turn over one card from the pile of cards. Players must double the number. The first player to say the answer out loud gets the card. In case of a tie, the card goes in the middle. Play continues until someone is first to say the double. That person gets the cards in the middle plus the card for the turn. The winner is the one with the most cards at the end of the game. To make it harder:

- Play double plus one ($8 + 8 + 1$)
- Play double minus one ($8 + 8 - 1$)

² *Esso Family Math Program: Resources for Grades 2 – 5 Children and their Parents*, written by Barry Onslow and Nancy Chapple, November 2004

Doubles Chart

$$9 + 9 = 18$$

$$8 + 8 = 16$$

$$7 + 7 = 14$$

$$6 + 6 = 12$$

$$5 + 5 = 10$$

$$4 + 4 = 8$$

$$3 + 3 = 6$$

$$2 + 2 = 4$$

$$1 + 1 = 2$$



Go fish³

You will need a deck of cards with the Jacks, Queens and Kings removed. Any number of players can play. Ace equals one. The cards are shuffled and each player gets five cards. The remaining cards are placed face down in the centre. The top card is turned over and that number becomes the 'key' number for that round. Players look for two cards that add up to the key number, or two cards that can be subtracted to equal the 'key' number.

Example: The key number is 8. Players could add 6 plus 2 to make 8. Or subtract 2 from 10 to make 8. They use this number for the whole game.

Each player draws a card and the one with the highest number goes first. The first player tries to make a sum or difference of 8. If she can, the cards are placed on the table and the player explains how she made 8. If the other players agree, the player who made 8 put these two cards in her pile and then picks two cards from the top of the deck. Play then proceeds to the next player. If a person has an 8, they can play it as a single card then pick up one card. Whenever a player makes an incorrect claim, they pick up the two cards they had incorrectly played and miss a turn. If a player can't make a sum or difference of 8, they can "Go fish". They can ask another player for a number they need to make 8. If the player has the number they give the card to the first player. If they don't have the number the first player picks a card from the deck. The play continues to the next person. The winner is the one with the most cards at the end of the game.

Addition war

You will need a deck of cards. Only two players can play. Players divide the cards evenly between themselves. Each player turns over two cards and adds them together. The highest sum gets all of the cards. In the event of a tie (i.e.. each player has the same sum), WAR is declared. Each player deals out three more cards face down and then turns over two more cards. These two cards are added together. The highest sum wins all of the cards. Play continues until one player has collected all the cards.

Card values are their face value, A = 1 , K = 13, Q = 12, J = 11

³ *Esso Family Math Program: Resources for Grades 2 – 5 Children and their Parents*, written by Barry Onslow and Nancy Chapple, November 2004

Variation: Vary the number of cards to modify the level of difficulty.

Multiplication snap

You will need a deck of cards with Jacks, Queens and Kings removed. Only two players can play. Players divide the cards into two piles. Cards Ace – 5 are in one pile, and cards 6 – 10 are in another pile. Each player has one pile of cards. At the same time, each player turns over a card. Players multiply the two cards. The first player who says the correct answer out loud, collects both cards. In the event of a tie, players leave their cards face down and let the pile build. Play resumes until one player gives the correct answer before the other and collects all of the accumulated cards. Play continues until the common piles are finished. Players count up their cards to determine the winner.

Other Games

How expensive are you? (1 handout)⁴



Players add the value of the letters together to find out how expensive a name or word is. You will need a Value of Letters chart with all the letters of the alphabet and the amount for each letter. Some different ideas for this game are:

- Use first names to find out how expensive you are. Who is the most expensive person in the room? Is anyone worth exactly \$50 or \$100?
- Use last names to find our how expensive you are. Who is the most expensive person in the room? Is anyone worth exactly \$50 or \$100?
- Can you find a word worth exactly \$50 or \$100?
- What is the most expensive word you can find?

You can make up your own chart or use the one on the next page. For younger students you can use smaller amounts. Just reuse numbers. Or you could use multiples of 5 or 10 (5, 10, 15, or 10, 20, 30).

⁴ *Esso Family Math Program: Resources for Grades 2 – 5 Children and their Parents*, written by Barry Onslow and Nancy Chapple, November 2004



Value of Letters

A = \$1

B = \$2

C = \$3

D = \$4

E = \$5

F = \$6

G = \$7

H = \$8

I = \$9

J = \$10

K = \$11

L = \$12

M = \$13

N = \$14

O = \$15

P = \$16

Q = \$17

R = \$18

S = \$19

T = \$20

U = \$21

V = \$22

W = \$23

X = \$24





Y = \$25

Z = \$26

Deer buttons (1 handout)⁵

You will need 50 small stones, bingo chips or some type of counter. You will also need six pennies. Many First Nations People, especially those of the Woodlands area, play a version of this game.

A pile of approximately 50 counters is placed in the middle of players. To play the game, the pennies are thrown onto a flat surface. Points are scored according to the table shown below. Players take turns throwing the pennies. Each time players score points they take that many stones. Play continues until all the stones are gone. The player with the most stones is the winner.




Words	Picture (represent pennies)	Scoring
When 6 sides turn up the same.		Take five stones from the pile.
When five sides turn up the same and one is different.		Take two stones from the pile.
When three sides turn up the same and three sides are different.		Take one stone from the pile.
When four sides turn up the same and two are different.		Take no stones from the pile.

⁵ *Esso Family Math Program: Resources for Grades 2 – 5 Children and their Parents*, written by Barry Onslow and Nancy Chapple, November 2004

Please note that this chart only shows one of the two possible combinations. For example, five heads and one tail would also score two points. Photocopy the chart and instructions to give to players.

Race for a Loonie

Give each player a copy of the chart below. You will need two dice, pennies, dimes and one loonie. Give each player 19 pennies, 10 dimes and 1 loonie to act as ‘the bank’ during the game. The first player rolls the dice and adds the numbers together. That sum is the number of cents the player receives from the bank. The player places them in the ‘cents’ column on the handout. Whenever there are more than 10 pennies in the ‘cents’ column, the player should exchange them for a dime from the bank. Likewise players can exchange 10 dimes for a loonie. The first player to get a loonie is the winner.

<p style="text-align: center;">Loonie</p> 	<p style="text-align: center;">Dimes</p> 	<p style="text-align: center;">Pennies</p> 



Math Adlibs

Mary's Birthday Party

Think of a word for each category and write it on the line. Don't read the story yet!

1. Describing word: _____
2. Action word: _____
3. Sport: _____
4. Number: _____



Mary wants to have a birthday party. She asks her dad if she can have one. Her dad sends out _____(1) invitations to six children. All the children _____(2) to the invitation. Mary wants to play _____(3) at her birthday party. Mary is going to be _____(4) years old. Each child at the birthday party will get two treats. How many treats does Mary's dad need to buy?

Math Adlibs



The _____(1) Teams

Think of a word for each category and write it on the line. Don't read the story yet!

1. Sport: _____
2. Something you wear: _____
3. Describing word: _____

There are 32 students in Mr. Jones' class. This week the class is learning how to play _____(1). Mr. Jones loves to play _____(1) and wears his _____(1) _____(2) to school almost every day. Mr. Jones wants to make four equally _____(3) teams. How many students will be on each team?

Math Adlibs



Camping Out

Think of a word for each category and write it on the line. Don't read the story yet!

1. Thing: _____
2. Animal (plural): _____
3. Describing word: _____

Joe is going on a camping trip with his extended family. He packs plenty of batteries for his _____(1). He hopes to see lots of _____ (2) on his trip. He also brings lots of _____(3) snacks in case he gets hungry on the boat trip out. There are 25 family members going on the trip. They have 5 tents. How many people will be sleeping in each tent.



Math Adlibs



A Great Garage Sale

Think of a word for each category and write it on the line. Don't read the story yet!

1. Things: _____
2. Describing word: _____
3. Animals: _____

Lisa and Jill earn \$105 by having a garage sale at Lisa's house.

They sell their old _____ (1), some _____ (2) books they do not want anymore and a whole box of toy _____ (3) that Jill does not like to play with. The girls agree to split the money evenly. How much money does each girl take home?





Math Problems

Word Problems

1. How many candles?

David's Great Grampa's birthday is coming up, and David is wondering how the candles will fit on the cake. He doesn't even know exactly how old Great Grampa will be. "Well," says David's mother when he asks her, "he'll be more than 7 times your age." Aunt Jessie says, "I know he is younger than Great Aunt Sarah, and she is 86 years old.



"Great Gramp," David asks on the telephone, "how old were you when you were half as old as you are going to be this birthday?" "Wrong question," says Great Grampa with a chuckle. "On my birthday, my age will not be an even number, but it will be divisible by five."

Finally, David asks his second cousin Jake. "Oh, Great Grampa's very old," says Jake. "He's going to be more than 3 times as old as I am, and I'm twice your age plus six." David is 11.

Question: How old will Great Grampa be on his upcoming birthday?

2. Neighborly number

AJ, Celeste, Juan, Kara, Lily, and Randy all live on Redwood Avenue. Each of their house numbers has three digits, but the only digits in their house numbers are 2, 3, 5, and 6. The same digit may appear twice in one of the addresses.

- AJ's house number is Juan's house number doubled.
- Juan lives next to Lily and right across from Randy.
- Randy's house number is the lowest possible combination of these numbers.
- Celeste's number is a higher number than AJ's but has the same three digits as his. They both have the same digit in the hundreds place.
- Kara's house number is the reverse of Juan's.

Question: What is each person's street address?

3. Let's talk turkey

We had just finished a big bowl of popcorn, when Gina asked "Where will we have Thanksgiving dinner this year, Aunt Mathilda?"



"We're having it at my house this year," I explained, "And I want to be sure I have enough food for everybody."

"Who will be coming?" asked Barney.

"Well, you and Danny will be here, and your mom and dad, and Gina and her mom will come. Then Uncle Tommy and Aunt Lynn and your other cousin, who is also named Danny, are coming from Hay River. They are bringing their dogs, Bogie and Birdie too!"

"I can't wait to see those dogs," said Gina, "They are so cute!"

"Of course, Uncle Bill will be here too," I said, referring to my husband.

"What are we having for dinner?" asked Danny, who is always interested in food.

"Well, I'll have turkey, mashed potatoes and gravy, and dressing. I will also have corn on the cob, and some of the green beans and other vegetables I canned this summer, corn bread and biscuits, and of course my famous pumpkin pie for dessert.

"Yum!" said Barney. "Can we help?"

"I'm glad you asked that, Barney," I said, "Because I need your help right now. You see I always get confused about how big a turkey I need to buy. I read in a book that I needed one half kilogram of turkey for every child, and one kilogram of turkey for every adult. I was planning to buy a ten kilogram turkey, and I wonder if that is going to be enough, and how much will I have left over for the dogs. I'm sure they like turkey too!"

"Uh, oh, I think I hear another math challenge!" said Barney.



"You guessed it!" I said.

Question: What do you think? Is a 20 pound turkey big enough? Will I have too much turkey left over?

4. Six daughters

Mr. Campbell has 6 daughters. Each daughter is four years older than her next younger sister. The oldest daughter is three times as old than her youngest sister. How old is each of the daughters?

5. How old?

Mary is twice as old as her brother and half as old as her father. In 22 years, her brother will be half as old as his father. How old is May now?



Calculator Quiz⁶

Find the answer to the riddle by using the calculator to solve the number sentences. Then turn the calculator upside down to see the word answer to the riddle.

- | | |
|---------------------------------|---------------------------------|
| 1. The outside of an egg | $50,045 + 25,309 - 9 + 2,000$ |
| 2. Mountains usually are | $4,300 + 400 - 100 + 14$ |
| 3. A hot spot! | $28,432 / 4$ |
| 4. What a salesperson does | $3,849 \times 16 - 3,849$ |
| 5. Good for a car | $1,600 / 2 - 90$ |
| 6. A person in charge | $4 \times 9 \times 9 \times 17$ |
| 7. Crying a lot | $13 \times 13 \times 5 - 40$ |
| 8. Every garden should have one | $0.002415 / 0.007$ |
| 9. A _____ of flowers | $3.1 \times 5.2 / 8 - 1.635$ |
| 10. You might play on this | $30,000 + 275 - 100$ |



Make Your Own Quiz

- Which numbers make letters?
0=O or D, 1=I, 3=E, 4=h, 5=S, 6=g, 7=L, 8=B
- Make up a word from the letters O, D I, E, h, S, g, L, B
- Now make up a riddle.
- Last, make up a number sentence that gives the answer you want. Be sure it works when you turn the calculator upside down.
- Share your riddles with other families.

⁶ *Esso Family Math Program: Resources for Grades 2 – 5 Children and their Parents*, written by Barry Onslow and Nancy Chapple, November 2004



Coin Math problems

1. Mariah was cleaning out her purse and found a handful of pennies, nickels, dimes, and quarters. She found 16 coins in all. What coins does she have?

She has:

1. the same number of nickels as pennies.
2. \$1.00 in quarters.
3. 2 more dimes than quarters.

2. Coin problems

- a. I have three coins in my pocket. They are worth 7 cents. What do I have?
 - b. I have three coins in my pocket. They are worth 16 cents. What do I have?
 - c. I have three coins in my pocket. They are worth 11 cents. What do I have?
 - d. I have three coins in my pockets. They are worth 30 cents. What do I have?
 - e. I have six coins in my pocket. They are worth 30 cents. What could I have?
This problem has more than one answer.
 - f. I have ten coins. My coins are worth 61¢. I have twice as many nickels as dimes. I have no quarters.
 - g. I have five coins in my pocket. They are worth 55¢. I have the same number of dimes as nickels and no pennies.
 - h. I have five coins in my pocket. They are worth \$1.50. I have two times as many dimes as nickels, loonies and quarters.
3. Janice has \$2.46 worth of coins in her pocket. The coins are of four different denominations, and she has the same number of each denomination. What are the four denominations, and how many of each does she have?



Math Riddles⁷

1. Which weighs more? A pound of gold or a pound of feathers?
2. What is alive and has only one foot?
3. When do giraffes have eight feet?
4. How many eggs can you put in an empty basket?
5. What is the difference between a new penny and an old quarter?
6. If you can buy eight eggs for 26 cents, how many can you buy for a cent and a quarter?
7. If there were nine cats on a bridge and one jumped over the edge, how many would be left?
8. If you take three apples from five apples, how many do you have?
9. Why did the dentist need to know math?
10. What makes arithmetic hard work?
11. What are ten things you can always count on?
12. Why are misers good math teachers?
13. What kind of pliers do you use in arithmetic?
14. Why did the man sleep with a ruler?
15. How does a cow add?

⁷ Source: <http://www.onlinemathlearning.com/math-trivia.html>



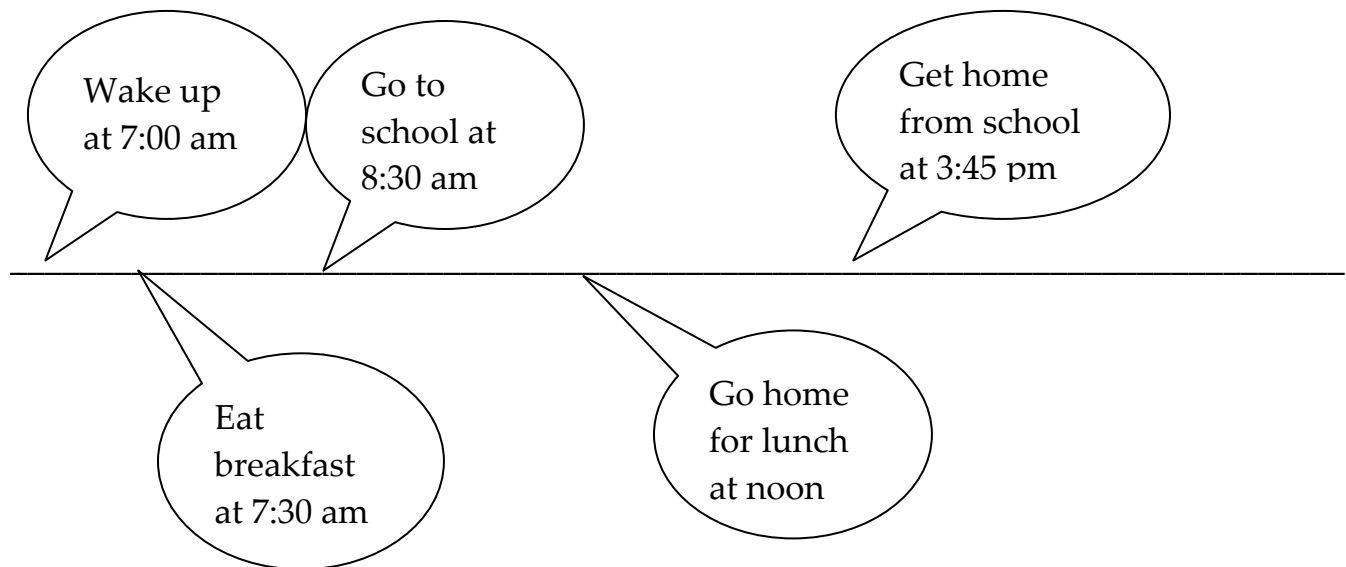
Time Activities⁸

1. Time lines

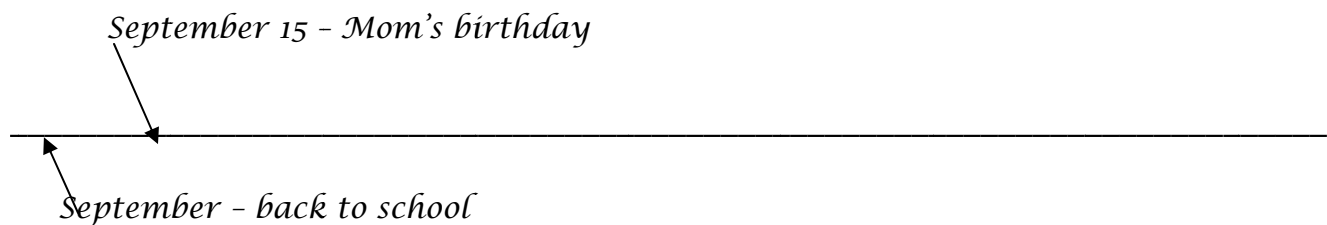
- ✓ Make a time line of pictures or words of daily events. Draw pictures or cut them out of magazines or write words to describe your day. Some ideas for the time line are: waking up, breakfast, brushing your teeth, etc.
- ✓ Make another time line for the different seasons in a year, or holidays and birthdays celebrated by each family.

For example:

Our Day



Special Events of Our Family



⁸ *Family Math*, Jean Kerr Stenmark, Virginia Thompson and Ruth Cossey, Lawrence Hall of Science #5200, University of California, 1986



2. Make a calendar

Make a copy of the calendar grid below. Give it to families. Or families could make their own calendar using a blank piece of paper and a ruler. Ask them to make a calendar for the month. Fill in holidays, birthdays and special family events.

3. What time is it?

- ✓ Give each family an old clock with hands. Families use the clocks to solve the problems:

What time will it be?

- If it is 6:00 pm now, what time will it be:
 - 2 hours from now?
 - 5 ½ hours from now?
 - 8 hours from now?
 - 12 hours from now?

What time was it?

- If it is 7:00 pm, what time was it:
 - 1 ½ hours ago?
 - 9 hours ago?
 - 45 minutes ago?
 - 2 hours and 20 minutes ago?

How long?

- If it is 2:00 pm now, how long is it until 8:00 pm?
- How long is it until 11:30 pm?
- How about 2:00 am the next day?
- Make up some more problems.

4. Just a minute!

- ✓ For these, give families a watch with a second hand and ask them to try these out:
 - Close your eyes for one minute. Open your eyes when you think a minute is up. Use the watch to time.
 - How long can you stand on one foot?



- How many times can you touch your knee and then your shoulder in 15 seconds?
- How many times can you snap your fingers in 15 seconds?
- How long does it take to tie your shoes?
- How many times can you write your name in a minute?
- How long does it take to say the alphabet?
- How long does it take to do 20 jumping jacks?
- Run on the spot for what you think is one minute. How close were you to the one minute mark?
- Make up some of your own activities.

Answers Sheet



Math Adlibs

1. Mary's Birthday Party: 14 treats
2. The _____ Team: 4 teams
3. Camping Out: 5 tents
4. A Great Garage Sale: \$52.50

Word Problems

1. How many candles? 85
2. Neighbors

Juan	263
AJ	526
Celeste	562
Randy	235
Kara	362
Lily	265
3. Turkey – 8 kilograms and 2 kilograms left for the dogs...
4. From youngest to oldest, the 6 daughters are 10, 14, 18, 22, 26, and 30
5. Mary is now 22 years old.



Calculator Quiz

1. shell
2. high
3. boil
4. sells
5. oil
6. boss
7. sob
8. shed
9. bed
10. slide

Coin Math Problems

1. 4 quarters, 6 dimes, 3 nickels, 3 penni
2.
 - a) 1 nickel and 2 pennies
 - b) 1 dime, 1 nickel, and 1 penny
 - c) 2 nickels, 1 penny
 - d) 3 dimes
 - e) 1 quarter, 5 pennies or 6 nickels
 - f) 3 dimes, 6 nickels, 1 penny
 - g) 1 quarter, 2 dimes, 2 nickels
 - h) 1 loonie, 1 quarter, 2 dimes, 1 nickel
3. 6 pennies, 6 nickels, 6 dimes and 6 quarters



Math Riddles

1. Both weigh the same
2. A leg
3. When there's two of them
4. Only one, after that the basket is not empty
5. 24 cents
6. 8
7. None - they are copycats
8. You have three apples
9. Because they may need to do a square root canal
10. All those numerals you have to carry
11. Your fingers
12. They know how to make every penny count
13. Multipliers
14. To see how long he could sleep
15. With a cow-culator

Tips for Parents



Be positive about math!

- Let your child know that **everyone** can learn math.
- Let your child know that **you** think math is important and fun.
- Point out the ways in which different family members use math in their jobs.
- Be positive about your own math abilities. Try to avoid saying "I was never good at math" or "I never liked math".
- Encourage your child to be persistent if a problem seems difficult.
- Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time.



Make math part of your child's day.

- Point out to your child the many ways in which math is used in everyday activities.
- Encourage your child to tell or show you how he or she uses math in everyday life.
- Include your child in everyday activities that involve math – making purchases, measuring ingredients, counting out plates and utensils for dinner.
- Play games and do puzzles with your child that involve math. They may focus on direction, time, logic and reasoning, sorting, or estimating.
- Do math problems with your child for fun.

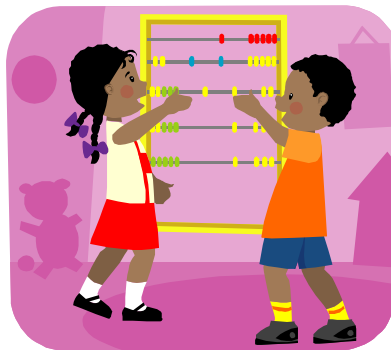


Celebrate Family Literacy in the NWT

- In addition to math tools, such as a ruler and a calculator, use handy household objects, such as a measuring cup and containers of various shapes and sizes, when doing math with your child.

Encourage your child to give explanations.

- When your child is trying to solve a problem, ask what he or she is thinking. If your child seems puzzled, ask him or her to tell you what doesn't make sense. (Talking about their ideas and how they reach solutions helps children learn to reason mathematically.)
- Suggest that your child act out a problem to solve it. Have your child show how he or she reached a conclusion by drawing pictures and moving objects as well as by using words.
- Treat errors as opportunities to help your child learn something new.





Family Math Evaluation



Please take a moment to tell us what you thought.
We appreciate your comments!

Number of people who participated? _____

Age range of participants: _____

How did you use this kit?

What worked well?

What didn't work so well, and why?

What would you change?

Additional comments:

