



Great reminders:
Be positive about math
Be involved

Encourage growth mindset
Make math relevant
Allow mistakes



Family Math Night

Welcome to Fred Varley Public School's Family Math Night! We are so glad you are all able to join us this evening. Here is the order of events for the evening:

6:30pm-6:45pm: All families to the gym for presentation (Ms. Hall & Mr. Valentim)

6:50pm-7:20pm: Attend your first breakout session

7:25pm-7:55pm: Attend your second breakout session

Breakout session descriptions:

Room 102

Kindergarten - Beyond Counting 1,2,3 (Stations A, B, C, D, E)

Have you ever wondered what you can do at home to support your kindergarten child's mathematical thinking with numbers? Beyond counting 1,2,3 will show you ways that we explore the key concepts of counting in Kindergarten using everyday objects. Join us as we all play and learn together.

Room 108

Kindergarten - Beyond Counting 1,2,3 (Stations F, G, H, I, J)

Have you ever wondered what you can do at home to support your kindergarten child's mathematical thinking with numbers? Beyond counting 1,2,3 will show you ways that we explore the key concepts of counting in Kindergarten using everyday objects. Join us as we all play and learn together.

Room 115 & 118

Grades 1-2 - Math Games, Puzzles and Purposeful Practice

Come to our session to engage in a variety of math games and puzzles for primary students (Grade 1-2 focus). We will explain why math games and puzzles are important and what purposeful practice looks like in the classroom and at home. You will get a chance to engage in hands-on learning activities with your child.

Room 133

Grades 1-2 - Interactive math activities

Come and play with your child and do activities that address 3 of the different strands of mathematics (Number Sense & Numeration, Patterning & Algebra, Geometry & Spatial Sense). Drawing your family using 2D shapes, counting the number of animals at a farm and perhaps planning a meal using the available grocery store flyers, will be some of the activities to do together and even try at home.



Be involved

Encourage growth mindset

Be positive about math

Make math relevant

Allow mistakes



Room 222

Grades 1-2 - Interactive math activities

Come and play with your child and do activities that address 3 of the different strands of mathematics (Number Sense & Numeration, Data Management, Measurement). Making a graph, counting the number of steps between two locations or solving word problems will be some of the activities to do together and even try at home.

Library

Grades K-8 - Robotics, Coding, and Math Games

Come join us in the learning commons to explore how we weave mathematics into engaging and fun learning activities for ALL grades. Online links and activities will be provided to help support mathematics and coding at home.

Room 212

Grades 3-4 - Mathematics in real world contexts

With your child come and explore how real world contexts can be used to engage students across a variety of math strands. Engage in a collaborative problem solving approach using math talk and manipulatives to work through the mathematical process. Families will gain insight into the math inquiry approach and how it can help develop mathematicians. Come and see how to further support conversations about math learning at home.

Room 202

Grades 1-8 - Can you unlock the box(es)?

You and your children can work together to solve a series of math puzzles to help you unlock a series of boxes. Math, fun, collaboration, and treasure await!

Room 206

Grades 4-6 - Exploring measurement

Come and explore measurement activities that you can do at home with your children.

Room 209

Grades 6-8 - Geometry games

Hands-on games involving geometry! Activities will include Geometry Battleship and Pentomino Tessellations. Come prepared to play!

Thank you for joining us this evening!

To see some of the highlights from this evening follow @fredvarley on Twitter!

SUPPORTING MATH AT HOME

Helpful sites

- <http://www.edugains.ca/newsite/math/homesupport.html>
- <https://mpower.tv.org/>
- <https://homeworkhelp.ilc.org/>

Math games in stores

- Monopoly
- Spot it
- Tenzi
- Mobi
- Uno card game

Online Coding and Math games

- <http://www.Code.org>
- <https://www.codecademy.com/>
- <http://www.mathies.ca/>
- <http://illuminations.nctm.org/>
- <https://scratch.mit.edu/>
- <https://www.raspberrypi.org/>

APPS

- Daisy the Dino
- Cargo-bot
- Scratch jr.
- Geoboard

Teacher-Librarian Mrs. K. Maggrias

MATHEMATICS AND THE STUDENT'S DAILY EXPERIENCES

Working with children to help them discover mathematics in their daily lives is an excellent way for families to enjoy mathematics together. The following are ideas that teachers may present to parents in a weekly or monthly newsletter, particularly as a way of following up on concepts that are being taught in the classroom.

"Children's and parents' understanding in mathematics improves when they are able to make connections between school mathematics and real world mathematics."

(Adams, Waters, Chapple, & Onslow, 2002, p. ii)

Around the home:

- Encourage explorative math play at home (e.g., invite your child to build, measure, and compare structures made with different-sized cardboard boxes; build and describe structures in a sandbox; play jump-rope games or games like hopscotch, catch, and hide-and-seek).
- Explore opportunities for your child to make connections with mathematics in daily routines (e.g., estimating the distance to a nearby location, measuring the time it takes to complete a chore). Be sure to talk with your child about the math connections in these activities.
- Work along with your child in creating designs from toothpicks, straws, paper shapes, paper towel rolls, and other found materials. Invite your child to describe his or her design(s) using numbers, words, and pictures.
- Play board games, number cube (dice) games, card games, and dominoes, and solve puzzles together. In conversation, ask your child to tell you what he or she did to try to win the game or solve the puzzle. Then ask your child to tell you whether he or she would do the same thing next time and give reasons why or why not.
- Invite your child to save his or her change in a piggy bank or other suitable container. Identify coins and bills, and estimate and count money.
- Encourage your child to use a simple spreadsheet to keep an account of his or her saving and spending of money.
- Engage in role-play games such as "store" or "restaurant" with your child. One person can be the owner of the store or restaurant and the other person can be the customer. Be sure to pose grade-level and age-appropriate math problems for your child to solve as you play.
- Children love to play "school". Try being the student and let your child be the math teacher.
- Bake or cook together and follow directions for favourite recipes.
- Make a third, fourth, or half of a simple recipe or try doubling it.
- Create and describe a pattern together while you frost a cake.
- While baking cookies, let your child make an array of columns and rows of cookies and practise multiplication.

- Invite your child to place 3 eggs in an egg carton. Ask, "How many more eggs do we need to fill the carton?" Then arrange the same 3 eggs differently, using different sections of the carton, and ask, "How many eggs are in the whole carton?" Always have your child explain his or her reasoning by asking, "How do you know?" Try again, this time using a different number of eggs.
- Have your child use anything with columns and rows, such as muffin tins or egg cartons, to practise multiplication and early division concepts.
- Ask your child to show you a third, fourth, or half a cookie.
- Cut an apple into thirds, fourths, and/or halves and have your child put the apple back together to make a whole.
- Read numbers in newspapers, in telephone books, on addressed envelopes, on bills, on household thermostats, on measuring tapes, and so forth.
- Help your child find items in your home that are shaped like cubes, pyramids, cones, spheres, cylinders, octagons, hexagons, and rectangular and triangular prisms.
- In the kitchen, have your child compare large cans with small cans and large boxes with small boxes. You can ask, "Which is the big one?" "Which is the small one?"
- Have your child use a measuring tape to measure dimensions of containers found in the kitchen cupboards. Encourage your child to estimate the dimensions before measuring them.
- Have your child estimate and count! Count everything (e.g., books, chairs, compact discs, towels, steps, tiles on a floor).
- Count by 1's, 2's, 3's, 4's, 5's, 6's, and 7's, and remember to consider the ability and grade level of your child to know where to begin and when to stop.
- Count forward and count backwards, starting with different numbers.
- Sort a variety of items at home (e.g., toys, utensils, dishes, socks, mail, shoes, colouring tools, fabric, recyclables). Describe the sorting rule. Try sorting the same item(s) again using a new rule.
- Talk about math experiences in daily events (e.g., measuring laundry detergent, packing a suitcase, creating a grocery list, setting an alarm clock).
- Have your child read through the newspaper to find math-related material (e.g., advertisements for retail sales, stock market quotes, sports box scores and statistics, classified ads for mathematics-related career opportunities).
- Help your child think of different kinds of data that people or organizations collect (e.g., data about consumer preferences from telephone opinion surveys, data about political preferences from exit polls, numbers of hits at a website) and why they collect the data.

- Keep a family yearly calendar. Record upcoming events and count the number of days, weeks, and months up to the event. Use words like *days*, *weeks*, *months*, and *year*.

In the neighbourhood:

- Play I Spy, looking for and describing shapes in a playground, on a farm, in a town, or in a city.
- Estimate and count things in a grocery store.
- Ask, "How are the foods grouped in the grocery store?"
- Talk about what is heavy and what is light in a grocery store.
- Estimate and measure produce in a grocery store.
- When you are waiting in line to pay for your groceries, ask your child to estimate how much the bill will be. This activity can be done at the end of a meal at a restaurant as well.
- Find the shortest and the longest checkout line in a grocery store.
- Find and describe patterns in a section of a garden.
- Look for and identify sets during a nature walk (e.g., each maple leaf has three parts; insects have six legs).
- Estimate and count the number of footsteps between two trees as you walk.
- Use non-standard and/or standard measurement units to estimate and measure the distance between two fence posts or other objects.
- Look for, identify, and describe patterns in a landscape.
- Ask your child for examples of perimeter and area in his or her daily life.
- Collect some rocks with your child and ask your child to sort them: heavy and light, shiny and dull, big and small, rough and smooth. How many of each are there? Ask your child to use the different-shaped rocks to create an image.
- Ask, "How far is a kilometre?" Walk a kilometre together.
- Predict and measure the length of time of your walks.
- Calculate and graph temperatures, and describe differences between the morning, afternoon, and evening temperatures.
- Have your child record and share directions to a final destination.

On the road:

- When you are travelling in a car or sitting on a bench, take turns with your child calling out licence plate numbers (driver excluded for safety reasons).
- Have your child record the licence plate numbers.
- Make the largest three-digit number possible from the plate numbers.

- Ask younger children to name the largest single-digit number and the smallest single-digit number and to call out the numbers in order from smallest to largest. Some children may just name each number.
- Have your child record any palindromes that he or she might see on licence plates.
- Read the numbers on a licence plate as number words.
- Compare the value of a licence plate number with the value of another licence plate number. Is the second number greater than or less than the first number?
- Find the sum of the numbers in a licence plate.
- Ask children to find ways to make a target number between 1 and 20 (depending on ability and the requirements of the curriculum expectations) with any of the numbers in a licence plate, using addition and/or subtraction.
- Ask young children to double each digit in the licence plate number.
- The next time you fill up your car with gas, let your child read the different numbers on the pump. Ask him or her to estimate the distance between where you are and where you are going. Have your child estimate how much gas will be needed to travel that distance.
- Have older children choose any number as a factor. Every time they see their number, they multiply it. For example, if they choose 6 and spot a number 6 on a licence plate, they multiply the two 6's and get 36. The next time they see 6, they multiply 36×6 and get a new answer of 216. They continue until you reach your destination. You may want to keep a calculator in the car. As a treat, have someone open the car door for the person who scores the highest number.

In the garden:

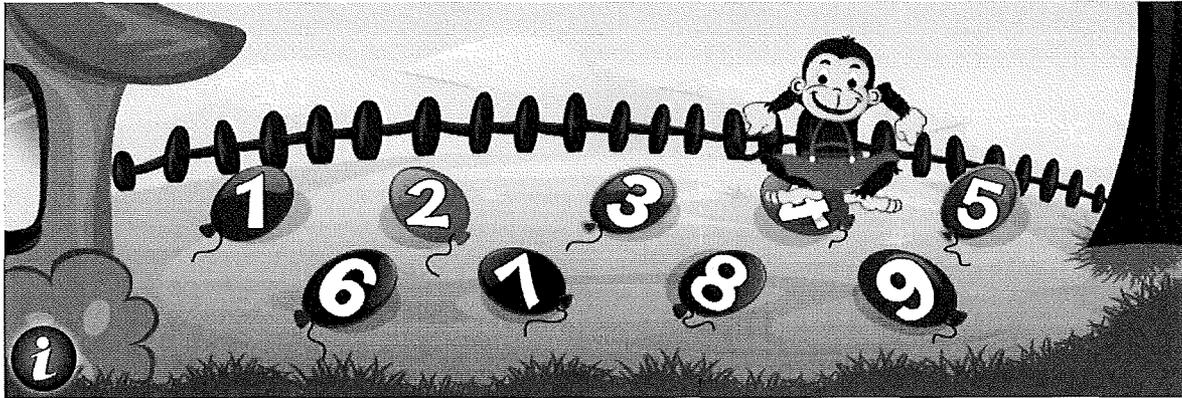
- Help your child estimate how much space will be needed for planting.
- Together, plan a shape for your garden.
- Create a list of the types of plants that you would like to buy and list how many of each.
- Estimate how many plants of each kind will fit into the garden.
- Help your child estimate how many flowers and/or vegetables you will need to buy.
- Discuss and plan the arrangement of the plants in the garden.
- Estimate how much time it will take to plant the garden. Plant the garden together and measure the time that it takes to plant one plant, two plants, and the whole garden.
- Have your child look through seed catalogues or garden-center flyers to help estimate the cost of the seeds, plants, or supplies needed to set up the garden. Comparison shopping develops estimation skills and money-value sense.

60 Materials You Can Found Around the House



You can repeat any one of the stations you visit with your child tonight at home using these materials:

rocks	measuring cups
sticks	measuring spoons
shells	containers
corks	muffin tins
pine cones	ice cube trays
acorns	water
seed pods	sand
Lego bricks	play dough
popsicle sticks	pom poms
toothpicks	string
egg cartons	yarn
plain wood blocks	food scale
colored wood blocks	level
rulers	nuts and bolts
yard stick or metre stick	poker chips
dice	playing cards
straws	buttons
pony beads	clocks (analog and digital)
pencils	stop watch
pencil crayons	sand timer
marbles	glass beads
wooden beads	mirrors
bowls	bottle caps
divided plates/serving trays	measuring tape
paint chips	dominoes
cherry tomatoes	pennies, nickels, dimes, and quarters
grapes	bingo chips
berries	graphing paper
raisins	clothespins
seeds (pumpkin, sunflower)	paper towel tubes



10 Tips to help your child with math

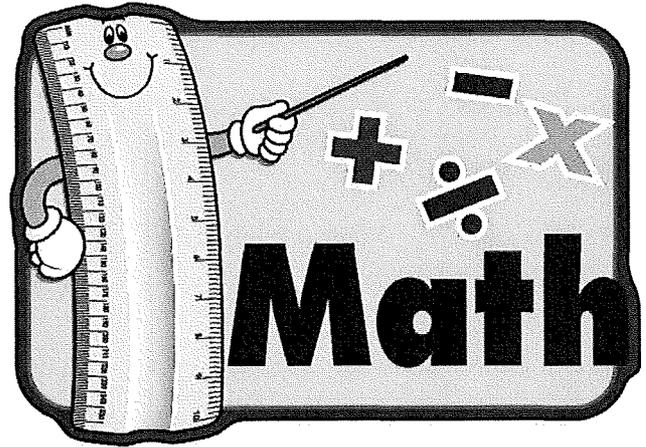
Tips for kindergarten to grade 3

1. **Counting can be fun and entertaining.** Sing counting songs such as "One, Two Buckle My Shoe". Your local librarian can recommend fun counting books. Play Hopscotch – it's a counting game! There are lots of games where you count, such as *Snakes and Ladders*, *Dominoes*, *Crazy Eights* and *Candyland*®.
2. **Computers + math = fun.** There are great computer games available for math – ask your librarian or check out your local computer store. Make sure they are "parent approved". There are also super websites that have fun math games, such as [TVOKids](http://TVOKids.com), or do an Internet search for other sites.
3. **Start Easy and Work Up!** Once they have got the hang of counting by 1s, introduce skip counting, such as counting by 2s and 5s.
4. **Use household items for counting practice.** Practise adding and subtracting with objects found around your house like spoons or pots and pans. When they've become good at these skills, move on to simple multiplication.
5. **Tap into your child's curiosity.** Go on a number hunt together and discover places where numbers are used such as a clock, TV, computer keyboard, calendar, telephones and licence plates.
6. **Use everyday activities.** Your child's world is filled with everyday math problems that can be solved. For example, "There are four people in our family and we each need a knife and a fork to eat dinner. How many knives and forks do we need to set the table?"
7. **Kitchens can be math zones.** Bake some muffins or cookies and ask your child to help you measure out the ingredients. It may be a bit messy but it's fun family time and there's nothing like a fresh cookie as a reward. Have math fridge magnets available so children can start making number patterns and doing simple math problems.
8. **Predict and compare.** Start to measure and estimate things like how far it is from the driveway to the house or how long a trip will take and then measure and compare the actual time it takes.
9. **Talk about time.** The concept of time can be hard to grasp. Talk to your kids about minutes and hours. Then get them to try counting days and weeks – for example how many "sleeps" until the weekend or a visit to a friend or relative.
10. **Identify geometric shapes and sizes.** Play "I Spy". Instead of looking for words beginning with a letter, look for different colours or shapes and count the number you find in the room.

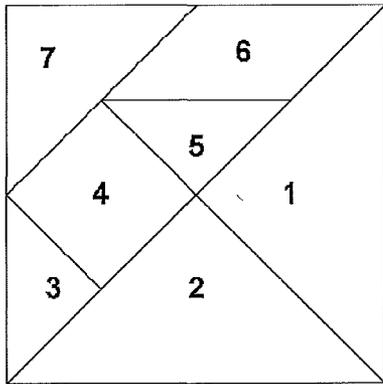
10 Tips to help your child with math

Tips for grades 4 to 6

1. **Connect math to daily life.** Let your kids know the importance of math in day-to-day living. Talk about the ways you use math in your job and around the house. Show them a tax form or how you pay the bills. Ask them how they used math during the day.
2. **Practise mental math using coins.** For example, show that a certain item costs a certain amount and ask what coins are needed to pay for it.
3. **Play games together.** Show them math can be fun and exciting. Play family games to add excitement to math activities, like chess or checkers or games in the car such as math bingo or adding licence plate numbers. Lots of board games need math such as *Junior Monopoly*® or play card games such as *Uno*®.
4. **Cooking can be counting fun!** Get older children involved in helping out at dinner time and let them help measure ingredients for dishes or estimate the number of potatoes that are needed to feed everyone.
5. **Play the estimating game.** Ask your kids to estimate measurements, distances, time and grocery bills. Be sure to compare the estimate with actual. Or get them to guess how much the apples you are going to buy will weigh and then take them to the scale in the grocery store and find out.
6. **Perform time calculations.** For example, make up a sentence and ask your child to recite it as many times as possible in 15 seconds. Then ask how many times it could be repeated in 1 minute, 5 minutes, 10 minutes, etc.
7. **Use common toys to understand math concepts.** Build a tower from blocks. Count the blocks. Then talk about the need for a base of the right size and the stability it creates.
8. **Sports and math.** There is a lot of math used in sports: batting averages, points per game, save percentages – these are math terms that a sports enthusiast will love. If you watch a game with your child, read the newspaper report together sometime the next day and talk about the math concepts.
9. **Computers + math = fun.** There are great computer games available for math—ask your librarian or check out your local computer store. Make sure they are "parent approved". There are also super websites that have fun math games, so do an Internet search for sites and bookmark them for future use.
10. **Measuring made easy.** Estimate and measure the area of different shapes. For example, use small square objects (plastic tiles, dice, etc.) to estimate then measure how many are needed to fill the area of various flat surfaces such as a magazine cover.



What is a TANGRAM?



Often called "the oldest Chinese puzzle," tangrams are a challenging game for all ages. The puzzle is to take 7 geometric shapes, called "tans," that fit together to form a square, and rearrange them to form different shapes using all the pieces.

Play a Tangram Game Online

<http://www.gieson.com/Library/projects/games/matter/>

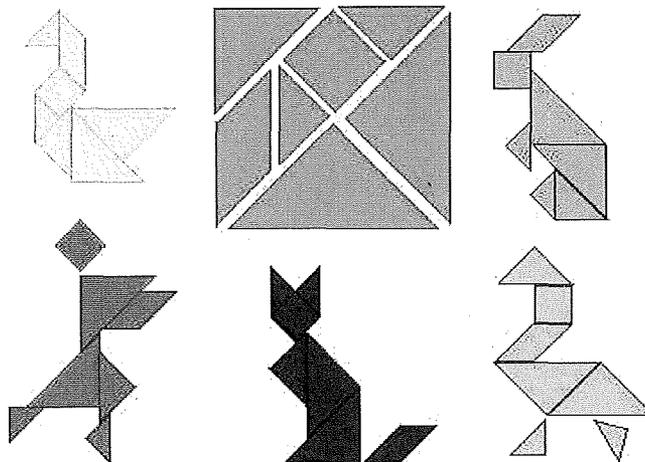
Learn how to make your own Tangram set

mathforum.org or en.wikipedia.org/wiki/Tangram.

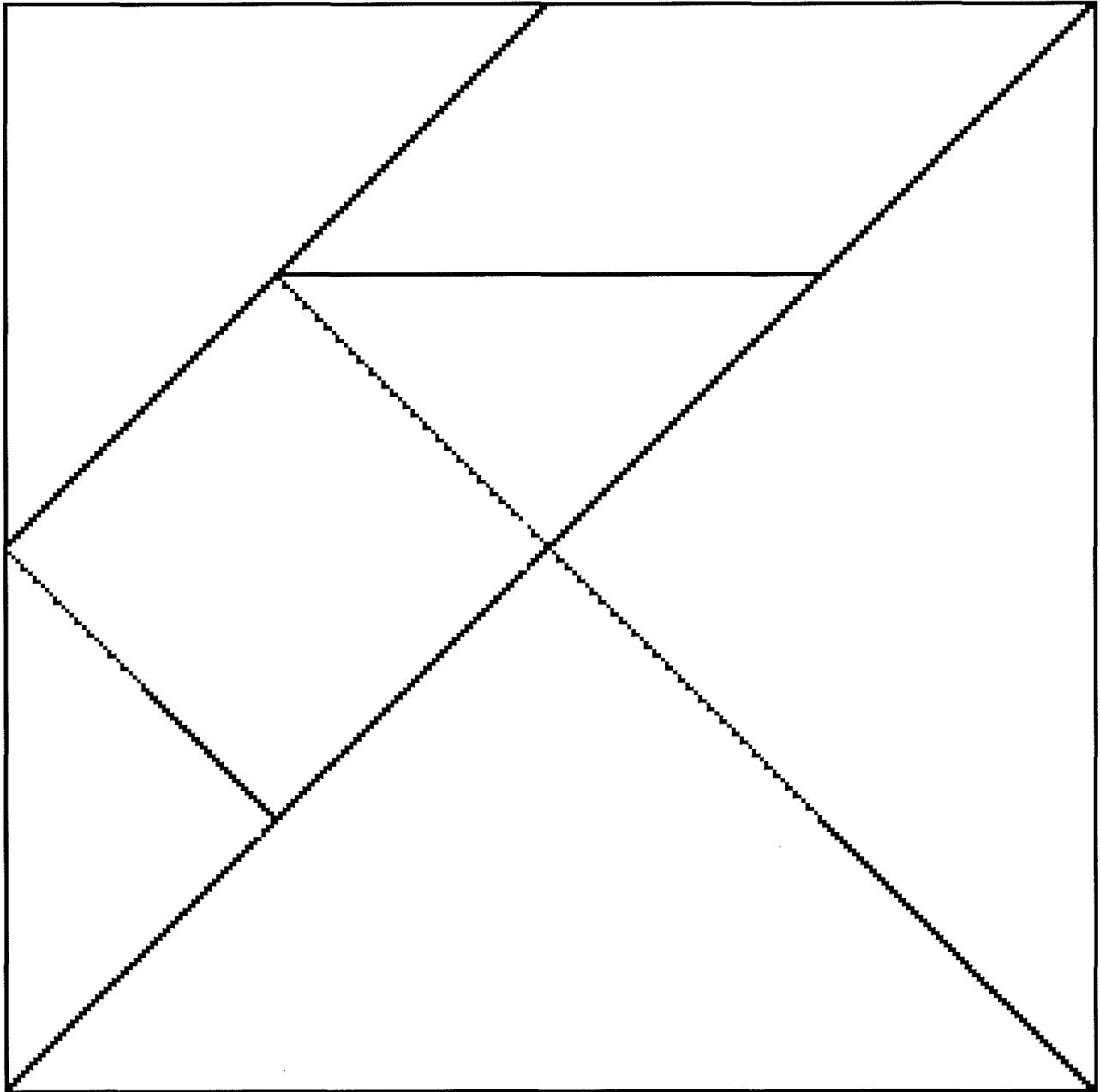
CREATE YOUR OWN TANGRAM MASTERPIECE!

1. Color in the shapes on the next page. Cut them out carefully along the lines.
2. Move the 7 shapes around and see what shapes and designs you can create. Turn them, switch them and swap them until you have a masterpiece of your own. Remember to use your imagination!
3. Once you are happy with your design, glue them down on a separate sheet of paper and you have created your own Tangram Masterpiece!

Here are some ideas to get you started:



Create your own Tangram Masterpiece!



The **Heckscher** Museum of Art
2 Prime Avenue
Huntington, NY 11743
831.351.3250



Visit the **Kids Corner** at www.heckscher.org!
Download this activity page, learn about HUEY,
and much more! (Just click on Education)

Centre #1

Number

Sense &

Numeration

Activity:

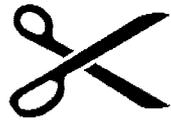


Look at the price of grocery store items in the flyers. Use the coins to add together the price of an item.

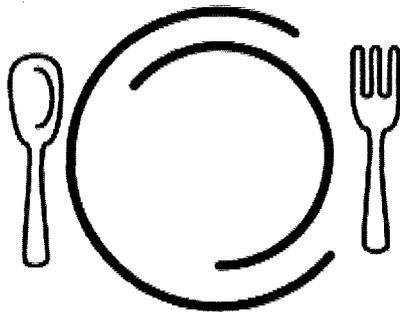
Show 2 different ways to represent the price of the item.

Example:

Extension:



Cut grocery store items from the flyers to create a meal. Add the prices of all of the items together. How much does your meal cost?



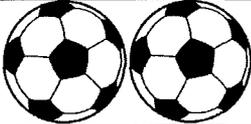
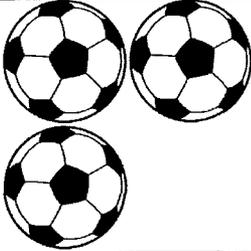
Grade 1 - Up to 10 cents
Grade 2 - Up to 100 cents
Grade 3 - Up to \$10

Centre #2
Patterning &
Algebra

Activity 1:

Thomas invited 4 friends over to his house. Each friend brought 1 soccer ball. How many soccer balls were there in total?

Complete the question on chart paper.

Number of people		Number of balls
1		1
2		2
3		
4		

Activity 2:

In Sophia's family, there are 4 people. When the family went shopping, each person bought a pair of shoes. How many shoes did they buy in total?

Complete the question on chart paper.

Number of people		Number of shoes
1		2
2		4
3		
4		

Activity 3:

Sam has 1 toy car with 4 wheels.

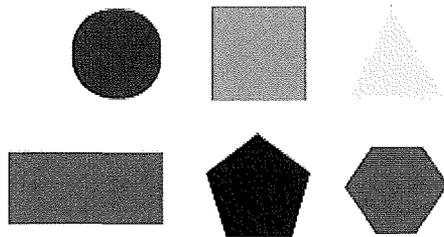
How many wheels would there be if Sam had 4 toy cars?

Complete the question on chart paper.

Number of people		Number of wheels
1		4
2		8
3		
4		

Centre #3
Geometry &
Spatial Sense

Activity:



Draw your family by tracing the 2D shapes. Name the shapes that you used!

Sort the shapes that you used.

How many of each shape did you use?

Extension: There are 3 shapes in a bag. In total, there are 11 sides. What shapes are in the bag?

Welcome to Breakout EDU

Presented by: Matthew Bernstein

You just played a game called Breakout EDU. First of all, I hope you enjoyed this opportunity to solve a variety of math puzzles with your child. This is a game that asks people to collaborate with one another and solve a variety of puzzles. Puzzles can take a variety of forms. There can be codes that need to be broken, math puzzles that need to be solved, jigsaw puzzles, etc. You might be wondering if this is only for math. No, it is not. It can be extended to any number of content areas. All of the puzzles support mathematics because they ask you to solve problems and make connections between concepts. If you are wondering how you can play this at home without the equipment you can go to the website:

www.breakoutedu.com/digital

Here you will find a variety of games that can be played for free on the computer. There are very challenging ones that I have yet to complete, there are ones that I have completed, and there are ones that I have played them with my 8 year old at home (who always enjoys them!). They address a variety of content areas and have been created for a variety of grade levels.

I hope you had fun and I hope you were able to breakout!

GEO - Cartesian Battleship (Cartesian Co-ordinates)

Materials:

- GOOS Paper / Pencil (Grid paper preferred)

Instructions:

- Start by drawing a full page Cartesian Plane, labelled fully
- Now draw 5 squares, one each:
 - 2x2
 - 3x3
 - 4x4
 - 5x5
 - 6x6
- Each "ship" takes one hit less to sink than its side length. The 2x2 takes one hit in the centre, the 3x3 takes two, etc.
- When your partner guesses you can say, "miss", "edge", or "hit".
- You win by "sinking" all of your partner's "ships".
- If playing with three people each guess you make lands on both of your partner's pages and they have to answer as above.

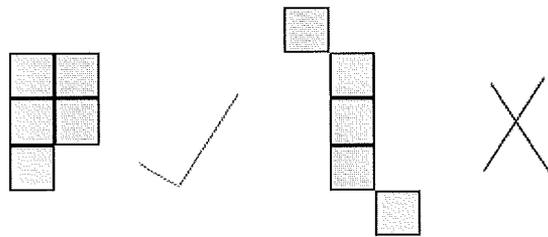
GEO - Pentomino Puzzle

Materials:

- GOOS Paper / Pencil (Grid paper preferred)
- Linking Cubes (if available)

Definition:

- A pentomino is a polygon made of 5 congruent squares. Each square shares a complete edge with at least one other square.



Instructions:

- Including rotations and reflections there are **12 different free pentominoes**. Can you build them all?
 - (If you need help, ask your teacher)
- Use these 12 pentominoes once each to create a rectangle that is:
 - 6 x 10
 - 5 x 12
 - 5 x 15
 - 3 x 20
- 3 of these pentominoes can be used individually to create a rectangle. Using only one pentomino can you create a complete rectangle (no spaces inside, no extra bits outside, no overlapping)?