



with Paul Herbert

# Injecting Thinking into Classroom Practice

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Australian Geography Teachers' Association



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Scotch College, Adelaide, South Australia

[agta2011@scotch.sa.edu.au](mailto:agta2011@scotch.sa.edu.au)

# Geography Going National



### RAS Alert

(Reticular Activating System)

**Focus Group/s:**

e.g. Year 9 Geography, Year 3 Environmental Studies

**Focus Topic/s:**

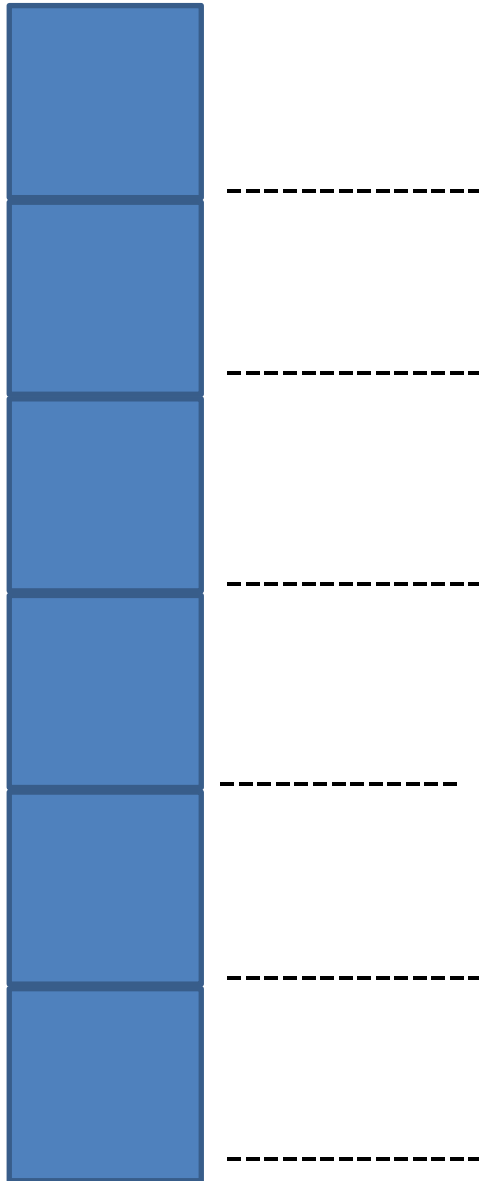
- Developmental Geography
- Countries of the World



Think. think. think.

# Language of Thinking

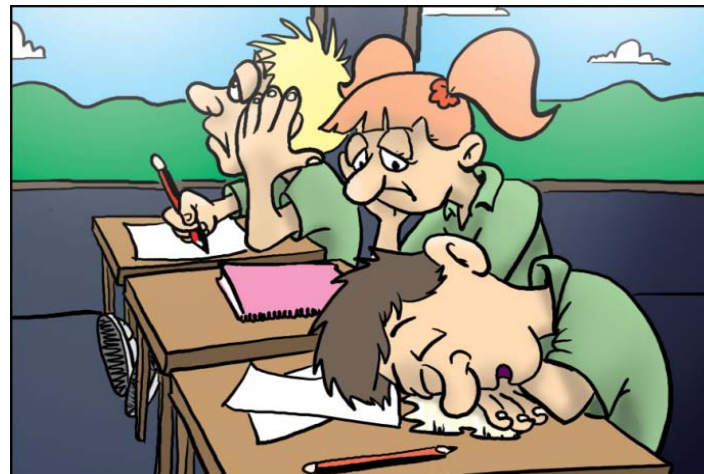
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Using the Think Pair Share strategy rank the following questions on the barometer in order of least (bottom) to most **CHALLENGING**.



Think. think. think.



Investigate the reasons why volcanos are found in particular areas.

Explain the importance of lava's viscosity in relation to the "explosiveness" of an eruption.

Plot (on a map of the world) the location of the planets main areas of volcanic activity.

Develop an argument to persuade people that volcano's are an essential requirement for sustaining life on earth.

List the three (3) major eruption types.

Determine which type of eruption, or region of volcanic activity, is best suited to tourist activity.

# Bloom's Framework

Taking the mystery out of thinking



By illustrating to students, how they are to ACT.

*Injecting thinking into classroom practice.*

# Bloom's Framework



Acting like an internet database to recall facts, information and data.

LIST

DEFINE  
LABEL  
MATCH  
QUOTE  
RECALL

# Bloom's Framework



Acting like an expert, showing understanding of words, concepts, cause and effect and 'reasons for'!

**EXPLAIN**

**CLASSIFY**  
**INTERPET**  
**OUTLINE**  
**COMPREHEND**

# Bloom's Framework



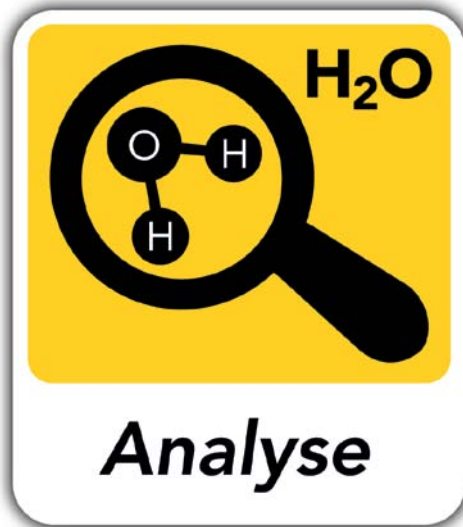
Acting to apply new skills, rules and concepts to related and new situations.

PLOT

CALCULATE  
COMPILE  
DEMONSTRATE  
SOLVE  
PRACTICE

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# Bloom's Framework



Acting like a magnifying glass to closely examine and identify the component parts of an issue, situation or object.

**INVESTIGATE**

**DEBATE  
DISCUSS  
IDENTIFY**

# Bloom's Framework



Acting like the scales of justice to weigh up the evidence to make and justify a decision.  
**DETERMINE / DECIDE**

**ARGUE ( for or against),  
CONCLUDE  
JUDGE  
JUSTIFY  
CRITIQUE**

# Bloom's Framework

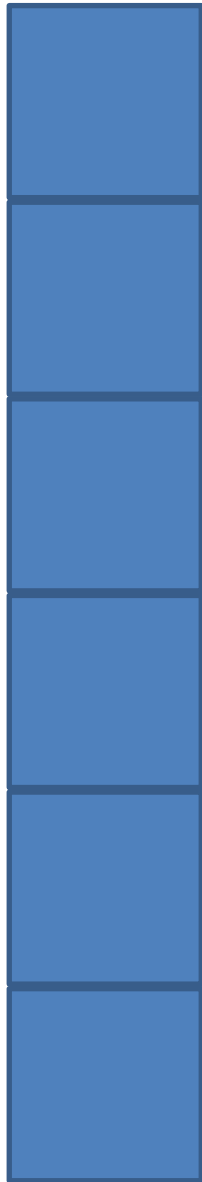


Acting like an inventor, experiencing 'light bulb' moments to generate new products, ideas or ways of doing things.

DEVELOP

CREATE  
INVENT  
MODIFY  
IMPROVE  
PROPOSE

# Level of Challenge



Develop an argument to persuade people that volcano's are an essential requirement for sustaining life on earth. **DESIGN**

Determine which type of eruption, or region of volcanic activity, is best suited to tourist activity. **EVALUATE**

Investigate the reasons why volcanos are found in particular areas. **ANALYSIS**

Plot (on a map of the world) the location of the planets main areas of volcanic activity. **APPLY**

Explain the importance of lava's viscosity in relation to the "explosiveness " of an eruption. **UNDERSTAND**

List the three (3) major eruption types. **REMEMBER**

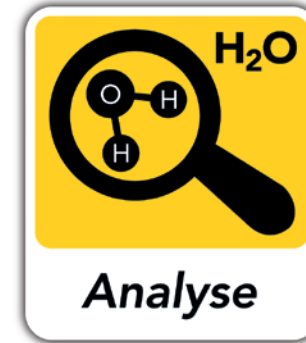
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# Inject Thinking

## Bloom's Taxonomy

### Foundation Thinking

Teacher ownership



## Bloom's Taxonomy

### Higher Order Thinking

Student ownership

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# Injecting thinking into Classroom Practice

Students need:

- a common understanding of the different categories of thinking.
- to know what they are expected to 'act like'.

This will establish explicit teaching and focused outcomes.

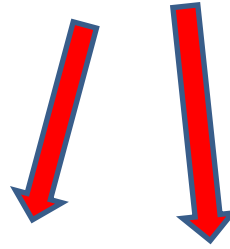
1. The Blooms level dictates the **WHY** students are doing the activity.

THE WHY



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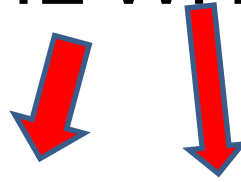
# THE WHAT



THE  
WHY

The **WHAT** students will be doing is illustrated by the descriptive Verb used and the sentence asked.

# THE WHAT



# THE HOW



# THE WHY

The **HOW** is explained by the use of an appropriate cognitive or collaborative tool to scaffold the students response.

Infusing Thinking into your teaching

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# Four Choices for a Unit

*Choice 4: Generating alternatives, improvements, new ideas*



*Choice 3: Largely at judging material investigated.*



*Choice 2: Aimed at in-depth research / investigation / explanation*



*Choice 1: Largely information and skilled based.*



## UNIT or LESSON

Use an Extent Barometer to help use information previously collected to come up with a final argument, statement or proposal.

To what extent do you enjoy your work life?

To what extent are Field Trips essential to our subject?

## EXTENT BAROMETER

Topic:

100	Very High
75	Fairly High
50	Medium
25	Low
0	None at all

General Comment:



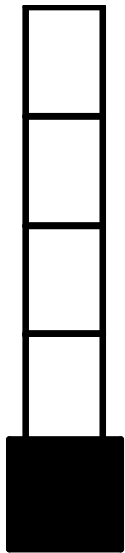
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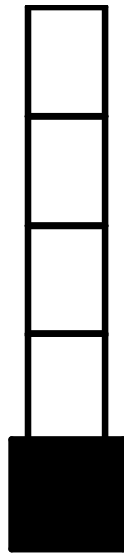
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# FIELD TRIPS

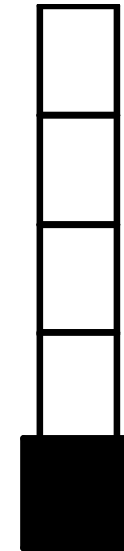
## Extent Barometer



Skill Development



Enjoyment



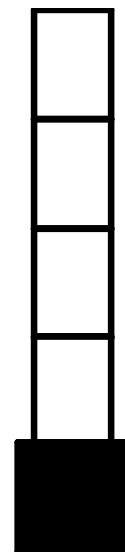
Transfer of Knowledge

**EXTENT BAROMETER** Topic:

100	Very High
75	Fairly High
50	Medium
25	Low
0	None at all

General Comment:

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OVERALL RATING

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## VALUE ADD:

- Teacher only to offer a few categories. Students are invited to nominate other categories and conduct the research. Students work independently.
- Students now work in pairs, 3s or 4s and collate their data. Then they refine the final decision.

### EXTENT BAROMETER

Topic:

100	Very High
75	Fairly High
50	Medium
25	Low
0	None at all

General Comment:



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# Are diversion limits the answer?

## DECISION MAKING MATRIX

Topic:

		Factors/Criteria								
										Total
A										
	Ranking									
B										
	Ranking									

**CRITICAL ANALYSIS**

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Decision Making Matrix

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# Are diversion limits the answer?

Ranking 1 - 5

Criteria Ranking 1-5	?					TOTAL
DIVERSION LIMITS						
NO DIVERSION LIMITS						

Decision Making Matrix

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# Are diversion limits the answer?

Ranking 1 - 5

Criteria Ranking 1-5	Effects on the mouth					TOTAL
DIVERSION LIMITS	Will ensure sustainability of ecosystems in the mouth					
	4					
NO DIVERSION LIMITS	Long term survival of the mouth, extremely doubtful					
	1					

# Are diversion limits the answer?

Ranking 1 - 5

Criteria Ranking 1-5	Effects on the mouth	Irrigation Communities	Cotton Production	Fruit and Vegetable Prices	?	TOTAL
<b>DIVERSION LIMITS</b>	Will ensure sustainability of ecosystems in the mouth					
	4	2	1	3		10
<b>NO DIVERSION LIMITS</b>	Long term survival of the mouth, extremely doubtful					
	1	4	4	4		13

Decision Making Matrix

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# Are diversion limits the answer?

Ranking 1 - 5

Criteria Ranking 1-5	Effects on the mouth	Irrigation Communities	Cotton Production	Fruit and Vegetable Prices	?	TOTAL
<b>DIVERSION LIMITS</b>	Will ensure sustainability of ecosystems in the mouth					
	4	2	1	3		15
<b>NO DIVERSION LIMITS</b>	Long term survival of the mouth, extremely doubtful					
	2	4	4	4		14

Double the value

Decision Making Matrix

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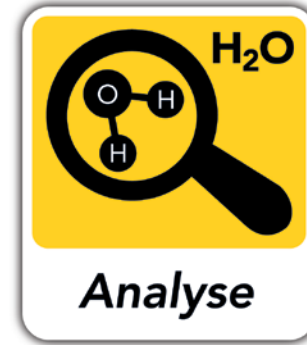
# Language of Thinking

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## Bloom's Taxonomy

### Foundation Thinking

Teacher ownership



## Bloom's Taxonomy

### Higher Order Thinking

Student ownership

# Are diversion limits the answer?

Foundation Level

Higher Order Thinking



1	2	3	4	5	6

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# Four Choices for a Unit

Choice 4: *If you were Prime Minister what would your solution/s be?*



Choice 3: *Decide whether or not you support the current plan for the Murray Darling*



Choice 2: *an in depth investigation of the effects of Low water flows on the mouth*



Choice 1: *Largely information on the use of the Murray Darling basin*



## UNIT or LESSON

# Assignments

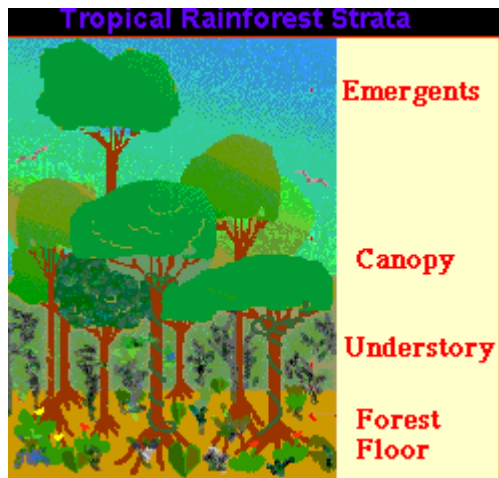
## 1. Rainforests

### Content:

Rainforest – flora & fauna

### Summative:

Construct a rainforest diorama



## 2. Antarctica – could a polar bear live there?

### Content:

Antarctica fauna

### Summative:

1. Construct an Antarctica animal.
2. Could polar bears live in Antarctica? Justify.



Which is the better assignment? Why?

Perspectives: student's, teacher's, Principal's & parent's?

Skills: Research, Art, HOT How? Think:Pair:Share

# Plan for Choice

Existing practice



By the end of this lesson, students will be able to:  
[Bloom's verb] the [Concept] BY [Action]



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# Discussing this workshop HOW?

## 3:2:1:RIQ

3 x Recalls (Facts)

2 x Insights

1 x Question

e.g. I now realise that .....

- It was interesting to note that ....
- This affirms...

- I wonder...
- What if ...
- How does this relate to ...
- In the future .....

# Asking students to Think



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# Asking students to Think



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## What do you think .....

- of the novel we have just read ?
- would be the best formula to use to solve this problem ?
- of the Federal Governments draft Murray Darling rescue plan ?
- is the main reason why the Mona Lisa is considered a masterpiece ?
- is the best way to deliver high speed internet access to the entire country ?
- of the letter to the editor concerning ?

## RESPONSE?

# Minimising shallow responses

Good

OK

Choice Sir

Not sure what  
you mean miss



Sort of liked it

Dunno

It sucked

## Bloom's Taxonomy

### Foundation Thinking

Teacher ownership



1. Content 'driven'
2. Easy to assess
3. Easier to teach
4. Good foundation knowledge

## However.....

1. Right or Wrong responses
2. Will NOT extend better students - not differentiated learning!
3. Teacher 'owned' – difficult to engage
4. Difficult to make student

- Engagement – student ownership
- Critical & Creative Thinking – 21<sup>st</sup> Century Skills
- Differentiated Classroom
- Life Long- personal skills
- Engage through Emotions
- Student centred
- Wide variety of solutions/ outcomes



**Design**



**Evaluate**



**Analyse**

## Bloom's Taxonomy

### Higher Order Thinking Student ownership

Assistance is available

Assistance is only a phone call away

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By the end of this lesson, students will be able to:

[Bloom's verb] the [Concept] BY [Action] (Refer the ITC Thinking skills framework)

**State** what you know about volcanoes **BY** completing a **KWHL**

**Classify** different volcano types **BY** completing a **Silent Card Shuffle**

**Differentiate** volcanic types **BY** comparing & contrasting each eruption type. **SWOT Analysis or Double Bubble Map**

**Investigate** the each eruption type further **BY** completing a **Y—Chart**

**Analyse** volcanoes **BY** completing a **Split Y-Chart**

**Create** an persuasive argument **BY** producing a 1-2 page mag. Article, **1:4:P:C:R**

**Demonstrate** good co-operative learning skills, **BY** listening, negotiating, compromising, showing humility and encouraging others. **1:4:P:C:R**