

BKSB Conference 12th March 19



Cultivating Curiosity

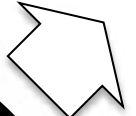
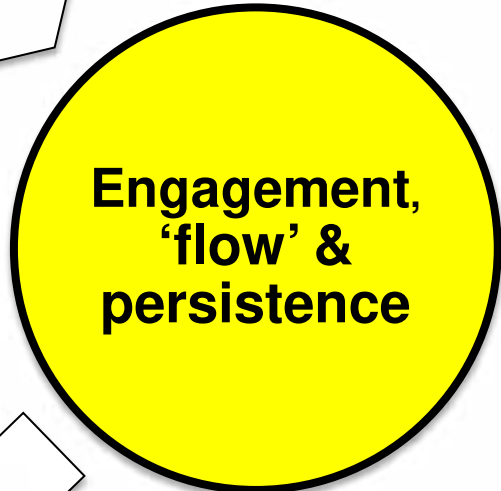
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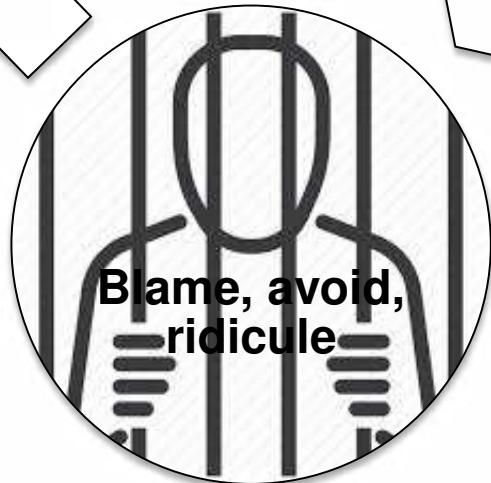
Session overview

- 0 to 15 mins What is the relationship between curiosity, progress and learning?
- 15 to 25 What threatens or inhibits student curiosity?
- 25 to 45 What teaching strategies and approaches can help to cultivate curiosity in GCSE maths and GCSE English classes?
- 45 to 50 Action planning and next steps

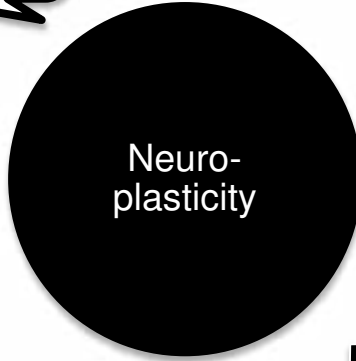
Curiosity cycle



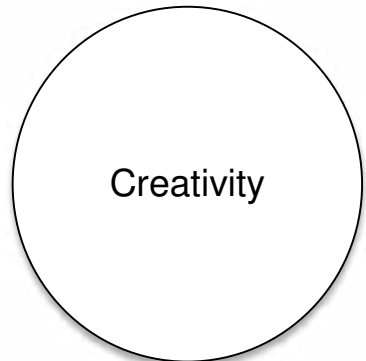
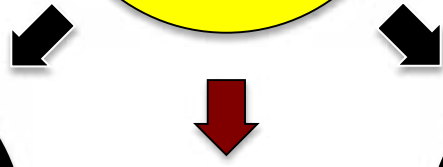
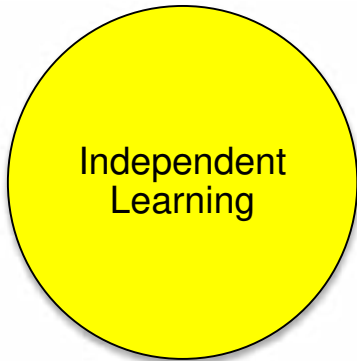
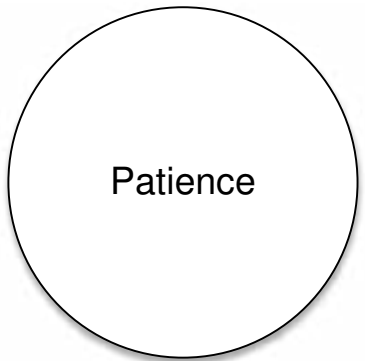
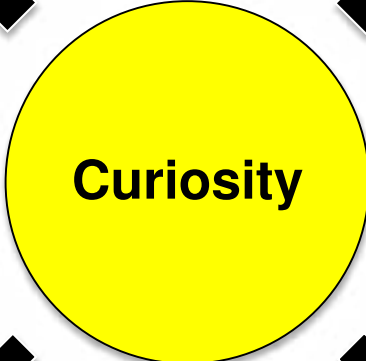
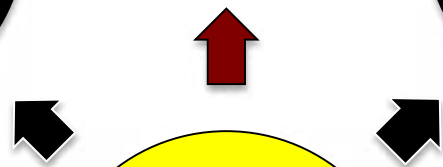
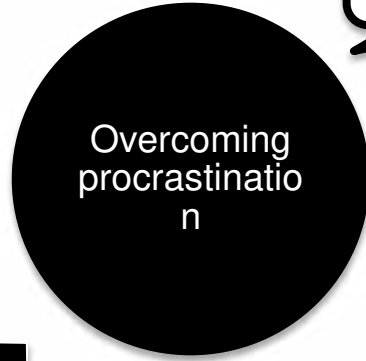
**Opposite of
curiosity
cycle**



“Neurons that fire together, wire together”



What's stopping me from starting?



What choices do I have?

Who's published this?

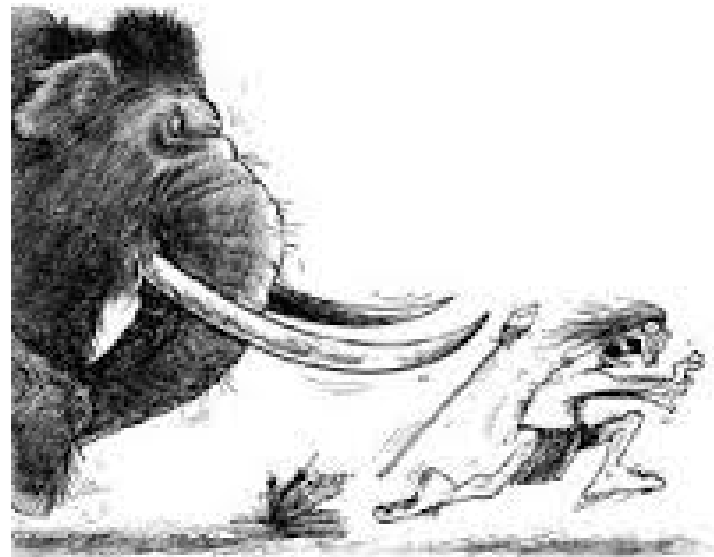
Motivation, drive & resilience



Dopamine

**Flow
Focus
Fortitude**

Fear, stress & 'survival'



Cortisol

**Fight
Flight
Freeze**



Homer: “You tried your best and you failed miserably. The lesson is, never try.”

Curiosity and choice



“It’s not the situation, it’s how I react to the situation that’s important”

Stephen Sutton



Learned helplessness vs self-efficacy

CHOICE

Poor choices

1. Helplessness & blame
2. Pessimism: permanent & universal explanatory style and outlook
3. Mainly reactive
4. Fixed Mindset
5. Attribute success to things like natural talent, DNA and luck
6. Robotic practice
7. Problem-focused: focus on what went wrong
8. Catastrophising

Good choices

1. Self leadership & hope
2. Optimism: temporary & specific explanatory style and outlook
3. Mainly proactive
4. Growth Mindset
5. Attribute success to things like effort, learning from mistakes, study habits and attitude
6. Deliberate practice
7. Solution-focused: focus on what to do next
8. Logic and evidence

Threats to student curiosity

- ★ **Fear**: of failure, mistakes, criticism, mockery, situations (e.g. exams)
- ★ **Disapproval**: from self, teachers, peers, parents
- ★ **Predictability** of learning contexts
- ★ Teachers falling into the '**content trap**': "I've got so much to get through"
- ★ **Lack of differentiation**, surprise and challenge
- ★ **Procrastination**
- ★ **Irresilience**
- ★ **Uninspiring** plenaries, recaps and in the moment developmental feedback
- ★ **Limited of out of class** E-learning opportunities
- ★ **Unclear** about the **relevance** and **usefulness** of topics
- ★ **Demands for certainty**
- ★ Holding **irrational beliefs** about own intelligence, ability to learn and ability to cope when the going gets tough

Beginnings to lessons: set the tone & the conditions for learning

Consolidation: Crossword (stds set the Qs), Kahoot, sorting / justification exercise

KWL: Know? – Want to know? – How will I learn?

Target: stds set personal target in relation to class learning objectives

Graphic Organiser: compile from scratch, review, add to

Follow on from last lesson: homework review, FLIP learning, one minute paper

What's the difference: e.g. climate & weather, truth & lie, fact & opinion

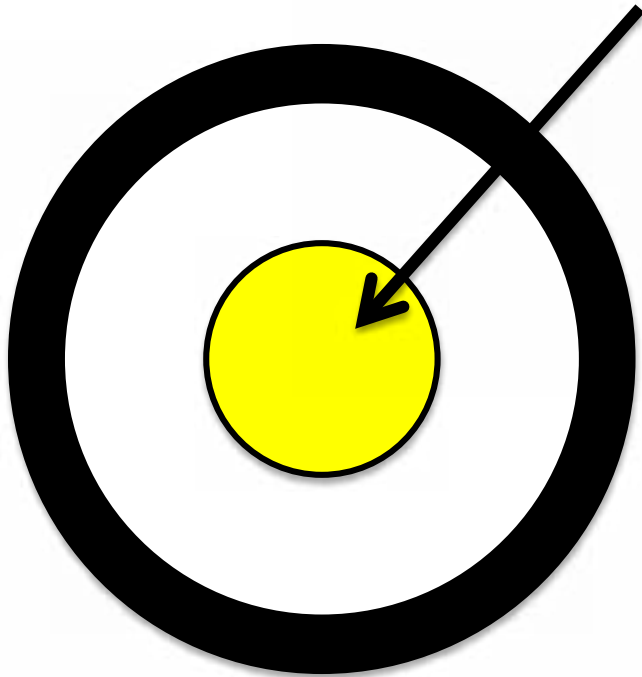
Videos & images: task, questions, gut reaction, what's missing





Opening to 'Braveheart' (1995): "I will tell you of William Wallace. Historians from England will say I am a liar. But history is written by those who have hung heroes." **What do you understand by the sentence?**

What makes a target compelling?



- ⦿ Visualisation & prediction
- ⦿ Expectancy & belief
- ⦿ Curiosity & information gaps
- ⦿ Relevance & benefits

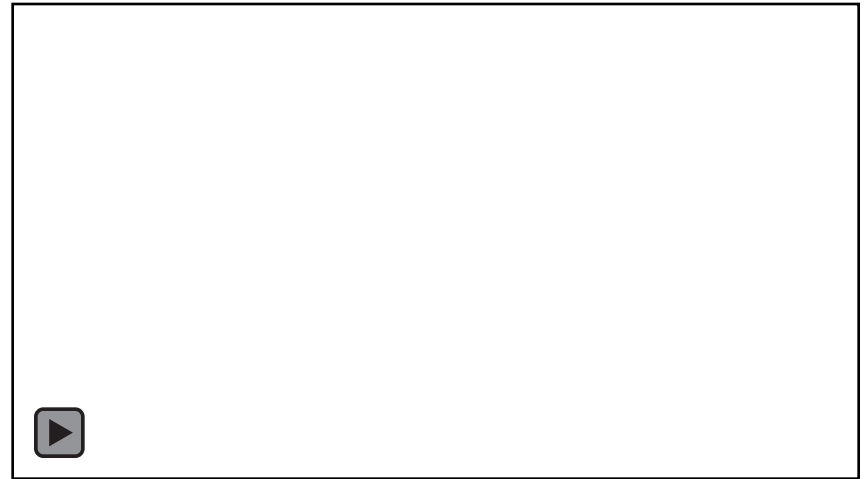
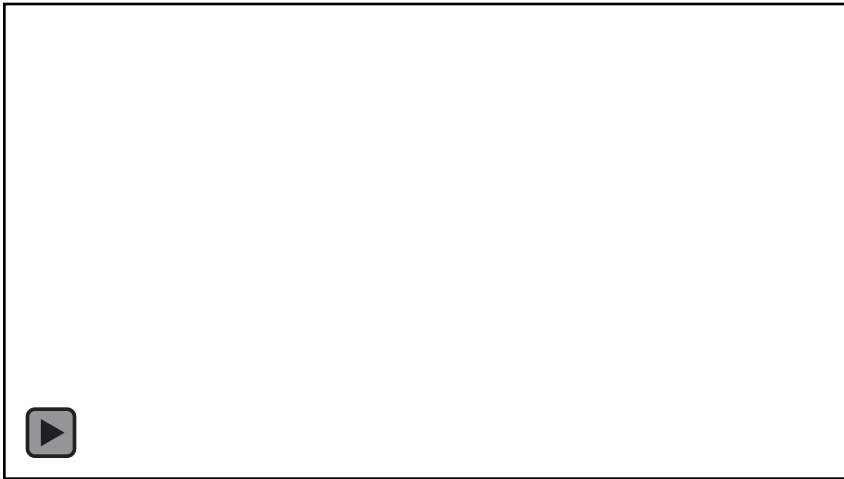
Reflecting on yourself as a reader

- ★ Try to remember something about the journey you have made as a reader, from your first tottering steps, trying to understand and decode print, to the way you are today.
- ★ Can you remember learning to read? If you can, did it come easily to you, or did you struggle? If you struggled, try to remember something about your experience – how did it feel?
- ★ What messages did you receive from your teachers or at home? Were they supportive or unsupportive? How do you think their input affected your growth as a reader?
- ★ Can you remember your two favourite books from childhood?
- ★ What is the difference between things you find easy to read and things you find difficult?

Cut up style of writing

William Burroughs

David Bowie



Analysing and writing in the style of

- ★ Impactful beginnings to films, novels and short stories
- ★ Writing for t'internet: blogging and digital marketing
- ★ Super Caly Go Ballistic, Celtic Are Atrocious: puns and other features of newspaper headlines
- ★ I have a dream: speeches that changed the world (e.g. Churchill, ML King, Malala)
- ★ Box sets: cliff hangers, suspense and impactful endings
- ★ Tremendous scope for improvement: seeing through estate agent jargon

Use of videos to stimulate conversation, thinking and out of class learning







Math Dilemmas

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by Janet Abercrombie

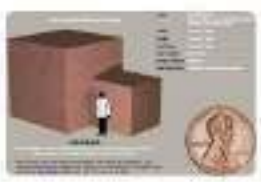
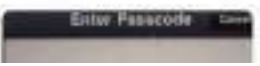
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Math Dilemmas - We've added 100 new pins to our board. Browse through our collection of math dilemmas and find the one that challenges you the most.

- 1. A math problem involving a cube and a sphere.
- 2. A math problem involving a triangle and a circle.
- 3. A math problem involving a rectangle and a square.
- 4. A math problem involving a circle and a line.
- 5. A math problem involving a square and a circle.
- 6. A math problem involving a circle and a square.
- 7. A math problem involving a square and a circle.
- 8. A math problem involving a circle and a square.
- 9. A math problem involving a square and a circle.
- 10. A math problem involving a circle and a square.



Making the grade D to C

*this site explores solutions in 16-19
Programmes for GCSE Maths and
English*



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Making the grade, D to C – solutions in 16-19 study programmes for GCSE maths and English

This project, funded under the Department for Education (DfE) Sharing Innovative Approaches and Overcoming Barriers in Delivering 16-19 Study Programmes is designed to support and enhance their development. A big challenge is how to move significant numbers of learners on full-time vocational Study Programmes from a maths/English GCSE D grade to a C.

This project has uncovered some exciting and innovative approaches to what, for some colleges, is the biggest challenge they face. It has also unearthed some sensational elements such as the scale of the problem; 40% of students leave secondary school without a C grade in either maths or English or both and 90% of them still don't have it by the age of 18yrs. For some colleges that means over 1,000 students having to resit.


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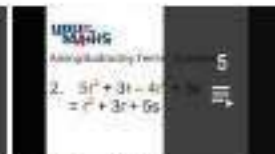
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Differentiation

Exponential Equations

Indices

Number : Operations

Simplifying Algebra



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Math

Early math
 Algebra 1
 Trigonometry
 AP® Calculus AB
 Multivariable calculus

Arithmetic
 Geometry
 Precalculus
 AP® Calculus BC
 Differential equations

Pre-algebra
 Algebra 2
 Statistics & probability
 AP® Statistics
 Linear algebra



Math by grade

Kindergarten
 3rd grade
 6th grade
 Illustrative Mathematics

1st grade
 4th grade
 7th grade
 Eureka Math/EngageNY

2nd grade
 5th grade
 8th grade
 High school



< Math

6th grade

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15,400

Mastery points available in course

Course summary

Ratios, rates, & percentages

Arithmetic operations

Negative numbers

Properties of numbers

Variables & expressions

Equations & inequalities introduction

Geometry

Data and statistics

Course challenge
Test your knowledge of the skills in this course.



Up next for you: Ratios, rates, & percentages

0/2700 Master

Intro to ratios

Equivalent ratios

Visualize ratios

Ratio application

Intro to rates

Intro to percents

Percent, decimal, fraction conversions

Percent problems

Percent word problems

Get started



Arithmetic operations

0/2200 Master

Adding decimals

Subtracting decimals

Adding and subtracting decimals word problems

Multiplying decimals

Dividing whole numbers

Dividing decimals

Dividing fractions by fractions

Exponents

Order of operations



Negative numbers

0/2000 Master

Intro to negative numbers

Negative decimals & fractions on the number line

Comparing negative numbers

Negative symbol as opposite

Knowledge

Attitudes

Skills

Habits



Coaching and skilful questioning

Think

(back and forward)

Focus

(avoid distractions)

**Take
action**

Identify resources

(people, places)

Be motivated

(what's in it for you?)

Contact

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