

2019 MAV CONFERENCE
MAKING + CONNECTIONS

MAKING MATHS
ENGAGING FOR STUDENTS
AND TEACHERS

Online Feedback

Thursday: <https://www.surveymonkey.com/r/MAV190512>

Friday: <https://www.surveymonkey.com/r/MAV190612>

#MAVCON

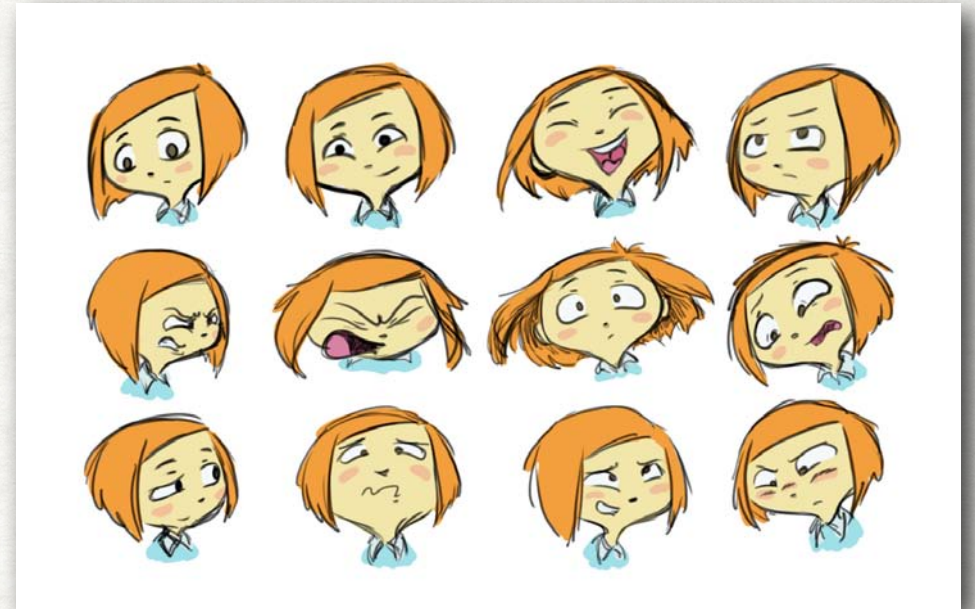
Facebook: www.facebook.com/mathematicalassociationofvictoria

LinkedIn: www.linkedin.com/company/mathematical-association-of-victoria

Twitter: twitter.com/mav_info

Using games and ice-breakers

Setting the tone for your lessons...



Why?

- How are *you* feeling today?
- Are all the children coming to your class feeling the same way? What could be on their minds?
- Are they expecting something exciting from you? Something boring?
- Do they come eagerly to your classes, or just wait for the moment to leave?

A simple example... *Psychic Handshake*.

Staff meetings last year - We introduced Circle Time activities.

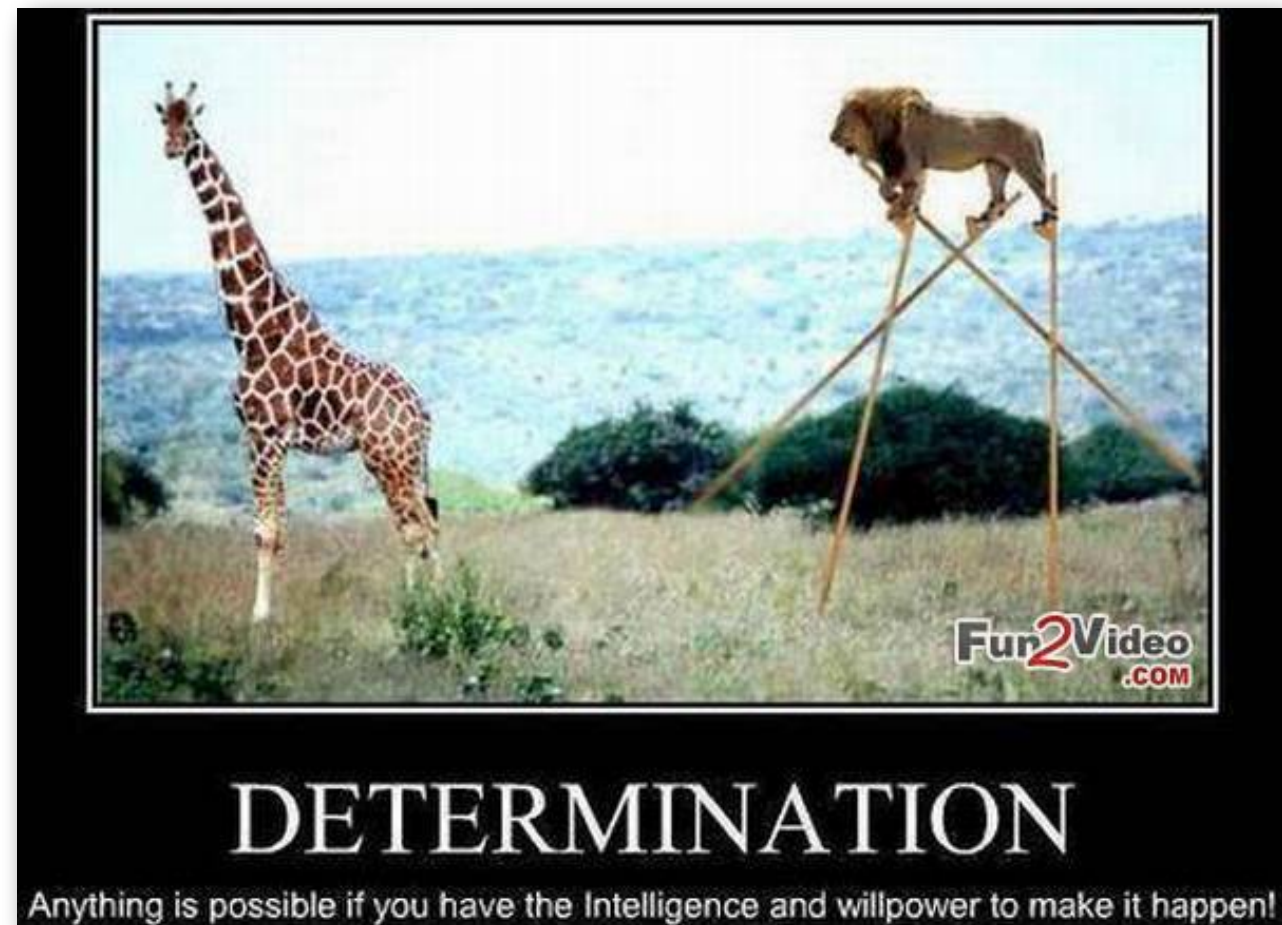
Passion

Are we
passionate
about
everything
that we
teach?



In the
beginning...

We want to help our children to
grow and succeed.



We get excited with enthusiastic
messages and get really pumped up at PD
days and conferences.

However...

We are often left cold when speakers (like
me today!!) never give us ideas as to how
to find and maintain passion for teaching.
Hopefully I can change that!!

What are *you* passionate about?

Sport



Travel



Music



Cooking



The Arts



Technology



What catches your eye here....



Content

- What subjects do you love to teach?
- What parts of these subjects do you look forward to teaching?
- *I don't need help to be energised when I'm teaching about...*
- On the other hand, the things that don't excite me...

Passions about Learning

- In your classes, what are you passionate about? (This is not subject related)
- What things would you love your students to be doing? Eg Being optimistic, self starters, risk takers, learning in contexts etc.
- Did you become a teacher because you love teaching maths, or did you just want to be a teacher and maths became 'your thing'?

Exploring and Identifying our passions...

Your own passions...

- This is totally removed from teaching. What are you passionate about?
- To keep our teaching alive, find as many ways to use your personal passions with your work.
- It gives us greater power to create more powerful lessons - we are teaching from our areas of strength.
-

Ever feel like this?



SO, WHAT
IF I DON'T
HAVE ANY
PASSIONS?

*"I can't figure out how I can use
my personal passions in the
classroom!!"*



So what do we do on days when
we look at the content and
think "Hmmm, it's going to be hard to
get fired up today"?

Be realistic!

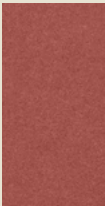
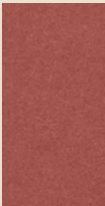
- We can't expect to include our passions into all lessons.
- It's a bonus thing to call on when the opportunity arises.
- Align yourself with people with passion - feed off their enthusiasm, it's hard not to be influenced by them!

Reinforcing what we often take for granted...

- Engaged students are rarely a behaviour problem.
- Avoiding battles with students is as important as your ability to develop deep levels of rapport
- We can't do this magically, try to discover what they find engaging.
- Spend less time trying to get them interested in what you are presenting, and more time in making connections between what you are presenting and what they are already interested in. **Eg Dismissing chn in groups according to...(like on Weds in Gr 2 "Who has been on a plane?" "Who has more than two pets etc?")**
- Draw connections to your content and pop culture (songs, movies, game fads, YouTube clips etc)
- Read papers, watch news with your class in mind
eg Master Chef (Cooking, recipes measurement etc), Tour de France
(heart rates, measurement, reading tables etc), Record a weather report and
analyse all the maths being used, "The Block" each year moment is great, Perhaps
avoid 'The Bachelor'!!!!

Making a plan for using your passions...

My Passions/ Interests	What Maths is involved (Linked to Vic Curric)	Connections to Children's Interests and Needs	PBL and Further. Leaving a Legacy.	Sourced from...
Running and Cycling (and any other sports!)	Measurement - all areas. Time All operations. Problem solving.	• Mapping out sporting areas at school, measure and paint.	• Plan a school sports day.	• My own sporting events
	• Measuring in metric units, metres, km • Mapping • Coordinates and grids • Road maps • Timetables	• Maps of the school- divide into grids. • Orienteering. • Creating timetables • Comparing own times and distances to elite athletes.	• Lunchtime games program. • School maths club. • Histories of sports and athletes. Local as well as more famous.	• School events • World events at different times (Tour de France, AFL, Soccer, Cricket, Tennis, Athletics etc)
	• Calendars • Decimals and Fractions • Time Intervals • Time conversions	• Recording distances walked/covered each day. Plot on maps of towns, cities and beyond. Plot in different directions from your town.	• Contribute to local papers. • Changes in sport over the years -Impact of new techniques and equipment.	• Startling and fascinating facts and stories in the news. • Youtube
			• Digital age impact on sport - Nearly every child is wearing a Fitbit now!!	• Basically, you can find an endless source of photos and clips online and in record books.

My Passions/ Interests	What Maths is involved (Linked to Vic Curric)	Connections to Children's Interests and Needs	PBL and Further. Leaving a Legacy.	Sourced from...
Home renovations	Measurement Operations Problem solving Scale Space and geometry	• Dimensions of own houses, bedrooms etc • Construction - using tools and materials to create models to scale. • Teaching concepts within a rich context. • Hands on and open ended. • All ability groups can participate and succeed.	• "The Block" - Planning and designing your own house. • Constructing 3D models of houses. • Use of recycled materials to construct models. • Expo Day - invite wider community in to see the work. • Designing an environmentally considered structure for the school (bike shed, animal pen, storage facility, spots ground, fruit/vegetable patch etc)	• Reality shows on TV • Children's homes • School building programs. • Structures around the school and school buildings.
Using the tools for maths. Tape measure Digital measure				
Learning in context - the scale experience. Perspectives.	4cm  2cm 4m  2m	Jorja and the room experience in Term 2		
			Our St Peter's experience !!!	

My Passions/ Interests	What Maths is involved (Linked to Vic Curric)	Connections to Children's Interests and Needs	PBL and Further. Leaving a Legacy.	Sourced from...
Music	Counting patterns. Time. Time durations/elapsed time. Timelines	Using contemporary music. Using music from other lessons.	• Music and musical instruments throughout the ages. • Constructing of own musical instruments. • Recording own musical pieces -individual/small groups/whole class. • Creating movie clips of own work and presentations.	

My Passions/ Interests	What Maths is involved (Linked to Vic Curric)	Connections to Children's Interests and Needs	PBL and Further. Leaving a Legacy.	Sourced from...
Richmond	The scope and sequence of what could be done here is clearly immeasurable!!			

Creating
'the
hook'!!



Using 'hooks' to motivate your students...

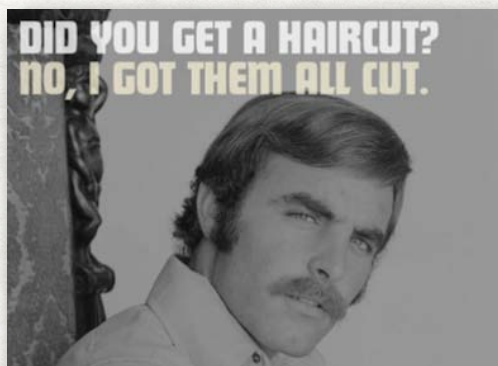
What do you really know about your students?

What do they know about you?

How do you/they bring the two together?

For me...

Dad Jokes



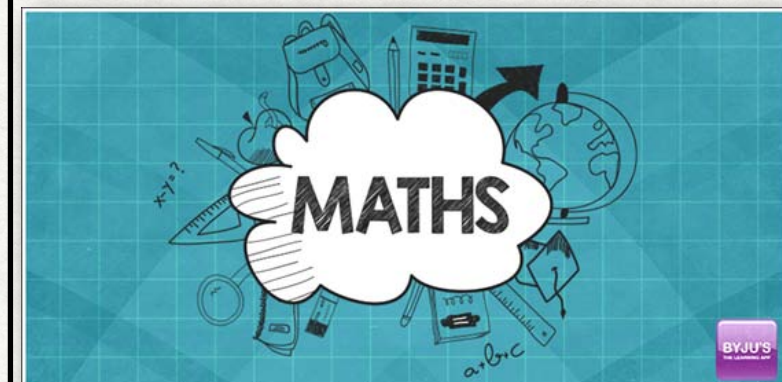
Motorbike



Sport



Maths



Kids having a connection with you as they enter each lesson/class.

Using 'hooks'...



“Where the Hell is Matt?” <https://www.youtube.com/watch?v=ZlfKdbWwruY>

Think of the myriad of ideas we could use with just this clip!!

“Where the Hell is Matt?” <https://www.youtube.com/watch?v=zlFkdbWwruY>

Think of the myriad of ideas we could use with just this clip!!

My Passions/ Interests	What Maths is involved	Connections to Children’s Interests and Needs	PBL and Further. Leaving a Legacy.	Sourced from...
<i>Where the Hell is Matt?</i>				https://www.youtube.com/ watch?v=zlFkdbWwruY
How many places did he visit in this clip?				

Using 'hooks'...

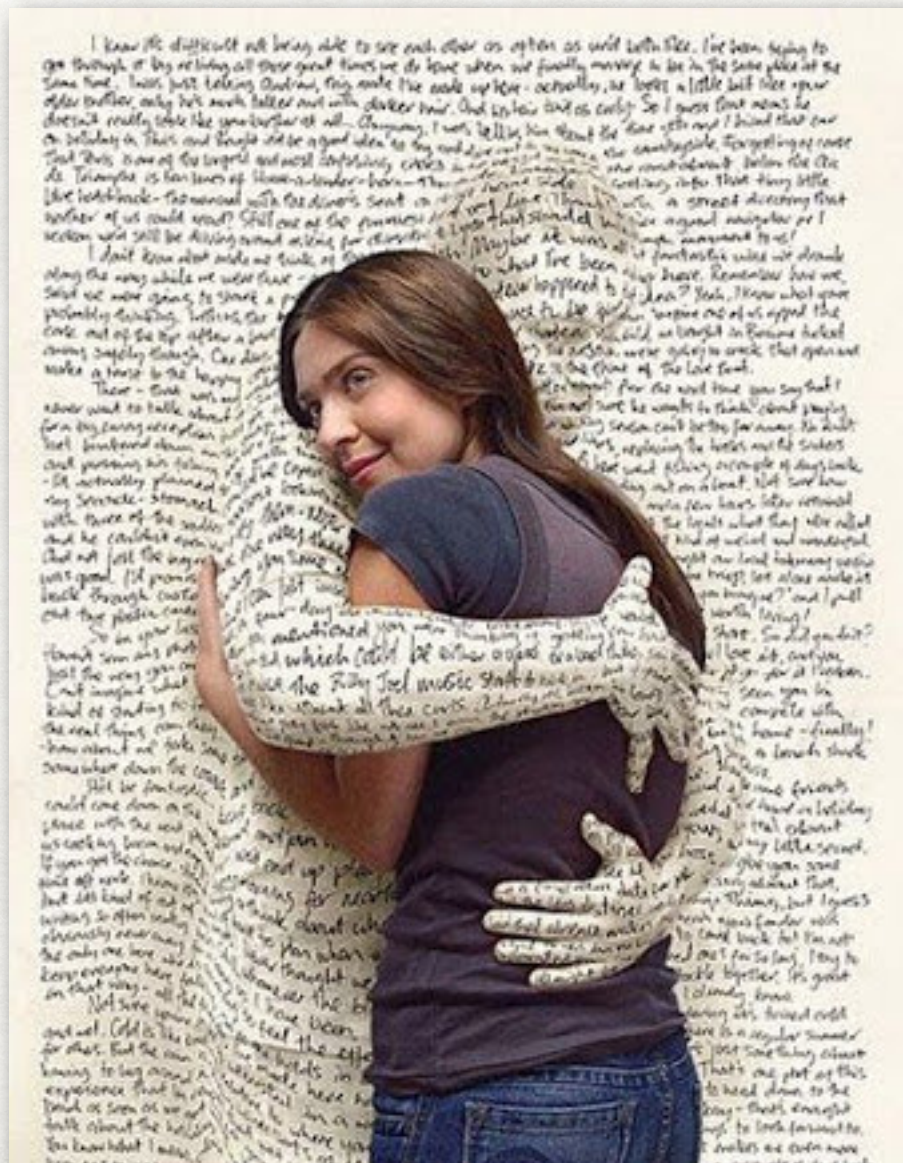
Great way to use this as a countdown clock for staff as well as students.
Can they create their own to share as a lead up to certain events and lessons?



Using 'hooks'...



Using 'hooks'...



One Book can make a huge impact



Ever take the time to read to your kids for the enjoyment, or to yourself for your own enjoyment, rather than work? I actually used these pictures on Monday!

Using 'hooks'...

♪ Tell me more, tell me more
Did you get very far
Tell me more, tell me more
Like does he have a car ♪



World's Most Accurate Pie Chart



Using 'hooks'...

Okay Gr 2's,
This is a tricky one!!!!
There are 6 books on the shelf.

A worm starts at p.1 of
the first book and eats its
way through the books
until it stops at the last
page of the last book.

Someone once told me that
there is nothing at all that
doesn't have maths in it.
Could this be true?

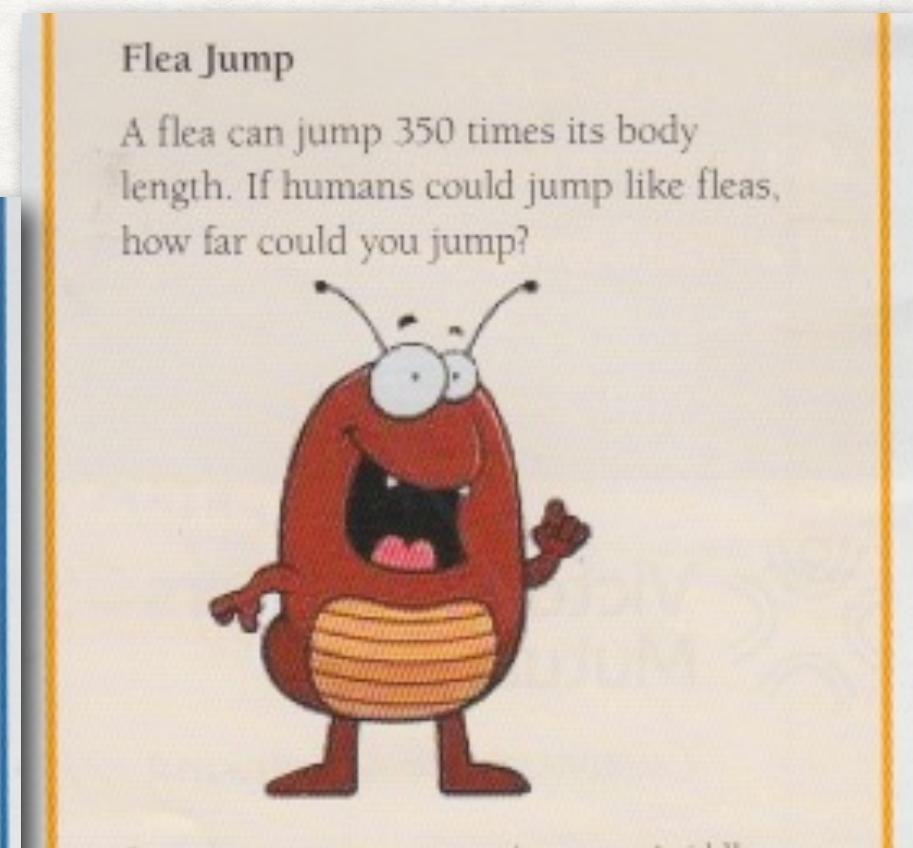
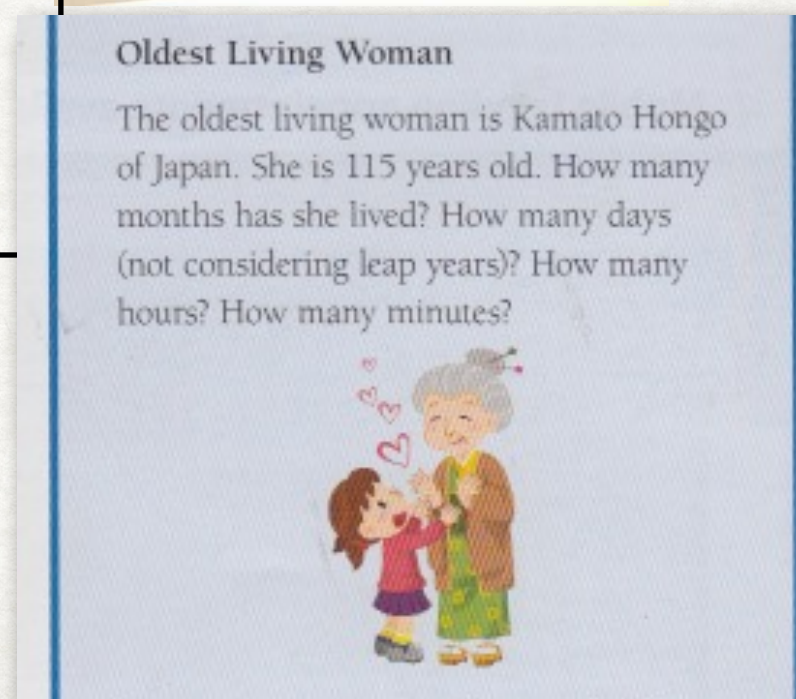


Each book cover is 1 cm thick, and the
width of the pages in each book is 6 cm.

So, what I want to know is,
*How far did the worm travel through the
books?*

Once again, this is pretty dangerous
work, but have a crack, I know you will
think it through carefully!!

Cheers
Mr K



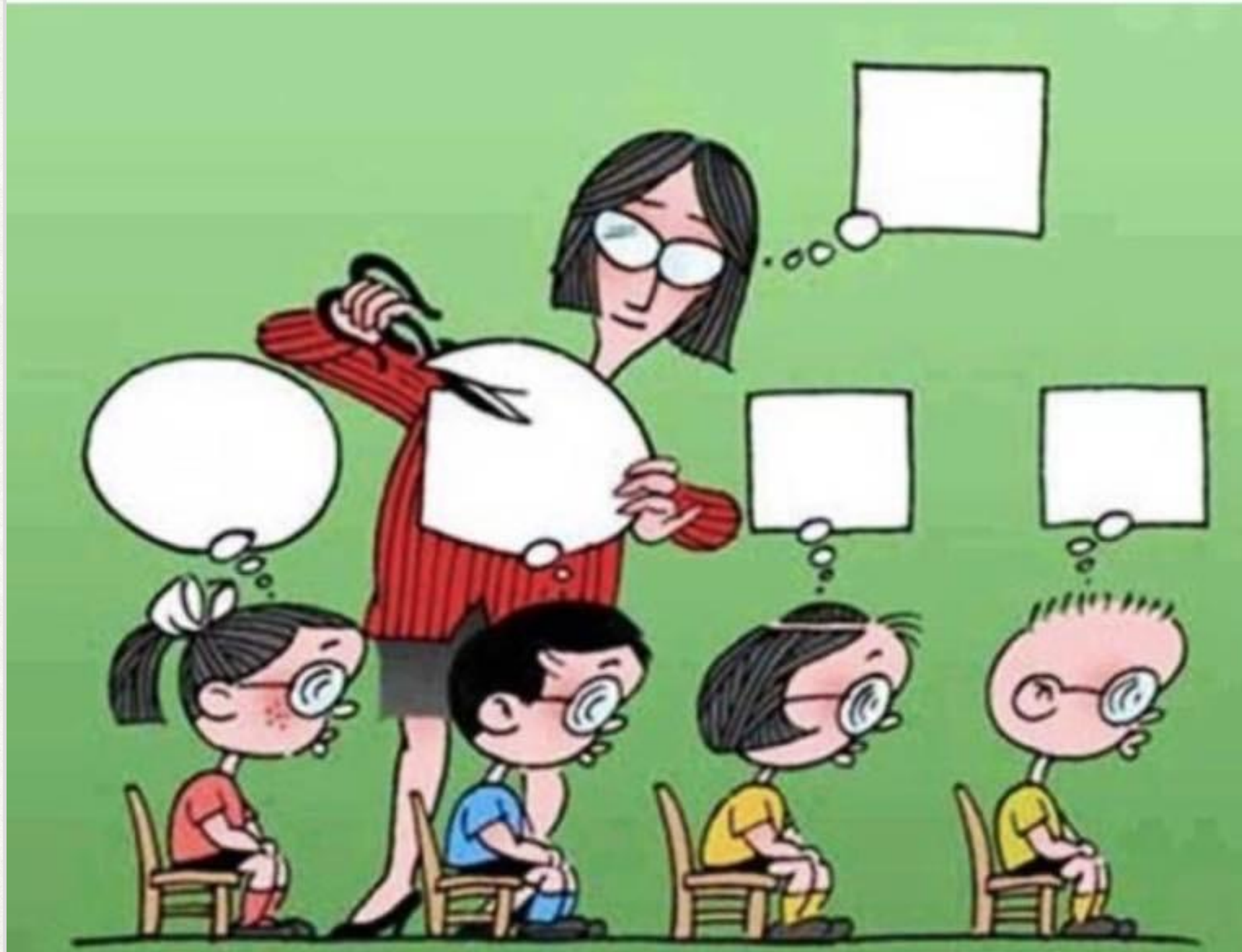
Using 'hooks'...

Enabling and encouraging the children to showcase their work in different ways...

- Moving beyond pencil and paper...and Keynote!
- Digital presentations
- Drama
- Music
- Creating partnerships
- Community involvement

How I try to promote the occasional lessons using iMovie...

Please, **don't** be that teacher,



Using 'hooks'...

When using 'hooks', consider...

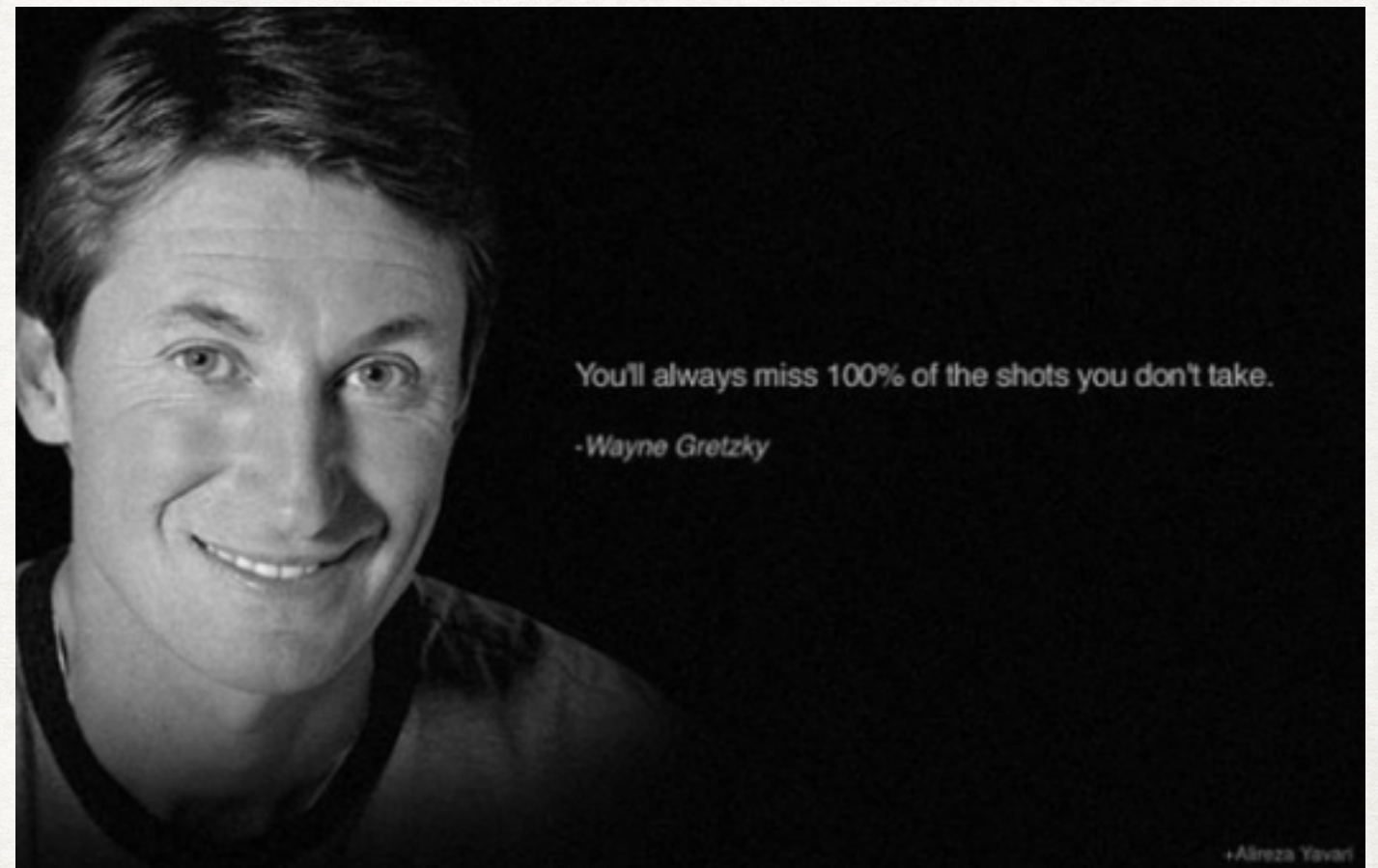
- Can you include physical items with your presentations? Something tangible that the children can actually feel, hold, pass around and talk about.
- Use of images. From the paper, online, the photo you took yesterday while out walking etc.
- Rather than talk about great books, can you bring a copy in and read from it?
- Instead of talking about a person, could you show their image, or some footage of them. Or get them in !!!!
- Rather than tell about something, can you actually experience it? Activate and engage the senses for a true experience. ("*Stretch the Snake*")

Am I alone with this?

Surround yourself with people who inspire and challenge you.

- Blogs - Lots of teaching blogs for ideas
- Twitter - so many great educators to follow
- School App - how much of what you do is promoted regularly?
- Social Media - if used properly!!

Align yourself with colleagues who will 'go with you'.
eg 'The Block'



Total immersion with our students.

They feel when we are 'present'
just as much as when we 'aren't there'

Completely give
ourselves up to
the moment to "be" with
them.

"Swim" with your students -
give them the benefit of your
complete immersion!
Think what it is like dealing
with a doctor, cashier etc
who is disengaged or
distracted.

Try interacting with a person
who is not immersed or fully
involved in that interaction.



Counting Cards

and the experience with
a teacher who was very
nervous, but jumped right
in with her class.
She 'went swimming'!!

Let's try it now!!

The Power of Inquiry and PBL

INDIVIDUAL



WARM-UP 

WHAT IS ONE THING YOU WISH
YOU KNEW THE ANSWER TO? JOT
DOWN THE QUESTION.

Wonderings...

Create a Wonderwall

Giving the children a
voice in their learning.

INDIVIDUAL



WARM-UP 

WHAT IS ONE THING YOU ARE
CURIOUS ABOUT THAT YOU WISH
YOU COULD LEARN IN SCHOOL?

1. Introduce the project (Shock and dismay!!)

"What? You want us to do what?!!"

2. Learning about the problem. (Frustration and disillusionment)

"This is really hard. I don't know what to do"

*The Learning Pit - Concept, Conflict, Construct, Consider -
James Nottingham*

3. First success. (Excitement and curiosity)

"Mr K, that expert/company emailed me back!!"

4. Project deadline approaches. (Anger and resentment)

"I'm never going to finish the project. We didn't have enough time"
(Link to Marathon passion)

5. Project exhibition. (Pride and excitement)

"I can't believe I got through that!"

So, how can I get
PBL working with
my students?



Be prepared for a rollercoaster
of emotions
and attitudes!!



A time during the Tour de France.

The children could jump on during class and pedal for a while, counting how many revolutions they did.

We'd measured the distance of one revolution, then started plotting our distance covered.

We started with a map of Bendigo, but it became too small, so then extended it to Victoria, plotting paths in multiple directions.

We also used it as a way of measuring heartbeats, and seeing if our own results changed over time.

How can I ensure that I am connecting my content to what the children are already interested in?

Voice - Students learn from each other and then share their learning. Open ended and mixed ability tasks.

Choice - Strength Based Learning. Give children a choice. How often do we give them the opportunities to showcase their strengths?

Time for Reflection - Everyone (teachers and chn) should write and reflect on what is being learned.

Connected Learning - Bring experts into our classes via social media, video conferencing etc. Using the experts we already have in our classes.

**Make our
classrooms
Learner
Focussed**
(George Couros)

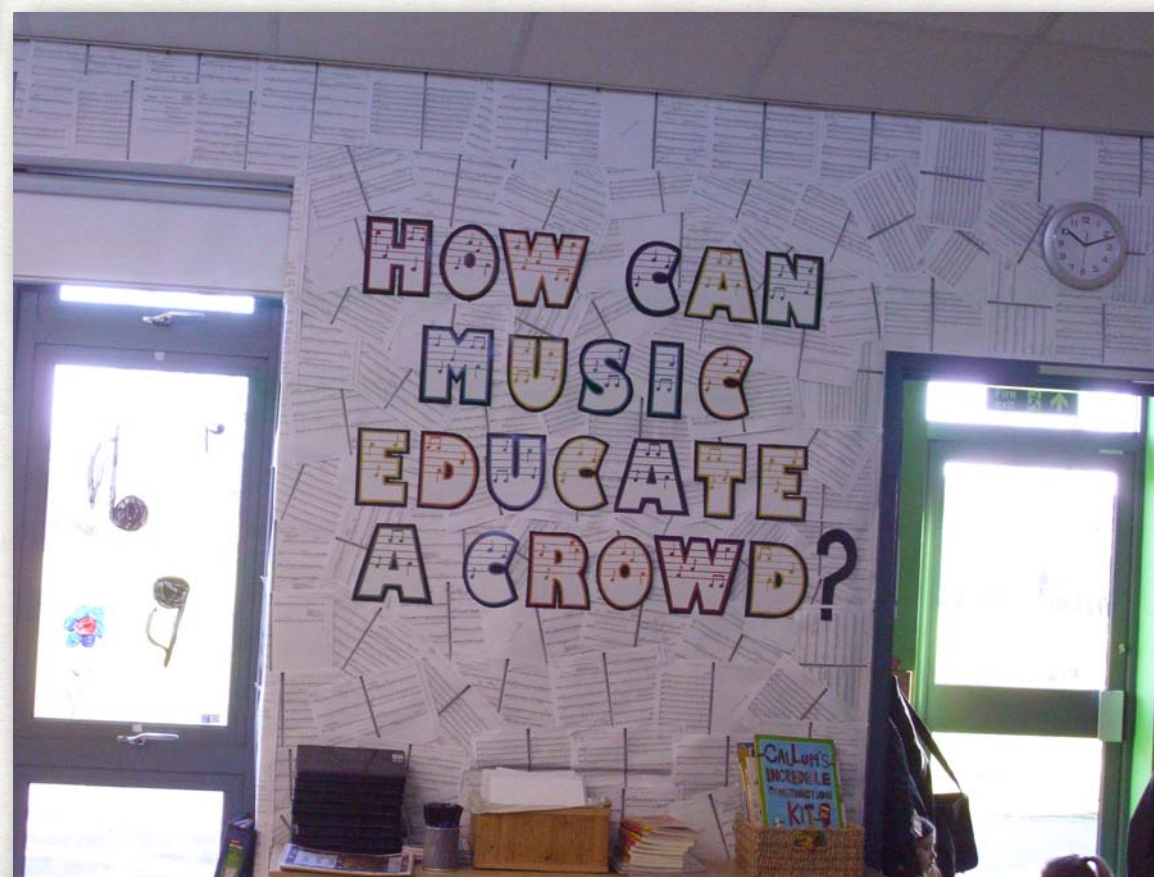
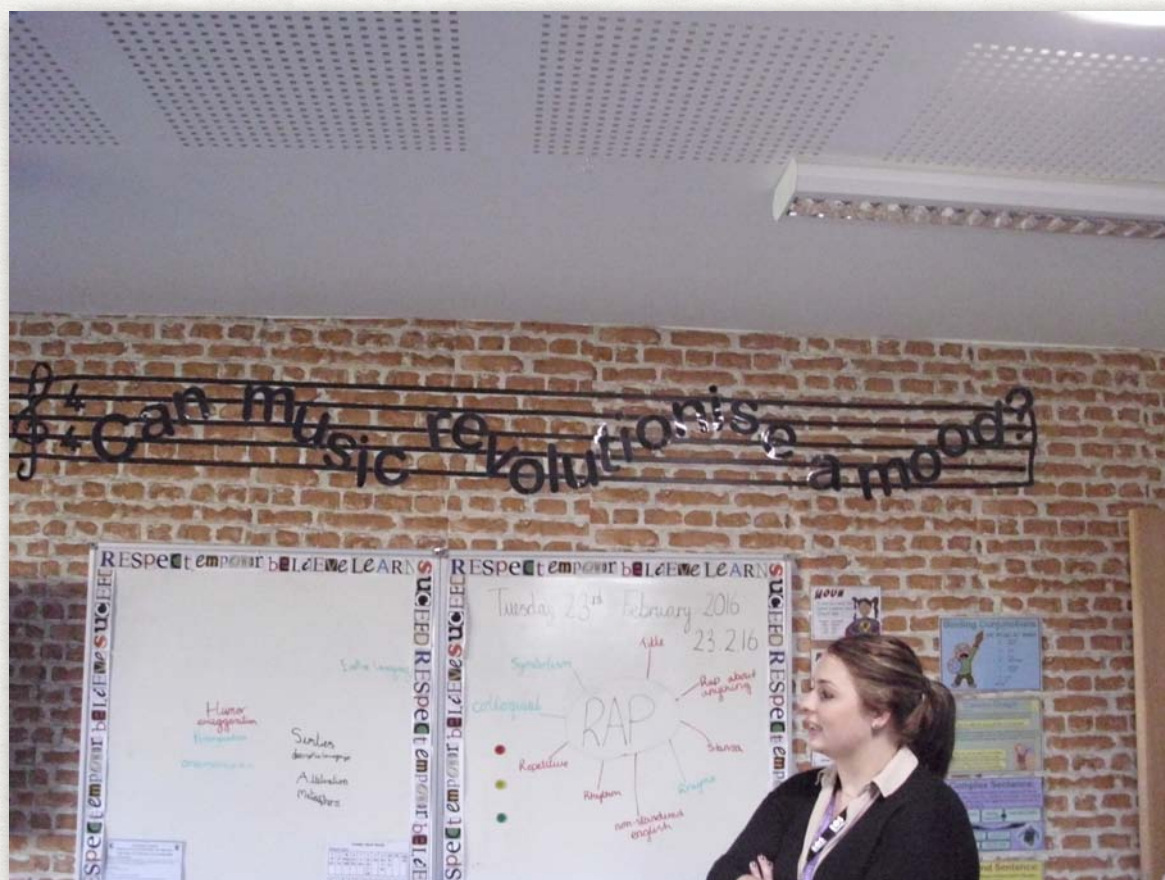
Self assessment - Important for chn to know how to do this. Peer assessment too.

Opportunities for Innovation - eg Build a model from a YouTube demonstration. How many of us use this ourselves? Let's let the kids try it too! Or add their own!!!!

Problem Solvers/Finders - Give chn Tough challenges and let them find Innovative solutions. Can they come up with problems to solve?

Critical Thinkers - Ask questions and challenge what you see. Are chn given the opportunity to question us?

Leaving a Legacy



Leaving a Legacy



Leaving a Legacy

From prep to VCE, teaching's a job in a class of its own

Guiding a child's education is a privilege and a responsibility, writes **Nicola Philp**.

In January every year we welcome cherubic, wide-eyed five-year-olds to their first day of school. In November of that same year, we fondly bid farewell to the young adults who have finished in a setting that challenges, supports and possibly frustrates them as they head towards the real world.

This week marks the end of most of the year 12 exams and it is a time to pause and reflect on the lives you will no longer be a daily part of.

As a teacher, it is a great privilege and responsibility to guide them through first learning the basics and then the finer nuances of knowledge they will need as functional

members of society. There are wonderful lightbulb moments along the way as we share and support their development. In our P-12 school we have the unique experience of watching them over a long time, finding their passions and forging a pathway to leaving us, which may not always involve VCE. In the staff room we laugh over comments and events and worry about others. It's a job that never stops.

As a small school we become family. In a world where fragmentation and isolation are becoming the norm, it feels like a safe harbour harking from the past, where true community still exists.

Teachers get a special insight, watching culture and language evolve, observing issues that matter – and, may I say, the teens of today are generally incredibly self-aware and far more woke than I was at that age. Teachers watch technology and communication change at a rate that is staggering, trying to keep up with the implications of the devices and platforms for our young people. Simultaneously feeling vaguely sad for them about the pressures of the online world, which most of us did not have in our formative years.

Teaching may not be the highest paid job, but (mostly) the payment in intrinsic satisfaction and personal relationships is higher than any other job – not even parenting, which is often too emotionally fraught. Teachers see another side of a child to parents and are more likely to be

invited into the inner sanctum of their thoughts and experiences.

As a teacher you are also in the special position of igniting passions and challenging ideology, hopefully developing critical thinking along the way. And you never know how far your influence will travel into the future. My sewing teacher would never believe it is now one of my hobbies! I appreciated my teachers, but it wasn't until I became one that I truly realised how much I had to thank them for. I know how much effort and emotional energy it takes to cajole, counsel and carry a year 12 through their final year. Handing out tissues and advice along with assessment, listening with sympathetic ears to personal issues and putting up with grumpy morning teen abrasion with a beatific face – mostly.

Working with young people most

definitely keeps you young and also gives you a daily dose of reality – all ages are both refreshingly and offensively honest in their feedback.

I often find myself thinking of students from years gone by, wondering how they are going and where their lives have taken them. Some I'll never know and others, particularly the ones I teach in VCE, keep in touch or give updates on whatever social platform they're on.

Each year I stand outside the exam room, waiting for them to emerge. Knowing that while the ATAR isn't the defining number of their future, I still want them to achieve their best.

And today's exam? Apparently it was totally *lit*.

Nicola Philp is a teacher and freelance writer.



Kellie Britt • 1st

Western bulldogs community foundation casual at Western Bulldogs
2w

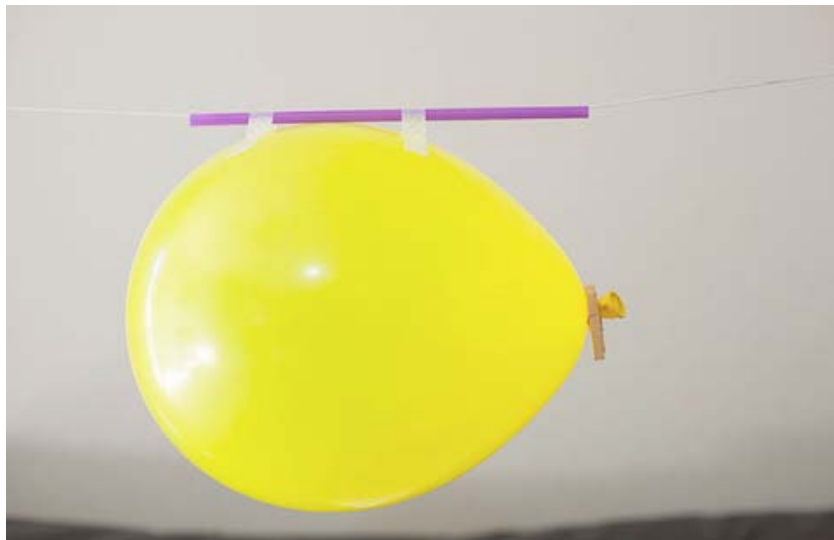
We all have the one person from our childhood who left a huge impression on the people we are today and this man is mine. I arrived at a school clinic today to see his smiling face greeting me, Bernard was my teacher in grades 4 and 6 at St alipius primary school in Ballarat and this man was the best teacher I've ever had. He was our friend first and foremost but he never took any nonsense from us. He cared about our lives and he encouraged us and always made us feel like we could achieve anything.

Was such a pleasure to today be working alongside him, a lot of the resilience I show I learnt from you Bernard and for that I'm forever grateful 🥰



An approach for introducing a wide range of maths concepts, without really doing any maths at all!!

Balloon Rockets and Catapults.



Thread your straw onto the string, inflate your balloon and watch it go!!

Hmmm...

What did we just do?

How did we engage you from the start?

How did we introduce the maths?

How did we then extend the maths? Where else could we take it?

At what point did the learning go deeper, but not at the expense of what you were doing?

How could you use this way of teaching for other areas of maths?

Sometimes we just bring the maths in too early!!

Thank You!!

Please feel free to collect contact details from me if you'd like to know more. bkerrins63@gmail.com mathsconnection.com.au