Annapolis Valley Regional Centre for Education

# Math Minds at Play

Everyone can have a "Math Mind." Every day in school children work on building skills in math. Playing games and doing math activities in school and at home helps to reinforce and strengthen these skills.

Use this "Math Minds at Play" pack to do a math activity or play a math game at home with family. These activities should be FUN and should help children build or improve confidence and skills in the following areas:

Numbers Patterns	Shapes	Measurement	Data
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Remember to:

- Praise your child and remind them it is ok to make mistakes mistakes are part of learning.
- Some struggle or challenge is good but too much of a challenge can sometimes lead to frustration. Choose a game or activity that offers the right amount of challenge.
- Easy activities can be fun. It is ok to play an easy game or activity but also encourage your child to try one of the challenges or make up their own challenge for a game or activity.
- As your child plays, encourage them to talk about their thinking. Questions or prompts you might ask are:
  Explain your thinking How do you know? How else could you solve this or do this activity? What strategy did you use? What worked well? What might you do differently next time? What did you enjoy?
- Focus on having fun!

#### Learn to Play

Instructions are provided for each activity or game. Some activities and games have a "Challenge Yourself" version. If your child has mastered the introductory level activity/game, try one of the more challenging versions.

### Materials you might need



# **Number Jump**

#### How to Play

Use chalk to draw a number line outside with numbers 0-6 or 0-10. Start at 0 and jump from one number to the next saying each number as you jump. Jump your way back to 0. Count as you jump.

Start at 0. Use one of the dice (6 sided dice if your number line goes to 6. or a 10 sided dice if your number line goes to 10). Roll and count and jump until you get to the number. Play again starting at 0 each time.

#### **Challenge Yourself:**

**Challenge #1:** Start at a number other than 0. Count up to 10 then back to 0.

Challenge #2: Start at 0 and skip count by 2s (0, 2, 4, 6...)

Challenge #3: Start at an odd number and skip count by 2 (1, 3, 5, 7, 9)

Change the Game... create your own challenge using the materials in your math pack.



## **Giant Number Line**

### How to Play

Use chalk to draw a number line on the pavement with numbers 0-20. Put the number line template in your plastic sleeve. Roll the 10 sided dice and use these numbers to create an addition or subtraction sentence.

One person will write the expression on the top of the whiteboard and use the number line template to solve. Show each jump.

The other person will use your Giant number line to solve. E.g. 6+7=? Start on 6 and jump 7 spaces until you get to 13.

Did you get the same answer? Play again.

#### **Challenge Yourself**

Challenge #1: Play again but this time solve equations using subtraction

Change the Game... create your own challenge using the materials in your math pack.



# Hit the Target (cards)

### How to Play

Choose a number between 1 and 20. This is the target number. Turn over 2-4 cards and use the values on the cards, with any combination of operations (+, -) to create a number sentence that is closest to the target number. The player with an expression closest to the target number (without going over) wins that round.

> Record: 9 + 10 = 19

> > - 6 =



**Challenge Yourself** 

Challenge #1: Same game, higher target. Set your target higher (30, 50, 100, or even 1000) and turn over more cards to use (5, 6, 7 cards).

Challenge #2: Allow other operations such as multiplication and division.

Change the Game... create your own challenge using the materials in your math pack.





# Hit the Target (dice)

### **How to Play**

Choose a number between 1 and 20. This is the target number. Roll one of the dice and record your number. Roll again and add or subtract the new number to the previous value. Keep rolling and recording until you hit your target. The first player to hit the target wins the round.

#### **Challenge Yourself**

Challenge #1: Choose a number greater than 20 as your target. Roll 2 or more dice and add or subtract the numbers to try and reach your target.



## Winner Takes All

#### How to Play

Deal all of the cards to the players. Each card is worth the number on the card. Jacks, queens and kings are worth 10 each. Players turn over the top card on their pile at the same time. The person with the highest card takes all of the cards. If the numbers are the same, turn over another card. Play continues until one player has all of the cards.

#### **Challenge Yourself**

**Challenge #1:** Remove all of the face cards and play with 1-9. Turn over 2 cards at a time and place them side by side to make a 2 digit number (e.g. a 2 and a 9 would be 29). The person with the highest number takes the cards.

**Challenge #2:** Each player turns over 2 cards at a time and adds them together. The person with the greatest sum takes the cards.

**Challenge #3:** Try turning over 2 cards and subtracting. The person with the smallest answer takes the cards.

Change the Game... create your own challenge using the materials in your math pack.



# **Get Moving**

### How to Play

Use a deck of cards. Assign each suit an action. Record these on your whiteboard. For example:

- hearts = jump
- clubs = high kick
- diamonds = touch your toes
  - spades = spin



Turn over a card and look at the card number and suit. Do the action that matches that suit the number of times that is shown by the number on the card. For example, if you turned over the 7 of spades you would spin around 7 times. Count out loud each time you do the action.



### Race to 100

#### **How to Play**

Use a 100 chart. On your turn roll one or two dice and add the numbers rolled (e.g. 3 + 6 the total would be 9). Move your marker to this number on the hundreds chart. If you can, move in 1 motion. The first to get to 100 (without going over) wins. With this game the focus can be on counting or adding.

#### **Challenge Yourself**

Challenge #1: Roll 3 or 4 dice at a time

**Challenge #2:** Start at 100. Roll your dice and work backward to 0 using sub-traction.

**Challenge #3:** One partner starts at 0 and races to 100. The other starts at 100 and races to 0. Roll your dice and move the correct number of spaces. The first one to reach their target wins.

Change the Game... create your own challenge using the materials in your math pack.





### **Break-It**

#### How to Play

Make a tower using 5 linking cubes of 1 colour and 5 of a second colour. Hold your tower behind your back and when your partner calls out "break", break the tower into 2 pieces. Hold one piece in front of you and keep the other piece behind your back.

How many pieces are in front? How many are behind? How do you know? (Hint: the person guessing can look at their own tower to figure out how many cubes your partner is holding behind their back).

#### **Challenge Yourself**

Challenge #1: Start by making a tower with more than 10 linking cubes.



# **Modeling and Writing Numbers**

#### How to Play

Choose a number formation card and place it in the plastic sleeve. Use the clay to make the shape of the number on the card.

Make balls of clay to show the number on the ten frame.

Trace and write the numbers on the card with a dry erase marker. Use the arrows to guide you and talk out loud about how you are forming the numbers as you go.

#### **Challenge Yourself**

Challenge #1: Practice writing numbers without using the guide.

Challenge #2: How many ways can you use clay to represent numbers?

- Divide the clay into a number of pieces
- Make a number of imprints in the clay

Change the Game... create your own challenge using the materials in your math pack.





# How Many are Hiding?

#### How to Play

Start with 10 cubes on your 10 frame. Put some in a cup and leave the others on the table. How many are on the table? How many are in the cup? How would you describe the number of cubes?



For example: I have 10 cubes. You can see 8 cubes and I am hiding 2 cubes.

#### **Challenge Yourself**

**Challenge #1:** Play with a partner and have your partner figure out how many cubes are in the cup without looking in the cup.

**Challenge #2:** Play using 20 cubes and a bag or larger container to hide the cubes in.

Challenge #3: Play using up to 50 cubes.



# **Counting On/Counting Back**

### How to Play

Remove the jack, queen and kings from the deck. Turn over a card. If the number is on a black card (spades or clubs) count on from that number until you get to 20. If the number is on a red card (hearts or diamonds) count back until you get to 0.



Say: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20



**Challenge Yourself** 

Challenge #1: Count on or back to a number greater than 20.

**Challenge #2:** Skip count by 2s, 5s or 10s from the number you turn over





Change the Game... create your own challenge using the materials in your math pack.

# Go Fish/Fishing for 10

### How to Play

**GO FISH:** Deal 5 cards to each player and put the remaining cards face down. This will be the fishing pile. The goal is to lay down pairs of cards until all of your cards are gone. The first player asks another player if they have a specific card (e.g. "Do you have an ace?"). If they do they must hand it over. If they don't they say, "Go Fish" and the player picks up a card off the top of the fishing pile. Players take turns asking for cards until one player has laid down all of their cards in pairs.

**FISHING FOR 10:** Remove all of the tens, jacks, queens, and kings.. The this game is played like Go Fish, but instead of laying down matching pairs (e.g. 4 and 4), ask for cards that allow you to make 10. For example, if you have a 6 you need to ask for a 4.



### How Many...

#### **How to Play**

Look for items around your home that you can count. Begin with an estimate (your best guess) and then confirm, by counting:

- How many dinky cars can you hold in 2 hands?
- How many stones can you hold in 1 hand?
- How many pieces of macaroni does it take to fill a cup?
- How many books on a shelf?
- How many blocks can you stack before the tower falls?

#### **Materials**

items around the home /yard

#### **Challenge Yourself**

**Challenge #1:** Take turns thinking of other "How many...?" questions and counting to find the answer.

Change the Game... create your own challenge using the materials in your math pack.

## **Nickels and Dimes**

### How to Play

Collect as many nickels and dimes as you can (or use your counters as nickels and dimes: red for nickels and yellow for dimes). Practice skip counting using nickels and dimes. Each time you count a coin say the number. E.g. 5, 10, 15, 20, 25... or E.g. 10, 20, 30, 40, 50, 60....

#### **Challenge Yourself**

**Challenge #1:** Try counting money using both nickels and dimes. Try counting all the dimes first then the nickels. Next try counting nickels followed by dimes. Finally, try mixing them up and counting them.

**Challenge #2:** What combination of nickels and dimes would make 1 dollar? Show 5 ways you can make 1 dollar.

Change the Game... create your own challenge using the materials in your math pack.



# Add 'Em Up and Take Away!

### How to Play

Shuffle the deck of cards and deal each player an equal number of cards. Each player turns over 2 cards and finds the sum of their cards (addition). The player with the greatest sum scores the difference between the two sums.

For Example: My cards total 14. Your cards total 9. So, I score 5 points this round since 14-9=5.

The first player to reach 30, 50, or 100 points first is the winner.

Use your plastic sleeve as a white board to do your addition and subtraction and to keep score.





Change the Game... create your own challenge using the materials in your math pack.

# First to 100-Odd Addition

### How to Play

Shuffle the cards and place them face down in a pile in the centre of the players. Each player draws two cards from the centre pile. Players add the two values together and tells everyone their sum.

If the sum is an odd number the player keeps their cards e.g. 4+5=9 and wins this number of points. Record the points (9) on the Hundreds Chart in your plastic sleeve.

If the total is an even number, e.g. 5+3=8, the cards must be returned to the discard pile in the centre.

Each player keeps adding the value of the cards they have won until one player reaches 100 and becomes the winner.



# Aim for 100

### **How to Play**

Remove the 10s, jacks, queens, and kings from the deck. Shuffle the cards. The dealer deals 4 cards to each player. Use your cards to make two 2-digit numbers whose sum is as close to 100 as possible.



Find the sum of your two numbers.

73 + 18 = 91

Find the difference between 100 and your sum. (e.g. 100-91 = 9) This is your score. Record your score on your whiteboard.

Return the cards to the deck, shuffle them, and play again.

After 5 rounds, add your scores. The player with the lowest total score wins.

Change the Game... create your own challenge using the materials in your math pack.





# **Mi'kmaw Numbers**

### How to Play

Practice saying your numbers 1-10 using these flashcards. On the back of each card is the number in Mi'kmaq. Use the pronunciation guide to help you learn how to say each number. Start with "call and response" one person looks at the pronunciation guide and reads the number out loud. The other person repeats what they hear.

#### **Challenge Yourself**

**Challenge #1:** Try saying the numbers in order without looking at the names on the back. Start with numbers 1-5.

**Challenge #2:** Show the cards in random order for your partner to identify.

### Video

Scan the code below to learn more and see this activity in action.





### Which One Doesn't Belong

### How to Play

Use a variety of materials from your math pack. Choose a number between 1 and 10 and keep it a secret from your partner. Show at least 3 different examples of this number. Also include one of example that is not this number. Ask your partner "Which one doesn't belong?"



Challenge yourself:

Challenge #1: Play using larger numbers.

**Challenge #2:** Play using addition and subtraction sentences. Create 4 or 5 equations and ask your partner which doesn't belong. E.g.

12 + 11 = ? 8 + 15 = ? 20 + 3 = ? 10 + 12 = ? 30 - 7 = ?

Change the Game... create your own challenge using the materials in your math pack.



### Math Walk

### How to Play

Go on a walk. Count items that you see. For example,

- How many trees are in your front yard?
- How many birds are on the power line?
- How many swings are at the park?

#### **Challenge yourself:**

**Challenge #1:** Look for numbers in your community – say each number that you see. Look on houses, signs, etc.

**Materials** 

Challenge #2: Look for shapes (circle, square, triangle, rectangle, hexagon, etc.)

Challenge #3: Look for 3D objects (sphere, cylinder, cube, pyramid, prism)

Change the Game... create your own challenge using the materials in your math pack.

## **Patterns in Nature**

#### How to Play

Use objects around your home or yard to make a repeating pattern. The photo below shows a pattern made out of different coloured leaves.



What other objects could you use to make a pattern?

Can you find any examples of patterns that naturally exist in nature?

#### **Materials**

Various materials around your home or outdoors.

Change the Game... create your own challenge using the materials in your math pack.

# **Making Patterns**

### How to Play

Use objects in your Math Minds at Play pack to make a repeating pattern. Can you add another element to the pattern to make it more complex?



**Challenge Yourself:** 

Challenge #1: Make an increasing pattern





#### **Materials**

Various materials such as:



Change the Game... create your own challenge using the materials in your math pack.

# Line Design

#### **How to Play**



Put your blank hundreds chart in your plastic sleeve. Use your whiteboard markers to make patterns by coloring in the blank squares of a row with different colors or designs.

#### **Challenge Yourself**

**Challenge #1:** Create designs that tie together more than one row and at least 1 column.

Change the Game... create your own challenge using the materials in your math pack.



# **Continuing the Pattern**

### How to Play

Make the core of a pattern. Have your partner continue the pattern. Say the pattern out loud to check that it sounds right.

#### **Challenge Yourself:**

**Challenge #1:** Put a number of objects in the middle of the table. Each person takes turns selecting an object and adding it to the pattern. Keep taking turns and adding objects to keep the pattern going.

**Challenge #2:** Stand in a circle or sit around the table. One person creates an "Action Pattern" (e.g. clap, clap, stomp, whistle). Going around the table, each person continues the pattern.

#### Materials :

Various materials such as:



# **Building Houses**

### How to Play

You have been hired to build a house. Each house can have one room for each person living in the home. How many people are in your family? Design a house with that number of rooms. How many different ways can you arrange your rooms?

For example:



Family of 2 or Family of 2 Family of 3 or Family of 3 or Family of 3

Put the blank hundreds chart in your plastic sleeve and use the dry erase marker to draw all of your options.

Change the Game... create your own challenge using the materials in your math pack.



# **Building with Tangrams**

### How to Play

Choose a Tangram puzzle template and arrange the Tans to complete the puzzle. Start with the templates that show an outline of each of the 7 pieces.

#### **Challenge Yourself**

**Challenge #1:** Select a template that only shows an outline of the picture. Try to figure out where each of the 7 pieces go to make this picture.

**Challenge #2:** Use the Tans to create your own puzzles. Trace the shape on your whiteboard and have someone in your family try to solve the puzzle.



# **3D Objects**

### How to Play

Make two of these 3-D objects using playdoh:



What do you notice about the objects you made? Pick one of the objects and find items around your home that are similar to the 3-D object you made. How are they are similar to and different from your object.

**Challenge Yourself:** 

**Challenge #1:** Select 1 object from above and choose an attribute of that 3-D object (Ex: it rolls, has 6 edges, etc). Find 3 or more items in your home with that same attribute. Then use your modeling clay to create another object with this attribute.

**Challenge #2:** Choose one of the 3-D objects above. Give your partner clues about the object without saying its name. Have them guess your object.

Change the Game... create your own challenge using the materials in your math pack.





#### How to Play

Use toothpicks or something similar and your clay to make the shapes and 3D objects shown below. Count the number of edges (tooth picks) and the number of vertices (balls of clay).



Challenge Yourself:

**Challenge #1:** Make a table on your whiteboard. Record the number of edges and vertices for each shape or 3D object.

Change the Game... create your own challenge using the materials in your math pack.

### Materials :



# **Measuring With Cubes**

### How to Play

Make a tower that is 10 cubes high. How many things can you find that are approximately the same height? What objects are shorter than 10 cubes? Which are longer than 10 cubes?

#### **Challenge yourself**

Challenge #1: Use your cubes to estimate the following:

- How many cubes long is your foot?
- How many cubes to measure the height of the doorknob from the floor?
- How many cubes would you need to go around the perimeter of a book?

**Challenge #2:** Use your 10 blocks to estimate how many cubes it would take to measure your height? The lengths of your bed? The height of your wall? Other things around your home?

Change the Game... create your own challenge using the materials in your math pack.



# Small, Medium, Large...

### How to Play

Find a variety of containers. Arrange them from smallest to largest. How can you check your thinking?

Can you use water, sand, rice, etc. as a way to check?

What happens if you fill the largest container with water or sand, etc. and then pour the water or sand into the next largest container?

Try to prove that one container is larger than another.

#### **Materials**

Different sized containers

### **Measurement Hunt**

### How to Play

Use a ruler or a measuring tape to find and measure things inside and outside your home. Can you find 10 things that are:

1 cm long 5 cm long 10 cm long 100 cm long

#### **Challenge Yourself**

**Challenge #1:** Find 10 objects around your home. Estimate the length of each object. Record your estimate on your whiteboard. Use the measuring tape to check your estimate. How close did you get?

**Challenge #2:** Perimeter is the distance around the outside of an object. Measure the perimeter of a book, a table, another object.

**Challenge #3:** Can you find something that has a perimeter that is approximately 40cm? 100cm?

Change the Game... create your own challenge using the materials in your math pack.

#### **Materials**



# How Long? How Far?

#### **How to Play**

Find a safe space where you can try the following challenges? Record the length or distance for each on your white board? Compare your measurements to a partner.

How long is your left foot? Your right foot? How wide is your hand? How tall are you? How far can you jump (from a standing position)? (with a "run up")? How far can you throw a ball?

#### **Challenge Yourself**

Challenge #1: Create your own "How Long? How Far?" challenges.





# **Grab and Graph**

#### **How to Play**

Separate all your linking cubes and put them in a bag or pillowcase. Without looking inside, grab 25 cubes and put them on the table or floor in front of you. Sort your cubes into colors and create a bar graph with the cubes. Place each cube onto one of the squares on your blank hundred chart. Be sure to put all of the cubes that are the same color in the same row or column.

Say three true statements about your data. (Ex: The color I grabbed the most of was blue. I grabbed an equal number of red and green).

#### **Challenge Yourself**

**Challenge #1:** Choose 35 or 40 cubes and draw the graph on your blank hundred chart. Be sure to label your graph. Say three true statements about your data. Say one not true statement about your data.

Change the Game... create your own challenge using the materials in your math pack.

#### **Materials**

A bag or pillow case



# **Roll and Tally**

### How to Play

On your whiteboard sleeve, draw a table with 6 boxes and label each box with a number from 1-6. Roll a die and put a tally mark in the box that matches the number on the die. Do this 25 times. Look at your tally chart and say 3 true statements about your data.

1	2	3	4	5	6
		#	1		

#### **Challenge Yourself**

**Challenge #1:** Use your data from the tally chart to create a graph on your whiteboard or blank hundred chart.

**Challenge #2**: Draw a table with 10 or 12 boxes and use a 10 sided die or 2 6 sided dice.

Change the Game... create your own challenge using the materials in your math pack.

#### Materials :



## **Sorting Shoes**

#### How to Play

Look around your home for different kinds of footwear. Collect as many pairs as you can. Sort them into different piles (boots, running shoes, dressy shoes, sandals, etc.). Create a tally chart.

Use your cubes to build a graph showing the results of your tally. Each colour will represent a different type of footwear.

#### **Challenge Yourself**

Challenge #1: Choose something else to tally and graph

#### **Materials**

Footwear from home.

Change the Game... create your own challenge using the materials in your math pack.

# Venn Diagram

### How to Play

A Venn diagram can be used to sort items into groups. Use your sidewalk chalk to draw a Venn diagram like the one below or use pieces of string or rope to make one indoors.

Collect a number of items from around your home or yard or use the materials in your math pack. Choose 2 attributes of your items (e.g. things that are soft, things that are hard or smooth).



Sort the items and place them in the Venn diagram. Items that are soft would go on one side. Things are hard go on the other side, and if the object is both soft and hard it will go in the middle.

#### Materials :

Various items from your math pack or from your home.