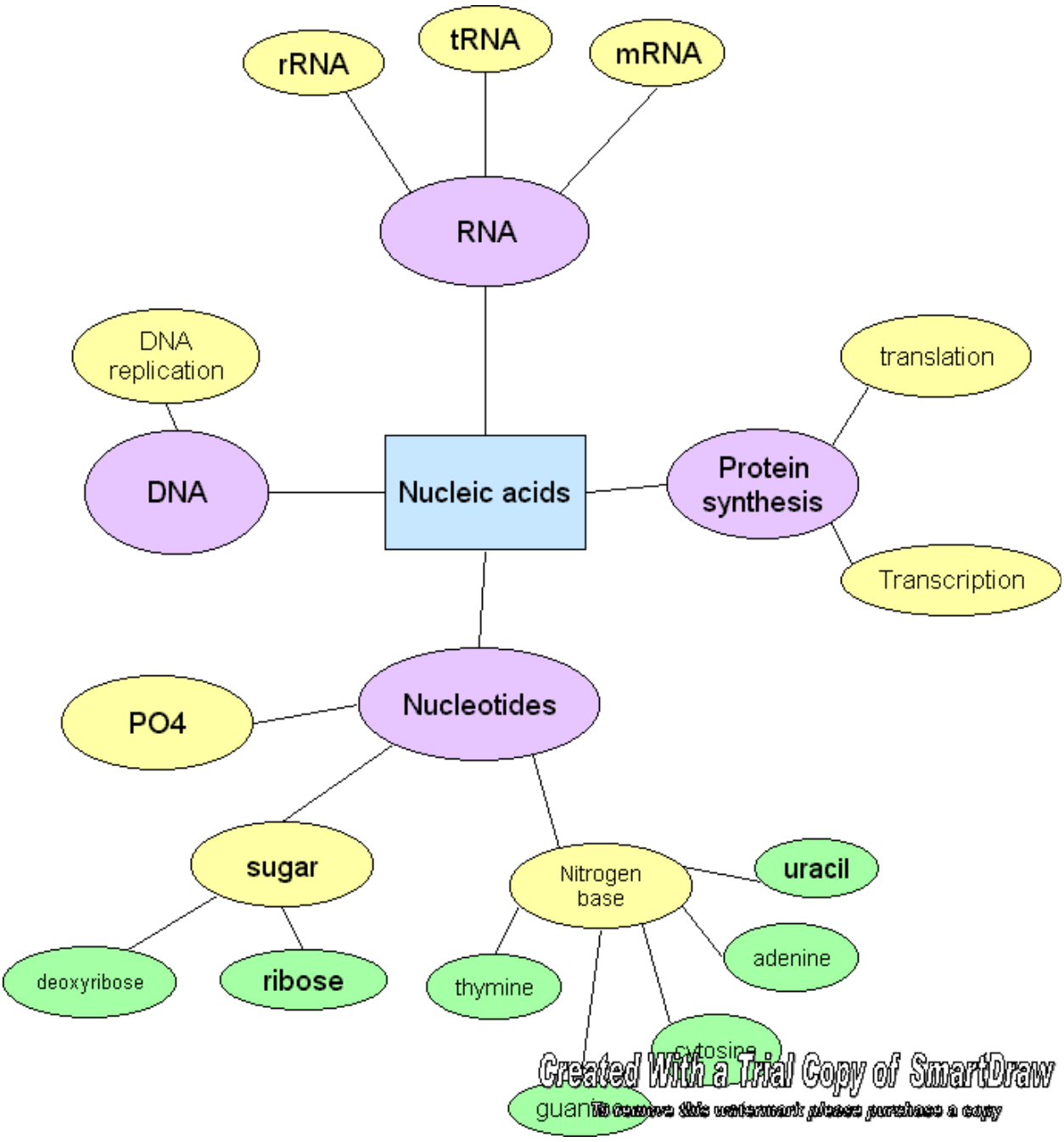
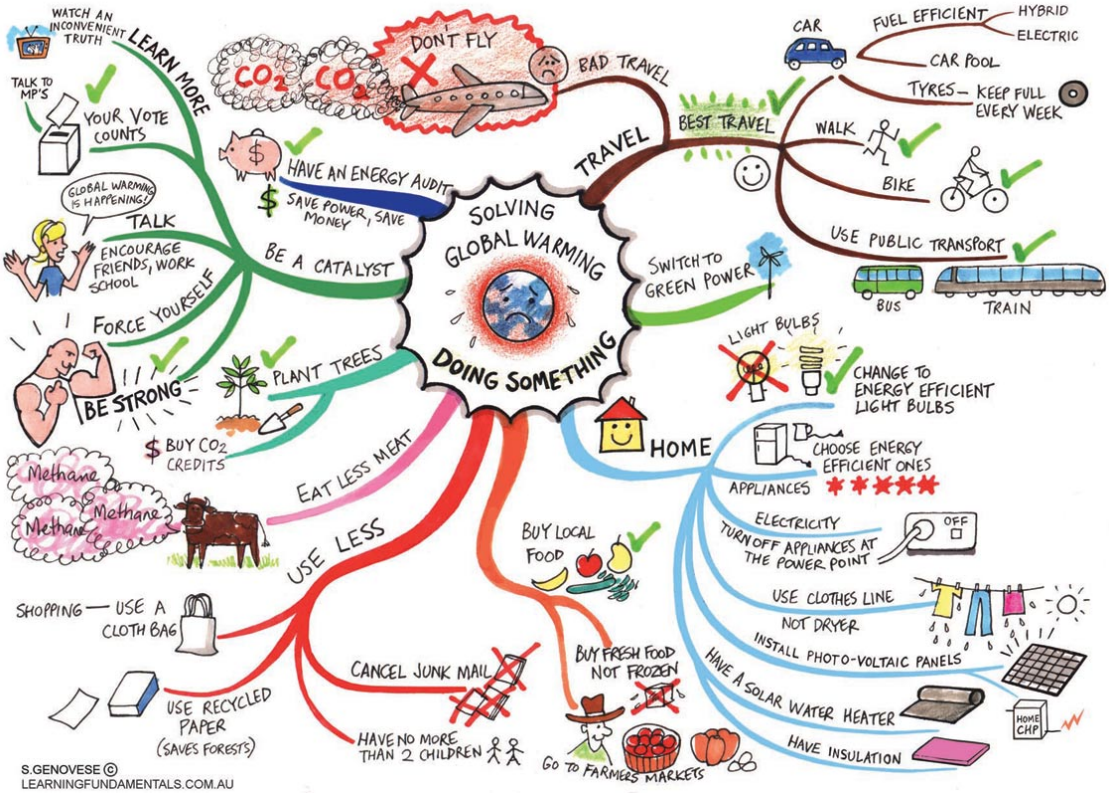
ORGANIZING MAIN IDEAS THROUGH MIND MAPPING

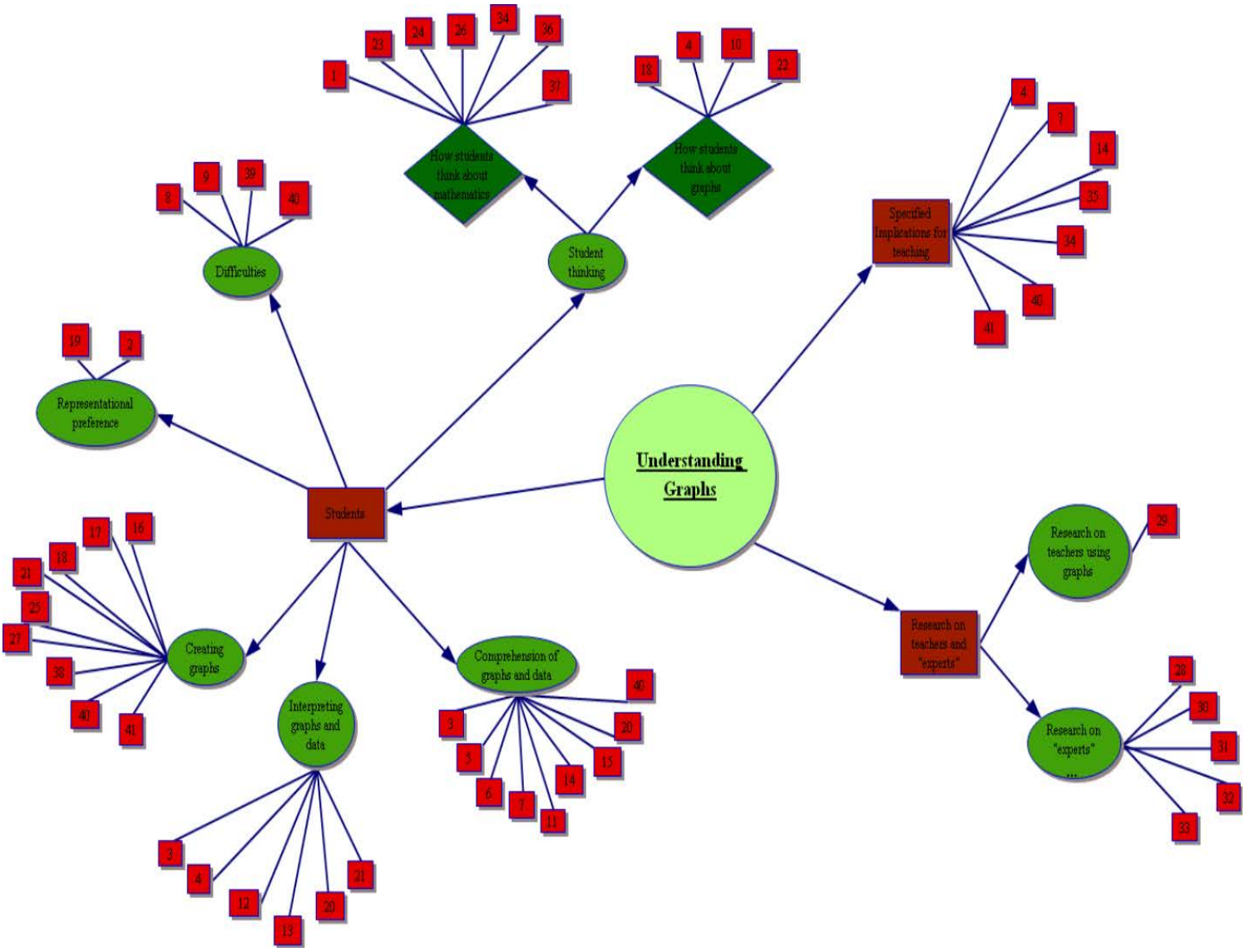


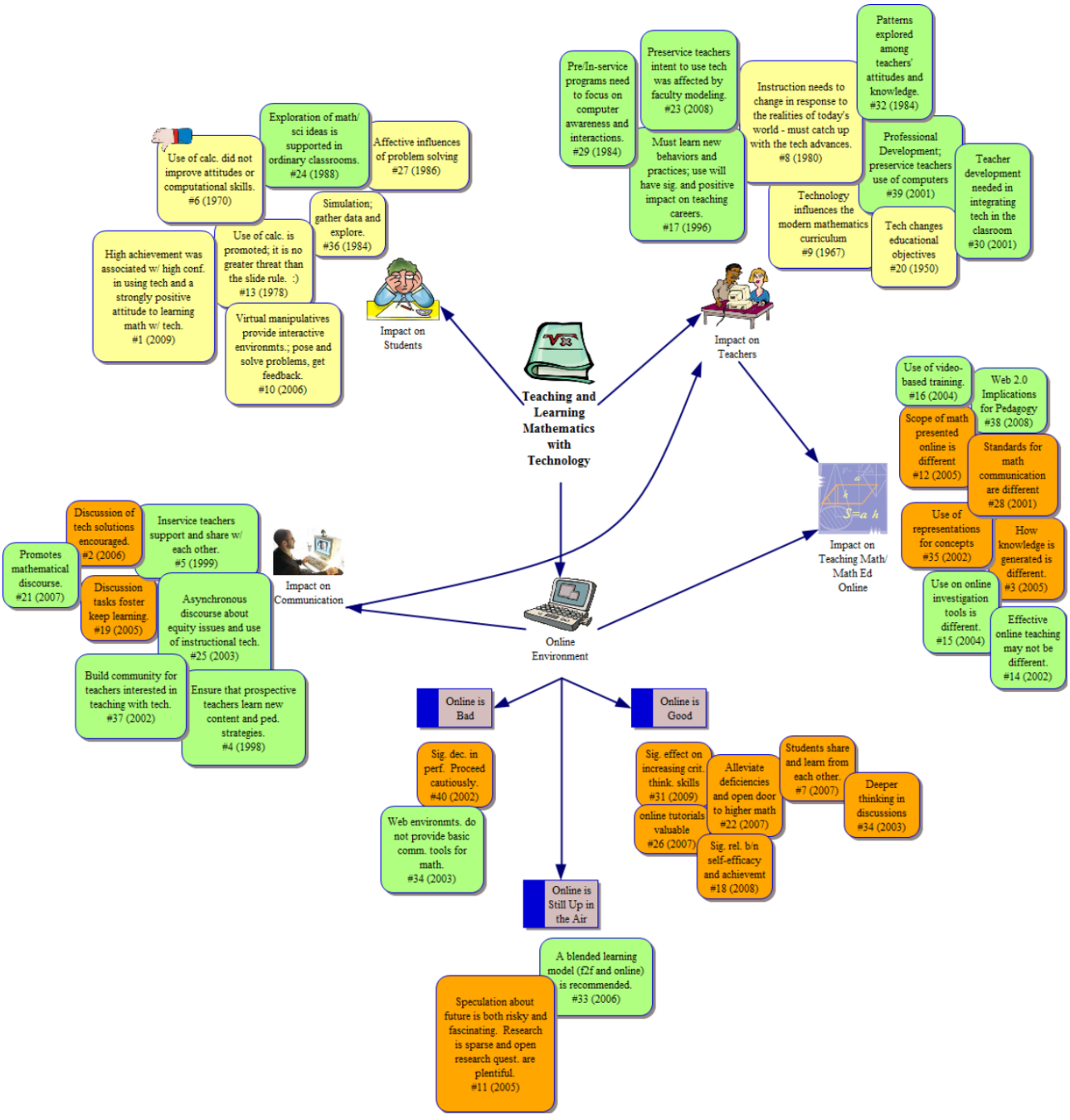
Cognitive Domain
Knowledge
Recall
Data
Information
Facts
Concepts
Comprehension
Understand Meaning
Explain
Own Words
Compare
Application
Use Knowledge
Apply
New Situations
Solve
Problems
Analysis
Analyze
Question
Compare
Break
Into Parts
Synthesis
Own Structure
New Meaning
New Pattern
Combine Elements
Evaluation
Best
Choose
Principles
Defend
Value
Judge



Link demonstrating How to Mind Map:

https://www.youtube.com/watch?feature=player_embedded&v=mRFn1U3jvCw


Understanding Graphs
Students
Representational preference
19
2
Difficulties
8
9
39
40
Student thinking
How students think about mathematics
1
23
24
26
34
36
37
How students think about graphs
18
4
10
22
Specified implications for teaching
4
7
14
35
34
40
41
Research on teachers and "experts"
Research on teachers using graphs
29
Research on "experts" ...
28
30
31
32
33
Creating graphs
17
16
18
21
25
27
38
40
41
Interpreting graphs and data
3
4
12
13
20
21
Comprehension of graphs and data
40
3
20
5
15
6
14
7
11


Teaching and Learning Mathematics with Technology
Impact on Students
Use of calc. did not improve attitudes or computational skills. #6 (1970)
Exploration of math/ sci ideas is supported in ordinary classrooms. #24 (1988)
Affective influences of problem solving #27 (1986)
Simulation; gather data and explore. #36 (1984)
Use of calc. is promoted; it is no greater threat than the slide rule. :) #13 (1978)
High achievement was associated w/ high conf. in using tech and a strongly positive attitude to learning math w/ tech. #1 (2009)
Virtual manipulatives provide interactive environmts.; pose and solve problems, get feedback. #10 (2006)
Impact on Teachers
Pre/In-service programs need to focus on computer awareness and interactions. #29 (1984)
Preservice teachers intent to use tech was affected by faculty modeling. #23 (2008)
Must learn new behaviors and practices; use will have sig. and positive impact on teaching careers. #17 (1996)
Instruction needs to change in response to the realities of today's world - must catch up with the tech advances. #8 (1980)
Patterns explored among teachers' attitudes and knowledge. #32 (1984)
Professional Development; preservice teachers use of computers #39 (2001)
Teacher development needed in integrating tech in the clasroom #30 (2001)
Technology influences the modern mathematics curriculum #9 (1967)
Tech changes educational objectives #20 (1950)
Impact on Teaching Math/ Math Ed Online
Use of video-based training. #16 (2004)
Web 2.0 Implications for Pedagogy #38 (2008)
Scope of math presented online is different #12 (2005)
Standards for math communication are different #28 (2001)
Use of representations for concepts #35 (2002)
How knowledge is generated is different. #3 (2005)
Use on online investigation tools is different. #15 (2004)
Effective online teaching may not be different. #14 (2002)
Impact on Communication
Discussion of tech solutions encouraged. #2 (2006)
Inservice teachers support and share w/ each other. #5 (1999)
Promotes mathematical discourse. #21 (2007)
Discussion tasks foster keep learning. #19 (2005)
Asynchronous discourse about equity issues and use of instructional tech. #25 (2003)
Build community for teachers interested in teaching with tech. #37 (2002)
Ensure that prospective teachers learn new content and ped. strategies. #4 (1998)
Online Environment
Online is Bad
Sig. dec. in perf. Proceed cautiously. #40 (2002)
Web environmts. do not provide basic comm. tools for math. #34 (2003)
Online is Good
Sig. effect on increasing crit. think. skills #31 (2009)
Alleviate deficiencies and open door to higher math #22 (2007)
Students share and learn from each other. #7 (2007)
Deeper thinking in discussions #34 (2003)
online tutorials valuable #26 (2007)
Sig. rel. b/n self-efficacy and achievemt #18 (2008)
Online is Still Up in the Air
A blended learning model (f2f and online) is recommended. #33 (2006)
Speculation about future is both risky and fascinating. Research is sparse and open research quest. are plentiful. #11 (2005)