Math Learning Support Package Activities

Tips and Reminders for the Packages:

Here are a few things to keep in mind to make the most of the Math package.

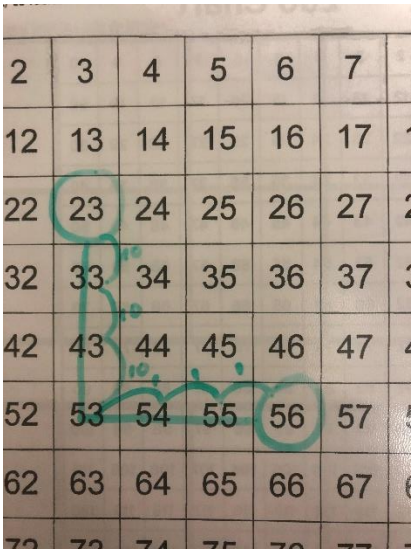
- It works best to remove the staple before using the items.
- The plastic sleeve is a great place to keep all of the items when not using them.
- Remember to place the mats you want to use in the plastic sleeve before writing on them so that they can be used over and over again.
- Remind your child to not overuse the marker by colouring excessively and to make sure the lid is on after use each time so it will last longer. Once the marker no longer works you can use a washable regular marker instead.
- If you are needing replacement sheets they can be accessed online at your child's school website and can be printed at home. If you do not have a printer please contact your child's teacher or school and they can provide you with replacements.

Hundred Charts (1-100 and 1-200)

Number Paths

On the 100 chart select 2 numbers. Draw the path from one number to the next. Using that path determine the difference between the two numbers by either counting up or counting back.

Example: Let's say the two numbers are 23 and 56. The path would look like:



The difference would be:

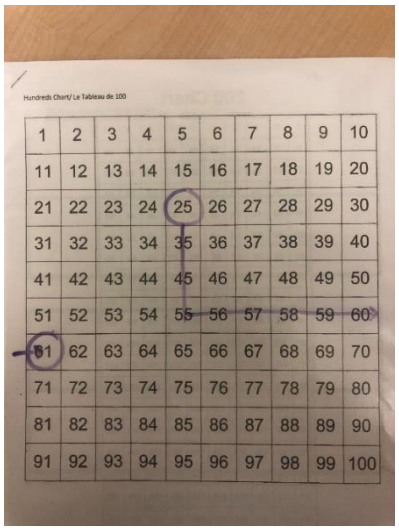
By counting up – 23, 33, 43, 53, 54, 55, 56 so all together that was 10 + 10 + 10 + 3 = 33. So the difference from 23 to 56 is 33.

By counting back – 56, 55, 54, 53, 43, 33, 23 so 3 + 10 +10 +10 = 33

OR

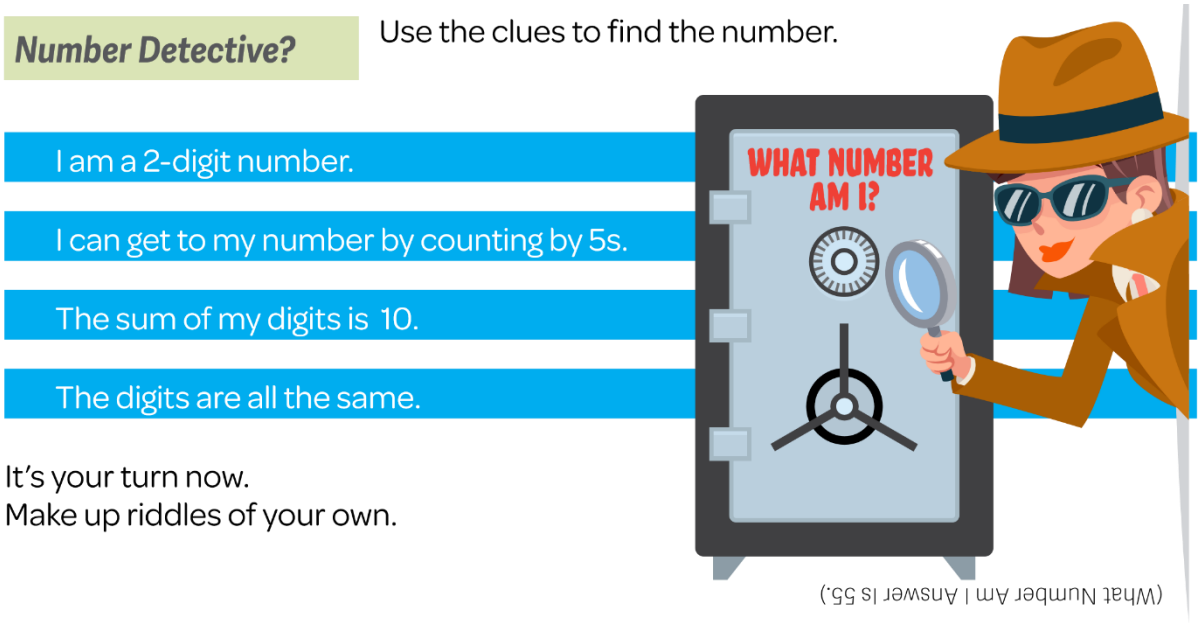
Select a start number on your 100 chart. Roll either one or two dice to generate a number to add to your start number. Add that number to the start number by showing the path on the hundred chart. For example:

The start number was 25. I rolled two dice and rolled a 3 and 6 so I could either add 36 or 63. I chose 36. So now on my 100 chart I would add 36 to 25. To do so I break 36 into 30 and 6. I count on from 25 by 10s. It would sound like this 25, 35, 45, 55. Next I add on the 6. It would sound like this 56, 57, 58, 59, 60, 61. As I count I can draw the path on the chart. So 25 + 36 = 61. My path would like this:



To extend this activity – consider using the 1 -200 chart instead.

"What Number Am I?" Riddles – take turns with your child selecting a number on the 100 chart and creating a riddle to solve about a number. Here is an example:



Also check out Solve Me Who Am I Puzzles for more riddles and fun!
https://solveme.edc.org/whoami/

Skip Counting and Noticing Patterns – choose a number to skip count by on your 100 chart. Circle all of the numbers you say while skip counting. What pattern is created by the circles?

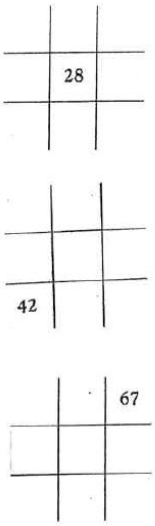
Middle Years students – keep track of skip counting by 2 different numbers (on the 1-200 chart) by putting different shapes around the numbers. What do you notice about the numbers with two shapes around them? What patterns do you notice?

Addition and Subtraction Patterns. 3+9=? Now go to 23+9, 33+9, 63+9. What do you notice? What do 15-7, 25-7, 45-7, etc. have in common? Find other patterns.

"Arrow Games"-- Starting at the number given, each arrow means to move one square in the direction shown. What number is "45 ← ← ↑ → ↑"? How would you use arrows to say, *"Start and 27 and move to 59"*? Make up your own arrow code for someone to follow.

100-chart Tic-Tac-Toe -- To begin make a tic-tac-toe by drawing two vertical lines and two horizontal lines (see picture) Next place a number in one of the boxes in the grid. Then have your child fill in all of the other boxes of the grid so it looks like part of the 100 chart. Prompt your child by asking

"What number is one less/one more than _____?" or "What number comes right before/after ____?" The questioning/talking is important as **it is not the positional relationship we want to emphasize, but rather the 1 more/less and 10 more/10 less relationships between the numbers**.



1	2	3	4	5					
11	12	13	14	15		17	18	19	
21	22	23	24	25		27	28	29	
31	32	33	34	35		37	38	39	
41	42	43	44	45					
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

"Race to 100" -- Take turns rolling one or two dice and moving that many spaces on the hundreds chart. If you correctly predict your landing place before you move (without counting squares!), then you can go one extra space as a bonus. The first person to reach or pass 100 wins the game.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The Factors & Multiples Game: The first player marks an even number less than 50 on the hundred board. His opponent marks a factor or multiple of that number. Players alternate, each time marking a factor or multiple of the last number played. The player who marks the last number, leaving his opponent with no move, wins the game.

Fractions, Decimals & Percents: What number is 1/2 of 100? How do you know? What number is 3/4 of 100? Are you sure? How can you show it is true? (What does the fraction 3/4 mean? What does any fraction mean?) What other fractions of 100 can you find? 1/10? 2/5? Can you find a number that is 1/3 of 100?

The hundred chart can help you convert between fractions, decimals, and percents. Do you see how? "Percent" means "out of 100." So 30% means "30 out of 100"—which is how much of the whole chart? If we say that the chart is one whole unit, then how much is each row (in decimal notation)? What size is each box? Can you color 0.47 of the chart? What decimal would mean the same as 1/5 of the chart? And what percent of the chart would that be?

Gomoku, also known as Five-in-a-Row -- On the hundred chart, use your whiteboard marker to make Xs and Os, or use pennies and nickels to mark the squares. The first player to mark a connected row (no gaps) of five squares in any direction wins. On each turn, the player must make up a calculation that equals the number in the square he/she wants to mark.

Logic Puzzle: A Cross pattern is a square plus the four squares directly up, down, left, and right from it. An X pattern is a square plus the four touching it diagonally. Choose any square that is not on an edge of the hundred board. Find its Cross and X patterns, and add up their sums. Can you explain why they add up to the same number? Can you find any other patterns that work that way? Can you figure out how to predict the Cross or X pattern sum for any number?
[Hint: Think symmetry]

Ten Frames

Make a number -- This is one of the best ways for young children to use a ten frame, and probably the best way to start. Get them to make a number! Eg. 4. There are so many different ways to make 4. Get, for example, four stones, and then experiment with a variety of formations. Children like comparing and copying others. Take turns copying one another and saying the number created.

Grab two numbers!

This is a good fun way of beginning to add on a ten frame. Have two types of objects in a pile, for example red jewels and blue jewels. Take a handful of each and then place them on the ten frame. You might get three red and four blue. How many have you got altogether? This is a great way to begin simple adding. This can be extended to using both ten frames to add amounts up to 20.

Doubling

Doubling is a very visual skill, and ten frames are perfect for achieving it. Simply, whatever you put in one line of the ten frame, put exactly the same in the bottom line. You then have two of whatever you originally had. Again, the adult can provide the maths vocabulary, such as 'double', 'two groups of', and 'altogether.'

Match numeral to quantity

For this you will need the number cards and some materials for children to write their own numbers. Get them to put an amount in the frame, and then place the correct number card next to the frame. Practice writing both the numeral and the number word. Your child can look at the number path mat to help them with the spelling of their number words.

Twenty Game

Materials: Blank ten-frames (two per child), counters, dice.

Rules: Each child takes a turn to roll a die, places that number of counters onto his/her ten-frames, then announces the total number of counters on the frames. The winner is the first player to fill all twenty spaces.

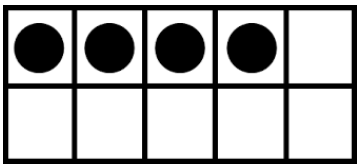
Variations/Extensions:
1. Each turn could include placing the correct numeral cards under the frames.
2. Each player can also announce the number of counters needed to reach twenty. The exact number must be rolled to win the game.

Guess What? Game
Materials: Blank ten-frames, counters, a large board to act as a screen/barrier between pairs of players.

Rules: One player secretly arranges some counters on a ten-frame. The other player asks questions that can be answered yes or no, trying to gain enough clues to work out the arrangement of counters. For example: Is the top row full? Are there 8 counters? Is there an empty box in the bottom row? Is the number even? Odd? Larger than____ /less than ____?

Variations/Extensions
1. As players become more skilled the number of questions can be counted. The player who asks fewer questions wins.

For Gr. 4 and higher: Some of the same activities above can be done but thinking of the ten frames in terms of fractions and decimals. For example: the student can practice showing either 4/10ths or 0.4 on the ten frame. It would look like:



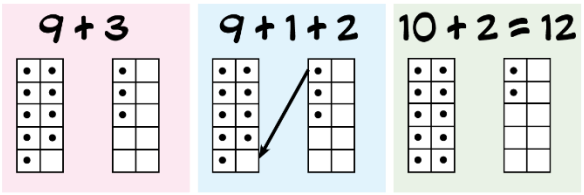
Mental Math Strategies

Mental math strategies foster flexible thinking about numbers and operations, and can help you determine the relationships between numbers. Learning about mental math strategies helps build an awareness of the numbers and makes you question if an answer does not "look" or "sound" right. Developing good mental math strategies is important because mental math is a valuable life skill.

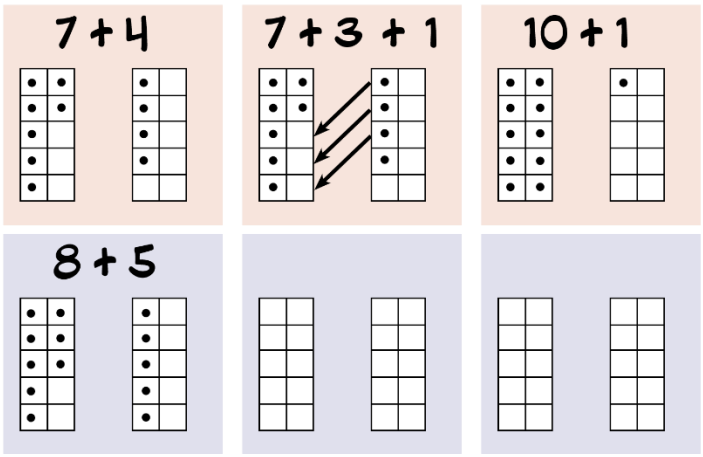
Using manipulatives and pictures supports how we can think about strategies.

Addition Strategy: Making Ten

Knowing number combinations that add up to 10 helps with adding numbers. Picturing a ten frame in your head can help.



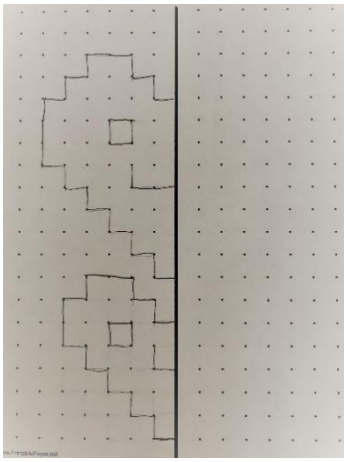
Use the making ten strategy to find the sums.



Grid Paper

Exploring Symmetry with Graph Paper

A fun art activity using graph paper involves the use of symmetry. The x- and y-axes on a grid act as good symmetry lines for any art project and also act as a good introduction for symmetry. First take some dot paper (grid paper works, too) and draw a line down the centre. Then ask your child to draw an image on one side of the line first.



Then, ask your child to use the line of symmetry as a mirror and reflect the first image drawn on the other side. A good visual to help kids understand this symmetry is to show them that they can fold the page on the line of symmetry and the two sides should match up exactly. Afterwards your child can colour their pictures.

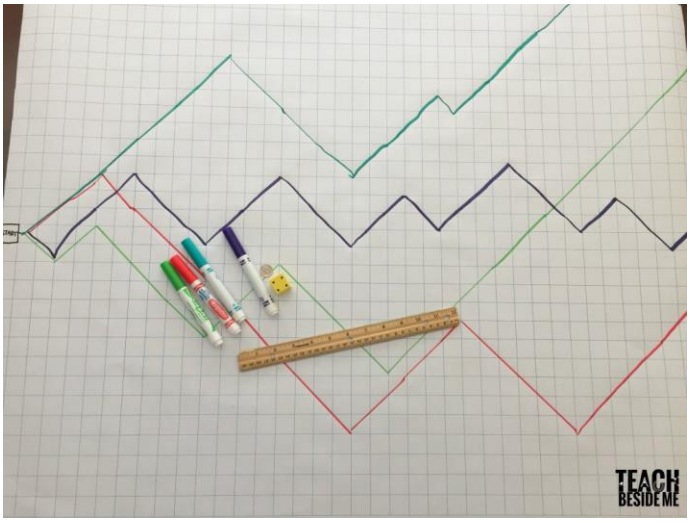
Surveying and Graphing:

Encourage your child to think of a survey question that interests them and that they would like to ask others about. Survey questions might include asking about favorites (colours, sports, food, etc.), number of pets, letters in first names, etc. Next have them conduct their survey by asking family members or calling other family or friends on the phone. Encourage your child to think about how to organize the information collected. Afterwards encourage your child to create a graph to show the information in a visual way.

Here is a link to a great site to help you and your child through this activity.
https://www.mathsisfun.com/data/survey-questionnaire.html

The Graphing Race Game:

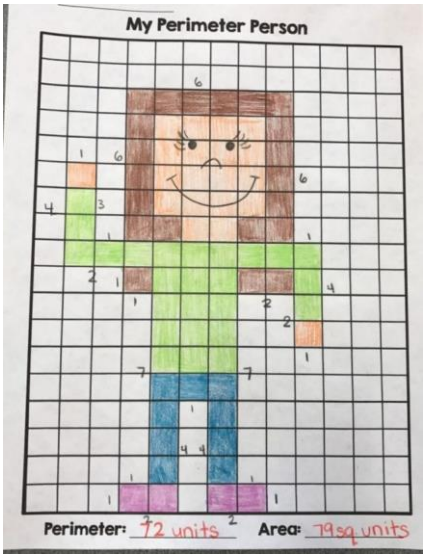
Each of the players chose a different color of marker to use. You will also use a ruler, a coin and a die. Choose a starting square in the center of the edge of the graph paper. Each player takes a turn. On your turn you roll the die and flip the coin. Heads you move up and tails you move down the number of spaces you roll on the die. You continue moving this way until you get to the other side of the graph paper. The first one there wins.



Area and Perimeter:

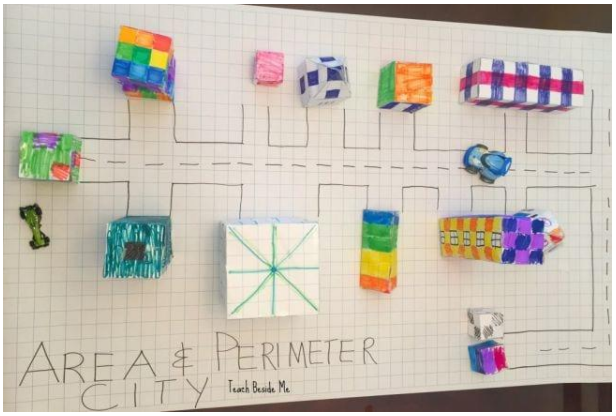
Draw a Perimeter Person

Have your child draw themselves on graph paper, then figure out the area and perimeter.



Write block letter names

Children love activities using their own names. Have your child draw their name using block letters on the grid paper. Then calculate the perimeter and area. (Name too long? Try initials instead.)



Build a city and map it out! Once the city is assembled, extend this fun project and teach your kids how to solve area, perimeter & volume of the shapes and buildings they have created! And let them play!

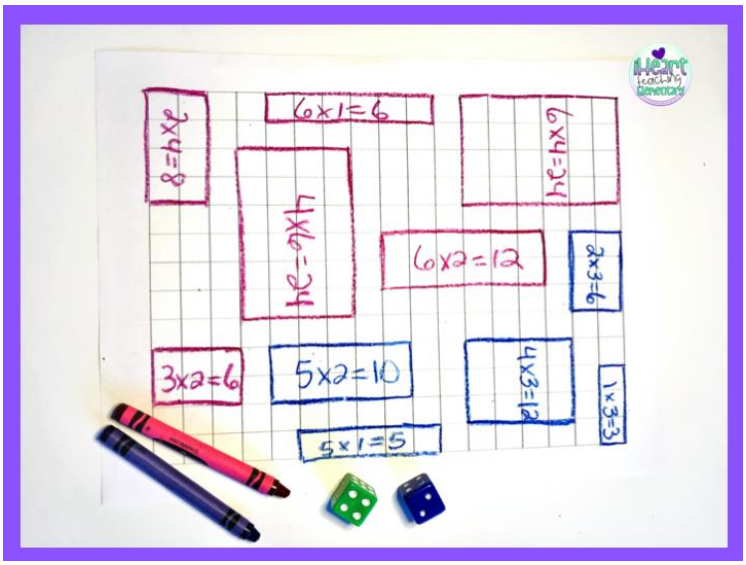
Area and Perimeter Game:

For area and perimeter practice using square units, we play this fun partner game called “Conquer the Area”. Here’s what you need to play: two dice, grid sheet, two different whiteboard markers.

Each player decides on their color and takes a turn rolling the dice. They create a shape with the numbers they rolled.

So for example, if they roll 3×4 they would draw a rectangle with 12 squares. Then they would write their multiplication problem inside the shape. (This reinforces arrays too!)

Their partner follows these same steps. They keep playing until time is up or they run out of space. The partner that covered the most space on the grid wins! Practice addition by adding up all of the areas of your rectangles.



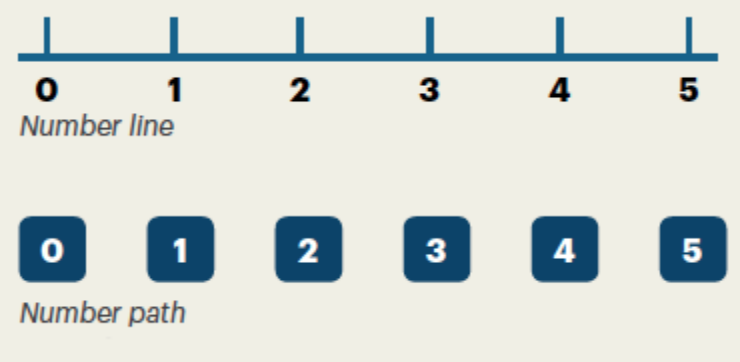
Coordinate Grid Battleship Game:

Play with a partner. Draw in both an x and y axes. Without your partner seeing, draw 4 battleships on on your grid paper. They can be horizontal or vertical and must be four coordinates long. Players then take turns choosing and saying a coordinate to see if they have hit their partner’s battleship.

Number Paths & Empty Number Lines

Number path games, when played like board games, are ideal for helping young children learn math. These games build children's understanding of early math concepts, such as counting and comparing numbers, while giving them experience with a valuable math tool—a number path.

Adults may wonder what the difference is between a number path and a number line (both are shown below). A number line is a tool that shows the distance between whole numbers, like a ruler. This tool can be confusing for young children if they land between numbers as they are counting. A number path is a counting tool—each number is written within a rectangle or other shape, and it is easier for young children to use when counting. In a number path game, children build confidence as they practice counting, use one-to-one correspondence, and learn that numbers come before and after other numbers. Having experience with a visual model like a number path will help children be prepared for later mathematics learning.



Number Path Table Game:

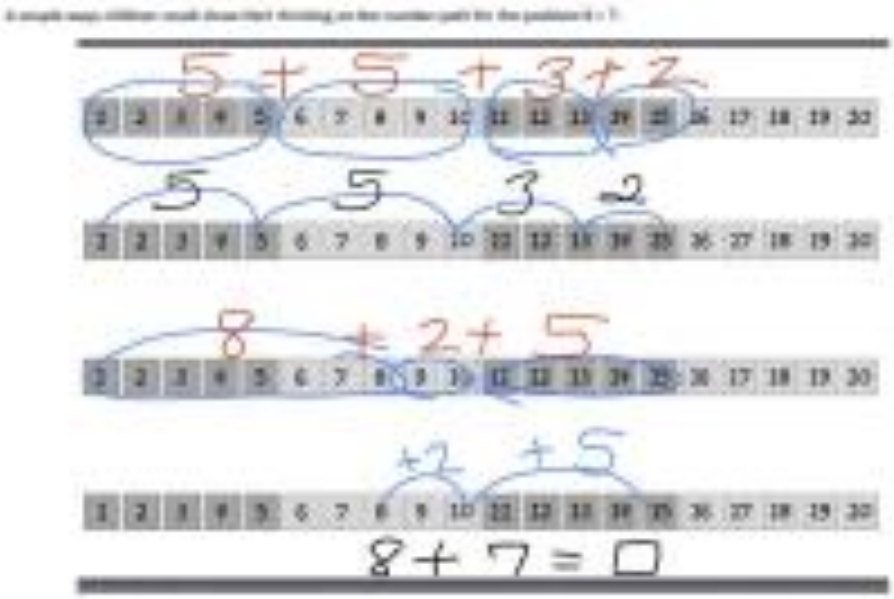
1. Give each pair of children a number path game board. Give each child a cube and a token.
2. Place the token below the number 1 (home).
3. Taking turns, children roll the cube and jump that number of places.
4. Play continues until a child's token lands on (or past) 10.
5. Many children enjoy continuing the game by jumping back to 1. This gives them practice counting backwards!

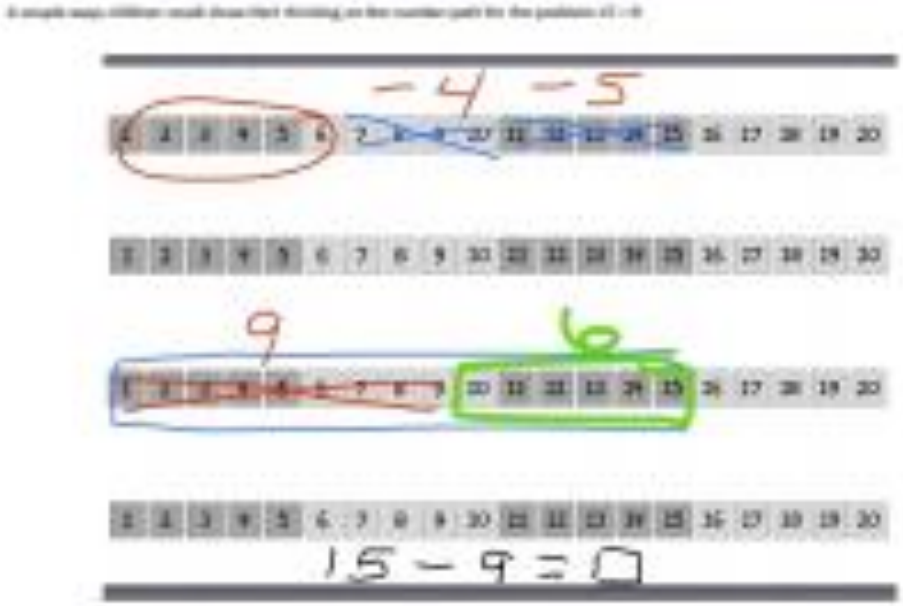
Cover-up Games:

You can cover up a number and ask your child to tell which number is hidden. Be sure to ask your child to explain how they know which number it is.

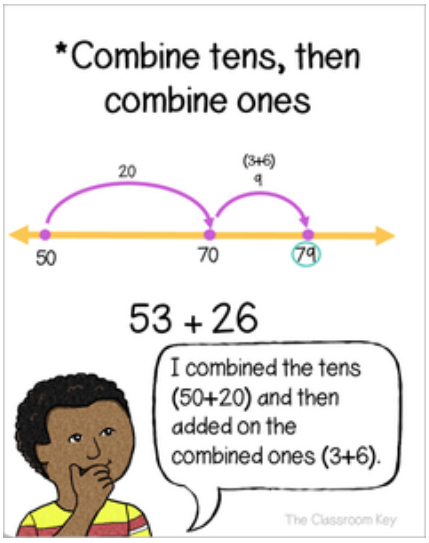
Showing Addition & Subtraction:

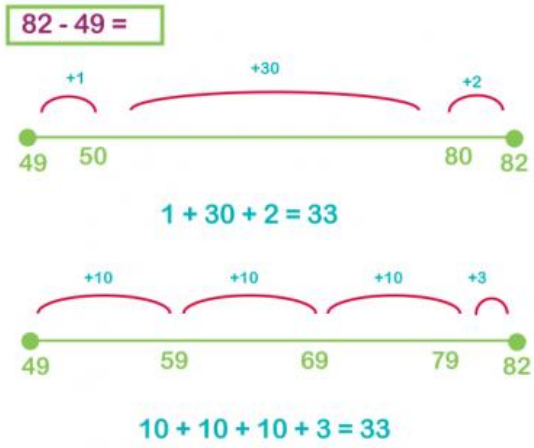
Using a number path might look like this:

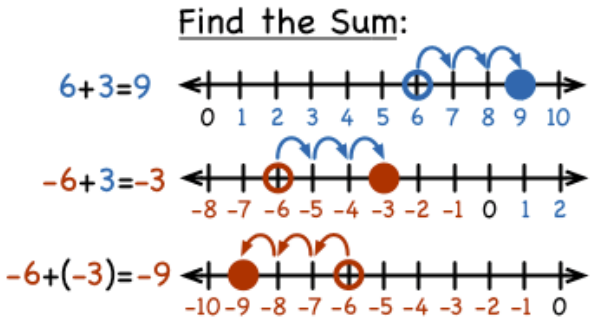




Using number lines might look like this:





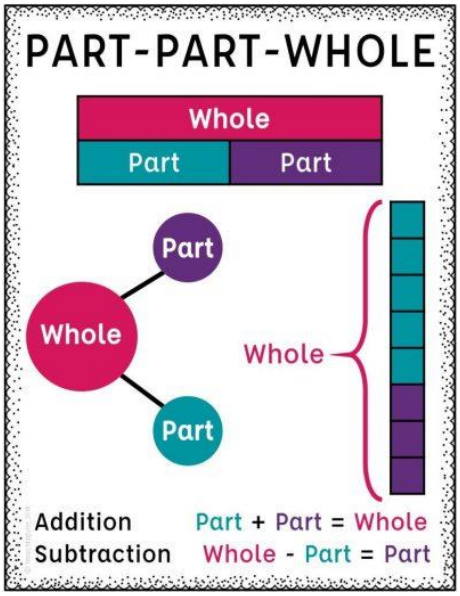


Rounding Numbers:

Have your child select an appropriate number for them to work with. On the empty number line determine the two appropriate benchmark numbers (closest decade/century numbers that could be rounded to). Then have your child place their number in the appropriate spot on the number line. Have your child then use the number line to help them decide which number it is closer to in order to know whether to round up or down.

This can be adapted to all ages and completed with any type of number – decimals, fractions, percents, etc.

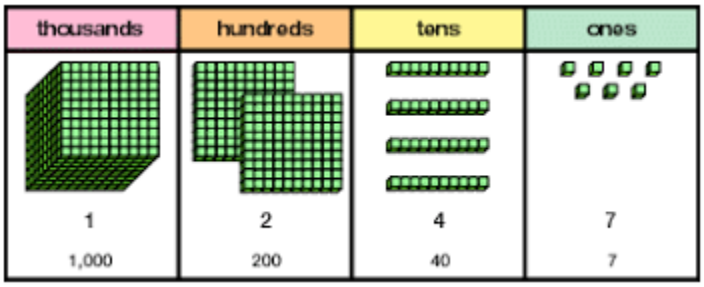
Part/Part/Whole Mat



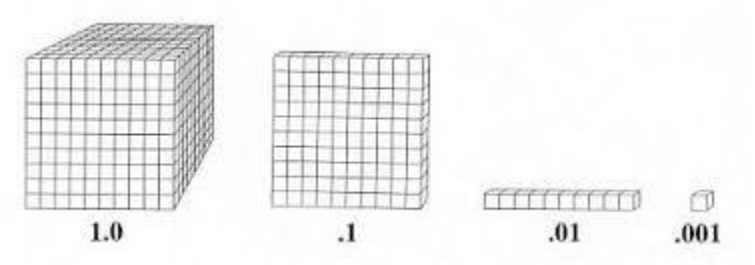
Teaching part-part-whole relationships is critical while teaching addition and subtraction. For students to build a solid understanding of addition and subtraction, they need to understand what each one represents. While helpful when working with equations with unknowns later in math, it's imperative that students have a solid understanding of addition and subtraction so they're able to apply both skills in real world scenarios. Understanding part-part-whole is a more effective strategy to teach problem solving. So the part/part whole mat can be used to have your child tell math stories on using small objects/counters from around your house. You can also tell your child stories and have him/her show the story on the mat with some counters. This mat can also be used in conjunction with the children's stories you and your child read to reenact parts or the whole story while connecting to math concepts as well.

Place Value Mat & Base Ten Blocks

The base ten cards can be cut out and used to show/build various numbers on the Place Value mat. Students can use them to tell math stories using any of the operations as well.



Gr. 4 and higher can use the base ten materials to also show/build decimal numbers.



Dice

There are many games and activities that the dice can be used for:

- to determine an amount

- to generate numbers.

One die template has been left blank so that your child can customize it as needed for their level.

Here are a couple of simple dice games that can be played and easily adapted for different levels. Playing any board games you have in your home that use dice is also a great activity to practice math skills.

"Beat That!" Dice Game: Each player takes a turn rolling the dice and placing them in order to make the highest number possible. For example, if a player throws a two and a three, they have 23. A player who throws a six and a four would win the round as they have the higher number. After each throw, a player challenges the next player, "Beat that!" Play this game in rounds, assigning a winner to each round.

Variations:
-Try making the smallest number possible
- Use three dice for play
- Instead of playing in rounds, set a score, such as 500, that players must reach to win the game

"Round the Clock" Dice Game

Directions for play: Choose the first player with a dice throw; the player with the lowest total going first.

1. The first player throws both dice, hoping to throw a 1. Players then take turns (in a clockwise direction) trying to throw a 1.
2. On the next round, those players who threw throw a 1 will try to throw a 2. Any player who did not throw a 1 in the first round will try again this round. Players can do so by throwing a 2 or two 1s.
3. Play continues round-by-round with players trying to throw all the numbers from 1 to 12 in sequence. Players may count the spots on just one die or on both dice added together. For example, throwing a 3 and a 6 could be counted as 3, 6, or 9.
4. The first player to go "Round the Clock" – throw all the numbers from 1 to 12 in order – wins the game.

“Pig” Dice Game for Kids

Even though the directions make this game sound easy, unless you are good at throwing 1s, this game may be hard for to play. The game is called “Pig” because the first player “hogs” the dice in an effort to win the game.

Object of the game: To score 100 points or more

Directions for play:

1. Have the players throw the die to determine order of play. The lowest roll goes first.
2. The first player rolls the die and adds up the numbers after each roll. They may stop rolling at any time and end the turn
3. The player loses all points for the turn when a 1 is rolled.
4. If the first player gets to 100 points on their first turn, the other player(s) may take their turn to try to achieve a better score.

Variation: instead of adding, multiplication could be used as well as setting the target score higher, such as 500.

Ruler

There are many measurement activities that can happen at home. Here are just a few to get you started.

Remember to make sure your child understands the importance of having the 0 is at the edge of what they are measuring.

Can you find something smaller than 15cm? How much shorter is it?

Something the same size as 15 cm?

Something twice as long as 15cm?

Something 5 times longer than 15cm? What would be the total length?

How long is your little finger? Your longest finger? What is the difference between the two?

How about your little finger compared to someone else’s little finger?

Do you have another tool to measure with in your house? What can you measure with it?

Number Cards

There are again many games and activities that the number cards can be used for and in conjunction with other math tools. They can be used to practice all operations (+, -, x and ÷) and can also be used to generate various numbers. For example turning over three cards, such as 2, 4 and 7 could be used to make various 3 digit numbers, like 247, 274, 427, 472, 742, 724. For older students they can create a decimal card in order to work with decimal numbers and positive and negative cards to work with integers.

One of the simplest ways to use the number cards is to practice math facts by turning over 2 (or more) cards and adding/subtracting/multiplying or dividing them. If your child is correct they can put those cards aside. However if they are incorrect they can add them to the bottom of the pile. Keep practicing until they have set all of the cards aside.

Another easy way to use the cards, especially for Gr. 3 and higher is to turn over 3 or more cards and practice saying the name of the number, writing that number word and then record it in expanded form. For example:

358 is three hundred fifty eight and in expanded form would be 300 + 50 + 8

Middle year's students could also practice creating fraction numbers and then saying, writing and drawing a picture of their fractions.

Lastly, challenge your child to be creative and make up their own game using the cards!

Fraction Cards

Fractions Around Home: Pick one fraction piece and find an example of that fraction in your home. For example if I pick ¼ I could say one quarter is ¼ of a dollar. Or if my family has 4 people in it, then I am ¼ of my family.

Folding Fractions: Pick a fraction strip and using a blank piece of paper can you fold it and shade in that much of the paper?

Comparing Fractions: Put the fraction strips in a baggie. Then pick out 2 strips and add them together. Is the result more than 1 whole? Less than 1 whole piece? How much more or less than 1 whole is it?

Tangrams

Can You Build What I Made: Using the tangram pieces, create a design. Without showing someone else in your house tell them how to make it. Remember to try and use as much math vocabulary as you can while giving the instructions. Don't let them peak though! How well did you do at explaining? How well does their creation match yours?

Squared Up: Can you make a square shape using the tangram pieces? What is the most number of pieces you can use to make a square shape?

Fractions: Middle years students, what fractional relationships do you see between the tangram pieces? Is any piece half of another piece?

Links to more tangram fun:

https://www.tangram-channel.com/

https://www.fun-stuff-to-do.com/tangrams.html

Spinners

Be Creative: Make up a game using one of the spinners. Play your game with someone and see who wins. What revisions or changes will you make to your game to make it even better or more challenging?

Operation Practice: Practice adding/subtracting/multiplying by using both the number cards and one of the spinners. Turn over a number card, spin the spinner and then add or subtract or multiply the two numbers.

Spinning Graphs: Select one of the spinners. Decide on how many times you will spin the spinner and create a chart to keep track of the results for each spin. Before spinning make a prediction on which number you think you will spin the most and the least. Spin and record the results. Next create a graph on the grid paper showing the results from your spins. Were your predictions close? Repeat this whole process again and compare your graphs. Did they turn out the same?

Additional Resources

Finally here are some links to some great games and activities that can be used at home:

For early years students: https://www.edu.gov.mb.ca/k12/cur/math/games/index.html

For middle years students: https://www.edu.gov.mb.ca/k12/cur/math/my_games/index.html

For all students: https://www.edu.gov.mb.ca/k12/mylearning/onlinelearning/index.html