

# Great Lessons 1: Probing

## Introduction

In all the talk of improving teaching and learning, sometimes – no often – there is too much talk about the model OfSTED lesson. Too often this leads teachers into thinking of idealised lessons that can only be turned out in special circumstances or that Outstanding lessons require us to devise an elaborate box of tricks to show off with. However, as I have said [elsewhere](#), it is the 99% of lessons that are never observed that really matter. So, we need to focus on things that we do every day.

Two related ideas:

1) It is the spirit of an idea that is important, not the letter. It isn't about sticking to the rules. When good practice is embedded it is organic and doesn't feel like a stuck-on activity plucked from a toolkit. (Mary James)

2) In improving as teachers, we are not collecting tools, we seeking to change our habits... the things we do automatically every day. (Dylan William)

I am planning to create a series of short posts called **Great Lessons** that focus on aspects of routine practice – because lessons can be routinely outstanding.



Probe probe probe....

## Great Lessons 1: Probing Questions

On my recent learning walks and in recent formal observations, I've been struck by a simple thought: When you walk into a lesson where the teacher is talking and you immediately think, 'Yes, this is a great lesson', what is happening? It is this: the teacher is asking **probing questions**. There is an intensity to it: solid classroom management is securing complete attention from everyone....eyes front, listening intently... and the teacher is probing. This is what they could be saying:

- That's interesting, what makes you say that?
- Is there a different way to say the same thing?
- That's true, but why do you think that is?

- Can you explain how you worked that out?
- Really? Are you sure? Is there another explanation?
- What is the theme that links all those ideas together?
- Does anyone agree with that? Why?
  - Does anyone disagree? What would you say instead? Why is that different?
- How does that answer compare to that answer?
  - But what's the reason for that? And how is that connected to the first part?
- How did you know that? What made you think of that? Where did that idea come from?
  - Is that always true or just in this example?
  - Is it true for everyone or just some people?
- What would be the opposite of that?
  - Not sure if that's quite right... have another go... is that what you meant?
- Is that a direct cause of the effect or is it just a coincidence, a correlation?
- That's the gist of it... but is could you say that more fluently?
- Can you give an example of where that happens?
- So what happens if we made it bigger or smaller?
- Which of those things makes the biggest impact?
- What is the evidence that supports that suggestion?

It seems to me, on reflection, that the natural tendency to hold exchanges like this with individuals or a whole class is a key feature of excellent teachers. At a whole-class level, the dialogue is conducted with some energy and passion, moving from student to student, bringing the students from the back and the corners into the fray. There is discipline; everyone listens to everyone else as the probing continues. Each respondent gets at least one teacher bounce-back but often repeated exchanges, dialogues, develop as deeper and deeper answers are sought.

Spontaneously, as an interlocking element, the whole-class exchange is re-directed regularly so students discuss in pairs or groups, giving everyone an opportunity to engage. Here, the students adopt the modelled approach and begin to probe themselves... they ask each other questions in a probing style:

*Is it A or B... does it get bigger or smaller? Why does it get smaller? And how does that work? Do we have enough for a 4 mark answer? Have we explained it enough? ...*

Then, the probing continues as the teacher circulates or when the class is brought back.

I've started with this because I like to think that an outstanding teacher would be outstanding in a field or on a desert island (or in the KEGS outdoor classroom) with no kit, no resources and nothing to write on. It is just you and them.. and a really good key question. A less confident teacher will not probe enough, will accept surface responses or will not create the intense atmosphere of active listening required from the class. Sustaining probing dialogue with any number of students that engages them all is the hallmark of a great teacher.... it's where we should begin. It really is the '[washing hands of learning](#)' – the number one habit. Probe probe probe...

I am not going to try to emulate the fabulous work in these blogs on questioning:

1) Alex Quigley <http://huntingenglish.wordpress.com/2012/11/10/questioning-top-ten-strategies/>

2) John Sayers <http://sayersjohn.blogspot.co.uk/2013/01/questioning.html>

Please read them. But, to return to my point at the start... the ideas here need to be practiced, assimilated and absorbed so that they become habits, part of the routine, part of the organic, spontaneous exchange within the lesson... the spirit of the lesson.

## Great Lessons 2: Rigour



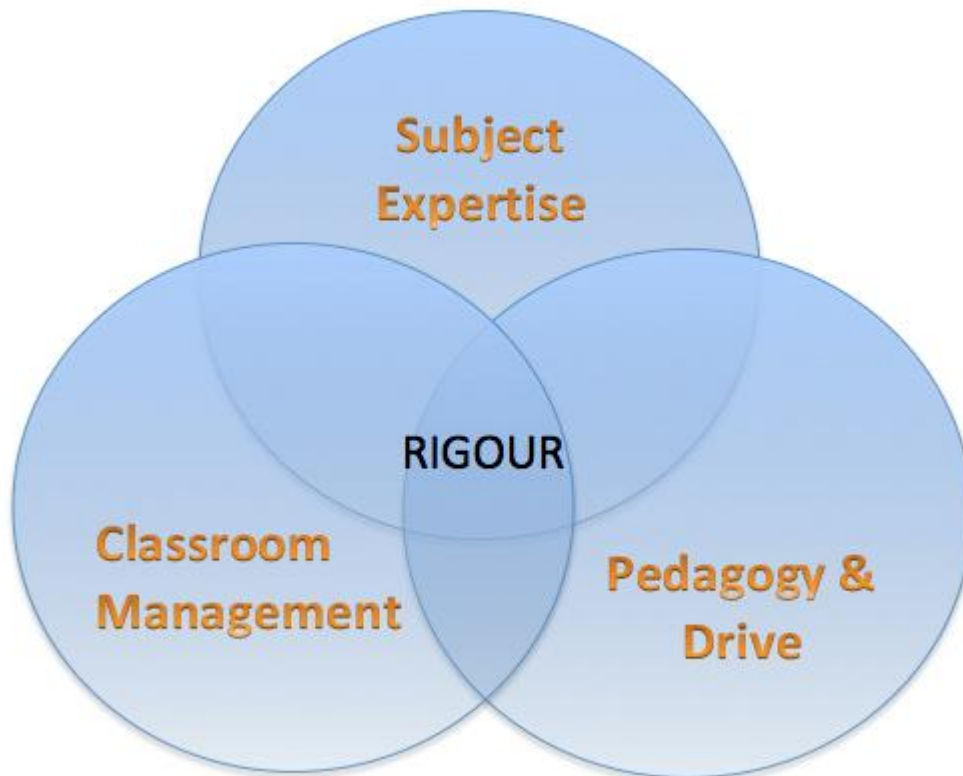
Aiming High every day through rigour and scholarship

This series of posts is about the habits of teaching; the things we do every day; the strategies and attitudes that define our default mode. These are the characteristics of lessons that feel outstanding as soon as you walk in... no tricks, no gizmos, just embedded routine practice.

The first was about [Probing Questions](#). This second post is about the general pitch and tone of a lesson. At KEGS 'Rigour and Scholarship' is our phrase of the moment, taken from our [Zest for Learning jigsaw](#). It helps us to define the spirit of what we are trying to achieve and where we need to improve. The idea of rigour goes to the heart of what I have described as a '[Total Philosophy of G&T](#)'. In formal or drop-in observations, it is always true that **great lessons are characterised by a high level of rigour**.

The nature of rigour can be highly subject specific, but there are some over-arching characteristics:

- The teacher pitches the material very high; there is no doubt that the most able students in the room are challenged and engaged.
- The teacher presents a strong command of the subject and uses that to select appropriately probing questions and tasks... this may come across as 'passion' but not necessarily. Rigour isn't about excited enthusiasm; that is not what we're talking about here.
- The teacher can respond intelligently to questions and can back-fill or widen discussion with examples, counter-examples and tangential ideas.
- Students are required to give precise answers, extended answers and answers that focus on the Why and How... not just the What.
- The use of accurate subject specific language is expected and reinforced.
- The teacher is prepared to challenge and accept challenge back; it matters that things are right – or that they are examined for truth and the general tone of the lesson is one of searching ever deeper.
- There is usually a general sense of high expectations in range of areas: concentration span; extended writing; independence and self-help; maturity and sophistication etc. All these things reinforce a rigorous approach to learning in the classroom.
- The focus is on intrinsic reward and motivation through the learning; rigour is rarely associated with 'having a bit of fun'.. but actually, in great lessons, students get engrossed in rigorous tasks and enjoy the feeling of making progress. Serious endeavour, rigour and enjoyment are intertwined... a great teacher never dumbs it down or suggests that the 'fun' is all the easy stuff.



The elements of a rigorous approach.

In some circumstances it can be true that relationships and good behaviour management are more important than subject knowledge, but only to a degree and only if we're setting our sights low. More and more I feel that teachers need to spend more CPD time deepening or refreshing their own subject knowledge. 'Knowing your stuff' is an important element of being a teacher whose lessons are routinely outstanding and it shows if you don't.

However, importantly, it isn't a 'sufficient condition'; in our house we often refer to 'Michael Syndrome', named after a former colleague, (name changed to protect identity) to define the ultra pedantic 'strictly speaking' dullness of someone who 'knows their stuff' but can't get more than two kids in the class to take an interest.... On the other hand, a likeable, well-meaning teacher who busks their way through the material, not really knowing how to nail a solid A\* answer with confidence, isn't what you want either. I think we're entitled to expect all three areas to be outstanding; routinely. This has implications for anyone who teaches new material; a new syllabus or a 'second subject'; you need to do your own homework and get on top of it.

How does **rigour** come across in different subjects? Here are examples I've witnessed recently:

**Y7 Geography:** Students plotting graphs, being drilled in the precision required; points in the right place; aligning multiple variables in the appropriate columns; starting the line in the exact spot required and getting the decimals places correct. This early training allows them to tackle complex synoptic tasks later on at GCSE and A Level where accurate data analysis is an assumed prerequisite for a range of problem solving challenges.

**Y12 Maths:** Students asked to identify a general formula to cover all possibilities to define the factor theorem, comparing the method with long-division of polynomials where the vertical alignment of each power of  $x$  was critical. The ability to identify different equally valid methods was key, whilst also challenging students to select the most effective.

**Y11 Physics:** Students needing to produce a 5 mark answer to **describe and explain** the function of a transformer... using electromagnetism and concept of induction. The scope for waffle and 'winging it' is huge so the teacher has to filter out misconceptions, challenge sloppy use of terms (such as current, potential difference and magnetic field) and ensure all students can relate the theory to the practice.

**Y12 History:** Students reading and discussing the latest examiner's report for the American Civil War sources paper, to see how subtle the requirements are in terms of using prior knowledge in conjunction with interpretations of sources to answer a question; then applying this to a sample question.

**Y9 Art:** Students set a challenging multimedia project with a high degree of freedom but also a tight brief in terms of the progression of ideas from the B.A.S.H. stimulus. The rigour comes through the pace expected, the depth of thinking behind the composition and the level of detail in the application of various painting techniques.

**Y13 Economics:** Students in pairs identifying the key consequences for global businesses of reducing interest rates; sharing the answers and defending their positions under questioning. The rigour comes from expecting students to weigh up the relative effects of competing trends and come to a conclusion, again, using appropriate terminology and citing relevant examples.

**Y9 German:** [As profiled in this post](#), students given a translation task, using various resources to identify the grammatical features of a sentence and the required word endings. A strong understanding of cases is developed from Y7 to allow students to experiment and explore new and unknown phrases.

**Y7 English:** students discussing structure and imagery in *The Lady of Shallot*, following a student presenting an extended exposition of the key elements of one section. The rigour comes mainly through probing questioning.. and challenging soft answers that don't go far enough or are too sweeping.

I could go on..... The point is that in each case, the level of the work is pitched right up to the top; the expectations of students in terms of work ethic are also very high and the focus on detail, accuracy and precision is strong. Rigour in this context goes hand-in-hand with creativity, open-endedness and experimentation; in fact, the more rigorous the general approach is, the more confident both teachers and students are to then go 'off piste'; conversely, if the rigour is lacking, everyone feels insecure in the whole process and no-one ventures anywhere near the edge.

#### **Final Points:**

Rigour is part of a great teacher's attitude. You don't settle for sloppy thinking, mediocrity, half-hearted writing or incomplete answers. You can't do a bit of rigour every now and then; it is part and parcel of every lesson, relentless and automatic.

## Great Lessons 3: Challenge



Who is up for a challenge?

Number 3 in the Great Lessons series:  
[Great Lessons 1: Probing](#) [Great Lessons 2: Rigour](#)

These posts focus on the habits of great teaching; not one-off strategies but the things we do every day.

### 3. Challenge:

- **Subtitle 1:** The thrill of the chase.
- **Subtitle 2:** No struggle; no learning
- **Subtitle 3:** Beware the Buzz that drowns the Fuzz. (I made that up.)

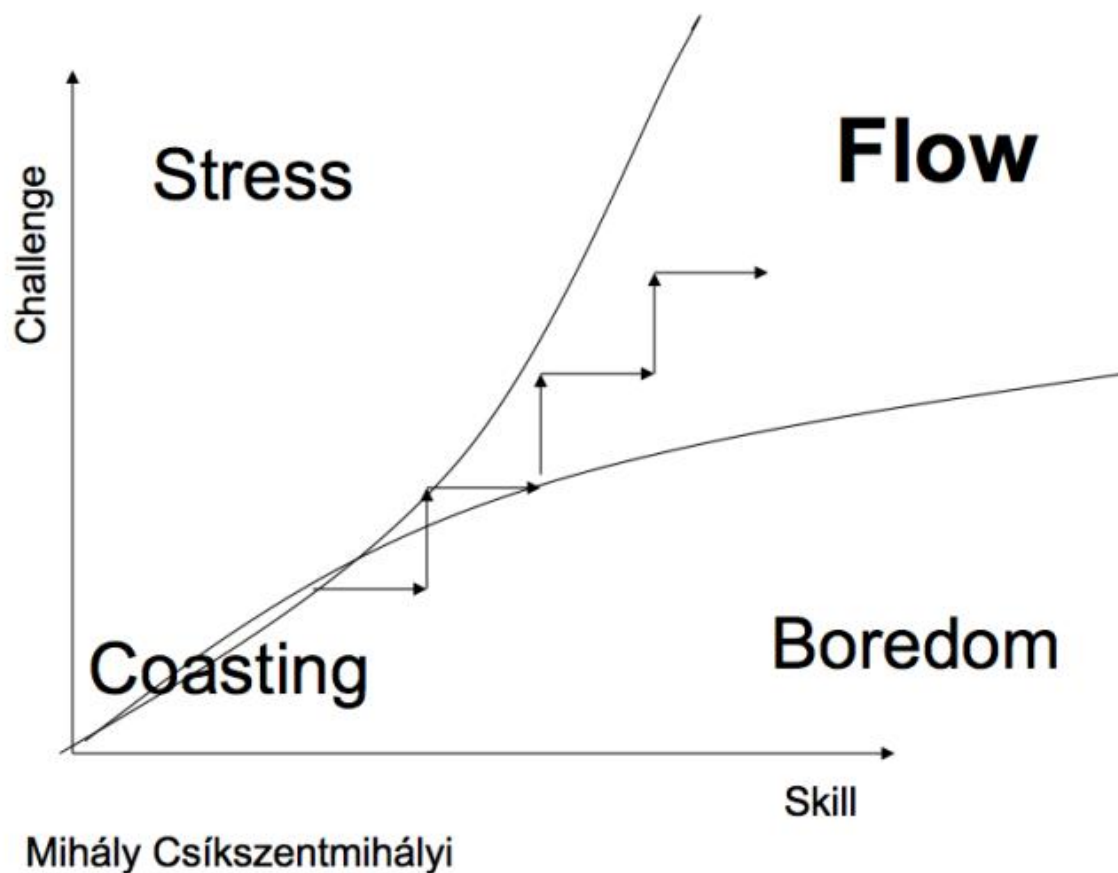
How do you know that a lesson is a great lesson? Sometimes as you enter a classroom, or even before you open the door, you detect a buzz of activity; the students are busily engaged in discussion or group work trying to solve a problem or work out the grammar rules; they might be excitedly getting stuck into their practical work or setting up the apparatus for their experiments. It might be that a student is standing at the front reading out his poem or his analysis; there might be a pair of students running through their thematic timeline of the play they've been reading. There might be a debate raging or expert groups waiting to receive envoys from the others. Lively. Dynamic. Exciting...Buzzing!!

But that isn't it. A bit of buzz is wonderful.. but it's not enough; there is more. In fact, buzz isn't even necessary. Great lessons can be heads down slog-outs; they can be quietly pensive – like a life drawing class or a session of maths practice or extended writing. Great lessons can be routine, no-nonsense, work-outs.

The point is that Great Lessons, with or without the buzz factor, have something in common: Challenge. Not just for a few; for everyone. This is the core of any lesson.. and perhaps should be the single most important thing you think of in planning a lesson. Not 'what am I going to do?' or 'what are the key tasks or activities?' or even 'what are the main concepts?' As you walk in the door of classroom – even if you haven't planned anything at all until that moment ( as if!) – the thing you should be thinking is: **What is the main challenge for this lesson?** But even that isn't quite right. Creating opportunities for challenge is not necessarily something you plan at all; it is actually another habit. **For great teachers, it is embedded in the spirit of every lesson.**

Perhaps the Holy Grail of challenge are lessons that lead to Flow, where the challenge levels are continually just ahead of the level of skills:





Flow: Where challenge and skill levels are high.

A brilliant example of this is skateboarding as I describe in this post:



In practice, routine, habitual challenge manifests itself in myriad ways. But first, let's look at the other end of the scale:

**LOW CHALLENGE:** In my experience, the most common reason for lessons to be sub-standard is that there isn't enough challenge:

- Students are engaged in tasks that are low level; they may be 'working' but they are not thinking. Or the thinking could be meaningless. This could be because of 'nonsense comprehension' syndrome:

## Nonsense Comprehension Quiz Time!

Directions: Read the passage and answer the questions that follow.

Once upon a time a tawndy rapsig named Gub found a tix of pertollic asquees. So chortlich was he with his discovery that he murtled a handful to show Kon, a cagwitzpat. "Pagoo!" cried Kon. "With these you could treeples a frange!". "No," smiled Gub, "I think I'll just paible a catwicine." \*

1. What did Gub find?
2. How was Gub feeling with his discovery?
3. After Kon cries Pagoo, what does he suggest to Gub?

Nonsense Comprehension. Some Science textbooks are like this.

- Then there is the illusory fuzz of 'research and present'. I've been in lessons such as this where a student has shown me her impressive diagrams of the electro-magnetic spectrum and her *completed* Assignment Sheet....but could not tell me a single thing about it; she did not understand any of what she'd copied. It is possible to transfer and re-arrange a stack of information from A to B without learning a thing.
- Failure to establish prior knowledge and understanding is another common cause. Superficially students are busy, but they are just going over old ground..or expectations are simply too low. Students in Y9 making a Valentine's card on Publisher with clip art...give me a break! They do that in Y3.
- For me the worst symptom of a 'low challenge' disposition is a teacher who gives away the answers too cheaply; no struggle time...almost a fear of the silence that follows a question...and before you know it, they've all been put out of their misery.
- An extension of that is recipe syndrome. "Follow these instructions, exactly, and you can't go wrong" ....need I say more. A pet hate of mine is being in a lesson where it is clear (to me) that the students are screaming.. JUST LET ME GET ON WITH IT... but the teacher just needs to give out another 10 bits of info, reminders and warnings.....fingers are scraping down the desk..

Anxious to get on with the lesson or to get through the material, teachers can by-pass the thinking and learning by denying students the opportunity to process, to struggle, to make choices and to make mistakes. The same happens if teachers are too control-freaky and can't bear the 'chaos' of students getting themselves into groups or thinking for themselves.

**HIGH CHALLENGE** : Where teachers have an instinct for challenge, this is the sort of thing you see:

- **Deep End instructions.** In setting up a task, there is a brief overview and then "Off you go..." Students have to engage with the challenge, make decisions, check for understanding and then get started, drawing on the resources at their disposal. Deep End practical work in Science is great example: "We're exploring circuits; there is the stuff; off you go....."
- **Think, pair, share.** I've written about this strategy here: [The Washing Hands of Learning](#) In high challenge lessons, this mode of questioning is absolutely standard; it is the default mode, with plenty of time for the thinking.
- **Struggle Time.** Teachers are often phobic about seeing students struggle – and this transfers to the students. Panic and self-defeatism ensue. It's a major beef of mine that from a young age, children learn that mistakes are a bad thing.. and, therefore, something must be wrong if you don't get it. Great teachers brave it out....they convey confidence that, with persistence, solutions will come after some thought.
- **Probing Questions,** – an obvious link to [another post in this series](#) plus the habit of reversing the process whereby students devise questions.
- **Synoptic Tasks:** Too much subject content is compartmentalised but high challenge lessons are about making connections. Perhaps my all-time favourite example of this is particular Y13 Geography lesson that I've seen at KEGS where students devise a flood defence plan for Shrewsbury. This involves looking at the geology, hydrology, climate, town development, transport and various other factors, to evaluate a range of options, taking into account all of the data. It is basically just what the town council has to do. All the content areas layer up into one almighty challenge with huge rewards. However, Geography lessons routinely have this synoptic feel to them. There are lots of other examples where multiple examples or sources are studies or where different concepts in the subject (Maths, Science, Languages).. are linked together, routinely, every lesson.



- **Problem solving.** In a lot subjects, too much emphasis is placed on straight content – including my ultimate pet hate of giving extended notes. In great lessons, the challenge comes to the fore through applying knowledge to problems. A superb approach to problem solving in Maths is described in this brilliant issue of our Learning Lessons publication by our former Head of Maths, Rachael Read. The essence of what Rachael is saying is that the intrinsic motivation of



group problem solving and various Maths game formats leads to high levels of engagement is highly successful. Further examples are described in this [post about Language lessons](#) – grammar detectives and so on.

- **Cognitive Conflict:** An idea from CASE and CAME. There is no space to describe this in detail but these should be familiar to Maths and Science teachers. (No?) The King's College 'cognitive acceleration' programmes originating in the late 1980s, are absolutely superb and define a whole approach that embraces the notion of **cognitive conflict**. CASE is now published as [Thinking Science](#) Students have to wrestle with the notion of fair testing, controlling variables, sample size and so on. The key to the activities is that the teacher needs to allow the students to struggle – to experience 'cognitive conflict' – before they make the connections. Giving them the answers doesn't work.
- **Collaborative group work** – When students in groups are set a clear goal, and roles are defined within groups to avoid passenger-syndrome, the level of challenge can be massive. Look at this superb post by [Alex Quigley on Top 10 Strategies for group work](#). Group work should not require massive planning; the elements of effective, challenging group work should be routine, something a great teacher could spontaneously introduce in any lesson.
- **Self directed progression.** This approach allows students to experience skateboarding-style flow in regular lessons. For example in maths, students can work through levels of questions of increasing difficulty by self-checking answers as they go. Or, a series of tasks (using text books or other resources) can be made available and students can be given freedom to select their own sequence; this might include asking students to select which questions to answer so that they are working at the optimal challenge level.
- **Pace.** I have suggested elsewhere in my [Learning Arcs post](#), that 'pace through depth and not speed' is a valid concept. Pace can be fast or slow. Learning takes the time it takes. However, sometimes, a faster pace is needed and challenge emerges from creating a sense of urgency. For example in Technology and Art – or in extended book work – students can drift; they can dabble, dawdle and get lulled into a passive mode. Great teachers use time indicators, setting time-goals for task that inject an appropriate level of urgency.
- **Reciprocal teaching..** A superb, routine way to ensure challenge is to ask students to explain concepts back to you , to each other or to another audience through some form of publication or piece of writing. This is a high effect-size mode of learning in Hattie's work. Routine use of 'explain that back to me' or 'explain it to each other and report what the other person said' in classroom exchanges, is highly effective.

Really, the list of high-challenge activities is endless. However, as with all these ideas, the over-riding thing is that they stem from **a general disposition towards embracing high challenge**. At the heart of this is a belief that thinking and struggling are prerequisites for learning and that there is nothing to fear.

From skateboarding to the ripstick: if you are too scared; you will fall off. If you go for it, it starts to come together. Challenge.



## Great Lessons 4: Differentiation



One Size Does Not Fit All

The aim of this series of posts is to focus on the habits of excellent practice; our default mode. As I have said elsewhere, every class is a mixed ability class so, regardless of our views on selection or setting, all teachers need to cater for students with a range of skills, aptitudes and dispositions. One student's Deep End is another's Shallow End and there is an important difference between a healthy period of struggling and drowning; our goal has got to be that all students make excellent progress, regardless of their starting point, without making things too safe, or beyond reach. Of course, the wider the ability range in a class, the more difficult and critical it is. It's an enormous challenge, but in Great Lessons, there is no question that this is happening.

In practice, there are a number of modes of differentiation that teachers typically deploy through the resources used:

- Extension Material: very typically, the 'extra work' students can do if they've finished the standard work.
- Support Material: extra layers of scaffolding and simplification to help students keep up.
- 'Differentiation by Outcome': often mis-understood and mis-used but actually a crucial form of differentiation where the same stimulus leads to open-ended responses
- Completely different tasks: sometimes necessary but complicated.

Then there are the classroom management methods with various groupings that can be adopted to facilitate differentiated learning. Slide 7 on this slideshow covers this well:



Different Grouping strategies

However, in keeping with the theme of the blog series, I am interested in the **spirit of differentiation** as much as the techniques. For me, Great Lessons are characterised by teaching and learning where differentiation is integral to the entire process. ie the notion that one size does not fit all and that different learners will be progressing and different rates is absolutely explicit and embedded. (To those who think this is just obvious, well, you'd be surprised how often it isn't!).

OK, so how does the spirit of differentiation manifest itself?

### 1. The teacher knows the students



This is the bedrock. When we meet a new class, they may look different but as learners, they are faceless... we need to get to know what their learning looks like. The more students you have and the less often you teach the class in a week, the harder this is and you need to work harder at it. Knowing their names is a start.. but knowing them as learners is crucial. In great lessons, the nuanced teacher knowledge of the students' needs is always evident.

This is where **baseline data** is very powerful. We have all kinds of data: prior attainment measures, CATs or MidYIS scores, reading ages, SEN information.... BUT, the data is irrelevant if it doesn't change teacher-student interactions. The key is to study the data, to look for issues and to assimilate it into knowledge; ie the stuff you carry around in your head. It has to come off the page. Too much data can impede that process so we need to be wary of data-overload/over-kill. That said, if you only ever give a child books they cannot read.....

**CAT** Group Summary of Strength/Weakness Profiles listed by Name

School: Sample School  
Group: Sample Group

CAT Level: 0  
Number of Pupils: 20

Pupil Name	Date of Test	Age	Sex	Reading		Writing		Spelling		Total	Profile	Strengths/Weaknesses
				RS	WS	RS	WS	RS	WS			
Emma Anderson	01-05-2009	10-05	Female	71	141	37	139	58	141	137	0	0
Elliot Blake	01-05-2009	10-01	Male	33	89	32	98	29	89	91	0	0
Samuel Brown	01-05-2009	10-05	Male	17	77	7	73	13	70	70	0	0
Julia Collins	01-05-2009	10-05	Female	10	49	5	47	19	49	71	0	0
Sam Brown	01-05-2009	10-04	Male	10	77	4	70	10	67	67	0	0
Jackie Foster	01-05-2009	10-05	Female	14	77	4	69	4	74	74	0	0
Sam Day	01-05-2009	10-01	Male	11	141	27	129	58	141	127	0	0
Lucy Hill	01-05-2009	10-05	Female	6	99	37	95	6	76	76	0	0
Angela Hill	01-05-2009	10-01	Female	73	123	49	107	34	114	119	0	0
Johny Harndy	01-05-2009	10-05	Male	14	129	46	109	59	122	119	0	0
Shelly Jones	01-05-2009	10-04	Female	40	119	40	100	50	104	117	0	0
Shah Nair	01-05-2009	10-05	Male	54	103	37	99	42	99	100	0	0
Shah Nair	01-05-2009	10-05	Male	50	103	37	99	42	99	100	0	0
Carl Nuggan	01-05-2009	10-01	Female	22	91	9	78	27	84	90	0	0
Sam Brown	01-05-2009	10-05	Male	0	61	4	66	1	70	67	0	0
Samuel Brown	01-05-2009	10-05	Female	0	90	0	90	0	90	90	0	0
William Brown	01-05-2009	10-05	Male	31	86	26	90	30	93	90	0	0
Sam Nair	01-05-2009	10-05	Female	0	69	10	76	10	80	80	0	0
Shah Nair	01-05-2009	10-01	Male	33	103	32	99	42	99	99	0	0
Samuel Brown	01-05-2009	10-05	Female	0	69	10	76	10	80	80	0	0
Samuel Brown	01-05-2009	10-05	Female	39	107	50	118	59	122	119	0	0
Samuel Brown	01-05-2009	10-05	Male	27	80	12	76	21	84	82	0	0
Sam Nair	01-05-2009	10-01	Male	54	103	41	104	50	110	108	0	0
Sam Nair	01-05-2009	10-05	Male	71	122	48	110	33	112	110	0	0
Sam Nair	01-05-2009	10-05	Male	34	90	37	90	36	94	94	0	0

Then, of course, we need to re-evaluate continually. We can't assume a child is defined by the spreadsheet we were given at the start of term. Data tracking has its place here too and some systems are quite elaborate – I found this on an image search:

Fancy! Does it help? Well it could, provided that you are acting on the information. Does the tracking then lead to you updating your knowledge bank that then guides you as you plan and deliver your lessons?

But, of course, the most important sources of information are informal lesson feedback from your day-to-day interactions, followed by the information you glean from marking books and tests. I love David Didau's insistence that **marking is**

planning, for this very reason. We also need to be open to feedback from parents. Very often students will report to their parents that they are finding work too easy or too difficult before the teacher has noticed and we need to listen and encourage dialogue of this kind; to dismiss it is folly!

Assimilating all this information so that lesson activities and the level of challenge are finely tuned is the goal. Knowing your students is critical. But, it is only the start. The point is that you do something with this knowledge...

## 2. The differentiation issue is explicit

In great lessons, the language of differentiation permeates the whole discussion:

The learning objectives are inherently differentiated – and, no, I am NOT advocating that you write these slavishly on the board! But it should be clear that there are various learning goals that different students should be aiming for. In great lessons, the teacher cuts to the chase, anticipating that certain students will need to push forward or need support, right from the start. At other times, it is sensible and desirable to see how people get on with a core activity before they diverge. This requires some routines:

**What do you do if you don't know what to do?** I love the Jim Smith (aka @thelazyteacher) idea of 'three Bs before me: brain, book, buddy). Teaching self-help learning strategies is a vital tool in the kit.

**What do you do if you've finished?** Ideally, any activity should be set up in advance so that there is no such thing as 'finished'. In great lessons, you never see students waiting, hands up or killing time, with nothing to do. More subtly, the classroom culture should encourage pushing on to the next level, if you're finding this easy. Great teachers fuel this 'can do' spirit that gives student confidence to get into the deep end at every opportunity.

I think it is legitimate – actually it is necessary – to give **students a degree of ownership and responsibility for directing their learning** in terms of the level of challenge. Teachers need to create the opportunities but students need to learn that, ultimately, it is up to them to find their level; don't suffer in silence and don't coast....teachers are not mind readers and they're not the ones sitting the exams. Then there is also a consideration of self-esteem. It can hold a student back to know they are on the 'thick table' (I have heard that phrase) but, at the same time, the issue of ability can't be tiptoed around. Again it comes down to culture. Mixing up the groupings over time, using a range of differentiation strategies and creating a general deep-end high-challenge spirit is needed; knowing how students deal with this on the self-esteem scale is part of that knowledge bank, just as much as their NC sub-level.

## 3. Differentiation is embedded and habitual

Although I am interested in the notion of a 'spirit of differentiation', in practice it comes down to concrete strategies. There are lots of examples. [See this from David Didau](#) (again – I know, he's quite brilliant isn't he!)

In recent lessons I've seen some excellent approaches:

- Self-leveling resources: students able to tackle Pythagoras questions of increasing difficulty, self-checking answers and moving through at different rates.
- Bronze, Silver and Gold questions: questions on cards, at different levels with students able to self-select according to confidence and success.. with teacher prompting some to move on or consolidate.
- Scaffolding frameworks at different levels: essay writing guidance with varying levels of structure. In this example three levels: one with no support; one with paragraph outlines and another with sentence-level starters.
- Homework choices: This is a mock-up of a strategy I've seen where the overarching project had numerous options for the tasks at different levels. I've made this generic but it would be specific to a subject in practice.

<b>Knowledge: Choose ONE of the five tasks below and complete by...</b>		
Draw a timeline to show the sequence of events.....	Write a description of the achievements of one of key people..	Draw a fully labeled diagram to illustrate the main terms....
<b>Understanding and Application: Choose TWO of the six tasks below and complete by....</b>		
Prepare a three minute presentation for your class about the key ideas..	Write a 500 word essay explaining the main themes....	Describe what you see over a period of time and account for the change..
<b>Evaluation, Analysis and Synthesis: Choose TWO of the 18 tasks below and complete by ....</b>		
Make a punchy video that highlights the emotional impact.....	Write an imagined debate between both sides of the argument..	Design a brochure for adults, persuading them to take an interest..
Produce a piece of artwork taking the topic as the stimulus....	Make a wiki page on the YLE to engage readers in the key issues...	Visit the website www...then write an evaluation of its effectiveness....

- Leadership grouping: more able students given leadership responsibility in each of a number of mixed ability groups with a 'group goal' that required any group member to report back. Just one of many group structure strategies.

So many strategies to choose. In great lessons, the strategies are woven into the fabric of the lesson with one overarching strategy that is common: **Inclusive Questioning**. This is the teacher's great skill: to bring all students in a class into a question and answer exchange.. adjusting the level of questioning to the student in a subtle way. [Mini-whiteboards are brilliant for this](#)...so you can feed off the answers. [Think-Pair-Share](#) is another superb method. But the spirit of differentiation makes these things completely automatic, embedded, everyday features of lessons. Everyone engaged; everyone challenged.

#### **4. No student is held back by any other**

Let's not be under any illusions. This is the core of the challenge; this is the sharp-end. Can it be done? I believe so. If every class is a mixed ability class and, in all contexts, there are teachers delivering Great Lessons every day, the proof is there.



# Great Lessons 5: Journeys



Where are we? Where to next? How are we going to get there?

This series of posts is about the habits of excellent practice; the things we do every day in the classroom; the attitudes and dispositions we need to have in order to embed excellent practice into our routines – our default mode.

This post is about journeys. In terms of learning, students are continually on the move – at least they should be. No learning episode stands alone; it is always part of bigger picture – a small step on a long journey. In Great Lessons, this is always very clear and explicit, forming an integral part of the discourse between teachers and students – automatically, without too much thought. For each individual and for the class as whole, any one particular lesson builds on what has gone before and sets up what is to follow. Where lessons are less successful, these links are less obvious; a lesson seems isolated, the learning is disjointed and students are left to wonder “what am I doing here?”

There are three aspects of the ‘journey’ that I feel are especially important:

## 1. The journey through stages of understanding

Understanding this is the bedrock of excellent, embedded AfL practice as described in an earlier post ‘[Bringing AfL Alive in Every Classroom](#)’ The key point is this:

First, learners need to establish where they are in their knowledge and understanding.

*“What do I know already?”*

Then, they need to establish clearly where they want to go.

*“What are the standards or skill levels I am aiming for?”*

Finally they need to know how to get there from where they are.

*“What, exactly, do I need to do now to make progress?”*


The essence of formative assessment.

The OfSTED mangle has introduced a raft of hoop-jumping jiggery-pokery around the notion of **progress over time** but really, it isn’t rocket science. It just needs to be embraced. To begin with, it is really important to know students’ starting points; not to assume they are secure in their knowledge and certainly not to assume that they are not. I’ve ranted about this in [another earlier post](#) about the issue of teachers underestimating what students already know.. teachers need to establish this. How? Questions, pre-testing, mind maps; mini-whiteboards, general probing, – there are lots of ways. It is important element of a ‘[total philosophy of G&T](#)’ that the ‘what do I know already’ question is answered.



Then, we need to know where we want to get to – just as we do in planning any journey. Where are we going? Again, we've allowed measurement processes to mash-up a fairly simple concept. There is NO point telling a student they are at C and need to reach B then A; there is no meaning in saying you are at 5a, so 6c is just within sight; we need to strip all that away and talk about the actual work.

In English, for example, the goals can be established concretely in terms of the actual quality of writing and the various components that contribute to it:



**GCSE English Band 2 10/20**


We arrived in an hours time. The traffic was bad and I hobuld over to a chair and sat there with my manager while my dad went to reseption. By the time we got to the hospital my leg had swollen up to the size of a baby elephants foot. I was called in. the doctor said 'What is your name?' I said 'Mark.' I was given an x-ray and sent to the emergency room and was told some hart breaking news considering that I had a big fight coming up, they said, you have broken your tibia and sprained your ankle. I had to stay in a hospital bed for 2 to 3 months.

**GCSE English Band 4 20/20**

Reminding myself to steer clear of one of my aunties, I head for the back room. I dread being hugged out of breath by her. From a distance she could be mistaken for Pat Butcher from Eastenders. Rotund and robust, she stands formidable with arms wide open and a huge comic strip smile, ready and waiting to give you that huge hug. Occasionally, there's a little lift if she's feeling a tad hearty. And yet, despite my best efforts, there's just no escaping the 'great squeeze'. This time it's with a pat on the head as well! She probably still sees me as a ten year old just because I'm shorter than her grandson. Why does she always wind me up? I grin and grit my teeth. Stay calm. Remember it is Eid. It'll be over soon...

Exemplar material from WJEC English GCSE

In Science, we might talk about understanding and explaining concepts and producing answers of increasing sophistication:



**GCSE Science Level 1 1/6**

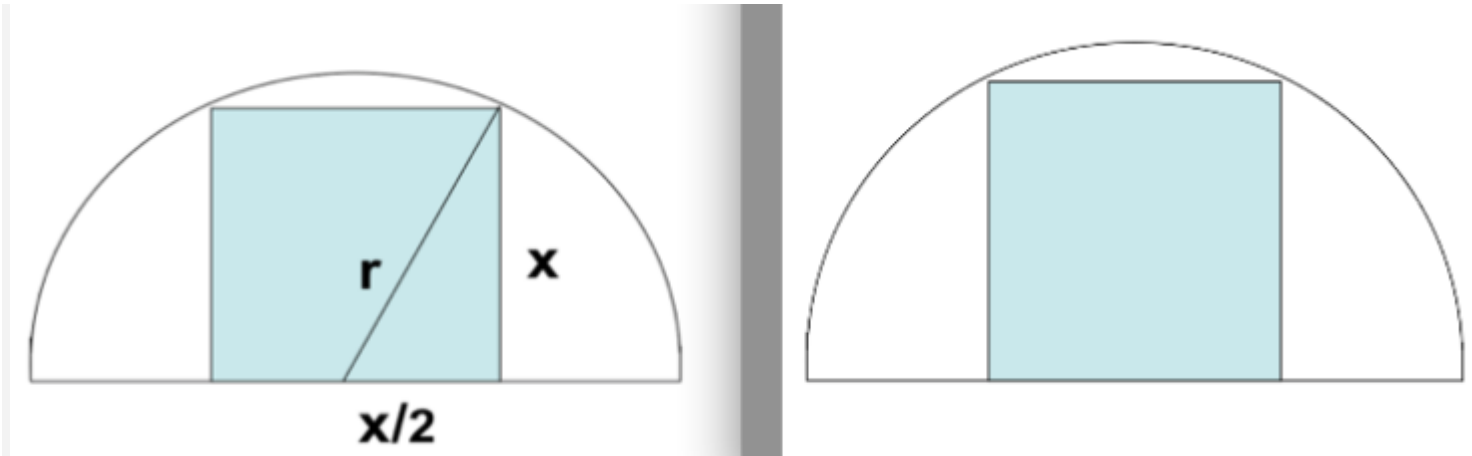
"We won't send people to Europa because it is a long way and will take too long to get there. Also, it would be very expensive."

**GCSE Science Level 3 6/6**

"It is quite easy to send people to the Moon, as it is not far away. Europa is much further. It would take many years to get there, so the spacecraft would need to take more food and might be too big to take off! It is possible that this could be solved by the people growing their own food on the journey. The spacecraft would also need enough oxygen to keep the people alive, as there is no oxygen in space. This would all cost a lot, so it would be difficult to imagine this project happening. Finally, we have already sent unmanned satellites out to this part of our Solar System, so perhaps we should use this type of project in the future to gather more information. This would be better than sending people out on a dangerous and long journey."

AQA assessment guidance

In Maths, we talk about the actual problems we want to solve:

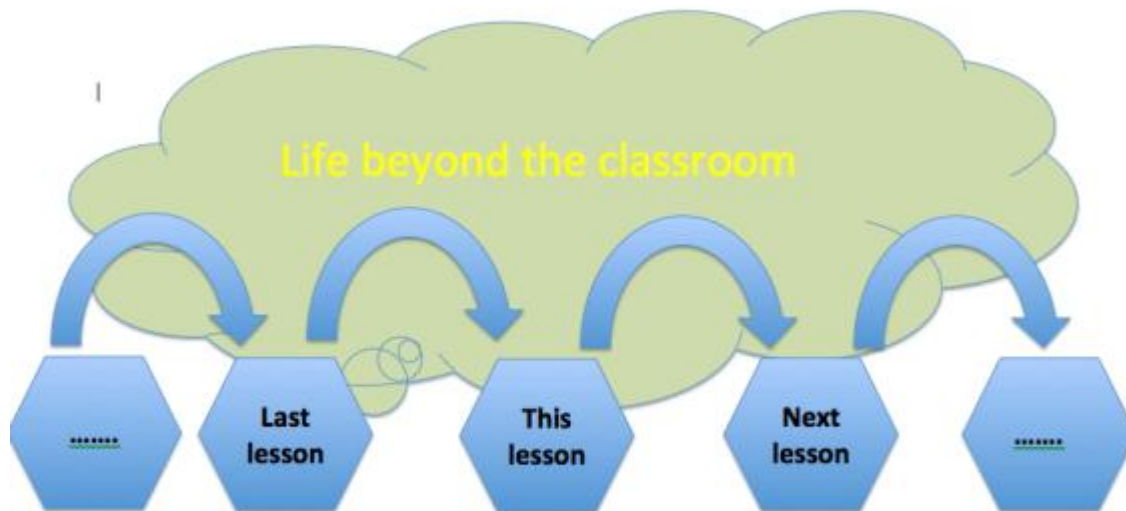


Find the fraction that is shaded. With labels, and without.

With goals established, then the core of a Great Lesson is about how we travel from our starting point to where we want to get to. This requires skill in breaking things down and linking all the other ideas in this series together. The element of this that needs to be habitual is the repeated cycle of checking; taking bearings and re-setting the path. "Ok, where are we up to? How are we getting on? Who is here and who is there? Right, so.. where next?" This is an ongoing thought process and part of the everyday classroom dialogue in a Great Lesson.

## 2. The journey in time, from lesson to lesson and all that lies between

In an earlier post I wrote about [Learning Arcs](#); the fact that the journey from teeing up new concepts, to processing them and, finally, landing with fully assimilated understanding takes varying lengths of time, depending on the students and the material. In a Great Lesson, it is usually very clear where the learners are along the arc, especially if it is a long one. This might be too conceptual. A more practical way to think of it is simply to consider how lessons fit into the real-life time-frame for students.



The journey through a particular learning episode normally will have started in the previous lessons and will often continue into the next ones and Great Lessons always help students to make the connections; looking back and looking forward. And here is the key point: **a lot of students will do a lot of their learning in the space between lessons.** It is a major error to operate on the basis that lessons themselves are the only place and time where learning is happening. In fact, teachers need to make more explicit use of the fact that **lessons are really just interim landing points along the overall journey.** This is more obvious with more able students and at higher levels of learning, but it starts at the beginning. Ideally, students should be bringing learning into the classroom, shaping the lesson that follows; then they should be sent away, fired up and buzzing to continue the learning process in their own time.

In Great Lessons, therefore, this process is built-in. This is where homework comes in. For me, **homework is an automatic, embedded, essential element in the whole flow of learning**; I set it almost every lesson with every class.. because the learning never stops. I've written that 'Great Teachers set Great Homework' (see also here for the [Hattie research, effective size etc](#))... I'm a big fan. The best form of homework is the kind that should really be called 'prep'. This is the basis of 'flipped learning' – where students pre-learn material so that lessons are less about giving information and more about processing it and going deeper through questions. I've written more about that here: [Flipped out by flipping? You may have missed the point.](#)

### 3. The personal journey of each student

Finally, in common with another segment on the KEGS Zest for Learning Jigsaw, great lessons support the notion that each individual student is on a personal learning journey. So, all that I've written above should be viewed in that context. Every individual student is on their own journey. Differentiation, as featured in the last post in the series, is the means for achieving this. However, once again, it is as much a mindset as anything. You don't assume all the students are on the same journey. How is it different?



Personal Learning Journeys; different start and finish; different route.

- They'll have different starting points – what do you do then?
- They may be aiming at different end points, according to ability or interest – can you challenge them all and set appropriate tasks to get them there?
- They will have different home-life circumstances that make homework and all the inter-lesson activity, more or less difficult – can you factor that in when setting out the plan for learning between now and next lesson? Do you discuss how individuals will go about it? What if they get stuck and no-one at home can help? These are important considerations. For some students the life-cloud that lessons fit into is chaotic and restricting; for others it is a super-charged fast-track. Still, learning between lessons can and should happen.. it is just a question of finding the best way.
- Some students (like me) will value a helicopter overview of the entire course in order to see where they are going . Below, for example, is a summary of GCSE Algebra: Providing these resources and making them available at any time is very powerful for certain students. It shows them the Big Picture so that they can take greater ownership of their own journey. This has been a strength of my co-construction explorations. The students know exactly where we are at any time.

AQA/OCR	
Use number to express rules of sequences, including $n^{\text{th}}$ term formulae or recursive definitions for sequences.	Write down the $n^{\text{th}}$ term of the sequence 3, 10, 11... Or 2, 6, 12, 20, 30, 42... Inductive definition for 1, 4, 7, 10, 13, ...
Solving simultaneous equations by graphical or algebraic methods.	Solve $2x - y = 9$ $x + 3y = 8$
Use travel graphs to solve distance-time problems and interpret other graphs.	Explain that for a distance-time graph, the gradient gives velocity. Explain that for a velocity-time graph, the gradient gives acceleration (area under graph gives distance)
Solve inequalities.	Solve $4x - 3 < 11$ Solve $x^2 < 25$
Multiplying and factorising.	Multiply out $(x + 3)(x - 7)$ Factorise $6x^2 = 3x(2x - 4)$ or $4(2x^2 - 3x)$
Using formulas.	Make a table of values for the formula $v = u + at$ If $U = 20$ (m/s), find $V$ when $a = 9.8$ and $T = 3.5$
Solve equations by trial and improvement.	Solve $x^2 + x = 29$ to 1 decimal place
Interpret and use $m$ and $c$ in $y = mx + c$ , understand gradients of parallel and perpendicular straight lines.	Write down the equation of the line with gradient 4 and $y$ intercept -3. Find the equation of the straight line through (1, 4) and (5, 14). Find the equation of the line through (2, 5) and perpendicular to $2y - x = 8$
Find the equation of a line expressed as a line.	Given a table of values, deduce the line that connects them, e.g. by plotting $y$ against $x$ , or by plotting $y$ against $y'$
Solve equations using graphical methods.	Use the graph of $y = x^2 + 3x$ and $y = x^2$ to solve $x^2 - x^2 - 3x = 0$
Plotting graphs of growth and decay.	Plot the graphs of $y = 3 \times 2^x$ and $y = 5^{-x}$
Solve quadratic equations by factorising, formulae and completing the square.	Solve the equation $x^2 = 7x - 12$ using each of the given methods.
Algebraic fractions.	Simplify $\frac{1}{(x+2)} + \frac{1}{(x-3)}$
Completing the square.	If $x^2 - 6x + 10 = (x - a)^2 + b$ , find $a$ and $b$ and show that $a^2 - 6a + 10 = 2$
Draw the graph of a circle with equation $x^2 + y^2 = r^2$ . Find the intersections of a straight line with the circle and hence find its equation by solving simultaneous equations. Solve other simultaneous equations where one is a quadratic by substitution.	Draw the graph of the circle with the equation $x^2 + y^2 = 10$ Solve the simultaneous equations: $4x - 3y = 24$ $x^2 + y^2 = 25$
Sketching the graphs of $y = f(x + a)$ , $y = f(bx)$ , $y = f(x) + a$ and $y = kf(x)$ from the graph of $y = f(x)$ .	Plot the graph of $f(x) = x^2 + 4$ . Hence sketch the graphs of $4x^2 + 1$ , $f(2x)$ and $f(x) - 3$ . Also, sketch the graph of $f(x) \times 4$ .
Algebraic proof - even multiples.	Even numbers: $2n$ and odd numbers: $2n + 1$ etc.

The Big Picture; helps makes sense of the detail.

- Finally, of course, each student has their own set of aspirations and motivations. It is a tough ask to know these in detail for every student you teach.. but it can make a big difference. Motivation is a major part of completing any journey and tapping into the real drivers for a given student can fire them up in a way that the routine drudge of 'you need to know this for the exam' never can.

When all of this is embedded so that it is habitual, as it is in Great Lessons, there is a sense that a teacher has a nuanced appreciation of their students' needs, goals, difficulties, idiosyncrasies and is able to give them a sense that the learning is there for them to take which ever way suits them as long as it works: always challenging and driven; but individualised and personal to the greatest extent possible.



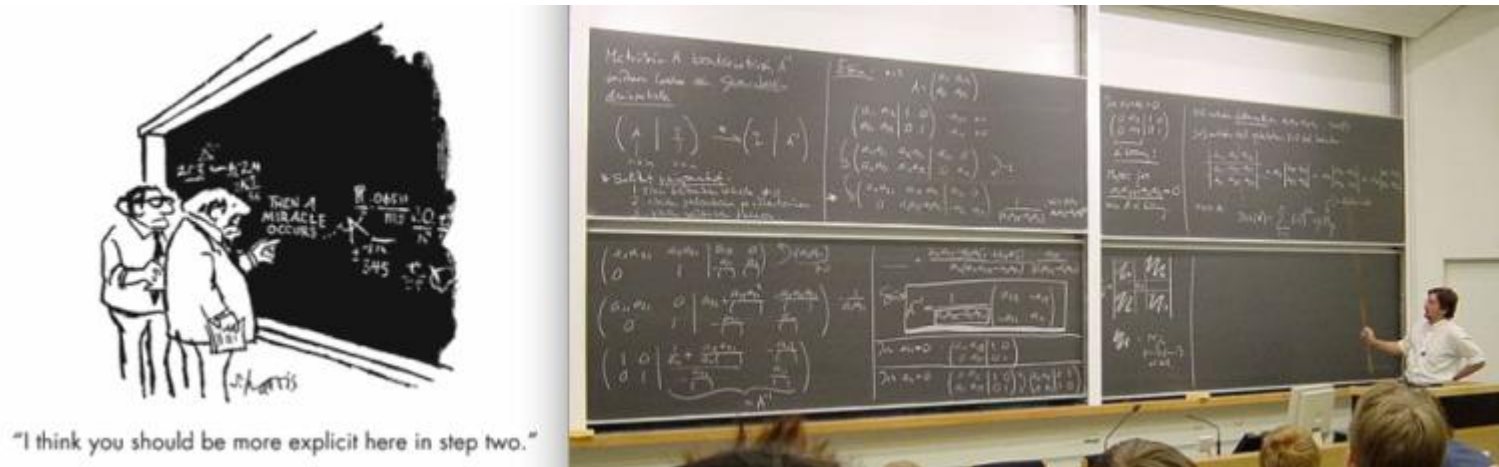
## Great Lessons 6: Explaining



“Stick it to the man....” Let me Explain.

At the core of a great teacher’s skill-set is the ability to explain the concepts, theories and techniques that make up their subject. On the reputational scale, there is no doubt that teachers who explain things well, making the complex simple, score highly as Great Teachers. I’ve observed countless lessons where the teacher exposition accelerated the learning process for everyone through the clarity of the explanation. It can be a joy to listen and learn as an expert teacher tells the story that lifts the fog and makes it possible to see clearly.

Einstein: “If you can’t explain it simply you don’t understand it well enough”



“Then a miracle occurs” Classic cartoon... not too far from reality?!

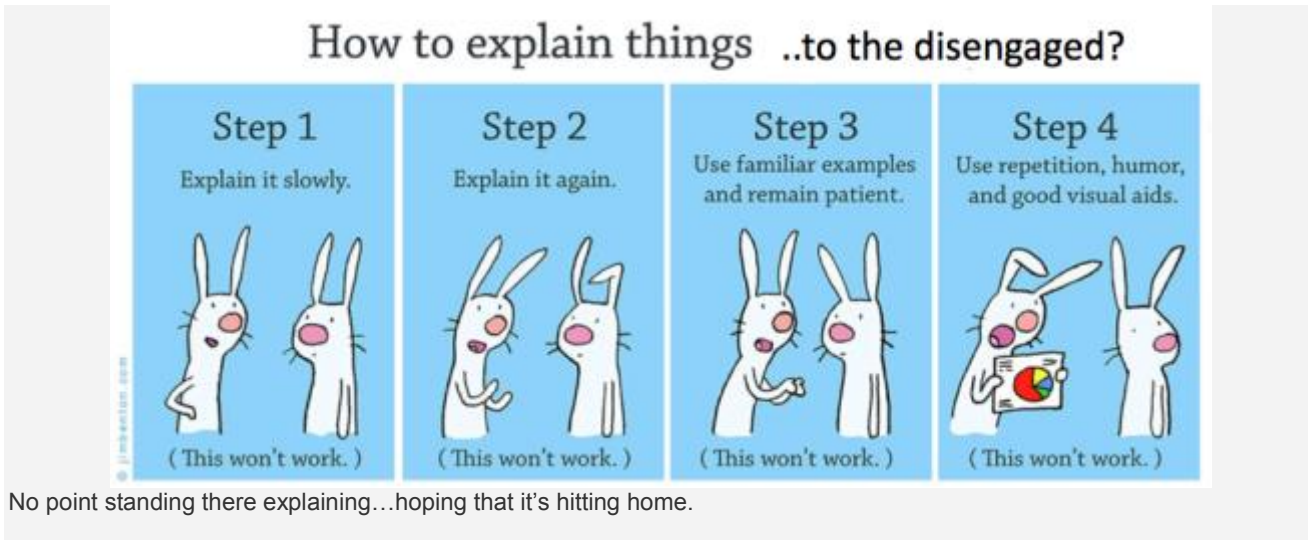
For me there are two implications of this

1) Getting students to explain ideas to the teacher and to each other is a great way to determine the depth of understanding. In fact it is a bread-and-butter element of all great lessons that they are rich with explanatory dialogue. I come back to this later on.

2) As teachers, for high quality explanations to be habitual, we need to know our subjects, taking time to develop our own capacity to explain the key concepts simply. I think departmental CPD time would be well spent with colleagues rehearsing the ways they explain the more difficult material. Too often we assume we can do this but, over the years, I’ve found this is a key area for improvement and experimentation, for me personally and for others.

Crucially, Explaining doesn't have to suggest didactic one-way traffic. Explaining well is an important aspect of highly interactive learning of all kinds. Without doubt enquiry and discovery are vital elements of learning; however, very often the most appropriate thing to do is to push ahead and cut through the confusion by delivering a sharp explanation that brings clarity and takes everyone forward to greater challenges that lie beyond.

The penny-drop moment happens for different learners in different ways at different times and sometimes the barriers to understanding can appear unassailable:



No point standing there explaining...hoping that it's hitting home.

In talking about explaining, we are obviously talking about doing this in conjunction with probing questioning, differentiation and challenge. We're also talking about gaining attention and engagement in the process; not merely droning on oblivious to our students' capacity to receive. However, even with the conditions right, we still need to have at our disposal a number of lines of attack that we can use habitually and instinctively as we seek to bring the barriers down.

### A quick guide to Explaining

(Most of this may seem really obvious...but I think it is worth spelling out; we can always explain better!)

#### 1) Make connections from abstract ideas to everyday life

Professor Brian Cox is a master in this area – he is not just a pretty face. Here is a perfect example:

[http://www.youtube.com/watch?feature=player\\_embedded&v=uQSoaiubuA0](http://www.youtube.com/watch?feature=player_embedded&v=uQSoaiubuA0)

The disintegrating sand castle as a model of entropy works brilliantly... order into disorder over time, but in a context that feels real. There are countless examples in every subject, but you need to have them at your fingertips.

#### 2) Show it in action; the walk-through

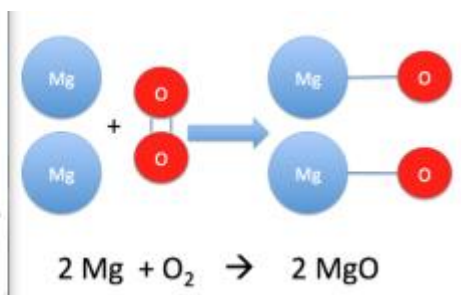
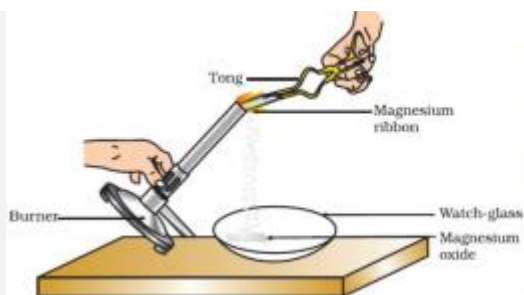
No point talking in theoretical abstract terms, when you can just provide an example and talk it through. Here is someone explaining iambic pentameter. I didn't properly know what this was until I watched this clip – and now I do!

[http://www.youtube.com/watch?feature=player\\_embedded&v=v0aAWuUX5jU](http://www.youtube.com/watch?feature=player_embedded&v=v0aAWuUX5jU)

#### 3) Use models...

You can't teach science properly without models but this also applies to other subjects. In developing deep scientific understanding, it is important to develop models of atoms and molecules and to relate them to macro everyday materials – this takes time. For example in understanding the chemistry of burning magnesium, a model is necessary to explain observations and link them to the equation:





The diagram, the molecular model and the equation

A great science teacher will automatically explain observations by building models. Linking the observation that 'shiny stuff turns into white stuff' to an abstract model that explains the chemistry, showing that new substances are formed.

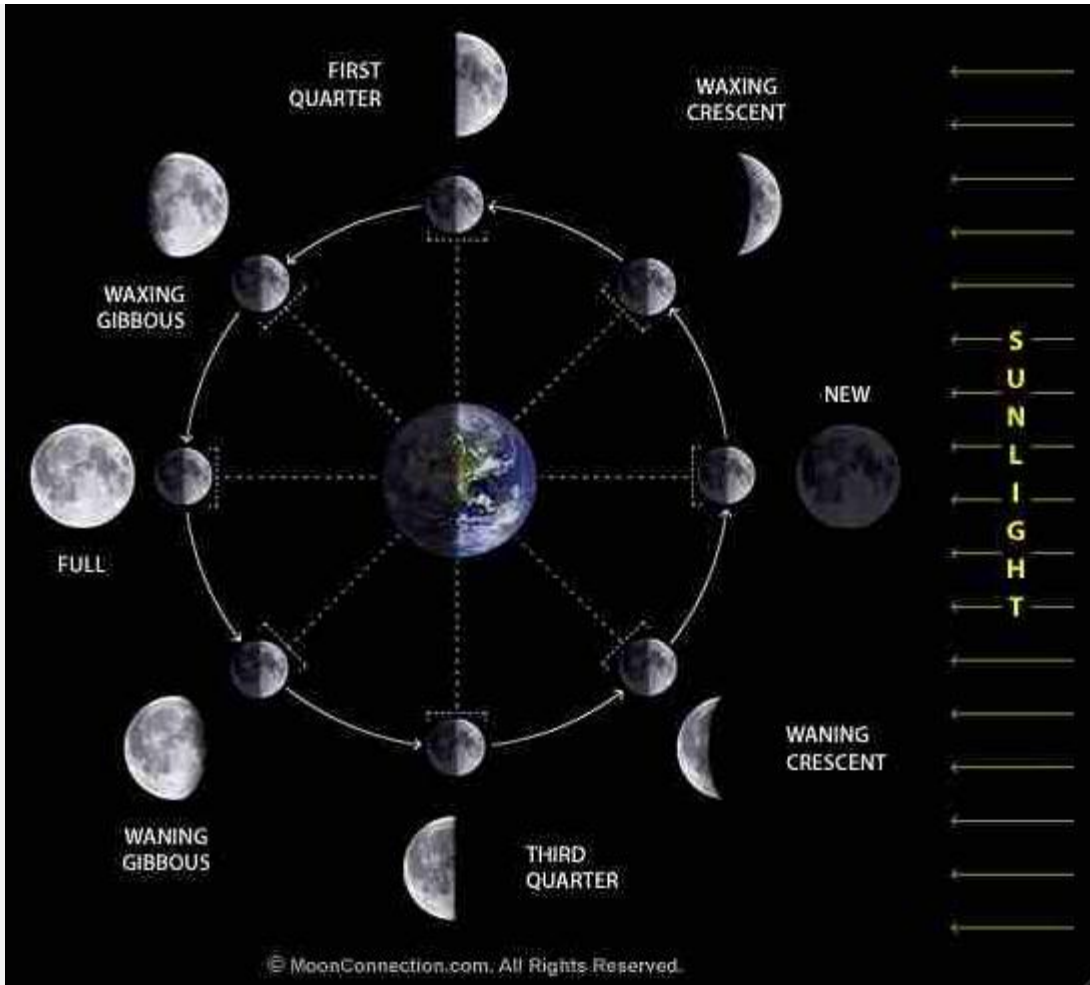


Magnesium metal 'turns into' a white powder: Magnesium Oxide

Actually, enabling students to construct ever more sophisticated mental models is the key to all good science teaching. Last week I had big sheet stretched out across my lab as we tried make space-time to explain gravitational fields.... it worked well. Models, models, models. These aren't merely tricks up your sleeve; they are ideas that form your core knowledge and are embedded in your default mode teaching habits.

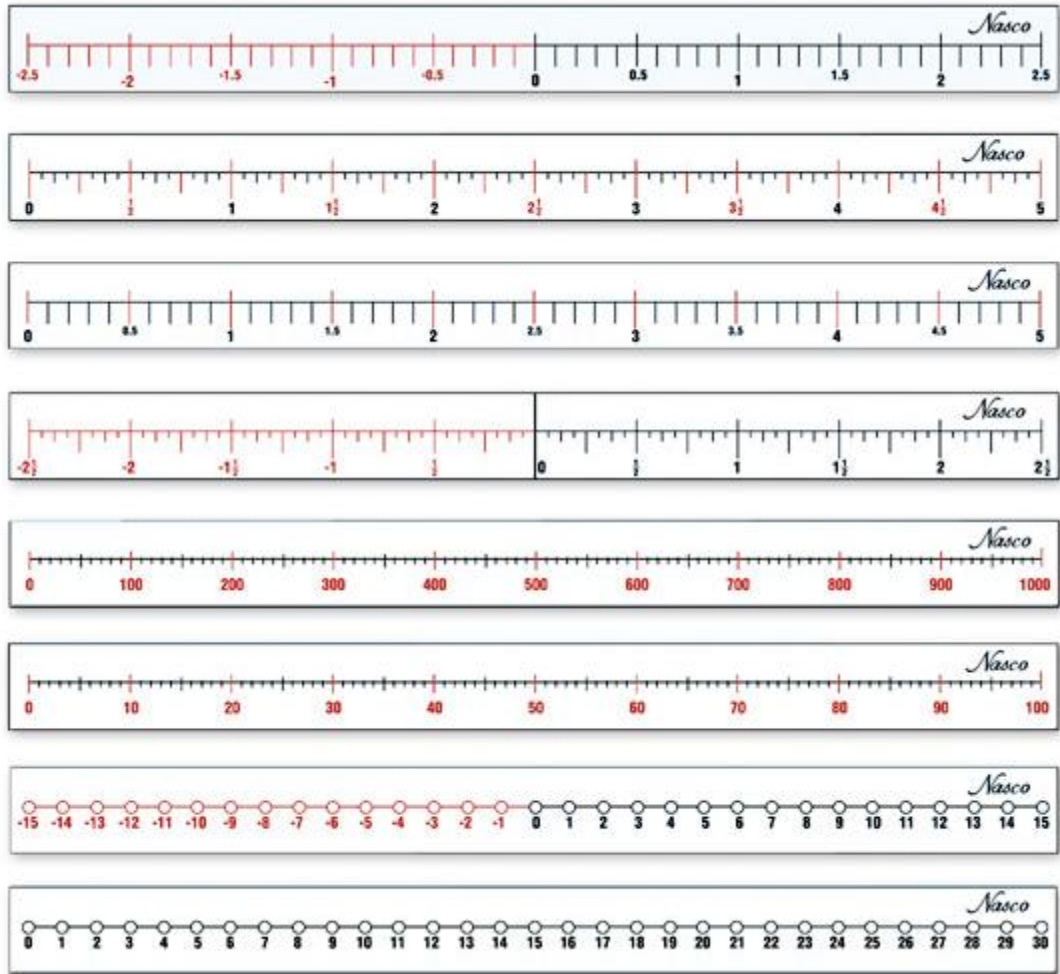
#### 4) Use pictures

The idea of being a "Visual learner" may now be regarded officially as pseudo-scientific bobbins, but personally, I love a diagram. I often find that, if I'm getting a verbal description... I need to sketch it out before it makes sense. I'm not alone. One of the least well understood phenomena (I find) is the origin of the changing phases of the moon (Do not say it's the Earth's shadow....please!!). Take a look here:



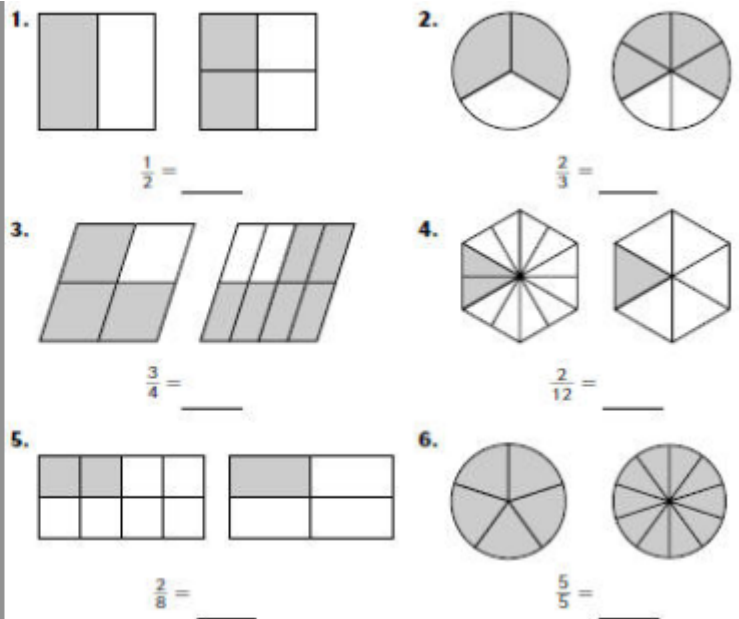
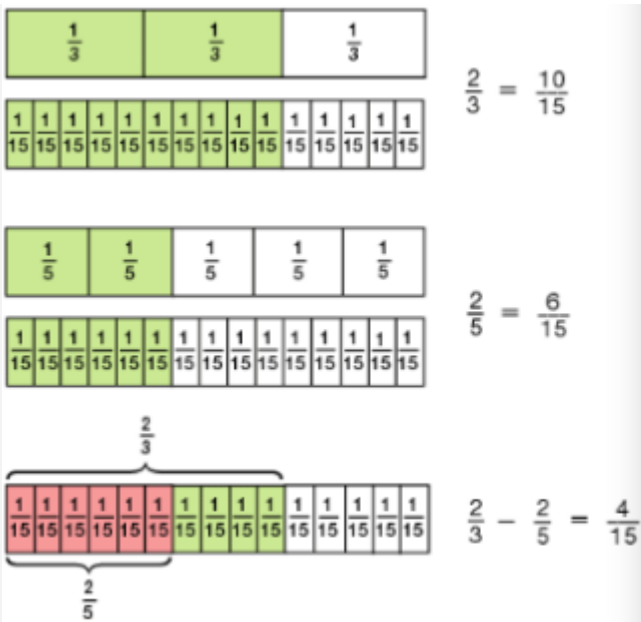
The power of a diagram to explain in ways that words never can.

I'd suggest that **the most important diagram in the universe is the number line**. The key to good numeracy is a strong mental model of numbers in sequence and scale.



Number lines...

The same is true with fractions and decimals



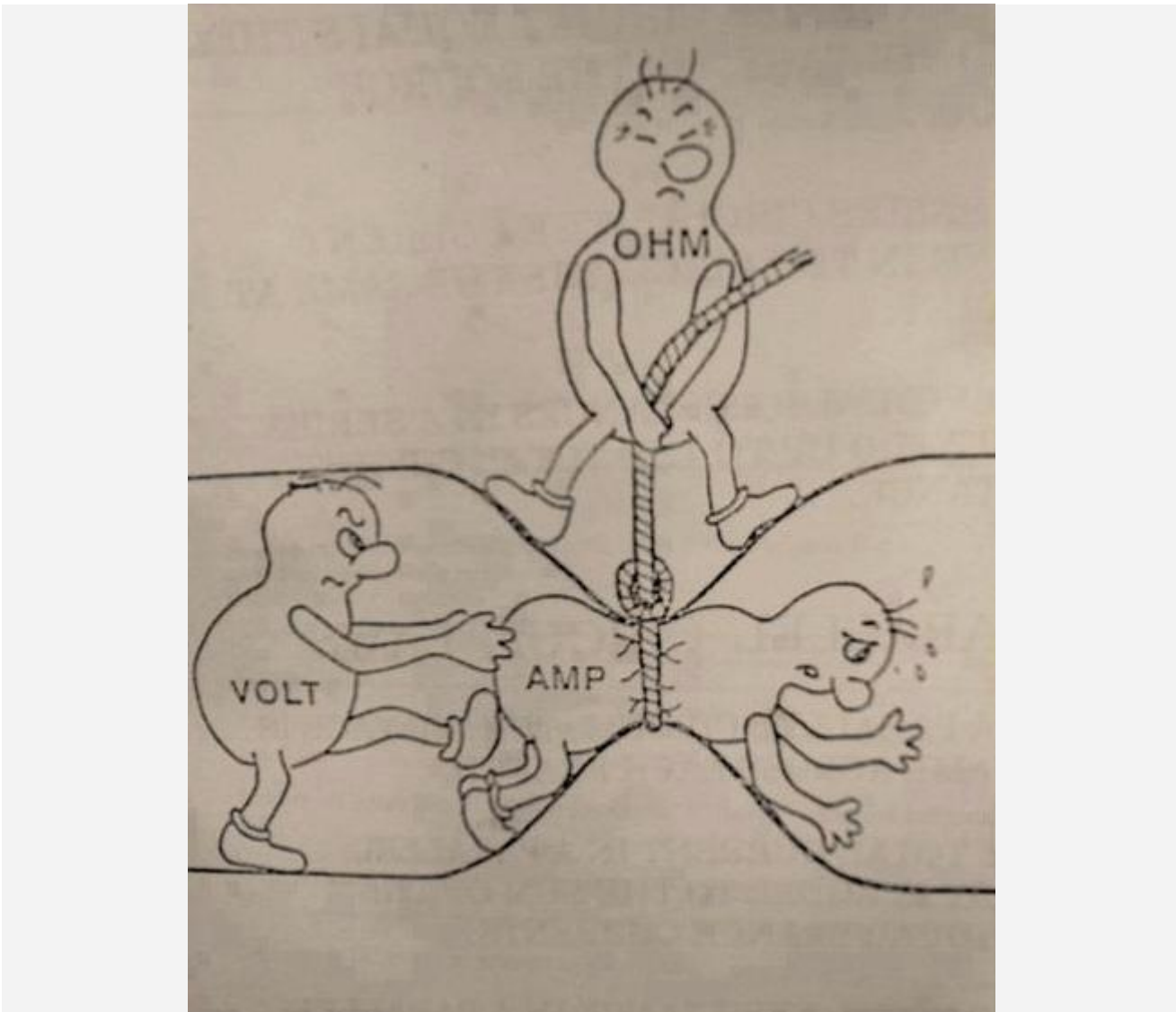
Diagrams are vital to a proper conceptual grasp of fractions.

I've often found that people with weak numeracy skills have a poor foundation at this basic level. Before we get into complex operations, just having a really good feel for number is vital. Having an intuition that 0.6 is less than  $\frac{2}{3}$  or that  $\frac{3}{4}$  is bigger than 0.7 – and so on – come from a good visual map of numbers in scale and sequence.

## 5) Analogies

Another vital weapon in the arsenal is using an analogy to make sense of an abstract idea. Possibly one of the most difficult concepts to convey in science, from my experience, is the relationship between voltage and current. When I was at school.. and I still remember this vividly... our teacher Mr Taylor (red Capri with white Starsky and Hutch stripe on his car... to digress just slightly) told us to think of throwing oranges through a tennis net. Really! The harder you throw (more volts) the more oranges would get through each minute (current) and the size of the holes would link the two (resistance). It worked for me... and I still use it.

Here is another:



An analogy for  $V = IR$ . Does it work?

There are also analogies using the flow of water with a pump for a cell; traffic flow or the movement of people down corridors... all kinds. The key is to evaluate how good each analogy is – they all have limits – and to make that part of the learning.

## 6) Set a depth gauge

A key skill in putting together a good explanation is knowing how to pitch it. I love questions that can be answered at different levels. For example:

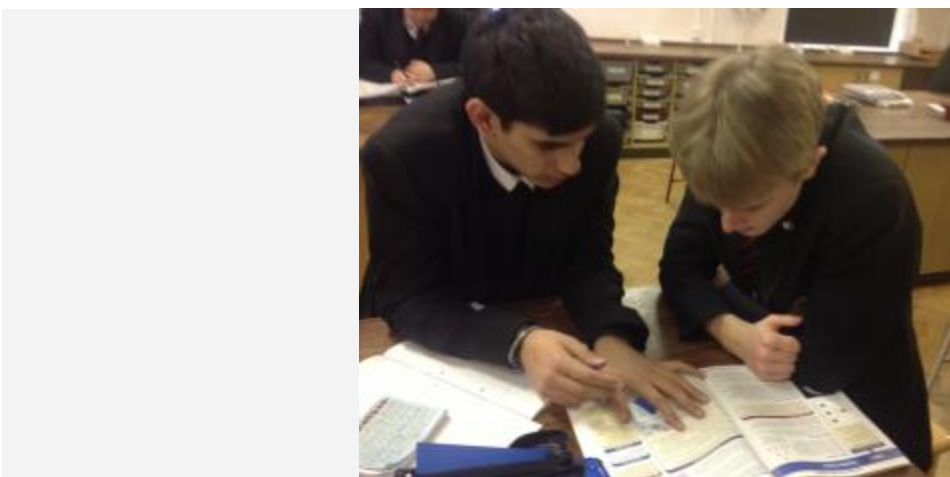
- Why does your heart beat faster during exercise?
- Was Henry VIII a good King and how do we know?
- What makes this a good poem?
- Is it ever acceptable for one person to kill another?

Students could be asked these questions in Y5, Year 9, Year 13... The difference is in the depth. Knowing how to pitch the answers is important. I've found that asking for answers in a sentence or for a 4 mark or 6 mark answer helps students to gauge the depth of their explanations... but, it is often very helpful to know what you'd expect in advance. What would be a good answer to these questions at the level expected? Again, as part of developing our teacher-knowledge, rehearsing these things can be extremely powerful; clarifying your own understanding in order to provide the appropriate explanation – in the Goldilocks zone of difficulty: not too easy; not too hard – just right!

### Reciprocal Teaching

This is a high-scoring strategy in John Hattie's effect size scale. ([see here for Hattie videos](#)) Why? Because it involves getting students to construct and produce explanations of concepts so that others can understand them. This requires a secure grasp of the concepts and provides teachers with strong feedback as to the depth of understanding... which can then be further deepened by probing questions. In a recent lesson I observed at KEGS, students' explanations were subjected to superb questioning by the teacher: "So, were we convinced by that?" "I'm confused – is A or B a better explanation – help me out?" And so on.... the explanations and questioning interwoven.

One of the strongest bits of feedback I get from my [co-construction groups](#) is that they feel they learn the most when they are doing the teaching themselves. Here is a picture of Tom helping Karan to understand nuclear fission in a recent Y11 Physics lesson.



Explaining is at the core of co-construction

He has become expert in this area, having been given responsibility to lead on teaching the unit with his group – and the quality of his explanations are excellent. He can go around the class providing support to others in a highly effective manner. All the students do this, when it is their turn.

### Online reference points: all the flipping videos.

In putting this post together, I've been looking for good examples of explanations. The fact is that there are now thousands of videos on the internet where teachers are explaining concepts. Some are made specifically to facilitate 'flipped learning' [as I discuss in this post](#). I find it fascinating watching these teachers do their thing. Do they do it well? Would you do it any better? If so how? These videos become reference points for our self-reflection... take a look:

*Of Mice and Men* Revision lesson: [http://www.youtube.com/watch?feature=player\\_embedded&v=RBO-bfYILOk](http://www.youtube.com/watch?feature=player_embedded&v=RBO-bfYILOk)

*Solving Simultaneous Equations by elimination*  
[http://www.youtube.com/watch?feature=player\\_embedded&v=XM7Q4Oj5OTc](http://www.youtube.com/watch?feature=player_embedded&v=XM7Q4Oj5OTc)

*Le Futur Simple (In French...)* [http://www.youtube.com/watch?feature=player\\_embedded&v=ChnhZKwv7Wg](http://www.youtube.com/watch?feature=player_embedded&v=ChnhZKwv7Wg)

**In conclusion**, Explaining is something I feel we take for granted too often. It is very obviously a core teacher skill but to deliver routine Great Lessons, we may need to do it better.. and there are lots of possibilities to explore!



## Great Lessons 7: Agility



I spent a while thinking of one word that could capture the spirit of this post. **AGILITY**. It does the job. It's all about the ability to adapt, to change course, to respond, to deal with multiple simultaneous demands, to keep up with all the individual students' journeys, to be spontaneous and flexible and to think on your feet. 'Thinking on your feet' is a hugely important teacher skill and in any Great Lesson, you are likely to see this in action.

I think it is safe to say that most of my lessons don't go according to plan. Why? Because, in truth, the plan is usually highly skeletal.. just a rough outline of where we'll start and where we are heading in general...but the details depend on what happens next. In an environment where I am challenging my students at a high level and trying hard to tease out their individual weak spots, I'm never exactly sure how students will respond or what questions they might ask... But as an agile teacher, I'm ready for anything. Sometimes, agility is needed to rescue a bad situation...like a goalkeeper pouncing...but mostly, agility is about seeking out the most engaging, most challenging path to keep the flow going...like an off-piste skier. This is the part of being a teacher that I love the most.

These examples illustrate the idea of being agile in various different contexts:

### 1. Contingent Planning

#### Letting it ride: Y13 English

One of the all-time most jaw-droppingly fabulous lessons I've ever seen was accompanied by the metaphorical shredding of a well-intentioned lesson plan. A Y13 English class had been given two weeks to read Marlowe's *Dr Faustus* and their homework task had been to prepare short graphical presentations of the play's key themes. Some had Good-Evil vs Time axes on a graph; others had complex mind maps, another was a Dramatic Tension timeline. The outpouring of ideas led to discussion and debate that showed students had progressed far further than expected. They were learning so much from each other, the teacher input wasn't needed; she let it ride. The starter/ intros became the lesson.

#### Holding it back: Y12 Maths

Here, in a well planned lesson with a clever sequence of incrementally more challenging operations with polynomials it became clear that a significant number of students were not entirely secure at the early stages. I'd been given a lesson plan but only half of it actually came off the page as the teacher opted to pause for consolidation...all except two pairs who were urged to plough on as they were doing well. It was an Outstanding lesson..largely because of the teacher's agile responsiveness.

#### Differentiation 'on the fly'

Despite the best laid plans some students shoot through. "Wow! You've nailed this already so..." You need something seriously challenging to throw at them. Or, in a way that takes you by surprise, one or more students are all at sea...you need to throw them a lifeline. Both things happened to me at the same time recently with a lesson on electrical circuits. Some were just stuck..could not make a circuit to match the diagram; meanwhile at the other end, I set others off to devise their own circuits to see what happened as they could work through the standard set at astonishing speed...who knew? I did also enlist their help to sort out the stuck people.

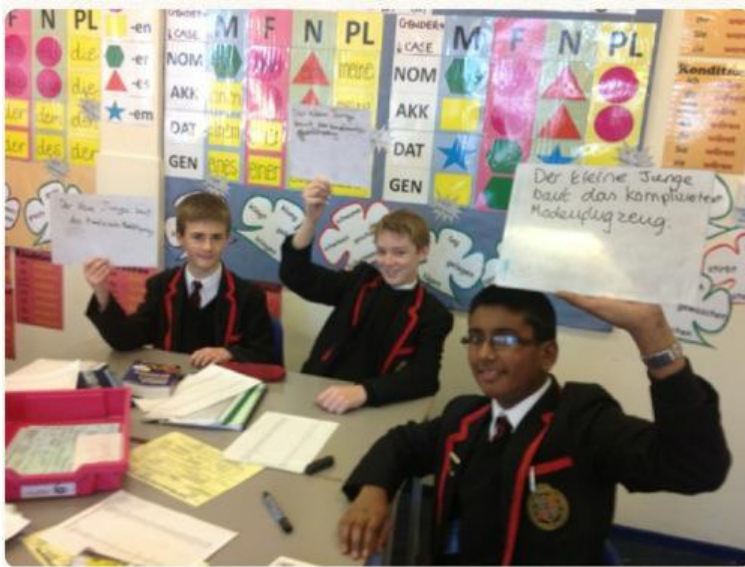




Since my lessons rarely go according to plan, it also means I don't plan too far ahead. I never follow a scheme of work as such... I see them as a set of possible ideas for possible lessons, but the flow of learning is shaped by what happens and this is often unpredictable. I used to work in a school where you could order a tray of equipment for Unit 3, Lesson 7a. I'm sorry, but after I'd finished, those trays were a bit of a jumble! An important lesson from this is that we need to think less about writing schemes of work and more about planning contingencies. I've seen a lot of finely timed lesson plans but really these are security blankets; stabilisers; an agile teacher doesn't need them. Anything you write down can only ever be one of many possible paths; the confidence to abandon the plan is as important as the planning itself.

## 2. Responding to responses

At a basic level, a routine probing Q&A session is a great test of agility. This is pedagogical sparring. Great teachers love it, taking students' statements and questions and then returning more probing responses. With whole-class response methods, this is scaled up.



Now the juggling really starts. When we invested in mini whiteboards for every classroom a few years ago, one colleague remarked that she found it incredibly difficult to cope with all the responses. What if there are lots of errors? This is precisely why they are such great tools: they reveal what ALL your students are thinking, like it or not. Here you need to be agile in selecting and sampling responses quickly; the ones that help take the learning forward without getting bogged down, avoiding turning a buzzy exchange into a thing of drudgery. The key is to focus on key learning points with repeat questions rather than tackle each and every variation.

Something similar happens after doing any in-class peer or self assessment. What have been the common answers and common difficulties? Are there any especially interesting alternatives? You need to flush this all out, making sure you tackle misconceptions, pick out a range of model answers and move everyone forward without double checking every single response. In an RE class of 30, there are 30 different ways to answer 'Was it morally acceptable to kill Osama Bin Laden'. Agility sees you through....

### 3. Reacting to circumstances

#### Lights out:

My Y6 son came home from school buzzing recently. "We had the BEST lesson EVER". They'd had a class discussion about ghosts, told some stories, explored the possibilities of UFOs and life on other planets....lots of engaging deep thinking on big existential questions. Why was it so special? Because they were sitting in the dark for over an hour after a power cut! So, no writing or reading....just talking and listening. The teacher had capitalised brilliantly, letting their imaginations fire off in all directions. If you have not yet read "Oops! Helping Children Learn Accidentally" by Hywel Roberts, then you should. He tackles this area brilliantly. Of course, this agile teacher had made the most of a real situation....but why wait when these fabulous 'accidents' could easily be made to happen!

#### Behaviour Management:

The reality for a lot of teachers is that managing behaviour is a dominant issue, but it is a universal ever-present feature of all lessons. An agile teacher, teaching a Great Lesson, may well have all manner of behaviour issues to address but they do two things: Firstly, they address the issues...they don't gloss over or ignore them. Secondly, (in classic Bill Rogers style) they use the least intrusive strategy possible in order to keep learning on track. In great lessons the teacher does not hope for quiet, they insist; however, neither does the teacher stop everyone learning for a full blown show-down... Unless this is absolutely necessary.

#### Current affairs

Finally, in Great Lessons an agile teacher will take any opportunity to make connections to current developments, scrapping the planned lesson if necessary. Venus is transiting the sun, Higgs' boson has been discovered, it is the anniversary of a publication by Darwin or Shakespeare, the biggest prime number ever has been identified, Richard III has been found and verified with carbon dating, there has been a tsunami, a new work by Van Gogh has been discovered...or vandalised..... All these things are a reason to go right off at a tangent and bring learning into the real world. In fact, when these things happen, it is unforgivable not to.

### 4. Choices

Sometimes the need for agility is more predictable, in situations where students are given choices. An example is where the mode of response is made very open: essay, video, blog, powerpoint, cartoon.... We adopt this approach for our Y7 British Museum project with fabulous results, but the teachers need to be flexible and open-minded.



In some subjects, students have real choices to make as part of their assessment. In our A Level Physics course, students devise their own investigation; in our History and Pre-U ?Global Perspectives courses they choose their own area of study for the coursework; in Art or DT at GCSE and A level there is a high degree of student autonomy. The teacher's agility and confidence often determines how far they are prepared to let the students go – which is either an enabling effect or a limiting one.

### 5. Going off piste

A couple of years ago some Y9 students from a partner school spent a day at KEGS and produced a report of their observations. Some of the things they liked about our lessons were:

The lessons tend to start straight away without lots of lining up and register taking

Students do not have to copy objectives from the board every lesson

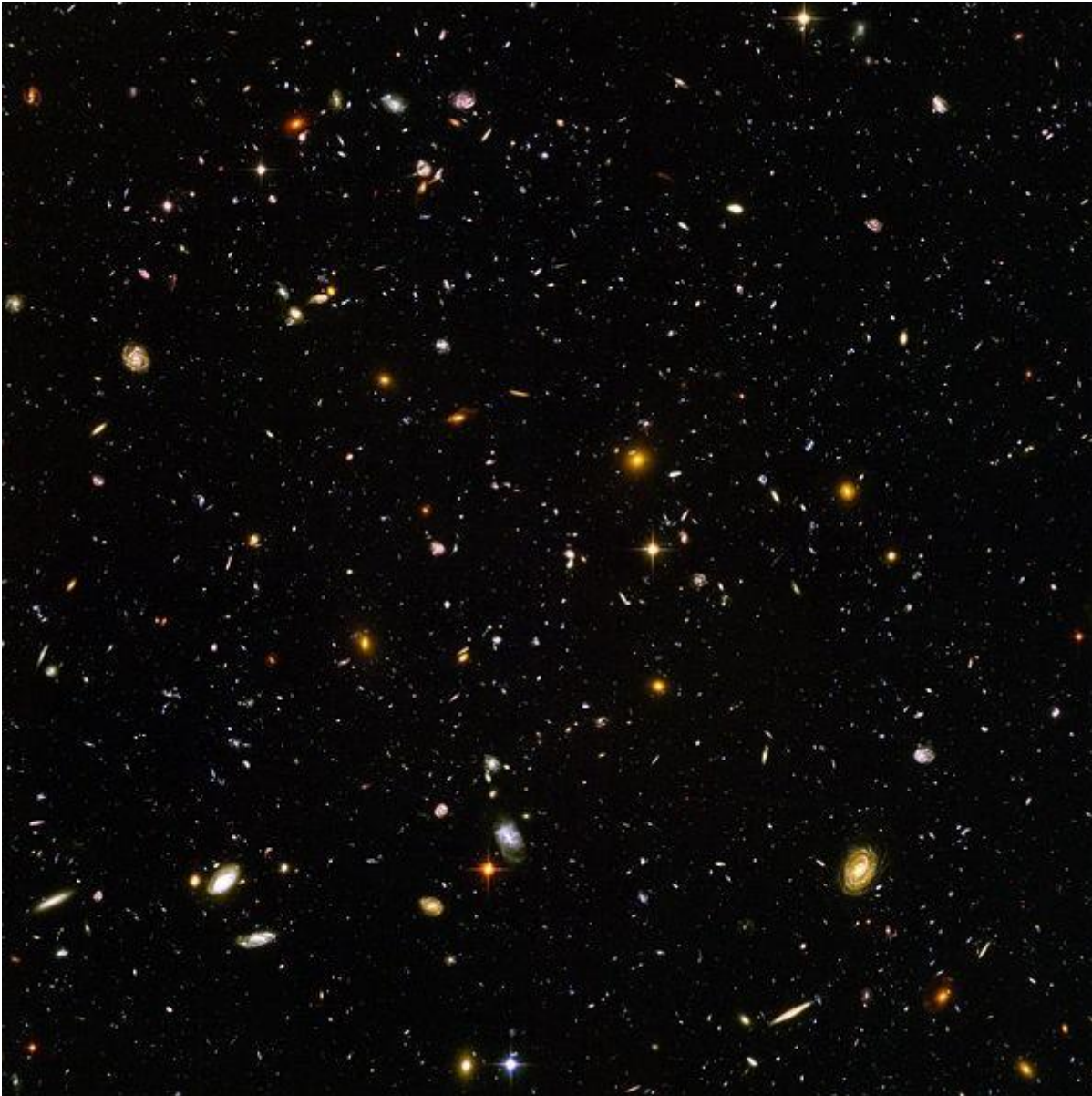
The teachers often deviate from the lesson plan to tell stories or share their personal interests. 'Our teachers never do this' they said.

We hadn't anticipated the last point but it is certainly a feature of lessons at my school. The students and teachers find great joy in the kind of spontaneity that allows anyone in the room to express their puzzlement, their curiosity or their sheer love of the subject. Recent diversions in my lessons have led us to consider the James May 'milk first' tea-making theory based on temperature gradient and specific heat capacity; how a bullet-proof vest works (following the input of a materials enthusiast in my class) and what might happen in terms of g-force if we could fly through the sun. Is it on the syllabus? Not exactly....but who cares?

Of course the very best reason to go off piste is when a student blows your mind with their work. Sometimes you just have to down tools, get in a huddle and marvel at what someone has done. More of this to follow in Great Lesson 8: Awe.



## Great Lessons 8: Awe



Take a look at this image. The Hubble Ultra Deep Field, photographed over several days in 2003-4. As explained by Professor Brian Cox, in this patch of sky, the size of a thumbnail placed 75 feet away, there are over 10,000 objects, invisible to the naked eye. Each object is not a star..but a galaxy, each with hundreds of millions of stars. The light from some of the objects has been travelling towards us almost since the beginning of time. So, looking at the image is like looking back into time as well as into the enormity of space. For me, this is “awesome” in the truest sense. It fills me with AWE. What does this mean exactly?

- It provokes an emotional response – it is beautiful, thrilling, magnificent.
- It forces me to re-think some fundamental conceptual ideas; to update my mental model
- It creates a sense of scale that makes me look on my small world with a new perspective
- It raises lots of questions and makes me curious to know even more.
- It is impressive as a human discovery; a human achievement.

This is AWE... often experienced alongside its counterpart WONDER.

In Great Lessons, it is important to step back from time to time to contemplate the subject in hand, instilling a sense of Awe. This is how the seeds of a deep-rooted love of learning are sown. We're not just learning this stuff because we have

to; or because it is useful. We are learning it because it is just so fabulously, fascinatingly awe-inspiring. There is no greater motivation to learn than this.

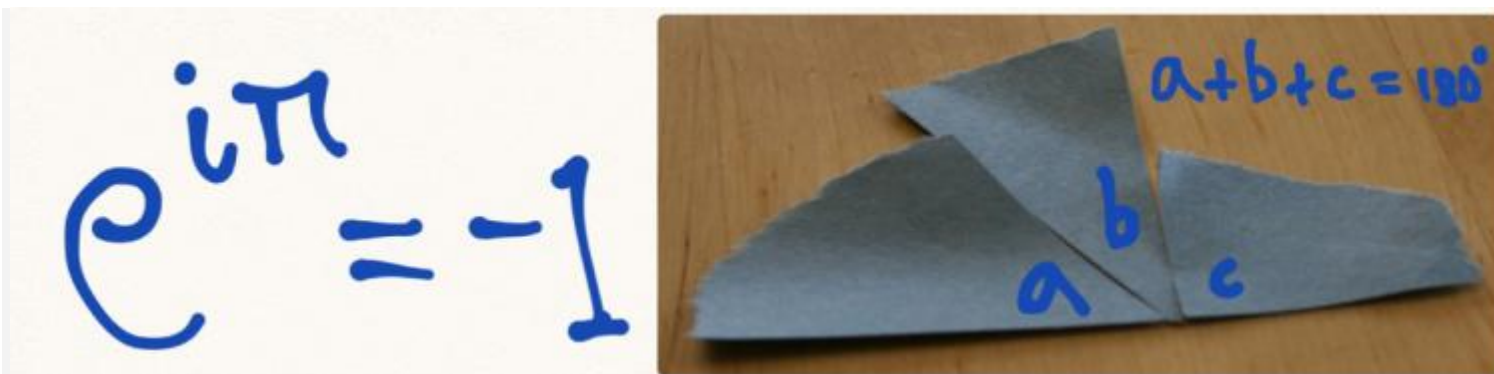
Clearly, in a five period day, with exams to prepare for and a pile of marking to look forward to, you may feel your inclination to inspire awe may be on the low side. But, who else is going to do this if we don't? In fact, we should aim to make it our default mode, our natural disposition, to seize every possible opportunity to fire our students' imaginations and to stoke their passions. This is as important to a school's contribution to Social, Moral, Spiritual and Cultural education (good old SMSC) as any number of assemblies. Is it unrealistic to think of inspiring awe as a habit of great teachers teaching Great Lessons? It's not all "Dead Poet's Society" table jumping; it can be quite subtle. And look how much material we've got! .....

At a recent Latin workshop, run by my step-Dad, Larry, (a retired professor of Medieval Latin) he introduced them to a poem that he described as "the most beautiful poem ever written in any language". A monster claim....but did it grab attention? You bet! Here it is:

Dum Diane vitrea  
sero lampas oritur  
et a fratris rosea  
luce dum succenditur,  
dulcis aura zephyri  
spirans omnes etheri  
nubes tollit;  
sic emollit  
vis chordarum pectora  
et immutat  
cor, quod nutat  
ad amoris pondera.

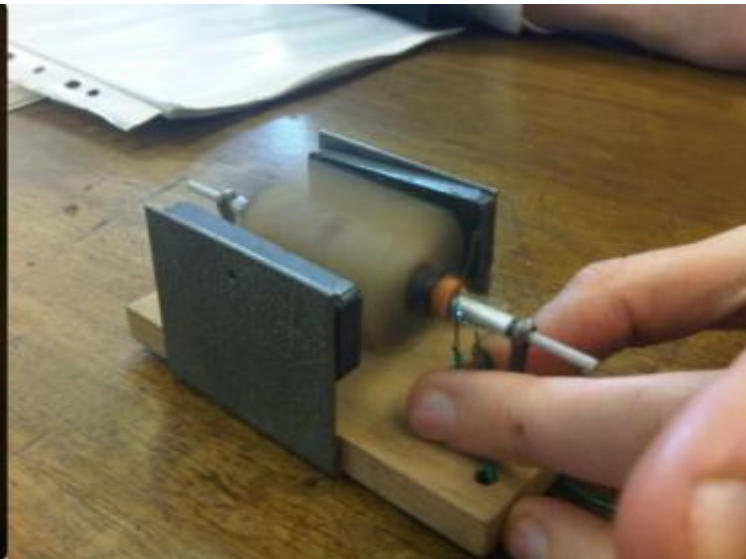
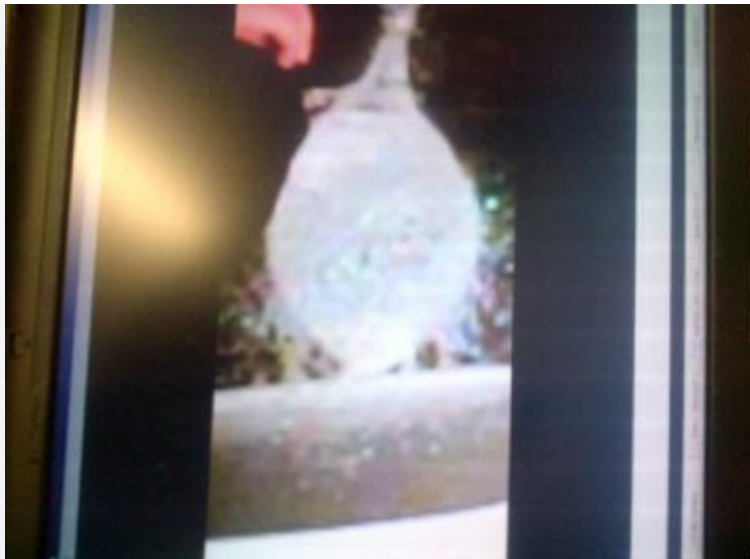
From 13th C Carmina Burana manuscript

In Maths, the fundamental truths inherent in the patterns, theorems and axioms are all worthy of being marvelled at as well as studied and learned, from simple patterns and shapes to wonderful unifying ideas like that shown here.



Irrational and complex wrapped up; The corners of any triangle do this...

As a physicist, I naturally feel that most of my subject is awe-inspiring. Playing with a pair of magnets is a wonderful thing...just sensing that invisible mysterious force. Seeing a simple current carrying wire moving in between a pair of magnets...well that is extraordinary. Imagine Faraday's surprise and delight. Making a simple motor...well, we're becoming ecstatic now...



Awe in a balloon bursting and a simple motor spinning

Taking a high-speed film of a water balloon popping, we captured this image. The balloon has gone....but the water retains the shape for a while longer. Inter-molecular forces in action. Awesome!

In Literature, or art or music, we can get stuck into a groove of doing the formal analysis or making the comparisons. We must also be sure to capture the spirit of a piece of art... to bask in its glory, for its own sake. In history....as well as learning the chronology and the causes and effects, we need also to consider the human courage displayed or the sheer enormity of certain events.

John Steinbeck's *Of Mice and Men* CHAPTER 1 A FEW MILES south of Soledad, the Salinas River drops in close to the hillside bank and runs deep and green. The water is warm too, for it has slipped twinkling over the yellow sands in the sunlight before reaching the narrow pool. On one side of the river the golden foothill slopes curve up to the strong and rocky Gabilan mountains, but on the valley side the water is lined with trees - willows fresh and green with every spring, carrying in their lower leaf junctures the debris of the winter's flooding; and sycamores with mottled, white, recumbent limbs and branches that arch over the pool. On the sandy bank under the trees the leaves lie deep and so crisp that a lizard makes a great skittering if he runs among them.



Steinbeck's *Of Mice and Men*; The courage of soldiers at war

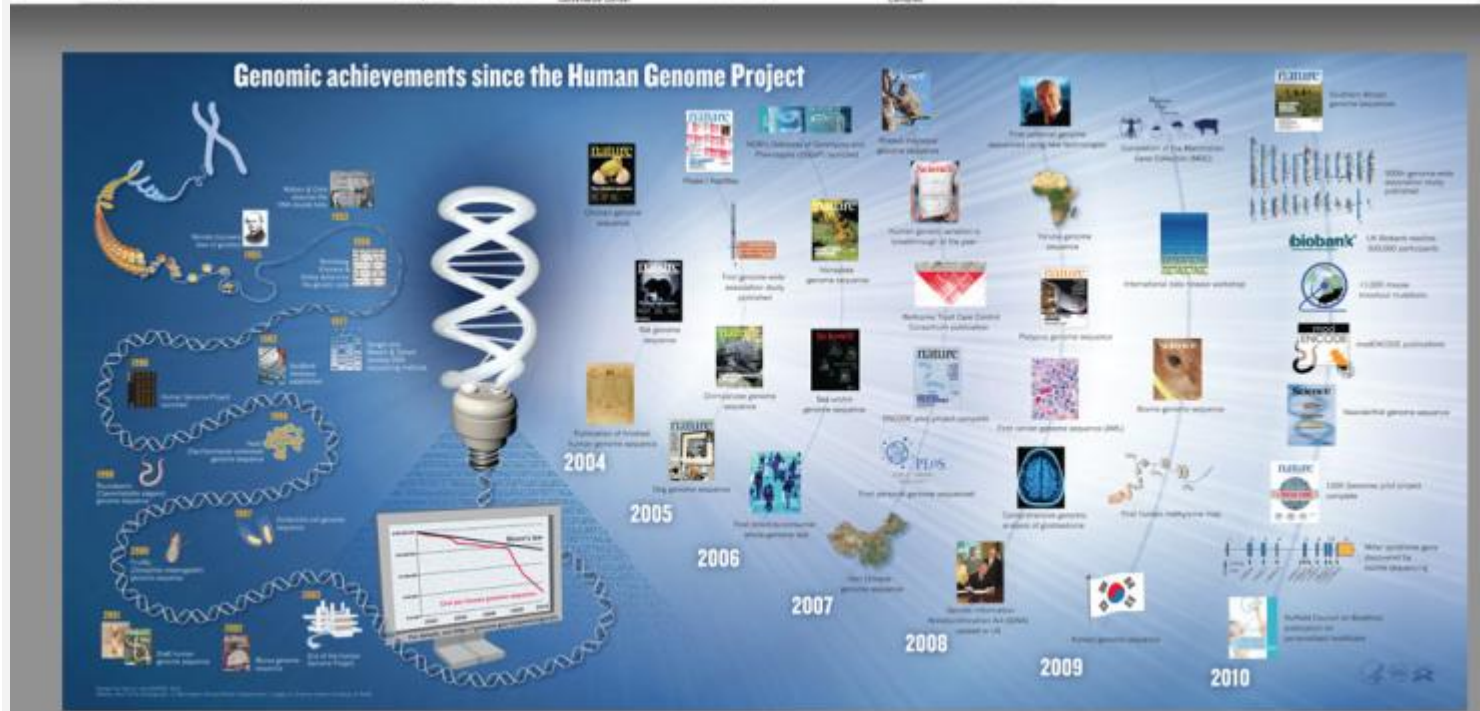
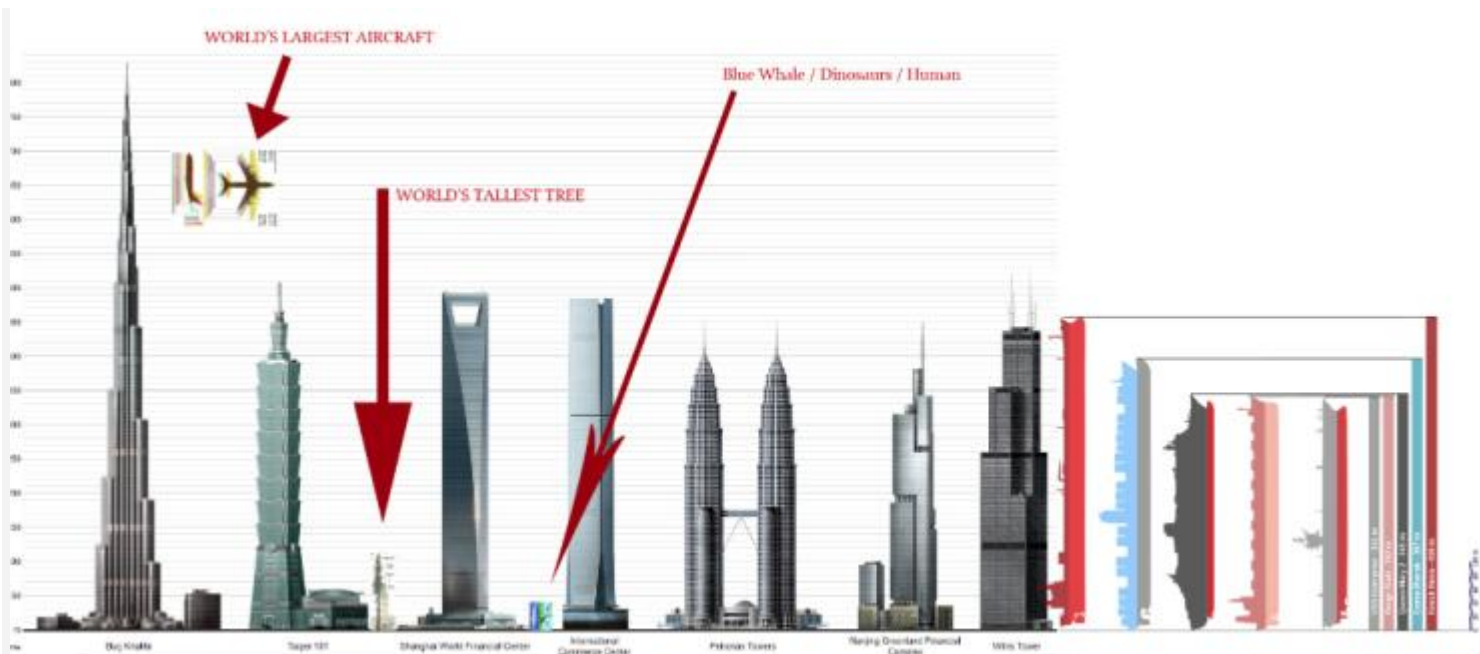
In Geography or Science, as well as trying to understand the wonders of the natural world, from plate tectonics to the extraordinary fact and beauty of evolution, we need to step back and contemplate just how fabulous these things are:



The Natural World is Awesome!



In all subjects, we can marvel at the range and scale of human achievements from building buildings to conducting genome research:



Human achievements... awe-inspiring.

For me, and I hope for you too, this isn't just a bit of icing on the cake. Inspiring Awe is a core function for teachers. We need to take every opportunity we can to communicate our own feeling that life is full of wondrous things that are there to be studied, discovered and enjoyed.

As well as transmitting our enthusiasm to students and modelling the importance of seeing awe and wonder in the physical and cultural world that surrounds us, in Great Lessons we also have an opportunity to shine a light on our students' work. Encouragement and praise that keep students motivated, engaged and on track, can sometimes be taken up a notch or two into all-out AWE.

It has a great effect. Not only does it make the students feel great, it highlights what can be done...what is possible.... And that is the subject of Great Lessons 9: Possibilities.

## Great Lessons 9: Possibilities



The sky's the limit....

“The sky’s the limit” .....

It’s a wonderful motivating phrase. It suggests that anything is possible; that there are no limits. To infinity and beyond and all that.... As I’ve discussed already in [Differentiation](#) and [Challenge](#) and [Journeys](#), the straight-jacket of one-size-fits-all learning activities is deadly. In Great Lessons, it should be our default-setting to think BIG and allow for individuals to take different paths. BUT in the context of routine teaching in a regular classroom, these wishful platitudes don’t get you very far. There’s a lot more to it.

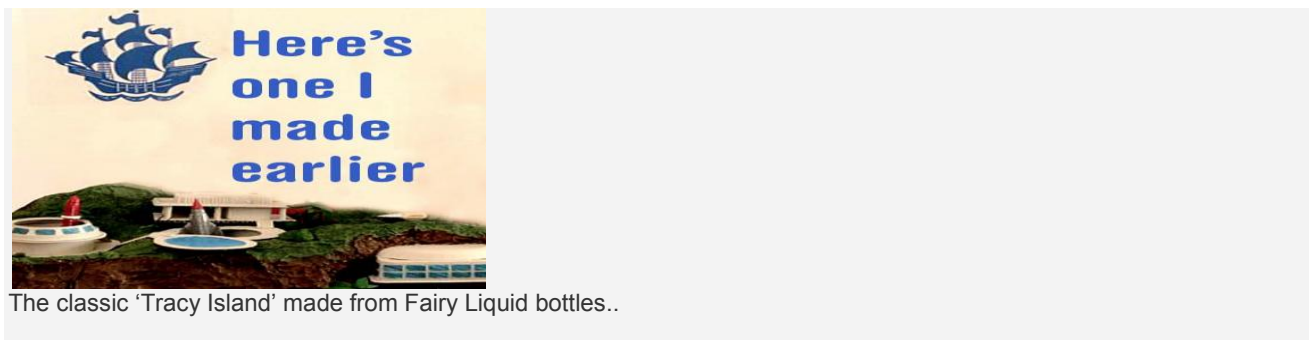
I’m a huge advocate of giving students choices; of making the learning open-ended as far as possible, creating an environment where it is safe to take risks. This is the essence of [teaching for creativity and innovation](#). However, open-ended tasks and free choice can actually be bewildering. Choosing can be hard – and students are no fools; they know there are limits in life. How often have I had this exchange with my kids at home:

- “What would you like for tea?” I say, trying to treat them like adults.
- Answer Alternative A: “Pasta”. Why? Because it is a risk-free choice
- Answer Alternative B: ” What is there?” ie.... I’ll choose but you need to narrow down the parameters a bit. They’re hardly likely to request a trio of deconstructed Lamb pies with an asparagus couli!

This applies to learning too. Sometimes your instinct is not to give any clues because you want to see what you get if students are left to their own devices. This is the spirit of our [Year 7 British Museum Project](#). We hardly give any advice at all and we’re continually bowled over by what the students come up with. Take a look at the outcomes in that post. However, truth be told, at the other end there is some pretty mediocre work. In this ‘blind test’ some students don’t know what they are capable of and sell themselves short. They choose pasta.

So, should we really be offering an open choice – or is it better to start with a limited menu to get them started. Thinking big is important but if ‘the sky’ is our aim .. students are going to need some idea of what that looks like in this lesson... and what might be a reasonable means of getting there. **That is a secret to a Great Lesson; to set audacious goals – but to make them possible;** to set each student an almighty challenge but to give them the confidence that it can be done and the tools to do it.

Now here is a paradox of sorts...if you give an example of how to do something, are you simultaneously limiting horizons? Are we just doing a Blue Peter 'make' – here's one I made earlier?



The classic 'Tracy Island' made from Fairy Liquid bottles..

With this approach (which I have seen time and time again) we just get lots of the same thing made with varying degrees of accuracy. There is no imagination or creativity required; not much thinking, just the capacity to follow the recipe. For example, I have seen too many KS3 'projects' in the past that were just indistinguishable carbon copies; and too many teachers happy that every student has 'finished' even though some students could and should have gone far, far, further but were never directed or enabled to do so.

On the other hand, if there is insufficient structure, time drifts as choices have to be considered; students find it inhibiting if they don't know where to start and overly daunting and de-motivating if the thing they are told to aim at seems impossible; unattainable. Not only that, a 'free choice' can also be to shoot too low; to under-achieve – to procrastinate with displacement activities (when document creation starts with extended font selection and WordArt instead of content, it sends me into orbit...)

One of my least treasured school-memories is of a particular homework composition task for Music O Level. We wrote our pieces and the teacher played them to the class on the piano. Mine came up early and everybody laughed. Why? Because it was just awful.. boring, simple and very short. Then came Sarah's. She'd written a fugue! A full-blown fugue; I kid you not. Now, the teacher had said to compose a piece using cadences and counterpoint.... I had done that; but it was only about four bars long. I simply didn't realise what the expectations were; what might be possible! We weren't given any exemplars until afterwards. If only I'd heard Sarah's fugue beforehand...I'd have aimed quite a bit higher!!

So, the resolution to this is simple: Show them! Show them what can be done and show them how. This post is really about **exemplars**. Not templates to be copied; absolutely not; I'm talking about examples that broaden horizons, set sights high and illustrate what real learning can look like in practice. **Great Lessons**, often feature opportunities to illustrate model answers, interesting ideas, exemplary work in some dimension or other. In a visual or performance subject, this can be relatively straightforward – to literally show the work. Here, for example, is an exemplar from a Y12 student using Sibelius software for a music composition:[Trio Sonata G major](#), [Charlie Palotai](#)

Here are examples of art work from various year groups:





Year 8 drawing skills. The student then developed the idea further, mixing colour with pencil.

The annual Art Exhibition is a useful show-case of student work that teachers and students and feed-off all year.



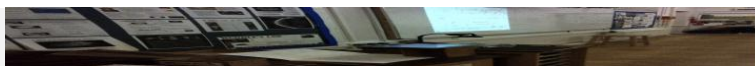
Simple but effective use of photography, some jars and masks.

In Technology, again, just seeing the work of peers provides a strong sense of what is possible and what the standards are:



From Y7 starter-projects to the free choice of AS/A2 Coursework.

In other areas, showing the work is more complex but there are lots of ways of doing it. The routine use of visualisers that enable a whole class to see work in detail is really useful – and we have made sure that these are available throughout our school. Here, for example, is my ipad set up as a visualiser – but we have others made from web-cams fitted into flexible angle-poise lamp stands.



Exemplar book-work projected via my ipad to explore the possibilities.

An English Department colleague described how his Year 10 class were keen to look in detail at each other's work using the visualiser so that they could see and discuss, in detail, what the possibilities were. This followed a process of self, peer and teacher evaluation of some early GCSE essays.



Harrison Bailey 10Y

English

How does Miller show the differences in attitudes and behaviour between male and female figures in *The Crucible*?

There are key differences in the way that male and female characters behave in certain situations. This behaviour is due to the status that the males and females have in the hierarchy of Salem. The hierarchy means that certain people can only act or behave in certain ways and Miller shows this through many adverbial phrases used as stage directions.

Men in that type of society - one which relies on hierarchy to sustain power with certain people and sustain order within it - are seen as at the top of 'the scale'. Their behaviour or judgements in most situations are usually seen as the most important but the situations in this text means that their judgements are still valuable but are a reflection of women's views.

In some situations women have power over men, they say things that cannot be discarded or be seen as unimportant and this then has an effect on the men's judgements. For example, a significant scene that affects what happens entirely is toward the end of Act 1 in a conversation between Abigail and Reverend Hale. In this scene we can see how the behaviour of Abigail manipulates Hale and his judgement. The questions start as simple ones that don't have presumptions behind them, such as "Does someone afflict you, child?" but soon after Abigail accuses Tituba, the questions become more presumptuous, such as, "Did you feel any strangeness when she called him?", treating Abigail's accusation as evidence. And so, due to the behaviour of Abigail, Hale's behaviour changes. Also, at first Hale is asserting his authority, saying things such as "Now mark me" and "you will." Also he is asking all of the questions, including leading and assuming questions such as "How did she call him" instead of, "Did you call the Devil, Tituba?" This shows the hierarchy of men and women in that time and how they behave due to the position they take. Miller shows how Hales authority affects others through the adverbial stage directions here; Mr Parris is "a little scared." We can also see the emotion of Hale when asserting his authority through the stage directions; Mr Hale is "(narrowing his eyes)." Stage directions play a large part in showing people emotions or attitudes to a certain situation.

On the other hand women's views in this type of society would not be seen as important due to the hierarchy of men over women and the fact that men take the positions of all the important people in the society. But this changes instantly when women (Abigail and the girls) start expressing views that are worrying to the men; views on witchcraft. This is because men, with all this power, should protect women, they are seen as leaders of the people and so when witchcraft is spoken of, it has to be seen as an immediate threat and therefore immediately acted upon. Men may then be seen as having the power and taking the action but this is only due to the power women have and they way that they are using it tyrannically in order to manipulate the men. We can see how the way Abigail acts affects

others where she has brought up the idea of witchcraft and so Mr Parris "(fearfully)" speaks of the matter. But this is only relevant to Abigail and the girls who use accusations of witchcraft for their own benefit - to get out of accusation toward them. Women such as Abigail and the girls, in my view, are therefore manipulating, tyrannical and selfish.

In comparison to this, there are women who are faithful and truthful such as Elizabeth Proctor, who loved to John even after his admittance to adultery. Even through the importance of keeping your name and John, ruining his, she stayed with him and forgave him. She even blamed herself for it; she said that "it needs a cold wife to prompt lechery." Stage directions again play a key part in expressing this behaviour: Elizabeth is constantly saying things "gently" and "quietly" even though she should be outraged by her husband committing adultery. This is completely the opposite to the behaviour of other women such as Abigail.

Overall society is flipped and so are the statuses and therefore behaviours of people. Women would generally follow the men and accept their decision but in this situation woman like Abigail change or affect the men's views and manipulate the way that they think. Other women behave oppositely, faithfully and lovingly. Men behave tyrannically also because women such as Abigail use their power to cause the men to make decisions that favour the women's situations. Men are then followers of the women, women say what they want in order to get the men to do what they want and think the key way that this is shown in the text is through stage directions that use adverbial phrases with interlinked adjectives.

+ a good analysis of male and female attitudes  
 H2 but pretentious/force themes, which occur throughout the play.  
 I am so proud of you, Harry, this is an excellent piece of nuanced writing, exploratory and nuanced. I want to use it as an exemplar!

Underlining and highlighting the strengths and weaknesses, prior to discussion.

Sometimes it is helpful to use a bank of exemplars that are readily available in addition to the work that is being generated in the lesson itself. This helps to show that other students – just like you - have gone before you and that their work is there to emulate and surpass:

January 09 Question 8 - Abolitionism

The sources provide evidence of attitudes towards the abolition of slavery before 1850. Sources A, F, and H ostensibly suggest that slavery failed to win popular support in America before 1850 and so support the interpretation, with only source D rejecting it. However in every source there is a degree of ambiguity and so it could be argued that in every source there is evidence supporting and rejecting the interpretation.

balanced  
disparately put

Source C along with source E is the most critical of abolitionism and so are vehemently against the interpretation. Proving to Calhoun "both races will benefit" if not disturbed by the free spirit of abolition" and so asserts that abolition of slavery would have a counter-productive effect. He warns that emancipation, the policy advocated by many abolitionists would lead to "demand for Negroes for social and political equality," and eventually the subversion of whites to negroes. As a senator, Calhoun is here likely to be expressing the opinion of the majority of his constituents and so we can deduce that, at least in Calhoun's

pro-C

constituency, the politician, reject abolitionists and the notion of giving black equal rights. This is compounded by Calhoun himself who suggests that abolitionists are a minority of a fan blind fanatic who wish to disrupt existing "good" relations. While source E is sympathetic (unlike source C) towards negroes, stating that "they will continue to be viewed as a slave both in North and South", it provides little suggestion that the abolitionist movement was widely supported. The main of the author that Abolitionists full "travelling" organization for from the belief that the prejudice against negroes is unchangeable. This suggests that while the source may agree that slavery is inhumane, he does not approve of the methods which abolitionists

This was  
the dominant  
of the 1830s  
imposition of  
to "negroes"

focus

Evaluation

This project was a taster and an example of what we could present as a PCB design for our coursework which will be doing later on in year 10! This was the simplest circuit we could do however if done very well along with good written work a high mark could be attained. This circuit development involves soldering all sorts of components such as chip holders and also several resistors.



However what I found was a big problem with my circuit was that we had to design it on to the PCB beforehand and etch it carefully which proved to be very difficult. The reason for this was that the holes marked had to be perfectly the right length apart and the tracks and pads had to be drawn on very accurately. If not the whole circuit could go wrong by components not fitting or a short circuit taking place which would render the whole circuit useless. In my case the tracks were drawn and etched reasonable well however the spacing wasn't as accurate as it could have been. Therefore resulting in me having to widen holes so that components could fit in properly or in the right place. This gave me an even bigger problem as the bigger holes meant that more soldering was required and that the holes were closer together for the chip holder. Therefore some of the solder made contact with different close solder joints which would cause a short circuit. It was proven very difficult and messy trying to avoid this happening or mending it when it did.



Another problem that occurred was that the spacing of the tracks and the set time limit I had was shown through the neatness of my soldering of the component. For example the resistors weren't level and the transistor hadn't been soldered neatly to the board. These are just small things that do not make too much of a difference to the functioning of a circuit however can cause me to drop marks when the circuit board would be examined. These signs of carelessness and also not being very accurate can affect the board greatly for example the designing of the board can easily go wrong which ruins the PCB from the start.

So overall this PCB wasn't very successful due to the designing of the board at the beginning and therefore the circuit was proven non-functional.

A Y13 History essay; Y10 Electronics GCSE Evaluation.

A new and unusual task can be daunting because of its unfamiliarity. This is an example of what is possible in the regular '3 minute sketch' challenge in General Studies. To someone who'd never have thought of doing something like this, they get a big steer. A door unlocks.



Art vs Science in 3 minutes

And here are some regular homework tasks that the teachers thought had modeled high standards for others to follow. They served as material for further critique and discussion.

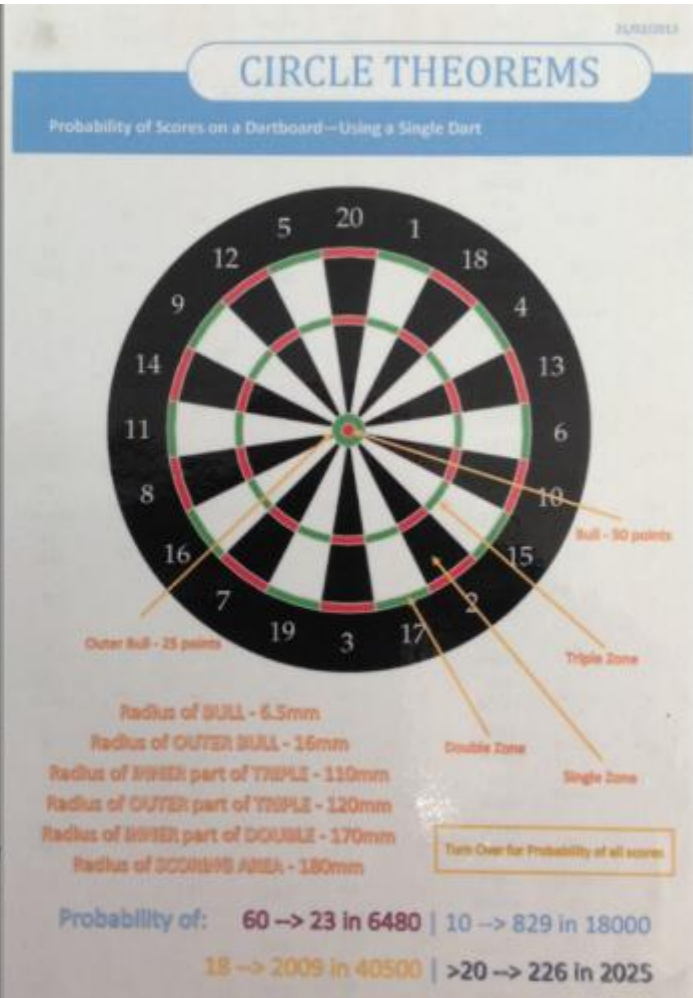
你有没有看国际新闻?  
 你有没有看天气预报?  
 你有没有看最新的电影?  
 你有没有看美洲艺术展览?  
 你有没有听过这个唱片?  
 你有没有看过非洲风俗展览?  
 你有没有去过印度?  
 你有没有吃过中国快餐?

他什么都喜欢。  
 他什么都吃。  
 他什么都会做。  
 他什么都想试试。

污染问题越来越大。  
 博物馆越来越多。  
 郊区的风景越来越漂亮。  
 妈妈做的饭越来越好吃。

My dad likes watching TV, he really likes watching the news, he'll watch all news, he says, it  
 the news is very interesting.  
 Today's news says, because of pollution, the air becoming increasingly worse, and  
 breathe becoming increasingly less, this is a very big problem.  
 Have you been to the Museum? The exhibits of India and Africa are very interesting, and they said,  
 the history exhibit of the Americas was about to begin.  
 Did you see the vocal mall? A large school in China is coming to ~~close~~ all school. Also because the wage  
 of teachers is getting higher and higher, many people think of working in education.  
 headlines of a ~~community~~

很好 A\*



Chinese characters and a superb piece of work on probability in Maths.

Effective peer critique methods have featured in recent posts by [Alex Quigley](#) and [David Didau](#); it is really important that everyone can learn from the work of others and that the peer assessment has a positive impact. These posts are excellent.

So this is the essence of Great Teaching when we're trying to set sights high. Show some examples; show what can be done... but don't let that ever be limiting; only enabling. Always be on the look out for the next exemplars. I'll finish with this one. A set of Economics articles put together by our Y13 A level class has been generated to form an on-line magazine. It has motivated them to produce some superb work; better than they'd been managing before...setting a standard for others to follow:





# INVISIBLE HAND

A KING EDWARD VI GRAMMAR SCHOOL PROJECT

Issue One: Jan-Feb 2013

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- [Is there a better way out of a debt crisis than Austerity?](#) Joel Bell, Editor, Year 13 This question is at the forefront of British minds as we enter 'the age of austerity' with our coalition government. Currently UK debt stands at over £1.1 trillion, striking us all with a need for resolve. Throughout the ages people have argued what the best way to successfully run a...
- [Should we Privatise Healthcare in the UK?](#) Joel Bell, Editor, Year 13 Despite the cuts the coalition government is trying to persist in making, the NHS continues to be an ever-growing money sponge. That is not to say it is a waste of money, rather that in times of budget shrinking, the Health sector is one of the only areas getting bigger...
- [Can the government justify giving every child in Britain a box of Lego for free?](#) Sam Laidler, Year 13 In my opinion, it is not a question of 'could the government justify giving every child in Britain a box of Lego for free' but 'how soon can the government give away said boxes of Lego?' At first such a proposal appears laughable at best, but spare a minute to consider...
- [A word from the Editor: Footballer's Wages](#) I can't stand the issue of footballers wages, and no I am not going to propose that same, unreasoned, unconsidered argument of "Footballers get paid way too much, they're scum, the army should be given their wages". This is, of course, because this argument is wrong, it's not wrong in the fact that footballers don't...

King Edward VI Grammar School, Chelmsford

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Categories

Issue One: Q1 2013

The Invisible Hand; showing the possibilities.



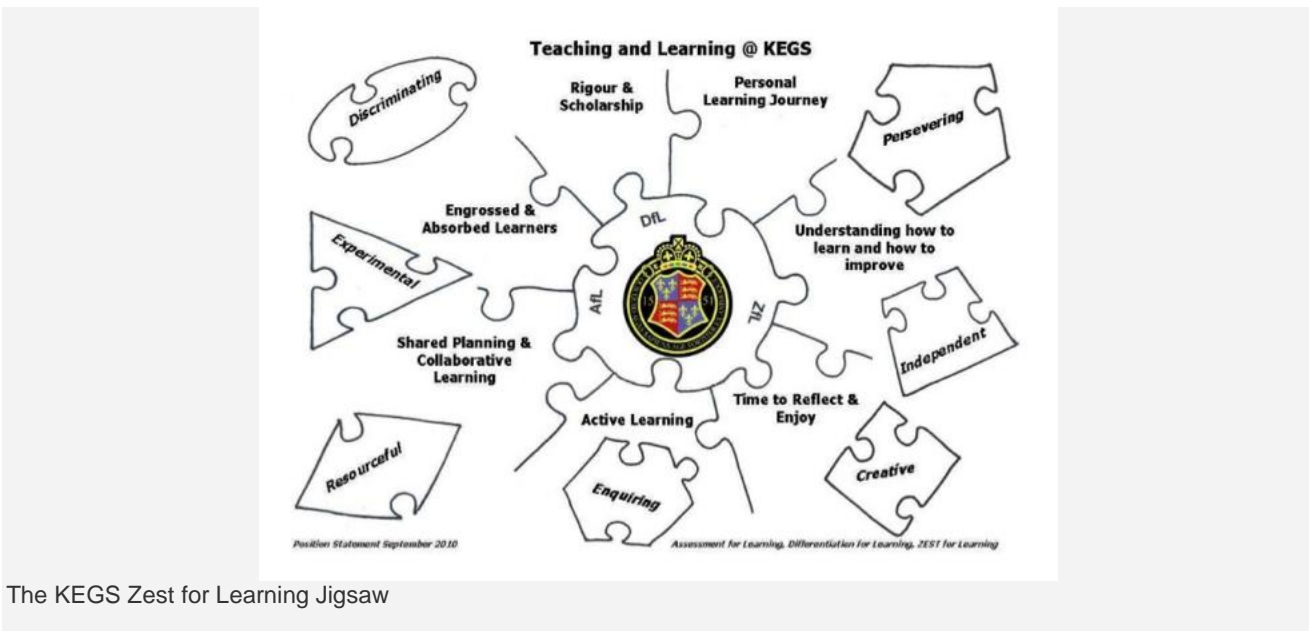
# Great Lessons 10: Joy



In the classroom and outside, learning is a joy....

This series on teaching **Great Lessons** is all about the habits of day-to-day teaching; our instincts; our default-mode.... the things we do automatically. I want to suggest that one of the most important habits of a Great Teacher teaching Great Lessons is to find joy in what they're doing and in what the students are doing. When I walk into a lesson that gives me a sense that it is a Great Lesson...in most cases, there is a strong sense of enjoyment. The teacher and the students are busily engaging in tasks or exchanging ideas in a way that conveys enthusiasm and interest and even pleasure... JOY!

Life is short; there is probably enough drudgery in the world to drown us all if we let it; so let's not add to it with our teaching. Instead, let's remember that there is also joy in abundance in learning and achieving and do all we can to make sure our students see that too; it is part of our job to make learning joyful. Take another look at our Teaching and Learning statement (one A4 sheet – that's the whole thing.)



The KEGS Zest for Learning Jigsaw

For us at KEGS, **rigour** and scholarship are completely compatible with ensuring there is time to **reflect and enjoy**. We are not talking about lessons being a bit of a party, all fun and games, or teachers as entertainers putting on a show... not at all. We are talking about making the process the learning joyful. How do we do that? Here are some ideas:

## 1. Share your passion;

You always have permission (that you can give yourself) to include what you think is the fun stuff – the things that get you excited about your subject. Here's my latest obsession – The Slow Mo Guys. Their videos are packed with Physics ideas. Here the exploding watermelon provides a great backdrop for discussing energy and momentum conservation... but in a wonderfully joyous way: [http://www.youtube.com/watch?feature=player\\_embedded&v=PK8dsAeMmPk](http://www.youtube.com/watch?feature=player_embedded&v=PK8dsAeMmPk)

This video is by my daughter's English teacher; his guide to ten books he recommends to his GCSE classes. He is so passionate about the books... I just love it; and he transmits that passion to his students: [http://www.youtube.com/watch?feature=player\\_embedded&v=5k4N2vieXek](http://www.youtube.com/watch?feature=player_embedded&v=5k4N2vieXek)

And finally, be passionate about what your work in general. I heard a key-note speaker say this once. "Of course, the students come first.... but actually, in practice, we need to put teachers first". What she meant was that, obviously to be able to meet all our students diverse needs, we need to invest in ourselves. We need to be fired up, enthusiastic, engaged and positive about our work if we have any hope that our students will be.. Take Chris Waugh, for example.. (@edutronic\_net). In this video from the BETT 2013 Teachmeet, he talks about his approach to teaching using his blogsite.... I've had the pleasure to watch him in action; his lessons are full of joy. And you can tell that just by hearing him talk about his work

I recently had a similar experience hearing [David Mitchell](#) (@DeputyMitchell) talking about his work with KS2 students; a passionate teacher bringing joy into the lives of the learners in his classroom.

## 2. Adopt strategies that are intrinsically motivating .....

A couple of examples:

*Maths games:* Y9 Students have a series of problems to solve from cards on the desk; they can choose the order tactically as some are easier than others. They need to check solutions before moving on. Each solution is a number that links to an alphanumeric code; the solutions combine to spell out a question in German.. and the final answer is the answer to that question. This lesson is Fun! The intrinsic motivation to finish the task creates a palpable buzz of joyful learning where the problems are very difficult but the process is not. This is so much more effective than an approach that tried to sell the idea of the material being useful, important or necessary. It was just fun there and then.

*Science practicals off the leash:* The Y10 students are given the apparatus in a physics lesson – trolleys, ramps and timers. The students are asked to devise experiments, to see what happens in scenarios of their choosing and to take measurements accordingly. This leads to things being dropped from great heights, elaborate ramp system being created and all kinds of ingenious measurement methods being devised. Playing? Well yes... but lots of learning too. Joyful to watch and to participate in.

*English Paired Dialogue:* Using a method our wonderful and extraordinary Head of Department called the Zone of Paired Dialogue.. Y12 students read sections of 'The Remains of the Day' that are allocated to them in pairs. The room is full of the sound of students reading to each other. They subsequently annotate their texts, using the reading experience to inform their analysis of the use of language before a report-back which includes more reading aloud and [probing](#) questioning in a dialogic style. The students love it.. joyousness abounds.



Hansel and Gretel in German... scripted by the students.

*Using Languages to have fun:* I found these students as I walked around school one day, out on their own, making a video as part of a lesson. They'd written the script and were now acting it out. It was truly hilarious to watch them...they were having a great time putting their German into action.

### 3. Build joyful relationships.....



I had a discussion with Chris Waugh about whether Relationships should be one of the 10 posts in the series, by itself. It could have been... except that all the ideas expressed here, all the habits of great teachers in great lessons, are set against a background where there are strong positive relationships. For truly Great Lessons, I'd suggest that sharing in the joy of learning is characteristic of those relationships. The teacher and students laugh together, share in the [Awe and Wonder](#) of the subject together and generally bond through their exchanges, their questions and their journeys off-piste. If those relationships are edgy, negative, disdainful, based on autocratic teacher tendencies and focused on discipline over learning (see [Bill Rogers](#))..... there is usually a dreary joylessness and the lessons are never Great. If there is laughter, mutual respect, room to express interests and passions and stray from the subject in hand from time to time.... if there are joyful relationships, then a Great Lesson is far, far more likely.

### 4. Celebrate achievement as its own reward...

Finally....the end. The last word in this series. For me, for many of us, the greatest joy is from seeing a student achieve; to be there when the penny drops; to see the smile on their face and feel the smile on your own when you can say -'Wow – that is a great question; that is a superb piece of work....you're starting to write beautifully now...you've really nailed it... what a superb idea....' Wow.

Nevermind the stickers and the stamps, the grades, the levels, or exam success .. or the future employment prospects or university places.. In the here and now, the simple but utterly magnificent joy of achieving, of making those steps toward the big audacious goals.... that is reward enough. That is the joy of learning. The joy of creating those experiences for our students is the reason we do what we do. Teaching Great Lessons is not just our professional responsibility, it is the most rewarding job I can think of; teaching Great Lessons is a joy and a great, great privilege.