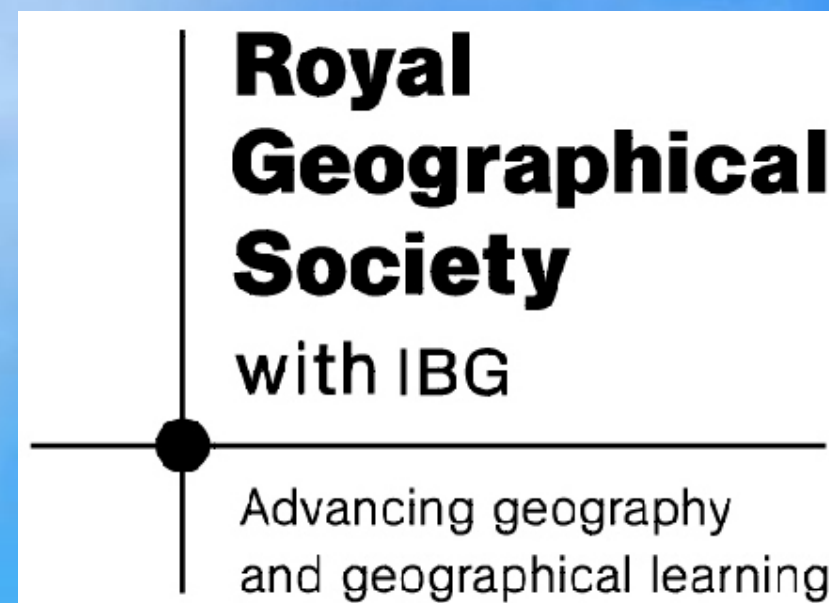


Straightforward uses of interactive whiteboards in Geography



Tim Bayliss and Lawrence Collins

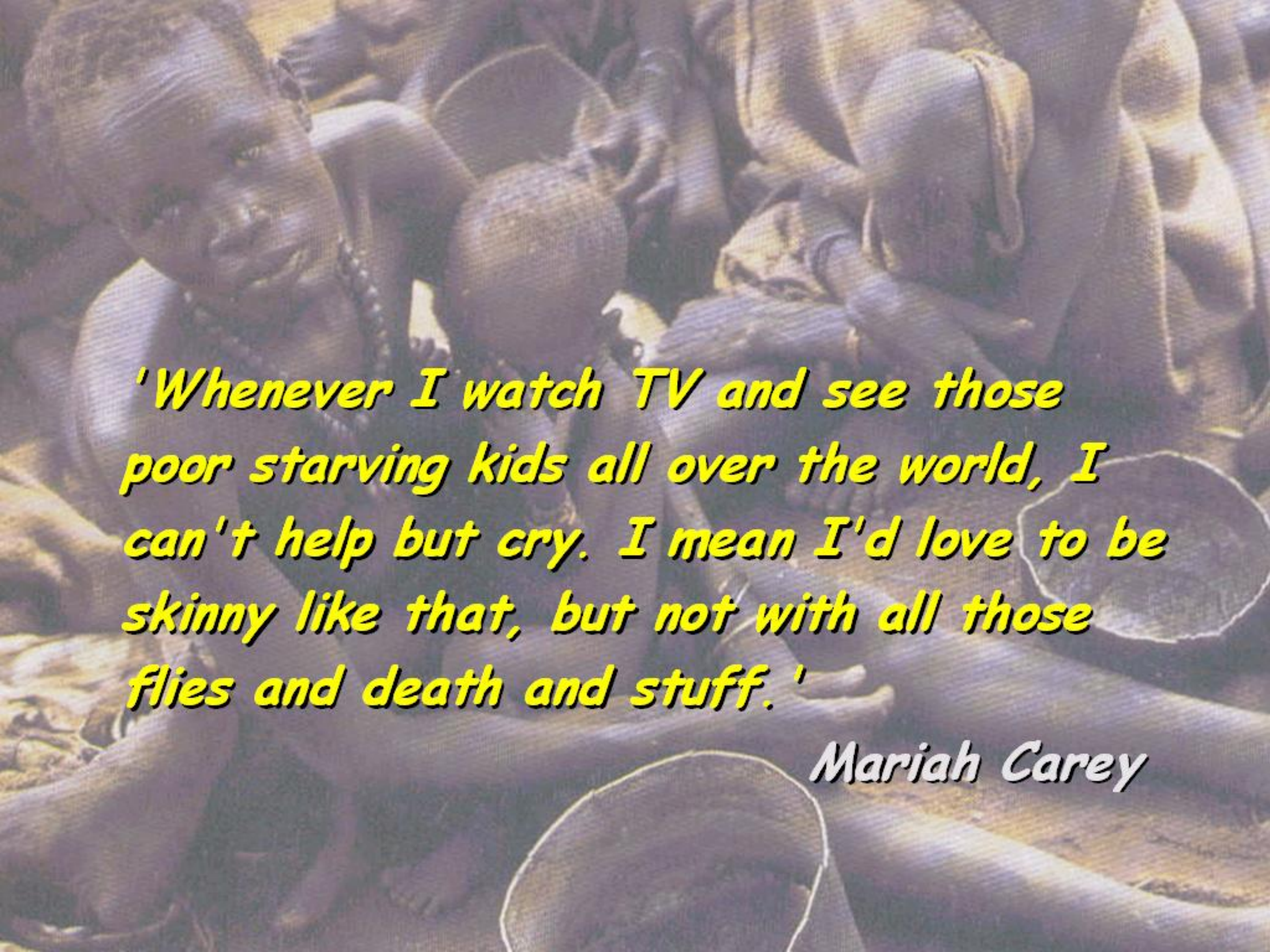
Lincoln Minster School

Within the last decade interactive whiteboards (IWBs) have become increasingly widespread - arguably incomparable in their potential and scope for:

- promoting highly stimulating teaching and learning**
- stimulating positive class participation**
- encouraging pace and effective reinforcement**
- allowing efficient reviewing and improvement of teaching resources**
- projecting multi-media resources such as DVDs, websites, existing *PowerPoint* files and Geographic Information Systems.**

The IWB at its simplest - powerful, provocative imagery to stimulate debate

A controversial image may be all that is required to introduce a topic or issue. In this example the quotation has been typed into a text box (with no background colour) and layered on to an image (faded using the transparency tool).



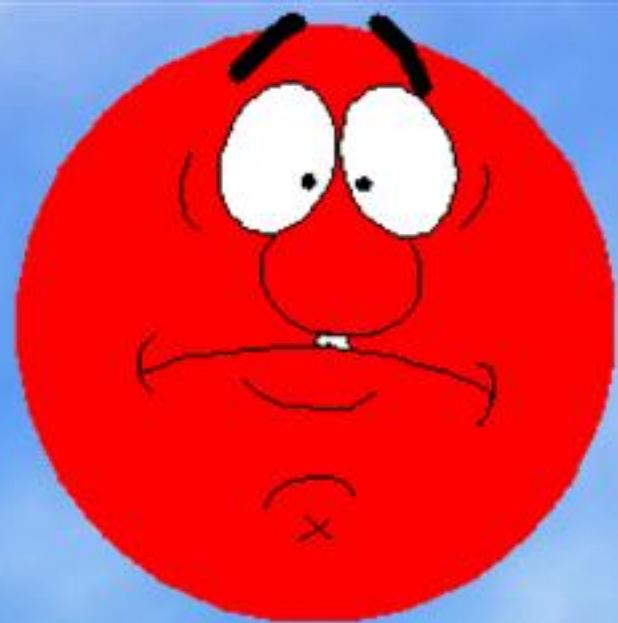
'Whenever I watch TV and see those poor starving kids all over the world, I can't help but cry. I mean I'd love to be skinny like that, but not with all those flies and death and stuff.'

Mariah Carey

Simple 'rub offs' or 'drag to bin'

In this example, each cartoon (sourced from the software Resource Library) illustrates likely personalities and characters found in any class room! Behind each cartoon is a text box stating the next topic, definition or issue to be discussed and explained.

Whether operated by teacher or student, given a good teacher/class relationship, the scope for provoking laughter and tension (as the students recognise and anticipate their peers) is marked! Even the most dull topic can be revealed memorably in stages .



**Seed technology -
HYVs**



**Agrochemicals -
fertilisers
herbicides
pesticides
insecticides
fungicides**



**Irrigation
systems to
water the
land**

**G.M. foods -
a 'new'
Green
Revolution?**



**Miracle rice IR8
of the late
1960s is the
most famous**



Using IWBs in the promotion of discussions

- High pace can be maintained**
- Student engagement is encouraged through participation**
- Review and synthesis of data can be visualized and practised in real time**
- Multiple solutions can be encouraged and rewarded**
- Teacher mobility amongst the student body is an option.**

In short, debate involving all can be celebrated - promoting student appreciation that whilst no one solution is either realistic or expected, command of facts and appreciation of alternative points-of-view is central to making and articulating a convincing decision. A straightforward technique for this uses 'drag ins' (next page).

'Drag ins'

In this example, 21 text boxes stating facts and opinions have been outlined in various colours and stacked off screen. They will be used to stimulate debate by identifying the key advantages and disadvantages of an issue.

Ideally operated by a student, releasing the teacher to move amongst the class, each 'drag in' can be discussed before assigning as a 'pro' or 'con'. Unresolved facts and opinions are coloured yellow (by touching the tool bar colour palate) and stacked at the top. Progressive deleting of less convincing statements (by dragging to the bin) allows narrowing of the debate down to 10 key points.

Pros and cons of out-of-town shopping centres

Pros

Large structures blight the landscape

Cons

Hypermarkets encourage people to do more shopping

No heritage - vast industrial-scale structures blight the landscape

Pros

Materialism and unsustainable credit/debit card debt is encouraged

Clean, functional buildings with air conditioning and security staff

One-stop all-hours shopping for working families

Low land rents on city outskirts keep prices low

Provides abundant on-site car parking

Out-of-town makes shopping fun - with leisure activities too

Cons

Loss of countryside and agricultural land

Up to 20% of the British population have no access to a car

Causes serious, localised traffic congestion

We have enough shops already - with vacant town centre units common

The stores are difficult for aged, infirm, disabled people to reach

Materialism and unsustainable credit/debit card debt is encouraged

CBDs and town centres have special short-stay parking

Hypermarkets encourage people to do more shopping

Allows customers vast choice at bulk-buying prices

No heritage - vast industrial-scale structures blight the landscape

Causes serious, localised traffic congestion

Clean, functional buildings with air conditioning and security staff

The stores are difficult for aged, infirm, disabled people to reach

Forms new focus for suburban, peripheral developments

CBDs and town centres lose trade, and their socio-cultural focus

Town centres cannot accomodate thousands of extra cars

Provides abundant on-site car parking

Out-of-town makes shopping fun - with leisure activities too

Up to 20% of the British population have no access to a car

We have enough shops already - with vacant town centre units common

Low land rents on city outskirts keep prices low

Relieves town centre traffic congestion

Loss of countryside and agricultural land

Traditional service is lacking

Companies control prices

One-stop all-hours shopping for working families

IWBs can form a central platform to enjoyable, effective lesson delivery. Even at Key Stage 5, when more traditional 'tried and tested' teaching methods may persist, very simple IWB techniques allow promotion of:

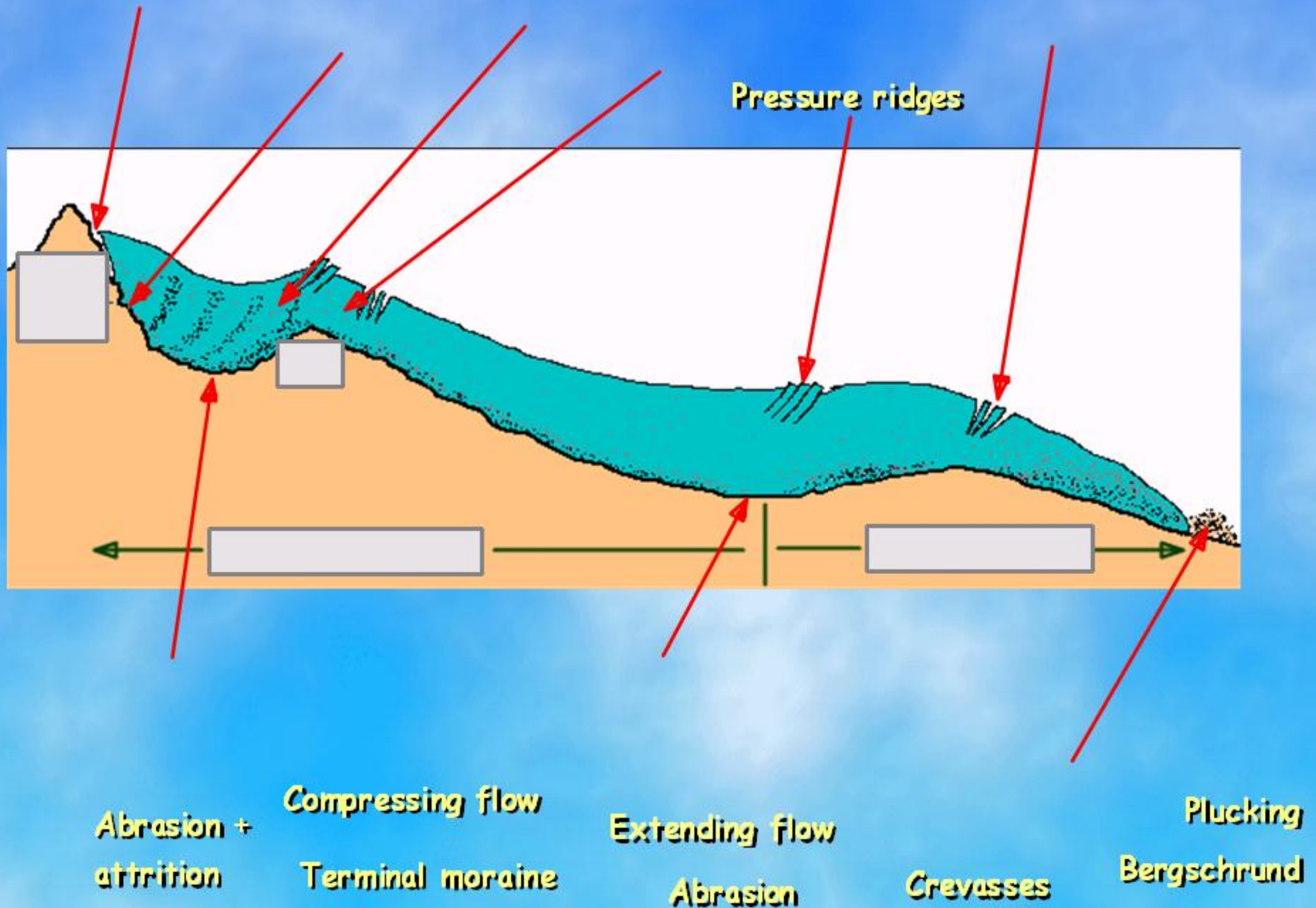
- **interactivity**
- **thinking skills**
- **diagnosis of knowledge and understanding**
- **analysis of new data**
- **encouragement of multiple solutions**
 - all at a high order. Simple 'rub offs' and 'drag and drop' techniques are ideal for this (next page).

'Rub offs' and 'drag and drop'

In this example, the diagram (drawn using the software pen and colour fill tools) has been saved as an image (camera tool) and 'fixed' to the page. Arrow (annotations) have then been added. Additional labels and annotations are both hidden behind 'scratch card' rub offs (Resource Library) and stacked at the bottom of the page (for dragging and dropping).

Ideally operated by a student, the diagram can be labelled and annotated progressively. Of key importance is that there are both definite and multiple solutions, rewarding Socratic questioning and discussion at its very best.

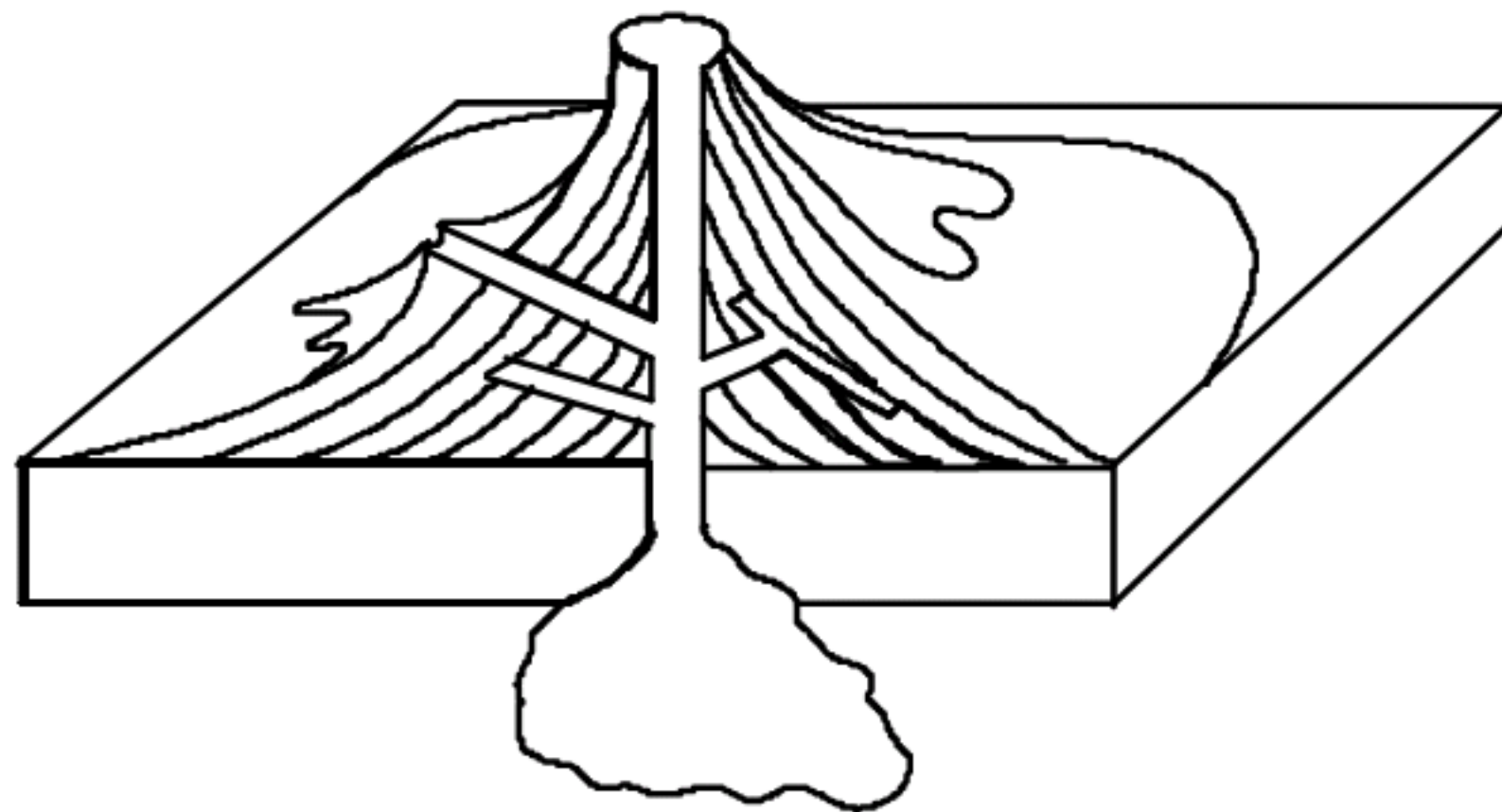
FEATURES and PROCESSES ALONG a TYPICAL TEMPERATE GLACIER



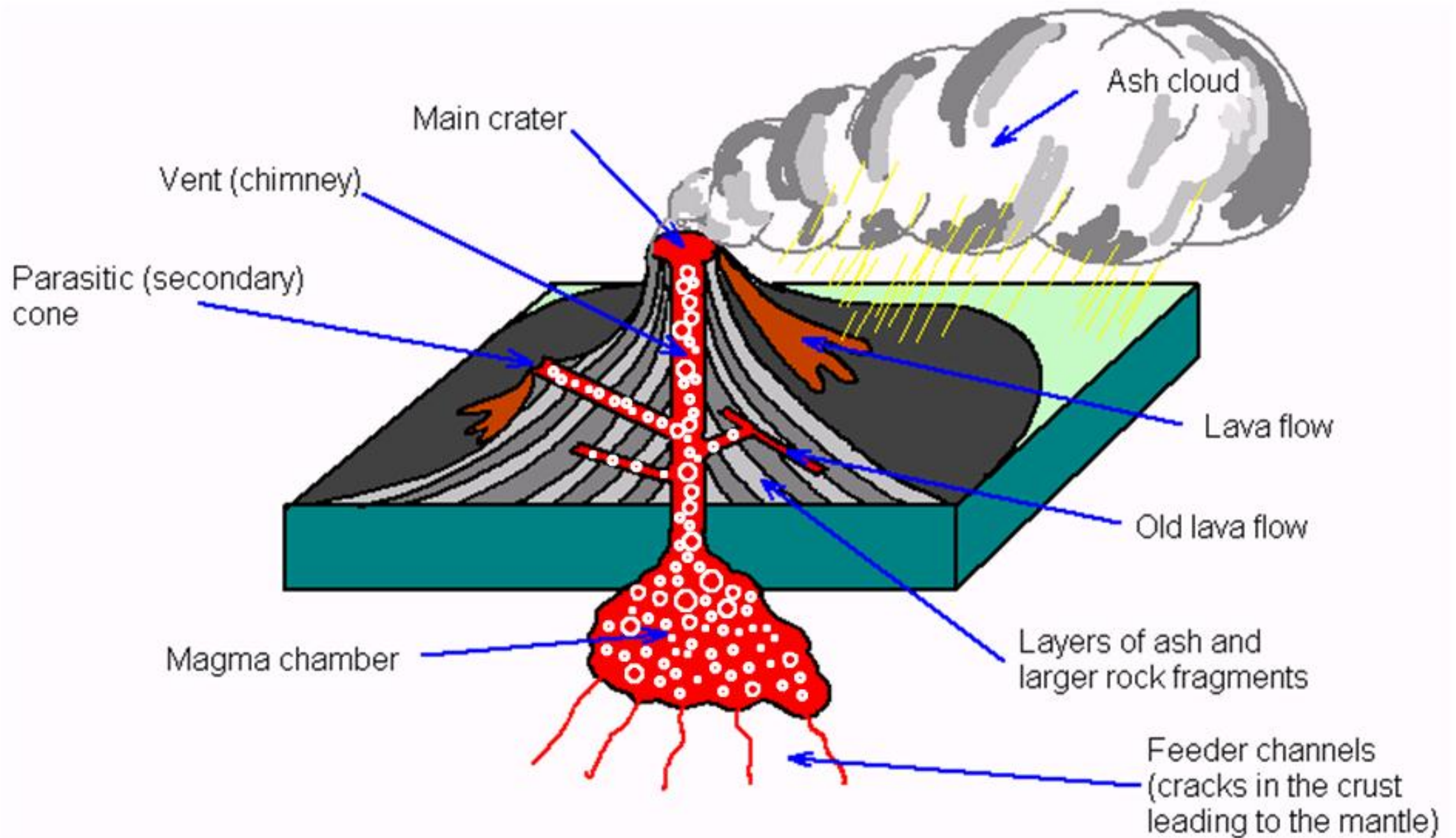
Building images to explain landforms

This example shows how simple block diagrams can be drawn freehand - using stock annotations provided in the software. During the lesson explanation, the diagram is filled with colour and annotated according to class responses. This enhances the learning process because:

- a strong, visual dynamic complements explanations
- the basic outline can be printed in worksheet form for tracing, copying or working on directly
- a completed, saved diagram, including labels with links attached to both photographs, video clips and web sites may be used for student checking, and both review and revision in subsequent lessons.



BLOCK DIAGRAM of an ACTIVE VOLCANO




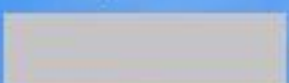
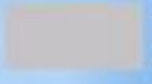

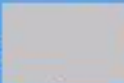
Differentiated notes on the IWB





This example shows IWB projections of differentiated (paper) notes allowing individual students within mixed-ability groups to explain a process at their most appropriate level. This promotes more widespread understanding - and particularly productive plenary sessions and homework explanations.

Which (if any) of these differentiated materials are projected, ultimately, in whole-class review, requires discretion. **Drag-and-drop-against-the-clock** always goes down well!

Finally, simply copying notes from the IWB has occasional benefits. Note, however, that accuracy can be improved by using the (tool bar) blind to reveal the text in stages.

HOW DO HURRICANES WORK?

The hurricane is, effectively, a monstrous funnel-shaped convectional  with warm, moist air on the outside  and rising rapidly.* The winds within this rotating vortex are incredibly violent, and mixed with driving  Inside the funnel, however, the cooler air  in relatively calm conditions - the  of the storm.

Heat and  from the oceans is needed to drive these storms. As a result they die out relatively quickly once over . However, the  drag of the coastline causes the winds to spiral inwards even more rapidly, and so rotate even more quickly - just like a skater increases his or her spin speed by drawing in the arms. As a result of this hurricanes are most dangerous immediately on coming .



* This spinning vortex can be seen in your bath! The   is demonstrated perfectly by the bath water spiralling away!

Illustration of a differentiated handout with key word options

HOW DO HURRICANES WORK?

- The hurricane is a massive funnel-shaped convectional [redacted]
- Warm, moist air on the outside [redacted] and rises rapidly*
- These [redacted] winds are mixed with driving rain. This is called the [redacted]
- Inside the funnel cooler air sinks ([redacted]) in relatively [redacted] conditions. This is called the [redacted] of the storm
- Heat and [redacted] from the oceans is needed to drive the hurricane
- Hurricanes, therefore, die out relatively quickly once over [redacted]
- Hurricanes are most dangerous immediately on coming [redacted].

eye coriolis land spins descends evaporation
violent effect thunderstorm vortex calm ashore

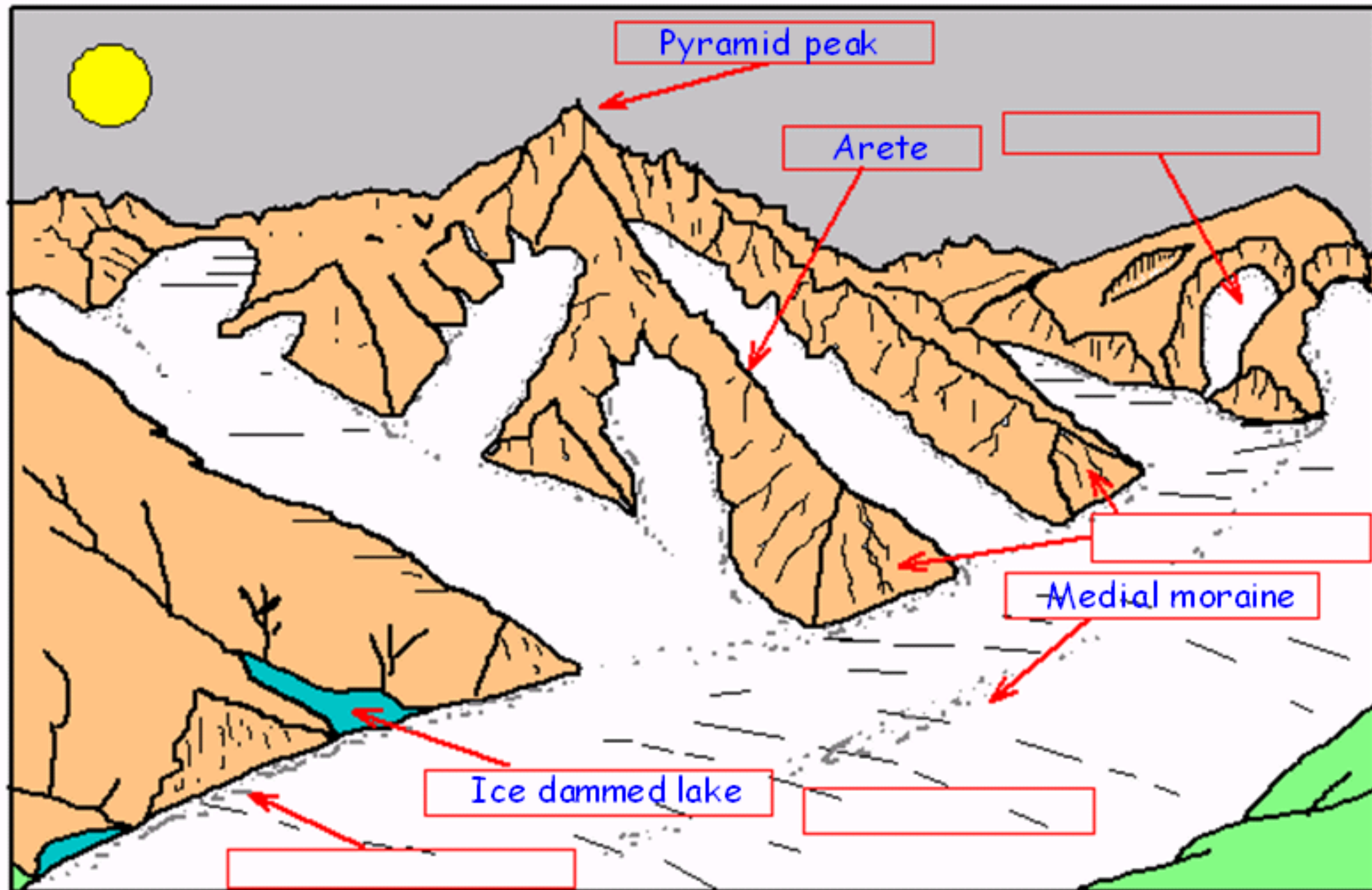
* This spinning vortex can be seen in your bath! The [redacted] [redacted]
is demonstrated perfectly by the bath water spiralling away!

Using 'hotspots' to promote visual learning

Completed diagrams (such as on pages 15 and 18) lend themselves well to the use of hyperlink 'hotspots'. Hyperlinks link labels to photographs, video clips and web sites illustrating each landscape feature, with return 'hotspots' linking back to the diagram - so maintaining the pace of the lesson. This enhances visual learning because:

- strong visual imagery supports conceptually difficult comprehension of, for example, unfamiliar landscapes
- 'hotspots' under hidden labels introduce a higher order of challenge - especially appropriate in end-of-course revision
- with younger age groups, 'hotspots' can be made great fun by linking to sound effects, music clips, and so on.

A GLACIAL LANDSCAPE



Valley glacier

Lateral moraine

Corrie glacier

Truncated spurs



Medial moraine - Gornergrat, Switzerland