

Maths

CREATIVITY IS EVERYWHERE



Exploring Creative Skills in Key Stages 3 and 4

Dialogue and Collaboration in Maths...

Dialogue, questioning, communication and collaborating in both verbal and embodied ways.

- Use mathematical vocabulary to pose and respond to questions to find and solve problems or to best represent statistics.
- Communicating ideas and solutions through conventional symbols and mathematical language.
- Work individually, collaboratively and part of a community to communicate through know conventions and rules.
- Negotiate differences and respond appropriately.

For Example:

When describing data sets or evaluating probability.

Cartesian coordinates (x and y), algebraic symbols in formulae and equations.

When sharing and discussing conjecture and proof. Writing mathematical questions and statements.

Correlation vs causation, using different methods to answer the same question.

Honing and Developing an Idea in Maths...

Develop creative ideas, incorporating self-reflection, development of techniques and understanding of the rules and persistence.

- Analyse, evaluate and consider alternatives to develop and improve ideas.
- Understand rules and consequences being persistent and tolerant.
- Reflect on the results from mathematical investigations to develop techniques.

For Example:

When is the mean not the appropriate average? What should be used instead?

Does multiplication always increase the value? What happens when I divide by a half?

Drawing shapes with the same perimeter, are they all the same area? Series and sequences, patterns, modelling situations with algebra 'the general case'.

Empowered Action in Maths...

Foreground pupils' own agency in creative actions, the ability to take risks and question accepted ideas, be immersed and the act on ideas.

- Take ownership and act on their ideas.
- With support take creative risks and make mistakes to develop ideas accepting potential failure.
- Be self-motivated and immersed in an activity.

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Being Imaginative and Playful in Maths...

Use imagination, improvise playfully, and generate and try out possibilities with the ability to go beyond an understanding of 'what is' to consider 'what might be.'

- Use their imagination to go beyond with curiosity.
- Consider possibilities within a context.
- Purposefully play with possibilities and try new things out.

For Example:

Trial and improvement; students are estimating and testing their estimates. When students are analysing and probing a data set to find patterns and inference.

Identifying patterns in numbers; testing sets of numbers with different methods and tools to find which best fits.

Using known proofs and tools to solve novel angle problems in parallel lines. To recognise what tool needs to be used in a problem, develop expertise to select the most effective tool.



Generating Ideas that Matter in Maths...

Combine innovation with critical attention to the consequences of ideas, the ethical impact of actions and understanding diverse values.

- Explore, generate and combine ideas that are new to them.
- Consider ethical consequences.
- Understand diverse values and how they matter differently.

For Example:

Rules of operations. Multiplying by numbers between 0 and 1.

Understanding rules and conventions within Maths, understanding the ancestry of numbers and what that means about how numbers behave.

Implications of using different mathematical tools.

