Choose puzzles and games as if the 8 year old genius Gauss is in the front row and the 8 year old delinquent Churchill is in the back row.

**Don’t Interrupt!**

Matt class is ending in 5 minutes. 85% of students are engaged. Is it time for reflection? Probably not.

**Children at play are not learning about; their games should be seen as their most serious-minded activity.**

Michel de Montaigne 1533 - 1592

**Why Teach Mathematics?**

The mind which has acquired the habit of thinking and reasoning, can easily apply the same powers to other branches of knowledge. Whatever study the pupil may now undertake, is entered upon more systematically. He is now accustomed to investigate for himself. He has not the same dependence on authority; nor does he lay so much stress on the conceptions of others, until they are made his own by a fair appeal to his understanding.

F. J. Grund (Boston, 1830)

**Give the gift of failure.**

It is in the repeated daily exposure to failure that students lose the stigma of failure and are able to fully engage.

**Mini Mathematical Universes**

The scientific method should first be taught in the controlled environment of the mathematics classroom.

**Birds should not teach bats how to fly.**

Teachers who know the answers already should not enter the classroom.

**Teach blind!** It's more exciting for everyone. The only thing it requires is for teachers to have the humility to fail, get up, dust themselves off and try again. This is being a great role model.

**Rules are boring.**

Do not start an elementary school puzzle by explaining the rules. That will bore 20% of the students.

- Instead - start with an emotional experience... Get the class to try to solve the puzzle without knowing the rules. Of course they fail. Laugh together! How tongue-in-cheek “nasty” does it make them feel? After they fail - tell them one rule - or let them guess at the rule that made them fail.

**Abolish Mathematics!**

Having an elementary subject called “mathematics” is like having a subject called “vocabulary.” That’s a bit off. Mathematics is a tool for solving problems just as vocabulary is a tool for communicating. Replace “mathematics” with “problem solving.”

**End with a question!**

“I wonder if we can make a Venn diagram with four circles!”

**Clobber the curriculum with a sledge hammer!**

“Did you make any interesting mistakes?”

Jo Boaler

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**Know your students.**

Experiment what makes them tick:

- Beauty
- Humor
- Tongue-in-cheek nasty
- Words of gentle encouragement
- A hint of implied violence in a puzzle

**Beauty over Truth.**

Poetry is a form of mathematics, a highly rigorous relationship with words.

Tahar Ben Jelloun

**We are handicapping our top students by depriving them of the gift of failure.**

If your students can’t hammer!

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