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## [The Three Acts Of A Mathematical Story](#)

May 11th, 2011 by [Dan Meyer](#)

Storytelling gives us a framework for certain mathematical tasks that is both prescriptive enough to be *useful* and flexible enough to be *usable*. Many stories divide into three acts, each of which maps neatly onto these mathematical tasks.

### Act One

**Introduce the central conflict of your story/task clearly, visually, viscerally, using as few words as possible.**

With *Jaws* your first act looks something like this:



The visual is clear. The camera is in focus. It isn't bobbing around so much that you can't get your bearings on the scene. There aren't any words. And it's visceral. It strikes you right in the terror bone.

With *math*, your first act looks something like this:



The visual is clear. The camera is locked to a tripod and focused. No words are necessary. I'm not saying anyone is going to shell out ten dollars on date night to do this math problem but you have a visceral reaction to the image. It strikes you right in the curiosity bone.

Leave no one out of your first act. Your first act should impose as few demands on the students as possible — either of language or of math. It should ask for little and offer a lot. This, incidentally, is as far as [the #anyqs challenge](#) takes us.

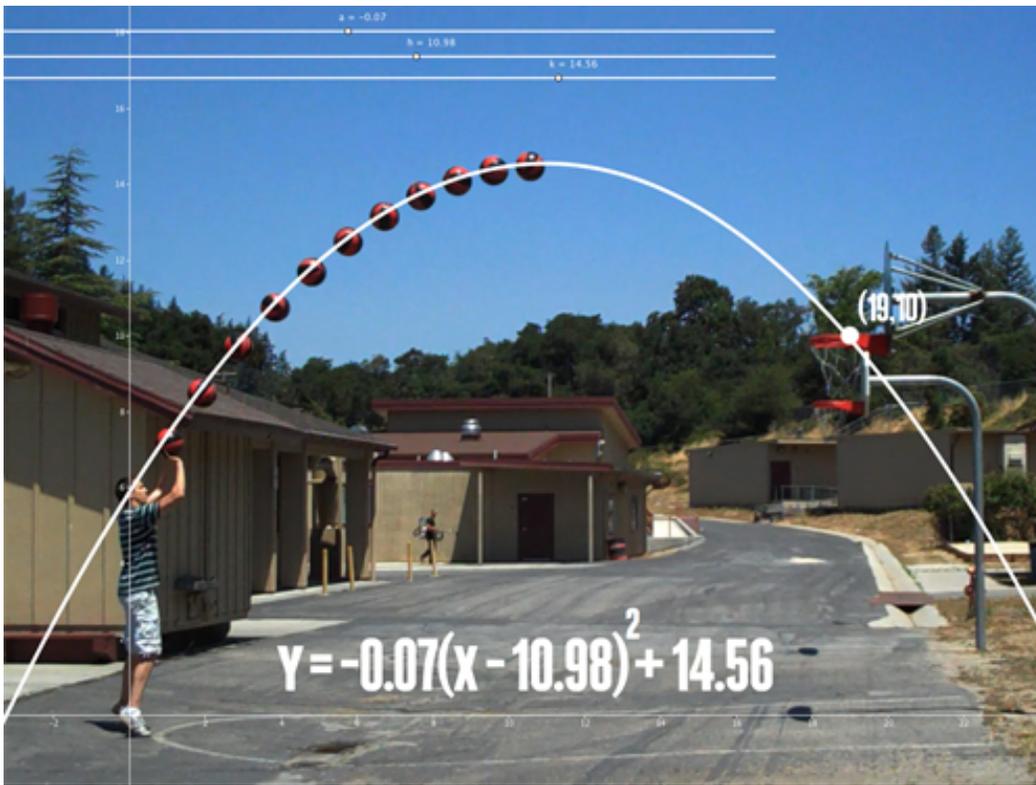
## Act Two

**The protagonist/student overcomes obstacles, looks for resources, and develops new tools.**

Before he resolves his largest conflict, Luke Skywalker resolves a lot of smaller ones — find a pilot, find a ship, find the princess, get the Death Star plans back to the Rebellion, etc. He builds a team. He develops new skills.



So it is with your second act. What resources will your students need before they can resolve their conflict? The height of the basketball hoop? The distance to the three-point line? The diameter of a basketball?



What tools do they have already? What tools can you help them develop? They'll need quadratics, for instance. Help them with that.

### Act Three

#### Resolve the conflict and set up a sequel/extension.

The third act pays off on the hard work of act two and the motivation of act one. Here's act three of *Star Wars*.



That's a resolution right there. Imagine, though, that Luke fired his last shot and instead of watching the Death Star explode, we cut to a scene inside the Rebellion control room. No explosion. Just one of the commanders explaining that "the mission was a success."

That what it's like for students to encounter the resolution of their conflict in the back of the teacher's edition of the textbook.

meters per second.

## 42. The ball goes in.

49 19 19 19 19

If we've successfully motivated our students in the first act, the payoff in the third act needs to meet their expectations. Something like this:



Now, remember Vader spinning off into the distance, hurtling off to set the stage for *The Empire Strikes Back*. You need to be Vader. Make sure you have extension problems (sequels, right?) ready for students as they finish.

## Conclusion

Many math teachers take act two as their job description. Hit the board, offer students three worked examples and twenty practice problems. As the [ALEKS](#) algorithm gets better and Bill Gates throws more gold bricks at [Sal Khan](#) and more people [flip their classrooms](#), though, it's clear to me that *the second act isn't our job anymore*. Not the biggest part of it, anyway. You are only one of many people your students can access as they look for resources and tools. Going forward, the value you bring to your math classroom increasingly will be tied up in the first and third acts of mathematical storytelling, your ability to *motivate* the second act and then *pay off* on that hard work.

## Related

1. I gave this post a try [a year ago](#).
2. Also, [Breedeen Murray](#) has a lot of useful things to say about storytelling, though I can't endorse her enthusiasm for "confusion."

**2011 Dec 26:** [The Three Acts of a \(Lousy\) Mathematical Story](#) is also on the syllabus.

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[91 Comments »](#)

## 91 Responses to “The Three Acts Of A Mathematical Story”

1. on 12 May 2011 at 3:18 am<sup>1</sup> [Jason Fountain](#)

Dan,

I’ve been following your posts for about a year now. As a former middle school math teacher, I think you are right on with your focus on building mathematical stories.

One of my favorite recent books is “Do the Work” by Steven Pressfield. He wrote a great little post a few weeks ago about the three act structure in anything we are doing. It’s worth a look:

<http://www.stevenpressfield.com/2011/04/three-act-structure/>

Keep pushing!

2. on 12 May 2011 at 5:03 am<sup>2</sup> [MBP](#)

Now I’m finding myself confused. I seem to remember you saying that you tell mathematical stories daily, and WCYDWT problems less frequently. But now it seems that you’re identifying good mathematical story telling with WCYDWT problems? Which part am I getting wrong?

I think that this framework easily applies to apply to very non-WCYDWT approaches as well. For instance, if my students know how to solve linear equations in one variable, and then I put any other equation in one variable on the board, I think everyone in the classroom is going to ask the same question: how do we find solutions for the variable? I suppose that the big difference between a question like “How do we find solutions to this equation?” and “Will the basketball go in?” is in how badly kids need the question answered. How hooky is the hook?

At the same time, we shouldn’t underestimate the hookiness of “How do we find solutions to this equation?” In class the other day I did something stupid: I put a rational equation up on the board that turns into a kind of quadratic equation that my ninth graders don’t know how to solve. Once we had that quadratic equation on the board, though, I had to very, very slowly back away from my students. I tried to move on. “Wait, so what are the solutions?” Umm... we haven’t learned it yet. “Is the answer 8?” Well...sort of but remember how many solutions a quadratic equation has. “Oh! So it’s got 2 solutions.” I have no doubt that more of my students would have been engaged in that conversation if it was a more intuitive question (Will the ball go in?). Still, mathematical questions don’t suck.

3. on 12 May 2011 at 7:19 am<sup>3</sup> [Damian Eastwood](#)

Reading your post on Google Reader. The previous post from a different blog was discussing a school in Denmark that is piloting open book exams where “the book” is the full range of online communication tools. It struck me that the kind of questions being asked would need to very different from traditional “what can you remember”, closed book testing. I was wondering what such an exam paper might look like as I hit the next button to read this post. I think this kind of thinking, and format could be the answer to my question and could be adapted to provides some interesting assessment work.

4. on 12 May 2011 at 7:39 am<sup>4</sup> [Michael](#)

Dan said: “I’m not saying anyone is going to shell out ten dollars on date night to do this math problem”

Wouldn’t that be something if people DID shell out ten dollars on date night to do a math problem or two; if it is a double feature!

I think I see a new business opportunity for someone.

5. on 12 May 2011 at 8:48 am [5 Alex](#)

Dan,

Do you see a world where every math teacher is capable of building a curriculum that largely consists of math storytelling/WCYDWT lessons and learning experiences?

Or do you see a world where that curriculum is available to be accessed/purchased?

6. on 12 May 2011 at 8:49 am [6 Dan Meyer](#)

**MBP:** Now I'm finding myself confused. I seem to remember you saying that you tell mathematical stories daily, and WCYDWT problems less frequently. But now it seems that you're identifying good mathematical story telling with WCYDWT problems? Which part am I getting wrong?

The difference between the mathematical stories we tell daily and #wcydwt is the visual nature of #wcydwt and the different techniques for resolving the first act conflict in the third act. (It's hard to *show* the answer to a trinomial factoring problem. It's *different*, anyway.) Otherwise, they're largely the same.

7. on 12 May 2011 at 9:12 am [7 Breedeen](#)

Geez. Called out again by Meyer.

I want to make it clear (and plan to in an upcoming post) that I am not enthusiastic about confusion for confusion's sake. I value confusion as a part of the learning process. My take on "confusion" aligns rather well with what you're saying about Act 1 & Act 2. I have not yet written about Act 3—the climax and dénouement.

Unresolved confusion is not productive. Not to mention about as unsatisfying as an unresolved narrative arc [last season of Farscape, anyone?...anyone?].

8. on 12 May 2011 at 9:12 am [8 mary](#)

Suggested "act 3" extension for a more advanced math/physics class: add a scoreboard and a buzzer about to go off. You do need to know  $g=9.8 \text{ m/s}^2$  and have some dimension from the image in that case, but it would give you a second thing to solve for.

9. on 12 May 2011 at 12:21 pm [9 dy/dan » Blog Archive » Teaching WCYDWT: Storytelling](#)

[...] May 12: I gave this post another pass a year later. The job of the dramatist is to make the audience wonder what happens next. Not to [...]

10. on 12 May 2011 at 3:04 pm [10 Dan Meyer](#)

**Alex:** Do you see a world where every math teacher is capable of building a curriculum that largely consists of math storytelling/WCYDWT lessons and learning experiences?

Or do you see a world where that curriculum is available to be accessed/purchased?

A mix of the two, mostly. I don't know if it's possible for a teacher to teacher from a framework she doesn't understand. If your understanding of the three acts is so shaky you can't *create* one of these problems, it isn't going to be simple for you to teach someone else's.

That said, once two teachers share an understanding of this common framework, certainly they should pool their efforts. The same goes for thousands of math teachers on the Internet.

11. *on 12 May 2011 at 3:35 pm*<sup>11</sup> [Paul McNally](#)

Hi Dan,

Just wanted to let you know that I've been inspired...I write curriculum for my district (Cherry Hill NJ) and also create performance assessments for my classes. I created a systems performance assessment for my Algebra class a few years ago where the students perform races in groups of two or three, model their race with a distance vs. time graph and use algebra to determine how much of a head-start the slower runner would need to tie the faster runner. Then obviously we go back outside and test our hypothesis...but the problem lied in how to get the students to figure out the head start without me showing them first (i.e. the runners' speed "slope" doesn't change and the slower runner must end at the same time "point" as the faster runner). That's where you come into play. I've created three videos as a pre-lesson to the performance assessment where there is no sound only me running a 100 foot race and the time on the bottom of the video, my co-worker running the same race with a slower time and then finally me and my coworker finishing the race at the same time but not showing what happened in the beginning of the race. Can't wait to try it out this year with my students in a few weeks. But I just wanted to say thank you for the inspiration...it was like a light bulb went off and now I can see so much more potential in my lessons and my labs/performance assessments. Keep it up!!

12. *on 12 May 2011 at 7:28 pm*<sup>12</sup> [Timon Piccini](#)

Thanks Dan! Once again you have made so many things so clear. I am really hoping that I will be able to incorporate this sort of story telling even a fraction as well as you have done!

I have a question, is this worthwhile to bringing to my staff, even if they are not all math experts? They are great teachers, and would be inspired by this. As part of our technology budget we have all received iPod touches with video, and I thought of introducing them to some anyqs and WCYDWT, so that is not just a glorified google searching device.

I am a newcomer to this whole style of math teaching, so I am curious what you would think? Get a few lessons under my belt first, or just open it up to everyone, and learn from each other?

13. *on 13 May 2011 at 2:48 am*<sup>13</sup> [Owen](#)

I have learnt a few things about story telling through images and presentations from Garr Reynolds at Presentation Zen <http://www.presentationzen.com/>

And thanks to the ideas on this blog, I have started thinking "Is that something mathematical I can take a photo or video of?"

14. *on 13 May 2011 at 11:50 am*<sup>14</sup> [Tom](#)

Good stuff Dan! I've fairly new to teaching and to your blog (found it after seeing your TED video) and I'm hooked. I used storytelling a bit in one of my Algebra classes a couple years ago after talking with an English teacher about how they got students talking about the content, instead of just staring blankly at him. His response was the fact that he got to talk about characters, plot, etc. This got me thinking about storytelling in math.

I didn't quite do it as you did with the three acts, but used it as an introduction to direct variation and to help the students get the "big ideas" with the concepts. I used the clips from the Matrix and related Neo

to the independent variable and Agent Smith with the dependent variable. The dependent variable “reacted” to the independent variable, just as Agent Smith would follow/track Neo. As a follow-up at the end of the unit I gave an assignment where the students could use their own movie analysis relating the characters to content or create their own story.

Again, not quite the same as you’ve been talking about, but the students enjoyed it and if you are looking at the different types of learners, this helps some who aren’t as strong with their computations demonstrate their understanding of the content in another way.

15. on 13 May 2011 at 12:09 pm [15 Pwolf](#)

Paul McNally brought up something that I’ve been thinking about for about a week or so. It may be more useful to e-mail the guy who made it, but does anyone have a copy of “Do You Know How Slow You Run?” I saw it when Dan used it in a presentation I was watching last week, and when I went to find it on Youtube, it had been taken down.

For those of you who haven’t seen it, a guy in a suit runs the 40 yard dash at the NFL Combine in what appears to be a pretty respectable time for a guy in a suit. Then they show the video again, this time spliced in with a real football player, who blows past the guy in the suit. Then they show another clip and they give the guy in a suit a head start, and he still loses by a lot.

I haven’t been able to see the whole thing, so I don’t know if there is a “blow up the Death Star” moment where the guy gets the head start he needs, but man would that be a killer first-day-of-the-year lesson. If I can’t find it, I’ll have to make my own, maybe stealing the tricycle idea (I don’t remember who made that one). But I really want the original.

16. on 13 May 2011 at 12:55 pm [16 Karim](#)

@Pwolf: Here’s the link you’re looking for...<http://www.nfl.com/videos/nfl-combine/09000d5d816b2dca/Rich-Eisen-s-40-yd-dash>

This is a really wonderful description of a good lesson flow, and one of the most well thought out and articulated I’ve read. It makes sense given Dan’s background in film (although, the next time around, he might consider using *Major League*, which everyone agrees is a cinematic masterpiece).

Clearly storytelling makes the learning process more engaging and authentic, especially when combined with multimedia. My only concern is that people interpret this to mean that it’s the *best* or indeed *only* way of teaching, something to which everything else is therefore inferior. I don’t think that Dan is setting WCYDWT-style prompts up as the be-all-end-all, and in fact he’s done a great job of noting its limits and boundaries. Having read the comments, though, I sense that some are eager to develop an entire curriculum around this, which 1) may be infeasible, and 2) may diminish the authenticity which this approach depends on.

In terms of the first, not all topics lend themselves to multimedia, and restricting a curriculum to .jpg and .mov unnecessarily filters down the field. Similarly, storytelling itself is limited to situations where... there’s a story: a conflict, a resolution. But say you’re a 6th grade teacher and have to teach PEMDAS, and were thinking of doing a lesson on body-mass index or target heart rates. These aren’t stories, but they’re still very mathematically rich. Also, students walk out of class knowing something about health & wellness, which is valuable in and of itself.

At the same time, we do have to consider how easy this type of lesson is to teach, particularly for a new and inexperienced teacher. Act Two isn’t just an act, but rather a collection of mini-acts, and helping students navigate through quadratics—and ensuring that they cover the standards they need to cover, in the

time they need to cover them—can be challenging. Which is to say: the virtue of the storytelling approach is that it's open-ended. There are huge upsides to this, but potential shortcomings as well.

This isn't an argument against conflict/plot/resolution types of lessons. Far from it. It's simply a caution against the illusion of mutual exclusion, and the desire to put everything into the same neat category. Still, for this category, this is easily one of the best descriptions I've seen. Awesome.

17. on 13 May 2011 at 1:24 pm [17 dy/dan » Blog Archive » \[WCYDWT\] Russian Stacking Dolls](#)

[...] see how well the storytelling framework holds [...]

18. on 13 May 2011 at 2:44 pm [18 Dan Meyer](#)

@Pwolf, if you'd like a hard copy of Karim's link, you can grab that here: <http://wcydwt.mrmeyer.com/slowrunner.zip>.

@Karim, thanks for weighing in on this one.

**Karim:** My only concern is that people interpret this to mean that it's the best or indeed only way of teaching, something to which everything else is therefore inferior.

Concern trolling? Certainly, I did my best to disclaim at the top of the page that this is a framework only for "certain mathematical tasks." And so help me if I can't find a single commenter suggesting what you suggest they're suggesting. Where are you taking exception, exactly?

**Karim:** In terms of the first, not all topics lend themselves to multimedia, and restricting a curriculum to .jpg and .mov unnecessarily filters down the field. Similarly, storytelling itself is limited to situations where...there's a story: a conflict, a resolution. But say you're a 6th grade teacher and have to teach PEMDAS, and were thinking of doing a lesson on body-mass index or target heart rates.

Agreed to the first that not every good mathematical task comes packaged with a .jpg or a .mov. I disagree, however, that conflict is optional. Learning arises naturally from the resolution of conflict and it's incumbent on professional math educators to locate the conflict in topics like PEMDAS. PEMDAS, for the record, isn't even hiding its conflict all that well. Namely, if we don't have some convention for the order of operations, we will all get different answers for the same expression. That isn't a great white shark circling a swimmer, but it *is* a conflict.

(Another example of conflict where you least expect it: [naming points in the Cartesian plane](#).)

**Karim:** At the same time, we do have to consider how easy this type of lesson is to teach, particularly for a new and inexperienced teacher. Act Two isn't just an act, but rather a collection of mini-acts ...

Act one is the easiest, particularly when you're able to download it from someone else. Act three next. (Revealing the answer is easy. The summary discussion of methods is not.) I'm not sure what "mini-act" means, but act two is far and away the hardest of the three.

A master practitioner, in act two, will quickly pre-assess her students' existing toolset and ask questions that lead to the development of new tools strong enough to resolve the act one conflict. That's tough.

A novice practitioner, in act two, will lecture. She'll *give* her students the tools necessary to resolve the conflict, without respect to their existing toolset. That isn't great teaching, but there is room within this

framework to grow from novice to master.

Certainly, it's an ongoing challenge to make this framework accessible to as many teachers as possible without making it meaningless. (In that sense, [The rule of least power](#) has been the white whale of my career.) Even if I didn't have evidence of new teachers applying this framework in their classes, I'd still wonder what's wrong with a framework that only intermediate and advanced teachers can apply? New teachers are only new for so long.

19. *on 13 May 2011 at 5:34 pm* [19 Karim](#)

Concern trolling, or trolling for concern trolling? :)

I'm not knocking WCYDWT, as I think my initial comment made clear. When I write that my "concern is that people interpret this to mean...", there's an implicit [would] in there. I'm not saying that people necessarily "do" create a mutual exclusion in their minds, but simply that they "might."

(That said, Alex in comment 5 asks, "Do you see a world where every math teacher is capable of building a curriculum that largely consists of math storytelling/WCYDWT lessons?" I don't know whether this was a question or a solicitation, but I can certainly see people—indeed have met people—who are looking for a simple answer to a difficult question, namely *how do we engage students in math?*, find your blog and become convinced that WCYDWT is this answer. Again, I know that you're not advocating it as such, but that doesn't mean that people won't in their enthusiasm interpret it that way).

In terms of the role of conflict, we may just fundamentally disagree. I think it's important and can lead to great learning, but I'm not ready to say that learning without conflict therefore isn't. I learned about the Declaration of Independence and the Freedom Riders, quadratics and the birth of Impressionism. None of those involved conflict...unless we define "conflict" so broadly that it ceases to mean anything.

WCYDWT uses the world as a prism to explore math: the world serving the math. I don't imagine you really care about water tanks or Russian dolls, but that you value them insofar as they provide an "in" to mathematics. At their heart, WCYDWT-style lessons seem to me like wonderful puzzles. Puzzles are great. Sudoku is great.

And so is the rest of the newspaper. Which is to say, there's another side to math, and one that doesn't always involve an initial conflict: math serving the world. Using PEMDAS to examine target heart rates, or expected value to understand both sides of the healthcare debate. I imagine that Galileo was fascinated by telescopes for telescopes' sake, but more so that he could see the stars.

World to math. Math to world. We need both, and that's the point...and one that I'd be sad to see lost in our enthusiasm to codify a new template.

In terms of my "we do have to consider how easy this type of lesson is to teach, particularly for a new and inexperienced teacher" comment, it wasn't a critique of WCYDWT but simply a recognition of the challenges a first year teacher may encounter in trying to teach it, and the need to make it as easy as possible for him/her to incorporate. As I've said before, WCYDWT is great stuff. These prompts are wonderful, and it would be a shame if people *didn't* use them because they didn't know how. So let me ask you: do you actually disagree with what I wrote?

20. *on 13 May 2011 at 6:17 pm* [20 Karim](#)

By the way, the Photoshopped answer key ("the ball goes in")? Genius.

21. *on 14 May 2011 at 1:42 am* [21 Christopher Danielson](#)

Um Karim? No conflict in the Declaration of Independence? No conflict in the Freedom Riders? Please revise examples and resubmit.

22. on 14 May 2011 at 3:06 am [22 Karim](#)

@Chris, you know what I meant. Of course there were conflicts for *them*, but were you on the edge of your seat in seventh grade wondering, “How are we going to extricate ourselves from the King?!” Press play. “Phew!”

My point is that not every learning experience requires this kind of “oooh I wonder how this is going to turn out” internalization. Are these valuable prompts? No doubt, where they exist. But take the combinatorics lesson on your Sophia site: “How many possible color combinations are there on Nike iD?” There’s a narrative, yes, but no deep conflict\*. It’s still a valuable learning exercise, though.

(\*Unless we define “conflict” to simply mean “question.” If that’s the case, then yes, I imagine most people would agree that learning first requires a question. But a net that catches everything catches nothing, and I don’t think this broad brush is what Dan intended (unless I misinterpreted)).

Indeed, maybe I did misunderstand. Like @MBP, I understood that WCYDWT-style lessons happened every so often, but weren’t meant to replace the entire curriculum. Some of Dan’s comments seem to reaffirm this. But with the whole “learning requires conflict, where conflict means [Act One],” I’m no longer so sure. @Dan can you clarify, or perhaps expand on your response in comment #5?

23. on 14 May 2011 at 3:09 am [23 Karim](#)

(comment #6, I mean)

24. on 14 May 2011 at 10:41 am [24 Dan Meyer](#)

**Karim:** @Chris, you know what I meant. Of course there were conflicts for them, but were you on the edge of your seat in seventh grade wondering, “How are we going to extricate ourselves from the King?!” Press play. “Phew!”

It’s a rather large problem how little our classrooms involve intellectual conflict, how comfortable teachers are to walk to the front of the class, announce the day’s topic, and describe it fully, all without positioning it as the resolution to some previous conflict or the antecedent to some future conflict.

I’m not saying learning arises *exclusively* from conflict. But we developed new mathematical tools to resolve the limitations of the old ones. That’s a conflict. And there are methods for making that conflict deeply felt to our students.

“Press play” and all that? Just details. The conventions of narrative run beneath everything. Draw it on a cave wall or shoot it with a Flip — doesn’t matter to me. I don’t know anything about teaching history, for instance, but I feel confident saying that if you can’t evoke the conflict of the Revolution in a way that is real to your students, in a way that you can leverage into learning, you’re probably in the wrong business.

25. on 14 May 2011 at 12:14 pm [25 Karim](#)

Well put. Invariably there’s a spectrum of conflict—from the immediate & visceral to the more subtle—and your first paragraph pretty much nails what it *doesn’t* look like.

By the way, if I were still teaching I’d use WCYDWT as often as possible, and at a minimum every other

Friday. I love it.

26. on 15 May 2011 at 12:54 pm [26 MBP](#)

Storytelling is also undervalued at higher levels of instruction as well. Low-level, lesson-level storytelling helps with learning individual topics. But what connects these individual topics? What *\*are\** we learning, anyway, Mr. MBP? What do mathematicians do all day?

We need the higher levels of instruction—units, semesters, and subjects—to include story arcs as well. Each moment in the classroom should feel inevitable, and a necessary step in the larger story. Stories do that.

27. on 15 May 2011 at 6:29 pm [27 Christopher Danielson](#)

Karim:

But take the combinatorics lesson on your Sophia site: “How many possible color combinations are there on Nike iD?” There’s a narrative, yes, but no deep conflict\*. It’s still a valuable learning exercise, though.

Point well taken. I agree wholeheartedly that question≠conflict. But wouldn’t it be a better learning experience if there *were* conflict?

W/r/t Sophia, you point to something I’ve been struggling with. My [Nike combinatorics packet](#) is, of course, ripped off straight from you, Karim (with credit given in the first paragraph). I wrote it quickly and to supplement some class work in my College Algebra class. I use it to tell. If you don’t care already about combinatorics, nothing about that packet is going to make you care.

While Sophia incorporates multimedia, it does so linearly. In that sense, it’s very much like a textbook. Reference Bowen’s question about textbooks [here](#). I’m still playing around with how to incorporate compelling narrative into this new medium. One way is to write in a way that brings students’ half-formed ideas and misconceptions to the forefront, as in my packets on [circles](#) and on [exterior angles of concave polygons](#). The conflict arises when these half-formed ideas are pushed to their limits. “You think of a circle as something round, but that’s not good enough. Here’s why.” and “Remember when we said that the sum of measures of the exterior angles of a polygon is 360 degrees because if you were walking around the polygon, you end up facing the way you started? That doesn’t seem to work for a concave polygon, does it?”

Conflict-free teaching ignores the ideas that students bring with them to class. “A circle is the set of all points a common distance from a single point, which is called the center.” and “The sum of the exterior angles of any polygon is 360 degrees, counting left-hand turns as positive and right-hand ones as negative.” It tells without concern to what’s really being heard. We’ve all done it and it creates conflict that teachers are unable to observe, never mind resolve.

Better teaching begins with the ideas students bring with them and uses them to create visible conflict that needs resolution (*cognitive dissonance* is another trendy term for a related idea).

28. on 15 May 2011 at 11:23 pm [28 Gary Harper](#)

Hi Dan

I am a High School Maths teacher in Scotland and have been reading your posts for about 2 months now. I have been trying to tweak my lessons to try some of the stuff you have posted. What editing software

did you use for the video of your basketball shot? I am trying a similar thing but can't find some decent software.

29. on 16 May 2011 at 5:08 am [29 Christopher Danielson](#)

Gary:

Answers here:

<http://blog.mrmeyer.com/?p=7689>

and

<http://blog.mrmeyer.com/?p=9318>

Both were really helpful in my learning.

30. on 16 May 2011 at 6:00 am [30 Dan Meyer](#)

My work here is done.

31. on 16 May 2011 at 11:18 pm [31 Gary Harper](#)

Thanks very much. Now to get my head round it all!!!

32. on 23 May 2011 at 6:26 am [32 Candle Burn #WCYDWT | A Recursive Process](#)

[...] Candle Burn #WCYDWT Posted on May 23, 2011 by Dan The structure of this post comes from Dan Meyer's Three Acts of A Mathematical Story. [...]

33. on 23 May 2011 at 7:13 am [33 The Inconvenient Truth Behind Waiting for Superman and other stories « Research in Practice](#)

[...] much direction. But at the same time I felt I needed to guarantee that we would reach resolution. (Storytelling [...])

34. on 24 May 2011 at 1:55 am [34 dy/dan » Blog Archive » Dan Anderson's Mathematical Story](#)

[...] because they make implementation easy. I know what happens in the first, second, and third acts of a mathematical story, so it'd be a simple matter to use Dan Anderson's lesson in the classroom — no lesson plan or [...]

35. on 16 Jun 2011 at 6:19 am [35 post #11 \(three-act stories...\) | treppapalooza](#)

[...] from dan meyer's blog post... [...]

36. on 27 Jun 2011 at 4:04 am [36 An imaginary conversation | Overthinking my teaching](#)

[...] Well, then you give 'em whatever information they need to solve the problem. And you let them work, or maybe some days you lecture. But the point is, they're motivated [...]

37. on 27 Jun 2011 at 10:12 am [37 The 2011 MfA Sessions | Follow-Up Reading](#)

[...] linkThe Three Acts Of A Mathematical Story [...]

38. on 29 Jun 2011 at 10:16 am [38 dy/dan » Blog Archive » Which Is The Better First Act?](#)

[...] Why Dan Has Told The Better Mathematical Story [...]

39. on 12 Jul 2011 at 7:11 am [39 Jamie](#)

I didnt realize the way you structured your math problems was in a storytelling format. I took a class on digital storytelling and everyone thought I was nuts, storytelling in math. Reading your explanations of the 3 acts and seeing examples make it much more clear. Beginning, Conflict, Closure.

40. on 15 Jul 2011 at 5:54 am [40 China Wedge – Three Acts « Zero-Knowledge Proofs](#)

[...] Here is my attempt at a three act math story as described by Dan Meyer here. [...]

41. on 18 Jul 2011 at 6:48 am [41 dy/dan » Blog Archive » The Three Acts Of A \(Lousy\) Mathematical Story](#)

[...] The Three Acts of a Mathematical Story [...]

42. on 18 Jul 2011 at 8:23 am [42 The 2011 CAMT Sessions | Breakout](#)

[...] LinkMathematical Storytelling [...]

43. on 18 Jul 2011 at 8:29 am [43 The 2011 CAMT Sessions | Keynote](#)

[...] LinkMathematical Storytelling [...]

44. on 18 Jul 2011 at 6:31 pm [44 What This Is « Mathy McMatherson](#)

[...] strategies), how to create dynamic, inquiry-based mathematics lessons (don't we all? Dan Meyer is especially inspirational), and how to use technology effectively in my teaching (Jennifer [...])

45. on 29 Jul 2011 at 4:16 pm [45 The 2011 NCTM – RSM Sessions | Breakout](#)

[...] LinkMathematical Storytelling [...]

46. on 29 Jul 2011 at 4:18 pm [46 The 2011 NCTM – RSM Sessions | Keynote](#)

[...] LinkMathematical Storytelling [...]

47. on 30 Jul 2011 at 2:00 pm [47 Reflections from CAMT 2011: Math as Story « GOD & MATH: Thinking Christianly About Mathematics, Education](#)

[...] I am such a big fan of his. The main point of both his talks: a good (read engaging) math problem is like a good story. A good problem grabs your interest (usually with a powerful image), equips you to solve the [...]

48. on 05 Aug 2011 at 4:44 pm [48 edu180atl: john burk 8.5.11 | edu180atl](#)

[...] Dan's ideas for flipping math on its head come from looking at good stories and distilling their essential three acts. [...]

49. on 14 Aug 2011 at 5:34 pm [49 Finding the Best Lock « Megan Hayes-Golding](#)

[...] you help me make this into a 3 Acts problem? I was thinking some thing along these [...]

50. on 16 Aug 2011 at 4:01 pm [50 How Many Milkshakes? | Campbell's Corner](#)

[...] do you think would be the most engaging for students? As Dan Meyer would describe it, what would

be ACT 1, ACT 2 and ACT 3? Advertisement GA\_googleAddAttr("AdOpt", [...])

51. on 18 Aug 2011 at 11:55 am [51 Goals « The Chemist's Classroom](#)

[...] set tests. There are a number of issues at work here, and a lot of what I want to change comes from Dan Meyer's "problem solving" ideas and development. I also have a lot of work to do in designing [...]

52. on 20 Aug 2011 at 3:56 am [52 Candle Burn #WCYDWT « A Recursive Process](#)

[...] The structure of this post comes from Dan Meyer's Three Acts of A Mathematical Story. [...]

53. on 21 Aug 2011 at 7:34 pm [53 Christa](#)

I have been teaching for exactly 6 years, I saw your video because I was forced to watch it in my grad class! Already I have sent it out to the entire math team and all of the principals! If I get one more unsatisfactory observation after they watch your video, then they need they I will ask them to teach my math class so that they can model rigor for me after they have their head examined!

Of course, I am being sarcastic! I studied Electrical Engineering and shifted careers obviously. However, I have received about 4 unsats in my career, all due to student behaviors! I have had technology 1/6 years in my classroom, only had an honors class 1/6 years, but I am now in a Learning Technology Masters program and finally this year we will have Nspire Technology in all math classes.

So! I said all of that to say that they better pay attention to your video! All I hear is I can't do math, I never was good at it, but yet you have the nerve to evaluate me and expect me to control my math class with extra tough math problems, and if I just did that, my kids would be engaged!!!! Yeah right!

Maybe deep down inside I am hoping that they could get you to come to do a real professional development at our school because this year we are finally going to stop focusing on writing!!!!

Thank you,

—

Christa Togans

54. on 25 Sep 2011 at 7:10 am [54 PD session 2: Multimedia extravaganza « Westminster Science](#)

[...] For more background on the engagement in 3 acts idea, check out this post: The three acts of a mathematical story. [...]

55. on 04 Oct 2011 at 3:56 pm [55 Real World Math \(Dan Meyer and stuff\) | Lost In Recursion](#)

[...] perhaps. You can read all about Dan's "three acts of a mathematical story" here, but act one should grab hold of the audience with something truly compelling. I'm all about [...]

56. on 30 Oct 2011 at 7:07 am [56 The 2011 AIMS Sessions | Breakout #1](#)

[...] linkThe Three Acts of a Mathematical Story [...]

57. on 01 Nov 2011 at 6:26 pm [57 Inquiry-based mathematics: the posing of a problem is only the beginning of the problem-posing process. | emergent math](#)

[...] delivers the problem to the student. New Tech calls this an "entry event". Dan Meyer calls it "Act 1." Whatever it's called, it is intended to ignite student curiosity about [...]

58. on 05 Nov 2011 at 4:33 am [58 A Billion Nickels – 3 Acts « Zero-Knowledge Proofs](#)

[...] who support K-9 teachers. Last week, I eavesdropped on two of them as they tried to come up with a 3 Act Math Story in style of Dan Meyer that would apply to division 1 students. This week's Parks and [...]

59. on 06 Nov 2011 at 7:19 am [59 The most exciting boring thing I do | Mr. V's Class](#)

[...] Sounds like quite a job. Here's why it'll work. [...]

60. on 10 Nov 2011 at 10:29 am [60 The Lottery « Zero-Knowledge Proofs](#)

[...] Lottery" in a math class. Then I began to wonder if a 3773 short story would fit with Dan Meyer's 3 Act Mathematical Story Telling. Here's what I would try with this [...]

61. on 02 Dec 2011 at 10:28 pm [61 The 2011 CMC-N Sessions | Resources](#)

[...] linkThe Three Acts of a Mathematical Story [...]

62. on 06 Dec 2011 at 11:38 am [62 dy/dan » Blog Archive » CMC-N 2011 Reax](#)

[...] together. I was right, but I had no how right I was until we were starting into my explanation of mathematical storytelling. I was showing shots from the first acts of Star Wars, Jaws, and Raiders of the Lost Ark and the [...]

63. on 09 Dec 2011 at 3:11 pm [63 Think Thank Think » So, One of my Students is a Pilot:](#)

[...] a little more than that; lots of things are fun, but I'd rather shoot for perplexing (thanks Dan), engaging—dare I say—riveting. There's a reason kids play video games and watch [...]

64. on 10 Dec 2011 at 9:45 am [64 Renee Goularte](#)

I was at your presentation at Asilomar (which was great!) and, in fact, was one of the people who started the Darth Vader music in the back. I've been thinking how to apply your "hook" idea to lower elementary students, K, 1st, and 2nd particularly, and 4th and 5th also, in ways that will include art-making. Any ideas on that from anyone would be welcome!

65. on 23 Dec 2011 at 4:48 am [65 Bradley](#)

Dan,

Thank you so much for sharing your Three Acts pedagogy! I actually met you at the 2011 Siemens STEM Institute before you gave your keynote presentation. I was truly inspired by your presentation and have been working with my math department in my middle school.

I wanted to now share with you a Three Acts math problem that I created for my technology students. If you have any suggestions for future Three Acts math problems, I would greatly appreciate it!

Best of your with your success!

Brad

<http://the-lands-cape.blogspot.com/2011/12/my-three-act-math-problem.html>

66. on 16 Jan 2012 at 8:32 pm [66 \*Twitter & RSS – My PLN | Just Your Standard Deviation\*](#)

[...] doc of course) of possible #anyqs created by Dan Meyer (the guy your probably saw this about. This post describes the three acts of #anyqs. Here are some blog posts describing more about the idea [...]

67. on 24 Jan 2012 at 7:21 am [67 \*Dispatches from the Learning Lab: Why I Don't Always Ask My Question « Research in Practice\*](#)

[...] tension – one I am much more confident is an essential one of our profession – between storytelling and avoidance of theft – I discussed a particular case of this tension in the fourth [...]

68. on 18 Feb 2012 at 10:36 pm [68 \*The 2012 ITSC Sessions | Session I\*](#)

[...] linkThe Three Acts of a Mathematical Story [...]

69. on 05 Mar 2012 at 11:30 am [69 \*The 2012 Kent Sessions | Webinar\*](#)

[...] LinkThe Three Acts of a Mathematical Story [...]

70. on 06 Mar 2012 at 7:31 pm [70 \*3 Acts – Potatoes « The Roots of the Equation\*](#)

[...] in class (and will repeat tomorrow), and it worked out quite well. So now I want to share, my first 3 Acts [...]

71. on 16 Mar 2012 at 11:28 am [71 \*The 2012 CSMC Sessions | Plenary\*](#)

[...] LinkThe Three Acts of a (Lousy) Mathematical Story [...]

72. on 16 Mar 2012 at 2:20 pm [72 \*Storytelling and Teaching | Altering the Course\*](#)

[...] born for them.” As I got deeper into his talk I thought, wow, this has Dan Meyer and his 3 Acts brain-child all over it. Not the joke part. But Dan’s funny too. Think “lesson” [...]

73. on 19 Mar 2012 at 9:00 am [73 \*dy/dan » Blog Archive » BREAKING: BLOGGER DESIGNS WEBSITE FOR SHARING NICHE CURRICULUM INTEREST\*](#)

[...] call that a first act. There are still two more acts and a lot of work yet to do, but the first act is above and before everything [...]

74. on 19 Mar 2012 at 5:39 pm [74 \*Looking Deeper at Dan Meyer's 3 Acts « Teaching as a dynamic activity\*](#)

[...] been following Dan Meyer’s process with his 3 acts for quite a while. I greatly appreciate the public nature in which he develops ideas and there is [...]

75. on 12 Apr 2012 at 12:05 am [75 \*Stroboscopische foto | Bernard Blogt\*](#)

[...] Bron: Dan Meyer (cc-by) via zijn weblog [...]

76. on 15 Apr 2012 at 1:29 pm [76 \*101 Questions | mathcoachblog\*](#)

[...] which others have contributed for each item. The pictures and videos are meant to serve as “first acts“, mathematical conversation-starters which lead to problem-solving [...]

77. on 22 Apr 2012 at 12:31 pm [77 \*Jerzy\*](#)

This metaphor reminded me of your storytelling approach and why kids need a good Act Three:  
<http://threepanelsoul.com/2012/03/25/on-storytelling/>

78. on 03 May 2012 at 6:30 pm [78 The 2012 MCTM Sessions | Workshop](#)

[...] [link](#)The Three Acts of a Mathematical Story [...]

79. on 07 May 2012 at 9:22 pm [79 Tech Ed-dy » Math and PBL ramblings](#)

[...] some ways I feel that Dan Meyer's 3 acts approach to Math problems might be a good model to adopt when trying PBL in the math classroom in [...]

80. on 08 May 2012 at 7:07 pm [80 The 2012 OAME Sessions | Keynote — Word Problems](#)

[...] [link](#)The Three Acts of a Mathematical Story [...]

81. on 08 May 2012 at 7:09 pm [81 The 2012 OAME Sessions | Workshop](#)

[...] [link](#)The Three Acts of a Mathematical Story [...]

82. on 11 May 2012 at 6:15 am [82 A Salute to Dan Meyer – Inspirational Session](#)

[...] The Three Acts of a Mathematical Story [...]

83. on 22 May 2012 at 6:59 pm [83 50 Ways to Wooster - CogDogBlog](#)

[...] also illustrated the brilliant work of Dan Meyers in creating his Three Act approaches to math lessons, which could easily be applied to almost any discipline — see his three act resource for a [...]

84. on 24 May 2012 at 8:09 am [84 Great work in math education \(through blogs and Star Wars\) | Civil Statistician](#)

[...] Meyer takes a love of storytelling (compare the narrative of Star Wars to a typical math problem) and sets up some badass perplexing [...]

85. on 13 Jun 2012 at 3:47 am [85 The 2012 TIC Sessions | Workshop](#)

[...] [link](#)The Three Acts of a Mathematical Story [...]

86. on 21 Jun 2012 at 12:22 pm [86 The 2012 MSRI Sessions | Workshop](#)

[...] [link](#)The Three Acts of a Mathematical Story [...]

87. on 18 Aug 2012 at 8:59 pm [87 Reflections: Why “finding EMU?” « finding EMU](#)

[...] in math, see its value, know that it has purpose. However, my lessons are not “chock full of 3-Acts,” so it didn't seem to quite capture the “spirit” of my [...]

88. on 19 Aug 2012 at 8:53 am [88 New Blogger Initiation 1 | Random Teaching Tangents](#)

[...] lessons going, I should have time for some problem-based learning in class using resource like 3 Act math (even if I only steal other people's first acts to use as lesson 'hooks' this [...]

89. on 21 Aug 2012 at 10:32 am [89 Finding Unity in the Math Wars | BetterExplained](#)

[...] of Khan's videos. Others might like the polished overviews in MinutePhysics. You might prefer 3-act math stories or modeling [...]

90. on 25 Aug 2012 at 11:30 pm [90 26 Agost « La capsa espiral](#)

[...] Un mar de contes Intro to AI Duxlibri Generador exercicis matematiques Breu historia de l'Univers The Three Acts Of A Mathematical Story Share this:TwitterFacebookLike this:LikeBe the first to like [...]

91. on 28 Aug 2012 at 9:29 am [91 On posting learning objectives ... « Check Your Work](#)

[...] learning target (SWBAT...) on the board—no matter how Hemingway-esque—is akin to skipping to act three, in the Dan Meyer's sense of the term. [...]

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