



THE CITY GAME

Integrating Financial Literacy Into Classroom Management Routines

Teachers, does this sound familiar? “Whose backpack is on the ground? Someone left an old sandwich in the cubby. I have three assignments with no name. Six of you didn’t stack your chair yesterday.” Are you tired of reminding students of the same things over and over again? Have you thought of giving fines?

Here are some of the behaviours warranting fines: Nameless assignment, late homework, littering, rudeness, and trespassing. On top of that, good behaviour is rewarded. Here are some of the behaviours warranting bonuses based on two weeks of positive performance: joining a team/committee, arriving on time every day, recognition by another adult, and no late assignments.

These bonuses and fines are part of something bigger that I call *The City Game*. During the first few months of teaching, I remember it would take me 10 minutes to sign student planners and then I would take a good 30 minutes after school to clean the classroom and write the shape of the day for the following school day. Along with this and the reminders to my students throughout the day, I was exhausted and frustrated before I had even marked or prepared for any lessons.

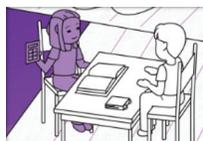
What bothered me most was the amount of time and energy being wasted on predictable behaviour and daily routines which could easily be reduced if students took on a small role within their own classrooms. I thought about how a city enforces laws through fines given by police officers and how classroom rules could be enforced in a similar way. If students were hired as police officers they could also collect pay for their jobs. Students would need to record all money amounts in a bank book and this could result in also hiring bank clerks as I was not about to look over calculations for an entire class.

There would have to be a purpose to collecting money, so the students could purchase items from a classroom auction each term with children bringing cast-offs from home to be auctioned. At the same time, should students be rewarded for helping to make their own classroom more efficient? Students needed to know money earned from a job didn’t always go to purchasing what they wanted but was required to pay for needs, such as a place to live. Students have to pay rent each month for their desk. As you can imagine this domino effect thinking continued into *The City Game*.

More details can be found at www.amandazanette.ca.

Implementing bonuses and fines not only solved my original concerns, it also provided students with clear

Continued on page 4.



2 Making Meaning from Context

6 Brian’s Bits

Sing a Song of Symmetry

7 How Purposeful Play Enhances Arts Education



The Textured Beast, Mrs. Wilson’s & Mrs. Friesen’s classes, 2010. This was a collaborative effort with two classes. Over 50 students are represented in this collaborative art effort.

10 Cruchley’s Collection

Ideas and inspiration to use with *Help Me, Mr. Mutt!*

12 Teaching Students How to Ask Deeper Questions

Making Meaning from Context

T'was brillig and the slivey toves did gyre and gimble in the wabe.



<https://commons.wikimedia.org/wiki/File:Jabberwocky.jpg>

That line is the beginning of my intermediate-level, word-attack unit, and it is wonderful to watch the looks of complete confusion cross my students' faces.

One of the problems I run into with students is a lack of metacognitive awareness of how they figure out what words mean. "I just figure it out" and "I just know" works much of the time, but if we want our students to really dig into language and understand it, we need to provide them with experiences where they need to figure out word meanings.

But where does that leave our strong readers, the ones whose vocabulary levels are above grade level? A text choice that is appropriate for their peers is far too easy for them, in terms of vocabulary. Luckily, *The Jabberwocky* by Lewis Carroll (and many of his other poems as well) level the playing field considerably. No one knows what the words actually mean, including the teacher, because they are quite literally nonsense words, but the poem still creates a vivid series of pictures in our imaginations and tells us a story.

The genius of Carroll's poem is that he uses nonsense words, but the sentences follow standard structure, so while you might not know what the word means, you can figure out the job it does in the sentence, and that is where I start.

Reciting to my students the first line of the poem, then writing it up on the board, I get them to identify the words they know and the words they don't. Then we brainstorm all the strategies they know to figure out the meaning of unknown words. They can usually list many of them from reading lessons done with other teachers, but often find they don't consciously apply them while reading.

I then point to the unknown words in the first line and ask if students can guess what any of them mean. If they are brave enough to guess, my follow-up question is always "Why do you think that?" This question generally leads quite organically, with only a little prompting on my part, to the realization that words have jobs to do in sentences; because we instinctively know that, we can hone in with greater precision on what a word might mean.

At that point, we look at the nonsense words in the first line and identify whether they are nouns, adjectives, verbs, or adverbs; we talk about how we know that. I have them choose one word and write down a definition of what they think it means and why. I also get them to draw a picture of the scene as it appears to them in their mind's eye. At the end of the lesson, I have them close their eyes and listen as I read the whole poem to them.

The next lesson involves giving them the next few lines and having them work in groups to identify what type of words are in the lines, with potential meanings for the words, then coming back together to share. By this point, we have discussed how we have to look at previous lines of text, or the ones coming up, to figure out what a word might mean. This becomes very useful for them later on in the poem where there is more action; they use the behaviour and actions of the characters to infer what various words might mean.

Continued on page 4.



mypita.ca
provincial intermediate and
middle years teachers' association

Easy Coding for Teachers

July 11-14 | SFU Downtown Vancouver | 10am-4pm

Low prep, no prior experience required workshops
for integrating coding, design problem-solving,
and computational thinking across the curriculum.

All workshops align with the new Applied Design, Skills and Technologies (ADST) curriculum for easy incorporation into other subjects. **No prior coding experience required.** Attend single or multiple workshops. BYOD: Bring your own wi-fi enabled device.

**JULY 11 Ditch the Devices
Computer Science and Coding Concepts Through Unplugged Activities**

Unplugged activities allow teachers and students to focus on learning coding concepts without the problems inherent when using technology. Offline, real world cooperative puzzles, games, and hands-on activities engage students and promote shared understanding and discussion.

JULY 12 Coding with Scratch is Easy

Create interactive stories, animations, music, and games with Scratch, MIT Media Lab's free block-based programming language. You will have plenty of hands-on opportunities to learn Scratch by exploring common programming concepts and terms with real world examples and classroom applications. Discover ways in which Scratch can help students in any subject area and ability level think creatively, reason systematically, and work collaboratively.

JULY 13 Adventures in Design Thinking Across the Curriculum

Fire up your students' thinking and creative problem solving skills. Design thinking is cross-curricular strategies that help students analyze and solve real world inquiry questions. Personally experience how to apply an almost effortless and flexible problem-solving strategy that boosts creativity and fosters collaboration. Ideal for integrating the new ADST curriculum, Social Studies, Science, Art, and more, with minimal preparation.

JULY 14 Maker Day: Apps and Websites for Beginners

This full day workshop is divided into two sections:

Make an App: Create a basic, but real app and learn without knowing how to type a word of code.

Make a web page: Learn some basic HTML and CSS (web design languages) to create and style simple webpages and websites.



Presenters: Robin Ulster and James Denby are teachers and workshop leaders who are passionate advocates for the potential of technology to give voice to and empower individuals and groups.

Full descriptions and registration at

mypita-coding.ourconference.ca

- myPITA members \$50/day or \$160 for all four days. Sign-up for a membership for \$25.
- BCTF members \$60/day or \$200 for all four days.
- Non-BCTF members, out-of-province, and administrators \$70/day or \$220 for all four days.
- Register in advance online with a credit card; no on-site registration or payments accepted.
- Registration is non-refundable and closes July 10, 2017 or when sold out. No wait lists available.



**CONTINUING
STUDIES**

Continued from page 2.

As a final activity, I have the students choose 5 words from the poem to define. They give me both a definition and a reason for deciding on that meaning. These can be very interesting, and do a good job of illustrating the students' ability to draw meaning from context.

Jabberwocky

Lewis Carroll

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

"Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"

He took his vorpal sword in hand:
Long time the manxome foe he sought—
So rested he by the Tumtum tree,
And stood awhile in thought.

And as in uffish thought he stood,
The Jabberwock, with eyes of flame,
Came whiffling through the tulgey wood,
And burbled as it came!

One, two! One, two! and through and through
The vorpal blade went snicker-snack!
He left it dead, and with its head
He went galumphing back.

"And hast thou slain the Jabberwock?
Come to my arms, my beamish boy!
O frabjous day! Callooh! Callay!"
He chortled in his joy.

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

Jennie Slack is a Grade 4/5 teacher at Chaffey-Burke Elementary in Burnaby.

Continued from page 1.

expectations. Police officers became the reminders and enforcers, instead of me. Poor behaviour decreased as students experienced choice within their learning environment. My time was finally being used effectively as I was more available for one-on-one support with students. As a result of these changes, students became more confident in their decision-making, they were more financially aware, they worked towards personal goals, and they were beginning to rely more on one another rather than me. Everyone was benefitting.

This structure allows my students to manage the smaller details I once handled. Instead, I can spend more time teaching academics. You can create your own list of bonuses and fines, templates for the police officers and bank clerks, or you can grab a copy of the book which already includes pre-made templates and explanations with more information on how the game expands from this point. Test a few bonuses and fines out for yourself by starting small and see if this makes a difference for you and your students.

Comments from Elaine Jaltema, Grade 5/6 teacher, Burnaby, and President of myPITA:

I started using Amanda's system of jobs, fines, and bonuses in January and I am delighted with how it is working out. For the first time in my lengthy career, the coat room and classroom is tidy at the end of every day. Assignment checkers are making sure that assignments are turned in. Disorganized students don't fall through the cracks, the group helps to keep disruptive learners in check, and the conscientious, responsible learners get recognition and benefits. As Amanda says, you can just use her idea to create your own system or you can save time by using Amanda's templates.



Amanda Zanette teaches Grade 5-6 at Forest Grove Elementary, Burnaby. She started playing *The City Game* during her first year as a teacher back in 2008. In 2013 she completed her M.Ed at SFU, analyzing the success of the game during her last year of her M.Ed.

Amanda is extremely passionate about teaching and finding ways to best support each learner.

VSO Teacher Ticket Pass gives certified BC Teachers up to two \$20 tickets to any eligible concert. www.vancouversymphony.ca/education/teacher-ticket-pass/

25 TEACHERS' PSAS PRESENT

SUPER CONFERENCE

OCTOBER 20-21, 2017

VANCOUVER CONVENTION CENTRE EAST

TWO FULL DAYS

- ★ Massive exhibitors hall featuring the latest educational products and services
- ★ Hundreds of lectures, hands-on, and experiential workshops for K-12 teachers in every subject and specialty area
- ★ Exclusive social event Friday night at the Telus World of Science
- ★ BCTF members \$120 early bird/\$150 regular rate, Non-BCTF Members \$160 early bird/\$190 regular rate
- ★ Outstanding BC keynotes:

Friday

CINDY BLACKSTOCK aboriginal education

RON DARVIN digital literacy and fake news

GORDON NEUFELD resilience

CAROLE FULLERTON math K-7

JUDY THOMPSON aboriginal education

CHARLIE DEMERS comedian

SCOTT SAMPSON environmental connections

Saturday

GABOR MATÉ stress, anxiety, resilience, & connection

FAYE BROWNLIE literacy

CAROLE FULLERTON math K-7

ADRIENNE GEAR literacy

SHELLEY MOORE curriculum and inclusion

LEYTON SCHNELLERT developing communities

AND MANY MORE

HUNDREDS OF WORKSHOPS

WWW.PSASUPERCONFERENCE.CA



We gratefully acknowledge
the financial support of this
conference by the BCTF

How Purposeful **play** Enhances Arts Education

“The creation of something new is not accomplished by the intellect but by the play instinct.” — Carl Jung

Encapsulated within B.C.’s new Arts Education curriculum is the Big Idea that engages students in the arts through play. The aspect of experiential art-making is clearly embedded in the curriculum from kindergarten to Grade 9. In the primary grades, this looks like play. In the Intermediate classroom, this also looks like play. Even at the secondary level, play is a weighty and imperative component of the creative process. Play is serious business in the classroom! As educators who plan for the most impactful lessons, we often incorporate elements of play for the purpose of “hooking” our audience. The more manipulatives and hands-on features contained within a lesson, the better. In fact, when we introduce concepts requiring higher levels of thinking, teachers often utilize group work, inquiry, imagination, experimentation, and purposeful play; experts who study the concept of purposeful play for learning would agree with this methodology. Considerable research regarding the importance of purposeful play has been conducted (see: *The Power of Play: A Research Summary on Play & Learning* by Dr. Rachel E. White for Minnesota Children’s Museum) and cites the significance of play in learning. Unfortunately, for a variety of reasons, fatigue being one of the most common reasons, we tend to depend on traditional art lessons based on highly structured activities that can reduce the level of play and creativity during learning sessions. Red flags should pop into your mind when you see the words, “an easy step-by-step guide to drawing”. You may want to reconsider how much experimentation, inquiry, or play could possibly transpire through a framework of regimented steps.

Do play and learning really function cooperatively in the classroom? Does Sesame Street need the Cookie Monster? Does Sonny need Cher? Many would agree they are better together than apart! If introduced successfully, intentional forms of play can be incorporated painlessly, for the most part, into Arts Education allowing you to find greater joy and fulfillment while delivering a stimulating program. As the adult responsible for inspiring creativity, play, and discovery, it is important to plan lessons that are sensitive to individual student needs meanwhile being flexible to allow children to experiment with a variety of image development strategies and principles. The following

list contains guidelines to consider when planning dynamic lessons that follow B.C.’s new curriculum.

1. Allow ample time to talk and plan for the art activity you envisioned. Give your students an opportunity to experiment with art materials such as clay, carving materials, liquid media, photography, etc. Encourage the children to play with their ideas and reassure them that their play will not be assessed for marks (this is more important in the upper intermediate grades as students can be focused on assessment.) When it is time to create works of art for display, the creative process should include brainstorming potential ideas (ideating) and drafting (a sketch, writing a description, or talking to a neighbour). This process can also be fun, exciting, and an important aspect of play in creativity.

2. Reflection time. After the class has created their works of art, have students pair up and reflect on their partner’s piece of art. Play a game by getting the “artist” to write out a true statement about the story behind their art and two false statements. Their partner can then guess which one of the three statements is true. Once they know some background information about each other’s work, students can play around and create humorous (yet respectful) stories together, to complement their artwork. This could be the groundwork stage of teaching students how to develop artist statements.

3. Remember: art is not craft. Craft is often what we see lining elementary school hallways. Square Santa with circle head and triangle hat x 20 equals craft. It is a form of work that has a finished, tangible outcome that closely resembles the model/template it was patterned after. Art is a form of work that produces a result based on emotions, communicating ideas, and individual creative choices. When teaching art, it is important to practise and assess skill development i.e. paint application that demonstrates even brushstrokes and neat edges, but it is not the ultimate goal. In conjunction with skill development, students should be encouraged to produce unique pieces of artwork that reflect their personality and ideas. Play is paramount to the manner in which children will enjoy creating personal works of art. This is a great time for you to engage students in selecting their choice of colours, sizes, shapes, and sometimes theme. Play, in art class, can be seen as



Fall Leaves and Sparkly Spiders. Both of these projects permitted students to have freedom of colour, size, and shape. Extra time of one week was given to students who had complicated leaf designs. Various sizes and materials.



Dot Day Paintings, present raised dots (1-2" deep) made with layers of construction paper set onto a tempera painted surface. Size: 9" x 12". Materials: construction paper, cardboard, tempera, & glue.



Cookie Colour Wheels. All students find the colour wheel considerably more accessible when it is done using cookies and a little icing. Size: 10" x 10". Materials: cookies; three icing colours: red, yellow, and blue; paper plates; cups, paper; popsicle sticks; toothpicks; colour wheel template; pencils.

experimentation and manipulation of materials. It can also include practising brush handling i.e. using non-traditional tools such as twigs, pipe cleaners, etc. or other techniques.

4. Encourage art as a community-building activity. Art does not have to be a solitary pursuit and is often more exciting when done with a team. Play in art making can become collaborative with a partner, a group, or the entire class. Group students into table groups of five or six and have children work on, but not claim, the sheet of paper in front of them. For instance, each student could “work” on the paper while music is playing. Once a set amount of time elapses, the students move to the left and continue to work on the “new” paper before of them. This style of purposeful play permits children to create freely without feeling overwhelmed by having to draw and complete an individual piece of art.

5. Provide extra time for students who have complex ideas to develop their artwork. Some children take a serious approach to their art making and require more than the 30-60 minutes provided to bring their artistic masterpiece to fruition. For the serious-minded student artist, this is their form of play. Being able to actively work their materials or take the time to create intensely complicated pen and ink illustrations is a genuine time of play and an extreme luxury during the busy school day. Time can be provided in various ways. This could look like a reward, bonus time for a task well done, or even a special time set aside to create and experiment or while other students are silently reading or doing other work.

6. Don't be too regimented with the task at hand. When you are known as a teacher who is flexible and open to compromise, students will love the challenge of trying to “stretch” the boundaries you have established for your project. Through your ability to adapt and adjust to a variety of unique and often bizarre circumstances, you subconsciously encourage your students to be mentally playful and think outside of the box so they may input their personality and character into their art. For my Sparkly Spiders assignment, I had students approach me, giggling as they requested a variety of playful ideas for their creations. “Can I make him small and plaid,” one student asked. Another little girl requested if her spider could be cross-eyed with polka dots! They were delighted when I said yes.

7. When disaster strikes and a student zigs when they should have zagged, we call this a happy accident. Ask the student if there is a way to turn the mistake into something fun that they may never have tried if the accident hadn't happened in the first place. This can become the perfect opportunity to give a little extra quality time to a student who is struggling. Usually, my students will allow me to assist them in repairing a piece of artwork that has gone south. I always express to them that art is about having fun and now this gives us a special chance to work and play together. Sometimes, this means taking out a new art material to experiment with and sometimes a fix can be as simple as adding a few extra lines. In any case, your light and playful attitude can go a long way to creating an enjoyable atmosphere in the classroom. I was creating large friendship wall banners with my students and they were working in groups of five or six. A group had a student who accidentally dropped their loaded paintbrush onto the banner which rolled across the surface, distributing black paint across their almost finished project. As tempers began to flair, I approached the group and told them how much fun this was going to be to fix. They all looked at me askance until I said the words, “splatter party!” We

took the poster outside and the students happily splattered away, deciding that was much more fun than their original approach and looked really cool!

8. Art should be fun for everyone, including you.

When reviewing B.C.'s new Arts Education curriculum, some of the content seems relatively flat when it comes to infusing it with a playful lesson that you and your students will find engaging. For example: if you follow the Curricular competency of *Communicating and Documenting*, "experience, document, and present creative works in a variety of ways," it could be looked at through the traditional lens of photographing, matting, and displaying works of art in a school library exhibition. In reality, it could actually mean a wide variety of different outcomes. A playful approach could include asking some probing and sometimes silly questions. For instance, if Dr. Suess or a Teletubby were an artist, how would he frame and display his work? If we lived in a world where people could only see blue, what would your art look like? If you were exhibiting your work to people who were blind, how would you present your work? If you didn't have a camera or computer, how could you document your work? If you could frame your art with anything, other than a traditional frame, what would you use? These are just a few questions that I have asked students to tackle in groups. Some of their answers were original, very playful, surprising, and often enlightened beyond their years. When students share their ideas, there is so much laughter and joy that one would think they were watching Theatre Sports instead of communicating and documenting!

9. Mix it up! Get students to experiment with as many non-art materials, processes, styles, and technologies as possible. Non-art materials, such as sand with glue, opens the door for students to play with unconventional items. It is often how artists in the real world actually create beautiful and avant garde works of art. Before Picasso played around with his patio furniture and a rope, nobody would have ever thought chair caning and items from a hardware store would become art materials; actually it was a piece of printed oilcloth but the rope was real! Children love new things, especially when you introduce the task with enthusiasm and a positive spirit. Let the students know you intend to have some fun with them and that they should plan on using their imagination as much as they can. When you haul out the ketchup, mustard, relish, and chocolate syrup for painting, they will undoubtedly know they are in for a good time.

10. Try to have as much fun as possible. As American poet and award winning novelist who wrote *Deep Play*, a study of human play juxtaposed with creativity, Diane Ackerman emphasized, "play is our brain's favourite way

of learning." People actively remember the times when they encountered extraordinary play experiences. Think of a time when you learned the best, it was likely a moment when you were intensely engaged in an exciting, amusing, or enthralling activity. Children are, as well, naturally inclined to be inspired by events that leave us breathless!

Art should be a part of the curriculum where you experience as much delight as your students. If not, you might consider examining various styles of lesson delivery, the plethora of different projects available to engage students, as well as the lesson outcomes you have come to expect. Are you planning projects based on crafts that are ultimately focused on the end product? Is your project experiential, designed to facilitate purposeful play, created to evoke an emotional response from the learners you teach? The end result of a successful Art lesson should be less product-centered and more about the quality of experience with a greater personal investment in the process. Overall, this style of teaching enhances self-confidence, communication, collaboration, critical thinking, and creativity. They are among the most valuable skills you could teach this year. You may just want to play around with some of these ideas. "Play is not a luxury. Play is a necessity." – Kay Redfield Jamison. Jamison is an American clinical psychologist and writer who is also the recipient of many awards including the National Mental Health Association's William Styron Award 1995, the American Foundation for Suicide Prevention Research Award 1996, the Community Mental Health Leadership Award 1999, and was a 2001 MacArthur Fellowship recipient.

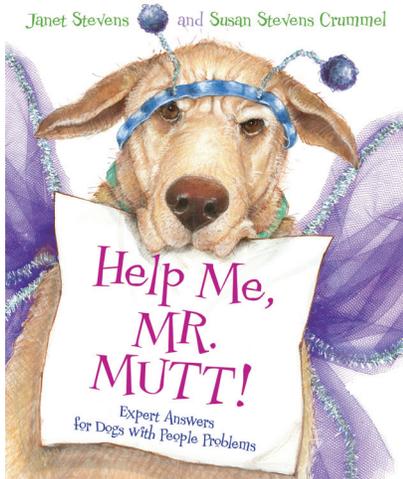


Prior to teaching, Janice Wilson was an independent artist for ten years after receiving her BFA from Emily Carr College of Art and Design and her MA from Goldsmiths, University of London, England. She has enjoyed being a teacher mentor as well as presenting art-based workshops. She currently works at Sunshine Hills Elementary in Delta as a Grade 4/5 teacher. Contact Janice at jewilson@deltasd.bc.ca

Write for us!

Share a lesson plan, classroom activity, or educational practice at newsletter@pita.ca.

Cruchley's collection



Help Me, Mr. Mutt!

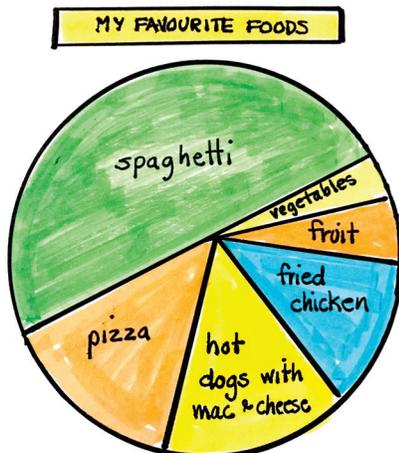
Janet Stevens—Author

Susan Stevens Crummel—Author

HMH Books for Young Readers, 2008

978-0152046286, 56 pages

Mr. Mutt is the Ann Landers of dogs. Six dogs write in with their problems, and receive answers from Mr. Mutt, along with critiques from The Queen (a cat) and a series of charming graphs. The book closes with two newspaper articles as the cats attack Mr. Mutt.



Extreme Writing

A springboard from a picture book to extreme writing should provide at least three topics if possible. Here are some ideas:

1. Famished in Florida loves his food. Write about your favourite foods, especially when and where you eat them.
2. Dressing up. Write stories about occasions where you have dressed up: Sunday, Halloween, a wedding, a team, a club like Scouts, Girl Guides, etc.
3. Stories about pets, particularly those that relate to the book.

Janet Stevens, Author

Janet Stevens is also the author of *The Little Red Pen*, for which I have also created teaching ideas that you can find at www.dianacruchley.com. Janice has a home page janetstevens.com that activates when you scroll over it, which is very charming.

Letter Writing All Around

There are many books involving letter-writing that can provide an excellent springboard to formal and informal letters, thank you notes, letters to the editor, e-mails, and other forms of written communication. Some of those picture books are:

- *Dear Mrs. LaRue* by Mark Teague
- *Detective LaRue* by Mark Teague
- *Dear Mr. Blueberry* by Simon James
- *Dear Mr. Henshaw* by Beverley Cleary
- *The Jolly Postman* by Janet and Allan Allberg
- *Yours Truly, Goldilocks* by Alma Flor Ada

Fun with Graphs

There are five different kinds of graphs in *Help Me, Mr. Mutt!* so it is a great time to introduce them by asking the students to create mock versions.

Students should also understand the specific uses of charts:

- The pie chart shows parts of a whole.
- The timeline relates actions to specific dates.
- The tally is easy to convert to a bar graph.

For a mock chart, students could examine and chart their reactions to favourite things in their life:

- Favourite and least favourite lunch foods.
- Favourite to least favourite school activities.
- A mock food or activities chart with things you like taking the largest space.

We're Off Exploring

In a Social Studies unit it would be fun for students to write an "agony aunt" column for an explorer's crew members:

- Henry Hudson
- Christopher Columbus
- Jacques Cartier
- John Cabot

Students would need to research and incorporate the kinds of typical problems an explorer might encounter as well, including details for the specific trip of that explorer: Where are they? What is happening? The dates? The advice, on the other hand, need not be practical if you wanted students to include a playful element in the writing.

Dog Expressions

Discuss how dogs have been human companions for over 15,000 years and how anything that is common to us humans tends to turn up in expressions such as those below. Ask students to identify the meaning of as many expressions as they can.

1. He's like a dog with a bone
2. I'm sick as a dog
3. Call the dogs off
4. He wants to be top dog
5. It's a dog eat dog world
6. They fight like cats and dogs
7. The neighbourhood has gone to the dogs
8. If you lie down with a dog, you will get up with fleas
9. It's raining cats and dogs
10. You lucky dog
11. He works like a dog
12. You can't teach an old dog new tricks
13. I'm dog-tired
14. Let sleeping dogs lie



Diana Cruchley is an award-winning educator and author, who has taught at elementary and secondary levels.

Her workshops are practical, include detailed handouts, and are always enthusiastically received. H. Diana Cruchley©2016, dianacruchley.com



Goldbach Conjecture

A Math Inquiry Activity

A mathematician named Goldbach made a conjecture that every even number greater than 2 can be written as the sum of two prime numbers. Examples of the Goldbach conjecture are:

$$42 = 13 + 29, 66 = 19 + 47, \text{ and } 120 = 59 + 61.$$

This conjecture has never been proved or disproved. Even though our modern computers have proved this conjecture up to 4,000,000,000,000,000,000, it is still not considered proven.

Challenge your students to create examples!

Benefits to students

- It's an excellent topic for the Inquiry method for learning—challenge students to find as many of these examples as they can!
- Students would build a great understanding of prime numbers while working on this challenge!

- A classroom poster of Goldbach conjecture examples would highlight the primes as well as demonstrate each Math-researcher's work. This would even be fun and challenging as a school-wide project!

Other Topics for Inquiry

- The Twin Prime Conjecture states that “there are infinitely many primes, p , such that $p + 2$ is also prime.”
Example: 3 and 5 are both primes, $3 + 2 = 5$.
- H.A. Helfgott also proved that “any odd number greater than 5 can be written as the sum of 3 primes.”
Example: $7 = 2 + 2 + 3$

Ann-Marie Hunter has passed on her love of Math and children as a Kamloops teacher for many years. She continues to inspire the love of Math in teacher workshops throughout the province. Check out her valuable strategies on the myPITA website.

Teaching Students How to Ask Deeper Questions

I read the first chapter of *The Breadwinner* by Deborah Ellis out loud and then I had students generate their own questions for each other on sticky notes before showing them a class-size questioning grid I had made on foam board. I then introduced the grid and invited students to attach their sticky notes, based on where they felt they belonged. We compared factual questions vs. deeper/richer/juicier questions and discussed potential answers for each.

More resources and information about asking questions, question grids which are also known as question matrixes may be found at:

- www.youtube.com/watch?v=KQimQcu1j34
- teachertools.londongt.org/en-GB/resources/Ks3_module_questioning.pdf

For my weekly literature circle meetings, I use Elaine Jaltema's format which is found in the resources section of the myPITA website. I used the questioning grid to help students understand how to create their skinny and fat questions. I also added a T-chart component to the weekly assignment. On the left side of a T-chart they would select a

| | ...is ...are ...was | ...did ...do ...does | ...can | ...will | ...would ...should | ...might ...could |
|--------|---------------------------|----------------------------|--------|------------------------------|-----------------------|----------------------|
| Who? | | | | | | |
| What? | factual | | | predictive | | |
| Where? | | | | | | |
| When? | | | | | | |
| Why? | analytical | | | application and synthesis | | |
| How? | | | | | | |

Sample question grid. Many students will start with a factual question, but when referred to the grid they will improve the question to be much richer.

quote or event to respond to, and on the right they would write their response to it using a sentence starter. Students had a list of sentence starters to choose from such as:

- I think...will happen next
- This story is really about...
- This made me feel...
- This reminded me of...
- Maybe this means...I think...
- I liked...I didn't like...because...

As a class, we completed this for the first chapter; afterwards, we did three chapters a week and met once in circles. Students also enjoyed a share out of the juiciest question from each group that went on the questioning grid for class discussion. During the course of the novel, many students really showed an ability to develop their questioning technique as well as to support their answers/opinions with ideas from the text. As an added bonus, this novel had a strong cross-curricular connection to our Human Rights unit in Social Studies.

Sarah Macdonald teaches Grade 6 in West Vancouver



PM 40063490



Keep your address up to date with the BCTF to continue receiving the myPITA newsletter.