Collaborative working to instil passion in maths and science

AUSTRALIAN SCIENCE & MATHEMATICS SCHOOL

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www.asms.sa.edu.au
ASMS CHARTER to transform science and mathematics education
This afternoon’s session...

- Inspiring teachers to develop the skills needed to engage the students
- Developing an undergraduate mentoring program
A collaborative approach that develops student resilience...

Platforms of Innovation at the ASMS

Key elements

- Learning Environment
- Innovation of Teaching and Learning
- Teachers Learning
- Student Learning
- Learning Programs
Vertically grouped classes
Team teaching & planning
Virtual classrooms
On-line feedback assessment & reporting
Interdisciplinary Inquiry based Fertile Questions Student Inquiry Project Student Choice and Student Voice
Self-directed Metacognitive Capabilities Collaborative Reflective journals in maths Problem Based Learning
Practitioner Inquiry
Learning Design focus
Pedagogical Content Knowledge
Inquiry Pedagogies
Coaching & Mentoring
Platforms of Innovation at the ASMS

Key elements

LEARNING ENVIRONMENT

INNOVATION OF TEACHING AND LEARNING

TEACHERS LEARNING

LEARNING PROGRAMS

STUDENT LEARNING
ASMS Organic Structure, collegiality, learning, innovation, contributive leadership

Australian Science and Mathematics School
transforming science and mathematics education

Contributive Leadership

Distributive Leadership
- TLT Teaching and Learning Teams
- ARG Action Research Groups
- WG Working Groups
- LC Learning Cultures
- LF Learning Futures
- LSH Leadership Steering House
Contributive Leadership in Action

ASMS Solutions Oriented System
- Collegiality
- Leadership Capacity Development
- Consultation
- Decision Making Forming Taking
- Innovation

LEARNING &
Teachers
Students
School
Partners

Co-Design Curriculum

Personalise Learning

Knowledge
creation

Improve
Change
Think
Devslop

Interest:
Action Research
Groups

Look back

Look around

Look forward

Pedagogical Curriculum
Design

Teaching and Learning
Teams

Develop, Monitor quality
assurance

INNOVATION
SPACE

Leadership Steering
House
Coordinating
Interdependencies

Impact & Influence

Partnerships

Enable web of
relationships

Engage Community
Extend Impact

Do things

Working Groups

Solve

Communication systems

Solution, Models

Engage Community
Extend Impact

Professional Services
Partnerships
Build leadership capacity
Features of an organisation that support innovation

• Staff from a variety of disciplines working together
• Mechanisms for introducing new ideas
• Involving staff in programs from other agencies
• Internal mechanisms to distribute ideas and proposals (formal and informal)
• “shedding of responsibility” ie they are everyone's responsibility
• Most communication about ideas is advice and information *not* instructions & decisions

Aitken and Hage (1969)
Serious play

The ASMS innovation space.
Give the technology to the students and stand back. Let them play, experiment, fail and try again.
Support students who come up with ideas.
Suspend teaching as telling, ask questions instead.

www.inovspace.org
Using tools that promote collaboration between students and teachers

• www.phonelabs.net/a
Developing an undergraduate mentoring program

• Teach SA
  – Select schools for placements
  – Work in collaboration with universities
  – Provide explicit training for mentor teachers

• ASMS
  – Deliver pre-service curriculum courses
  – Ongoing support through professional learning communities
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