



Mistakes and challenge are the best times for your brain!

Many students fear mistakes and when they struggle with work they develop damaging beliefs, that they are not a "maths person". Yet brain science tells us that the times when people are struggling are the best times for brain growth. The Jason Moser study referenced in norm two (believe in yourself!) showed that brains are more active when people make mistakes than when they get work correct.

In our teaching of middle school students we found that our message to them – that we love mistakes and they help your brain to grow – was transformative for them. This can be seen in this short video: <https://www.youcubed.org/resources/solving-math-problem/>

Here are some suggestions for encouraging positive thinking about mistakes:

1. Ask students with mistakes to present mistakes (especially deep, conceptual ones) on the board so that everyone can learn from them. If one student makes a conceptual mistake, there are probably many others making the same one.
2. When students get something wrong – instead of being discouraging or sympathetic, say "That is really good for your brain! Synapses are firing."
3. Ask students to read positive brain/mistake messages and choose their favorites that they will take on for the year. E.g. "easy is a waste of time" "working hard grows your brain" "it is really important to make mistakes". Ask them to draw brains with the messages on them that you can display on your walls, as Kim Hollowell did – use this link to get the brain template <https://www.youcubed.org/resource/posters/>.
4. Crumpled Paper: Ask students to crumple a piece of paper and throw it at the board with the feeling they have when making a mistake. Then get them to retrieve the paper and color in all the lines, these represent synapses firing and brain growth from making a mistake. Ask them to keep the piece of paper in their math folders/ notebooks to remind them of this.

