How to training for solving problems in education by using of SureMath and ASIT

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Advent of e-learning

- High speed internet
- Ubiquitous society
- MIT open sources
  - Partly registration fee needed.
  - Carnegie Foundation
- Korea 17 cyber Universities (KERIS)
- NIME
  - Softbank cyber school
- Australia ICT
  - IEEE Learning Technology Standards Committee (LTSC)
    http://www.linezine.com/2.1/features/wheyewtkls.htm

Comparison of cyber universities between Korea and Japan

No.	Korea (KERIS)		Japan (NIME)		Remarks
1	Kyunghee cyber Univ.	2400	Waseda e-school, Human science	53	Undergraduate vs. graduate
2	Sejong cyber Univ.	1300	Cyber Univ.	1200	IT, World Heritage
3	Hanyang cyber Univ.	1800	ISTU, internet school of Tohoku Univ.	10 (15)	Education engineering vs. medical school
4	Seoul cyber Univ.	1800	Sushi graduate school, Science and technology	261	
5	Seoul digital Univ.	3000	CCC-Ties consortium	14350	Copyright
6	Open cyber Uinv.	1000	Kumamoto Univ.		Professor system lecture
7	Korea digital Univ.	2500			
8	Cyber foreign language Univ.	1350			
	Total 17	23550			

Encouraging projects for Science & Engineering

- Korea's projects
  - ABEEK (Accreditation Board for Engineering Education of Korea)
  - BK21 (Brain Korea 21)
  - Nuri
  - WIE (Woman Into Engineering)
  - Selection & concentration, competition, Law school
  - SCI
  - Estimation for learning activities
  - Support for creative e-learning

Why SureMath?

Contents

Algebra (Return to Contents)

The problems are partially organized into problem *types*. This is for convenience only. the *type* of problem.

Introductory problems and ideas.

Mary's Apples. The solution to all problems . 1/9/96
Use Mary's Apples to find out about Harold's money .1/27/96
Use Mary's Apples to find Ronald's and Dolores's ages . 1/28/96
Use Mary's Apples to go on a picnic with the Andersons . 1/28/96
The photographer and the council . Contributed by Rana Taji 9/15/96
Bill, Will and Jill weigh in . 6/24/96
The fireman works the ladder . 6/24/96
The great gold robbery . 6/24/96
The great train robbery . 6/24/96

If you are here to learn/teach problem solving see the following 5 problems .
Mary's Apples from grade school through grad school.
A must for 5th grade (and earlier) through grad school .

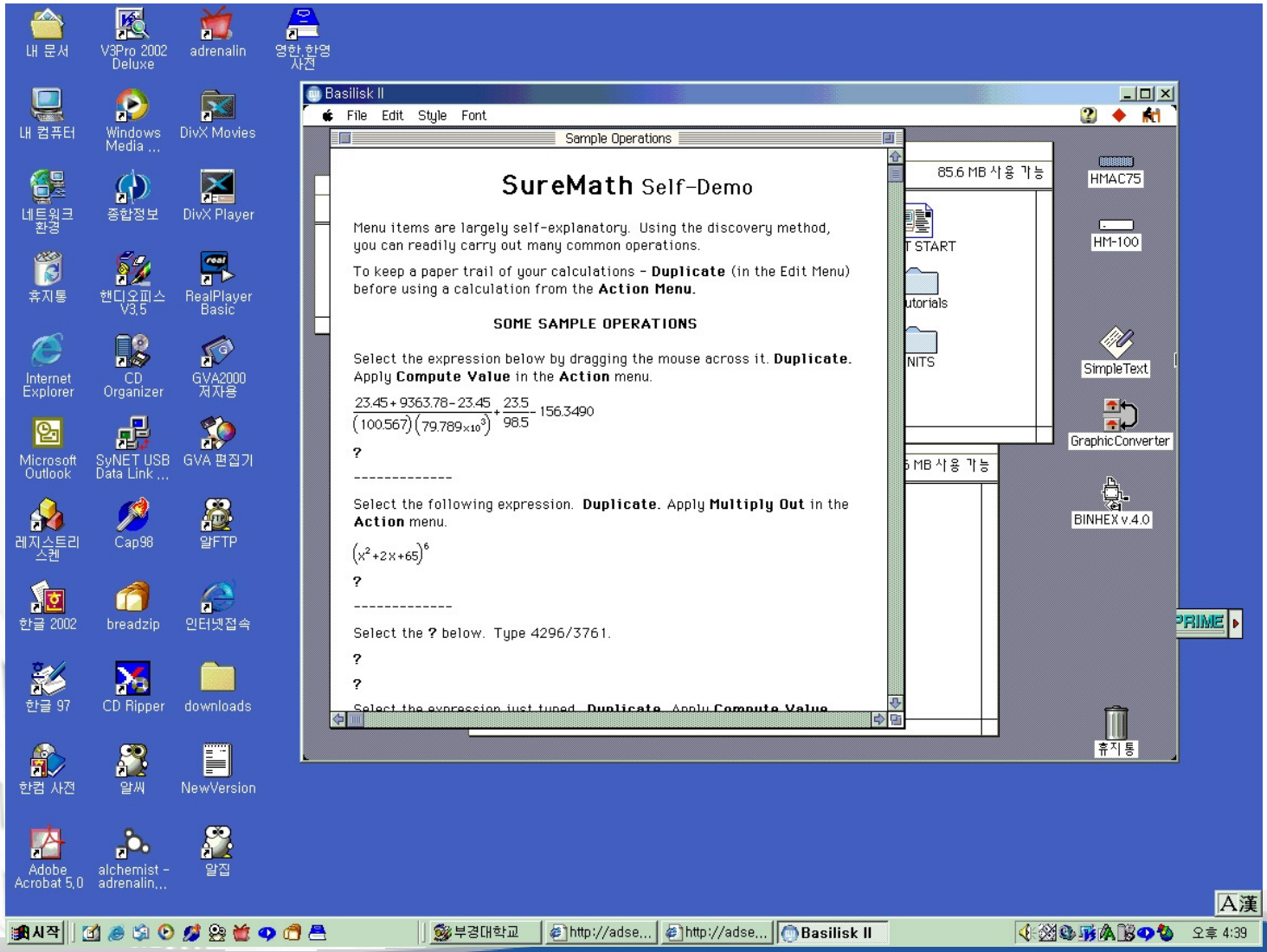
Characteristics

- Provides a structure to keep thinking organized (思考構造)
- Easy for Mathematics Formulation 數式展開
- Word processor for English/Korean/Japanese (韓英日 表記可能)
- Electronic note book 電子노트
- Easy to use (within 30 min.) 使用 容易
- Easy for finding errors 誤謬 確因 容易
- Easy for correction 修正 容易

Procedure for SureMath in P.C.

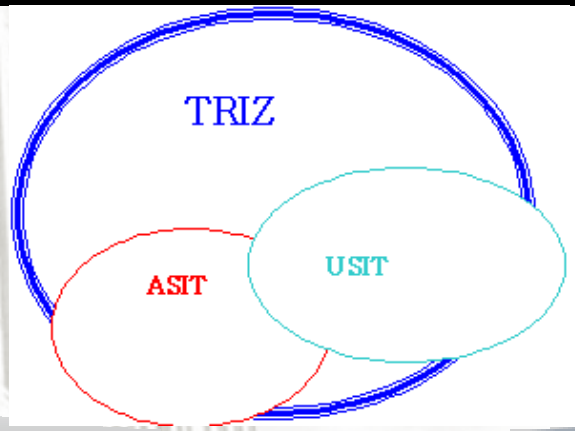
- Run IBM P.C.
- Temp → Basillisk → Mac
- Run SureMath
- Solving problem
- Flash it (free body & equations)
- Conversion → jpg file → diskette
- IBM P.C. or Mac

SureMath in P.C.



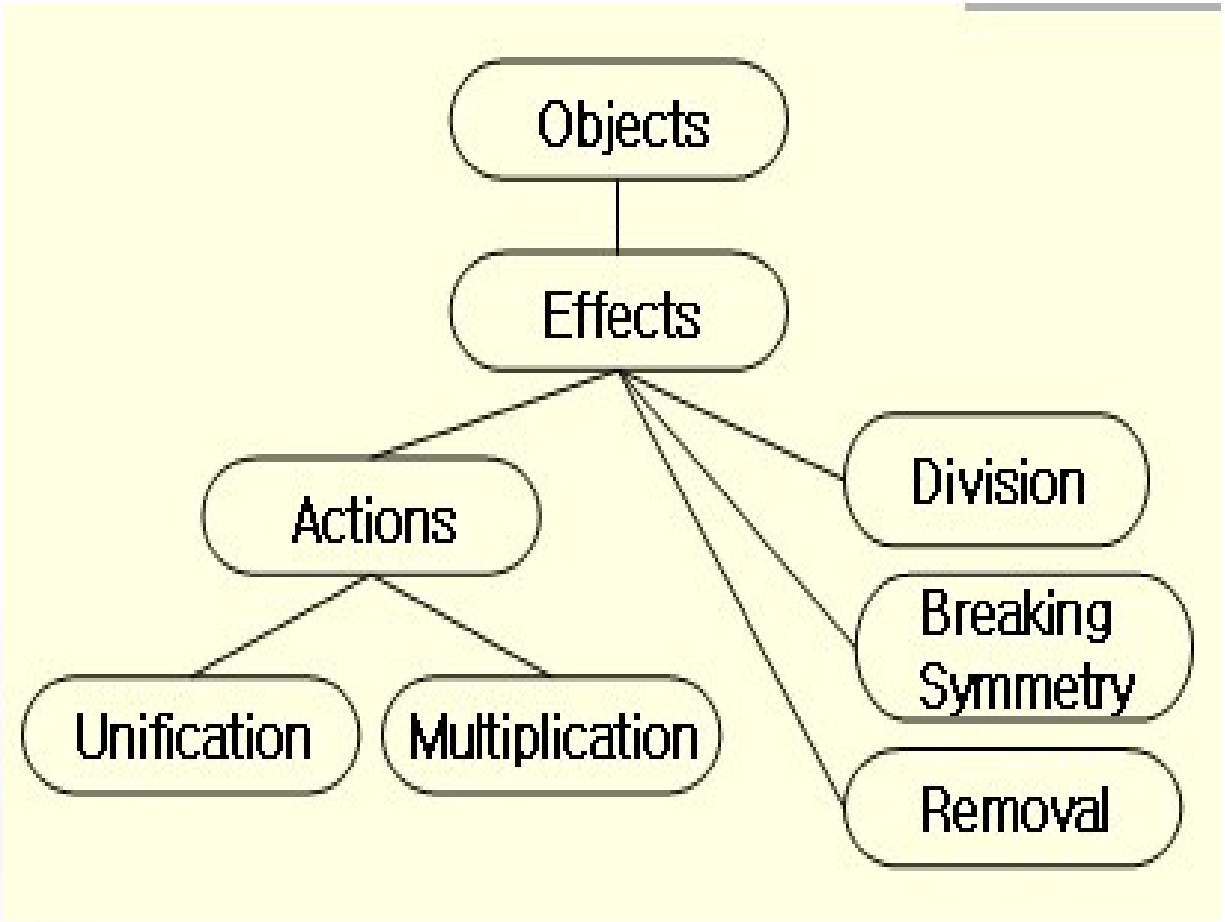
TRIZ-ASIT-USIT relation

	TRIZ	ASIT	USIT
method	Conflict matrix, Su-Field, 76 standard solution, ARIZ	Closed problem, 5 tech. template	Closed problem, 5 tech. IFR
experience	Seminar	Patent 2	Journal



TRIZ: http://www.ideationtriz.com/history.asp
ASIT: http://www.start2innovate.com/index.html
USIT: http://www.osaka- gu.ac.jp/php/nakagawa/TRIZ/eTRIZ/eIntroduction980517.html#Introduction%20to%20TRIZ,%20Nakagawa%2098.5.17

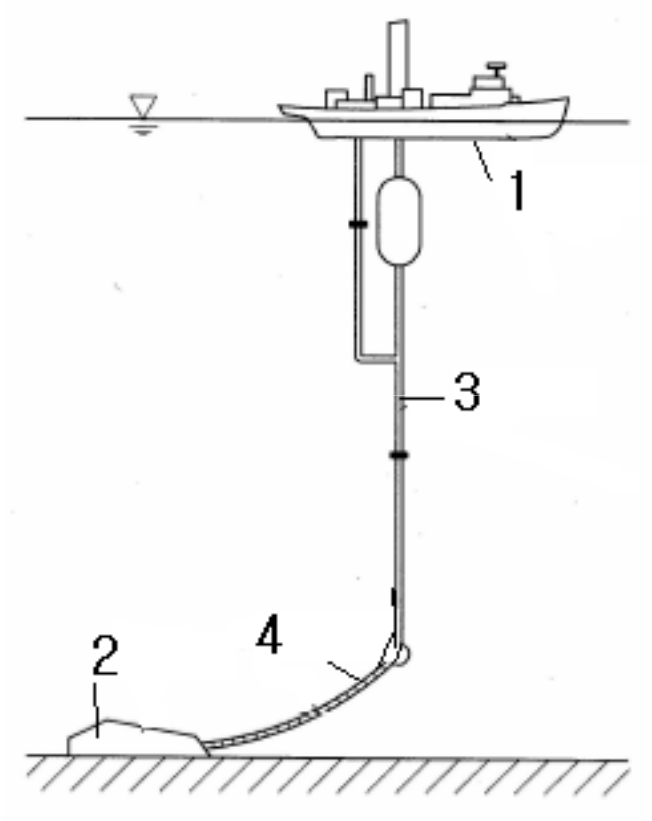
ASIT solution 3 steps



Templates for 5 techniques

No.	technique	Template
1	Unification	The object < > will be the agent of the action < >.
2	Multiplication	New object of the same type as < > will be the agent of the action < >.
3	Division	The object < > will be divided its part and will be reorganized in space and time.
4	Breaking symmetry	At different locations in < > there will be a different value of the property < >.
5	Removal	The object < > will be removed from the problem world.

Mining system



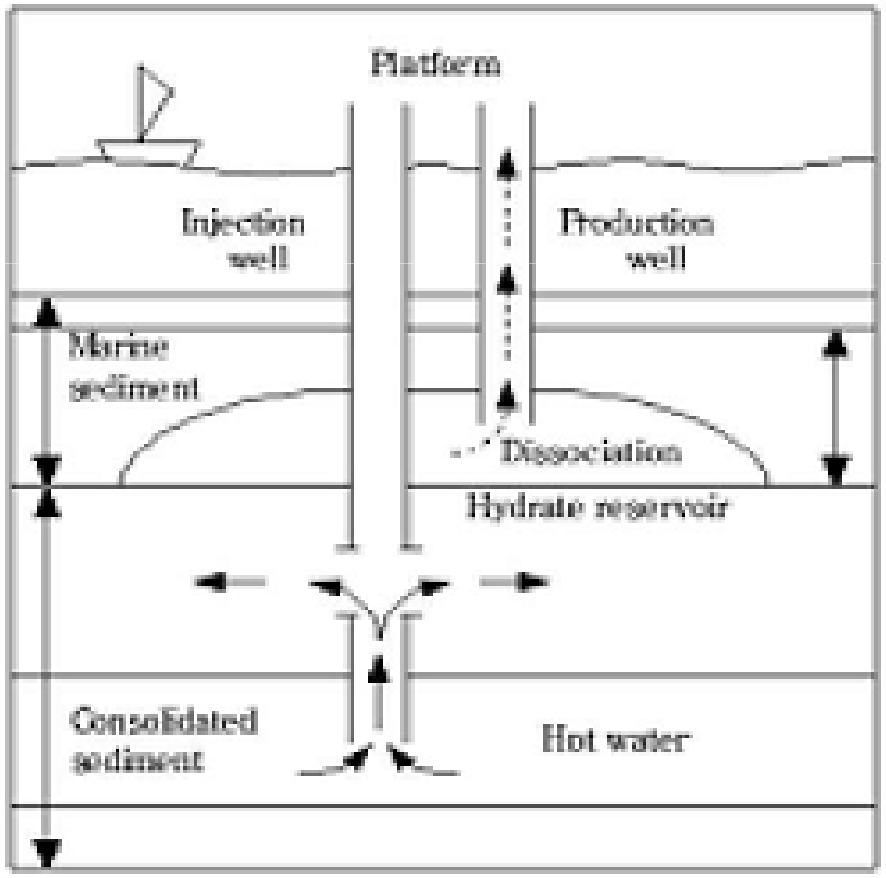
- Manganese nodule mining is hot issue in ocean engineering field but conventional mining ship connects manganese nodule collector by way of lifting pipe of 5000 m
- 1 is mining ship on the sea
- 2 is collector on sea floor.
- Those are connected with lifting pipe(3) and flexible pipe(4).

- This mining system is difficult for the motion analysis and prediction.
- The change of lifting pipe takes at least half month.

ASIT adaptation for methane hydrate

- 1st stage
  - Problem objects
    - mining ship, collector, lifting pipe, and gas
  - Environmental objects
    - waves, depth, global warming
- 2nd stage
  - statement of the undesired effects as global warming
    form methane hydrate.
- 3rd stage
  - Removal technique template
  - The object <lifting pipe> will be removed from the problem world.

State of art for production of methane hydrate



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Thank you very much !
Welcome to any kind of questions

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