

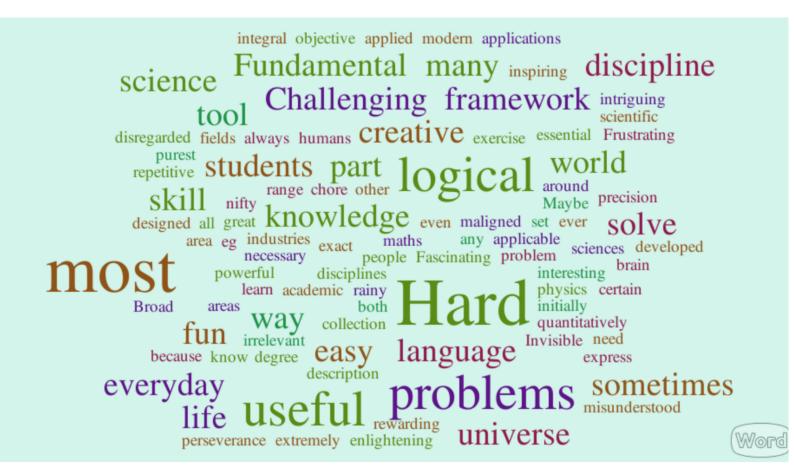
Focus of Communication:

- * Speaker
- * Content
- * Audience/listener

Focus of Communication:

- * Speaker
- * Content
- * Student

Mathematics is:



Students learn mathematics by:



First year mathematics tutorials are:

```
mathematics further historical Hopefully
student experience years challenging

first learning independent appreciated
just generation explaining fits back more
Incredibly efforts enjoy fundamental favourite different subject areas everyone degree even
subject areas everyone degree even
each tutorials many after improve few excellent happen everyday development
thing exact allowing great ago new found important find early Full engagement
hard amount good foundations.of enough helping ideas/viewpoint way life appreciating end because challenge
something sometimes Fun about approaches employment harder Engaging Enjoyable teaching flexibility exercise frustrating Enjoyable teaching flexibility inderstanding knowledge opportunity
```

Tutorials are not just about content but also attitudes

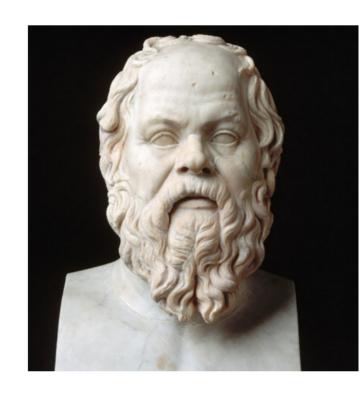
- * confidence
- * mathematics as a collaborative, communal activity
- * getting it wrong to learn to get it right
- * grasping where and how maths is useful

Board tutorials: the basics

- Students in groups of 2 to 4
- Each group collaboratively works on whiteboard
- Tutor circulates systematically, asking questions, giving feedback, nudging students where needed
- Tutor addresses whole class if and only if there is a major problem.

Socratic method

Ask questions, rather than instruct.



Practical considerations:

- Keep circulating
- BYO whiteboard markers (and collect them at the end)
- Ask students to write their names on the board
- Move the furniture away from the boards
- Students can record their work by taking a photo
- Make sure students rub off their board before they leave

"Social" problems:

- Cultural shift required of students
- Students don't want to work on the board
- Students don't want to work in groups
- A group is dysfunctional
- Some groups monopolise tutor attention

EQUITY:



Our students are diverse: Make sure everyone gets a fair go

- Who do you give attention to?
- How do you talk to people?
- How do you listen to people?
- What assumptions do you make about people?

Support for new board tutors:

Mentoring

Experienced tutors and lecturers

Peers

Director of Summer School and Chair of APC

Don't stew over it: ASK!