AGTA Conference (& 2006 Australasian Conference for ESRI Education Users)
8-12 January 2006 University of Tasmania, Launceston

Wed 11/1/06, 11am – 12.30pm GIS Workshops Session 1.GIS 1C.
B. GIS In Middle School: Briar Newland GTASA & TSoF newlandb@chariot.net.au
This presentation will focus on GIS in the middle school. Briar will demonstrate her 'GIS First Steps" CD-ROM which is written in a simple and practical way for the purpose of introducing GIS into the middle school. The workshop will encourage teachers using GIS to use a constructivist approach in the classroom.

A. Secrets to implementing GIS. *Pat Beeson, PLC Melbourne.This presentation will describe how Presbyterian Ladies' College Geography department has formalised GIS into the curriculum, in particular, Pat will outline the GIS work undertaken by students on the local stream network. Gardiner's Creek. After outlining her experiences with GIS at PLC pat ill delineate the factors behind the sucessful introduction of GIS into the core curriculum.*

A practical exploration of GIS First Steps.
How many new to GIS? What is GIS? Video. (2 min)
Handout: Adapted activity: AGTA Distribution
Powerpoint printout: details and ideas for issue exploration
Briefly:

- **GIS** tool taught in Geography and can be used across curriculum**.**
- **Step-by-step in-time-learning** activities for first go.
- Adapt activity to suit eg **AGTA Distribution.**
- **Create a safety net** within your marking so students are encouraged to take risks, experiment and extend their abilities. Use **language rich explanations.**
- **Constructive evolution** of activities, as **student and teacher's skills develop**, through **classroom experimentation** and **peer mentoring.**
- Showcase: laminate best.

You may not think you are ready for Constructivism but you will be pleasantly surprised with the positive results. Investigating issues by informed fieldwork enables some resolving of the issue. This allows you to consider leaving local environmental resources in as good or better condition than you found it. So you encourage active, informed citizenship as you work towards sustainable futures.

GIS First Steps is only a beginning in helping **peer confidence** to start facilitating GIS learning and allowing students a voice. GIS First Steps CD-ROM encourages you to add GIS to your normal classroom activities. GIS Training will skill you further.

So, what is on the CD-ROM?
A sample showcase of simple Middle School Activities designed to stimulate higher-order thinking and encourage a Constructivist Approach to Geography Activities. Students have a safety net of GIS instructions while constructively displaying research knowledge, creating maps, describing, analysing findings, solving problems and creating useful displays of their work.

Activity details
My People's Land: inclusive activities written for migrants, refugees and rural communities and are applicable for all students **eg Australians: Aboriginal Studies or Rural Studies.** State borders, outline of Maralinga Land and add features. (if you have ArcAustralia 1&2 select Maralinga shapefile, convert to shapefile & add to View.
World Balloon flight: organise their research, "Endangered Species" display.
Design a **Topical Island** using GIS drawing tools. Extension ideas: development, ecotourism and analysis of sustainable future.
Main Road Accessibility: look at heritage, use of land, cross sections, accessibility problems such as footpath clutter, steps etc. Suggest ramps etc. Report to Councils.
Traffic Count is an analysis of thematic line map. Purpose and type examined.

Across Curriculum ideas:

English: language rich write ups of My People's lands. Novels – setting using World map and then drawing novel's settings etc using island drawing activity.
Cultural: Australian My People's Land (family homelands) Maralinga Land.
Country students can do simple drawing activities about their outback stations.
Community Service: Main street evaluation.
Languages & ESL: my people's land and drawing activities for ethnic background.
Mathematics: calculate statistics from world population mean etc. Distance etc.
Science: Geographical Traffic Count: with addition of measurement, timing etc.
Home Economics & Technology & Careers: add locations to map.
An important part of this session is how to use these ideas back at school.
Discussion time: Share practical ideas for constructing own problem-solving.

Now let's have a go at AGTA distribution activity adapted from SA Great Activity. Start with Snapshot page 1.

What to do Next! Engage students with an issue relevant to them! Tease out what annoys them in the local area and then assist them in finding the real issue.
Discuss the purpose of activity. What you need to produce and for whom.
Purpose of map and intended audience. (Groups taking different perspectives)
What do you know now? What do you need to find out? Then discuss what GIS data input you require?
What data do you need to collect eg survey, count etc?
Allow freedom of display and remind students that they will write up their reasoning behind the display. Obviously students need to know what **map conventions** (title, North sign, scale, key/legend frame) are required. Experimentation, evaluation and class discussion helps here. **Add constructive evaluation by self and peers**.
Analyse what worked well, write it up and point out special features.
New issues and questions to investigate further may become the starting point for the next investigation. So activities evolve with each successive fieldwork finding.

Ecological and Environmental Issues: salinity, plant quandongs (jam)
Who is willing to take responsibility and look at ways of creating Sustainable Futures? So what problems are at your school/local area?

You are the classroom facilitator. Select one of the activities above or in collaboration with your students select simple activities and adapt the **GIS FIRST STEPS CD-ROM** assignment to suit your needs within your school.

Have a go! It is possible, as it has been done before:
Teachers, students and schools involved in AURISA **GIS-In-Schools** Competition have used a similar Constructivist approach and looked towards sustainable futures in their field work. South Australian examples are found in **GIS IN THE FIELD $85 from GTASA.** This useful book showcases excellent fieldwork and also provides the data and step-by-step instructions to enable classes to replicate GIS fieldwork. After doing the activities students should be able to do similar fieldwork in their local area. An excellent resource that takes classes the next step towards Constructivism and sustainable futures.
It is good to have step-by-step activities for early teaching of GIS. More exciting is the facilitation of students constructing their own learning while they problem-solve relevant issues.
GIS First Steps was created to show Year 7-11 teachers how quickly and simply GIS could be integrated into the existing curriculum. Teachers experience the capability and enthusiasm of students as they undertake evolving activities.

SNAPSHOT of AGTA DISTRIBUTION MAP USING GIS AND WORLD DATA
Using ArcView. **Briar Newland, GTASA, TSoF,** newlandb@chariot.net.au

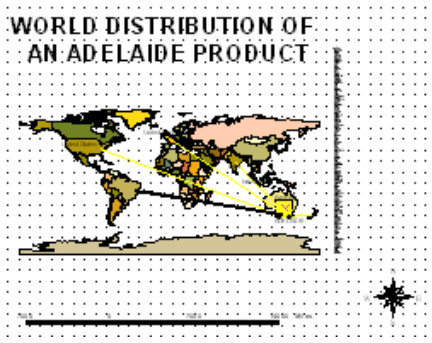
Map your AGTA Conference in Tasmania:
Open World map, create symbol for the industry, name countries,
draw distribution line to each *AGTA delegate's* country. Experiment! Layout map.



Tasmania GREAT

Background/Research instructions: No resources required.
Integrate into your existing program eg Mapping or Local Area.

Discuss and decide final map before you start and during the activity.
1. World map or Australia New Zealand map or combination using inset map?
2. Assume all came from a State Capital city?
3. Label country with name? Do you want to label capital cities of Australian States? How to show the difference?



Assessment Criteria:

Map layout Explanation and analysis of map Personal Comments – I am pleased with… I could improve my map by… Or I would have liked to… Get a constructive comments about what 3 people like about your map display: They need to state what they like and an explanation of why they like your display. Then add their comments. Staple this comment sheet to your map. Assessing: Displaying information. Working with Technology. Communication and collaboration

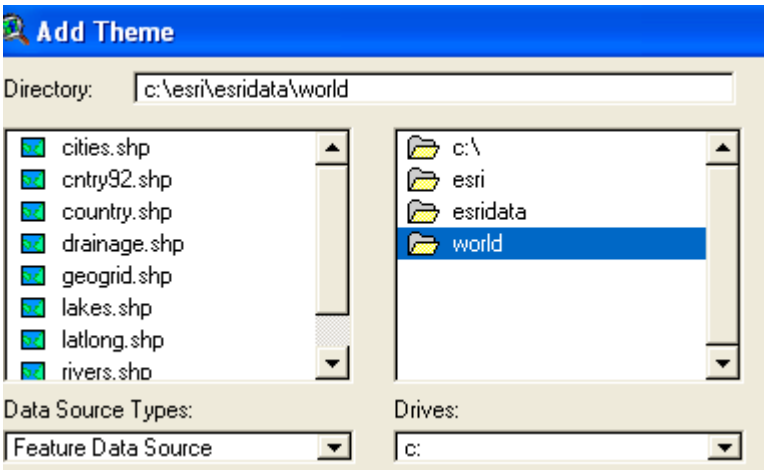
DISTRIBUTION MAP USING GIS AND WORLD DATA ArcView Name:
Geographic Theme: **GLOBALISATION/*TOURISM*** and **MAPPING**
Teacher:
As we are at the AGTA Conference in Launceston, Tasmania then let's adapt the activity to reflect our fieldtrip to Tasmania. Delegates are attending from a number of Australian States, New Zealand and America etc. Focus on Tasmania and draw direct distance from those locations. (note: new directions are in italics)

Step 1:

Start navigate to **Program** Files **ArcView**
New View Would you like to **add data now?** **Yes**.

Step 2:

Navigate Pathway: (ArcView3.2) c:esri\esridata\world



Select World Data Add **Countries (ctry92)** layer.
Then go to the **+ icon** and add **cities.shp. Tick** to make each layer visible.
[Note: ArcView 3x: use **World – world94.shp** and **wcities.shp**]

Step 3:

View Menu **View Properties**: **Change View 1's Name** to *AGTA* Distribution.

Set Scale for layout: **distance units to km**. Map Units: decimal degrees.
Click OK.

Step 4: Decide to use one colour for land or individual colours for countries:
a. ArcView 3.2: Add **Countries.shp** – it uses individual colours for each country. Let's change that double click on **Legend** select **single symbol**.
Or ArcVIew 3x: **World94.shp** - legend shows single symbol (colour) so change it to individual (colours) for each country.

b. Double click coloured rectangle select a faint colour/pattern then click ***apply.***
Discuss which looks best. ***Close Legend Editor.***

Step 5:
Save in your folder: eg:
SOSE
GIS
PROJECTS (contains .apr files) Create new name for each Project.
SHAPEFILE (contains .shp files)
File Save Project *as*.
Navigate to your folder, and Project folder.
Rename project by typing in: **AGTA distribution.apr OK**.

Let us start our Distribution map.
Step 7: How to Add Symbols to map.
Make **Cities the active theme** (raised theme) then click on **i** icon (**information tool**) to find out city names. Then Click on **Pointer** tool.

Then use **zoom in tool (magnify icon),** click and drag to draw a rectangle over (Aust NZ) the situation of *Launceston*: To create map of AGTA's Conference location at Launceston. To make it interesting in step 8 we will use an eyecatching symbol to represent the Conference.

Think about your final map as you play with symbols.

Step 8: Use Drawing Toolbar options to draw a Truck at Adelaide.

Remember to use Pointer tool to click on map to remove selection boxes.

a. Use **Drawing tool** dropdown box. (next to T)
Click on tiny black dot in the right hand corner get drawing dropdown box.

b. Select **Symbol Point**.

c. Window Show Symbol Window select the "acorn" **symbol**, colour (go to paintbrush – then select colour) and 20, size of symbol.

Step 9:

File Save Project As AGTA distribution.apr (save in your Projects folder)

Step 10:
Label *AGTA Convention delegate's* Countries.
To check countries names use **i** information tool first then **Pointer** Arrow.
GIS has the labels in a database:

a. Open Theme Table icon opens the **Country attributes table**. Any of these columns could be used to label the map.
Carefully close Attributes box (black cross)

b. Window Show Symbol Window set Size to **12** (instead of default 14)

c. Countries Active theme **Theme Autolabel** select **Countries** column
close Font pallete.

d. select **Label icon** and click on the Countries of AGTA delegates.

Step 11: Draw lines radiating out from Launceston to indicate direction of delegate's countries. Select **Line Drawing Tool**.

a. Edit this line by double clicking on the line
Window Show Symbol Window
select line type, size (4)
colour (use paintbrush symbol – foreground *aqua)*

b. Repeat but change line to dashed line (double) 4, *aqua*. Pointer arrow click on map to remove selection lines.

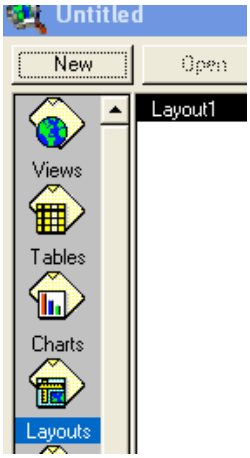
c. **Select T** (text) **Windows show symbol window** set text type, size etc.
Type in ***AGTA Conference (enter) then Launceston*** *under the symbol****. OK.***

d. Add other text boxes as word box and add research details to your map.
eg You could add another textbox for analysis of your map.

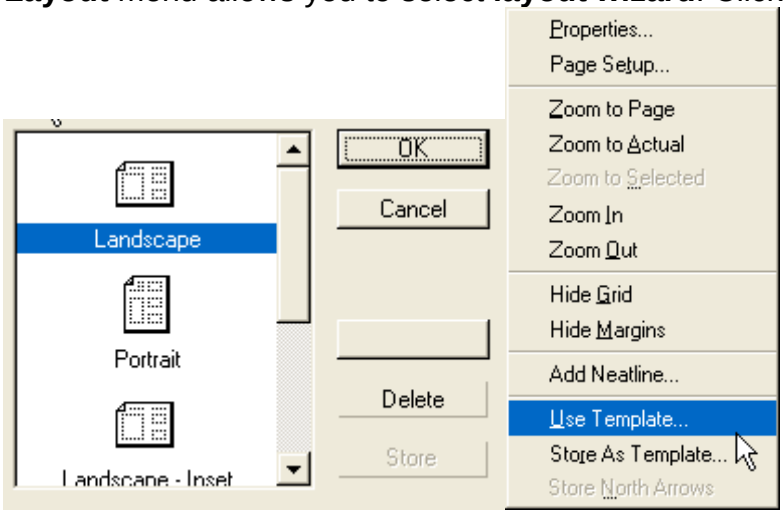
Look critically at your map: Discuss. Look at alternatives, experiment.
Is this its final format. Make any changes now before you do your layout.

Step 12: **Layout**

Use **minimise button** on View 1 (named) map to minimise View 1 map. Click on 
View 1 (blue bar) and shift view 1 aside so you can see Table of Contents.
You need to click on **Layout** and **New** to open a new layout. ***Enlarge layout.***



Layout menu allows you to select **layout wizard**. Click **OK.**



a. Double click on empty text and type in map title. **Window show symbol window ABC** select style etc.
Delegates Distribution for AGTA Conference 2006. OK.
(use enter – to get new line for a split heading)
b. Check map **Landscape.**
c. File Print setup Landscape.
Save Project as World_AGTAdistributionX.apr **Print. File Exit**.

GIS First Steps CD Rom created by Briar Newland

Simple Geography Activities underpinned with GIS

Immediate Classroom Application

GIS First Steps CD-Rom Aims:

- ASSIST TEACHERS
- ACTIVITIES to underpin your lessons with GIS
- ENGAGEMENT
- CONSTRUCTIVISM
- SUSTAINABLE FUTURES

Assist Teachers to get started

- First steps in towards GIS Training
- step-by-step instructions: a safety net
- peer support
- experience engagement
- peer mentoring
- evolving activities

GIS Activities: Years 7-10+

Balloon Flight	Distribution	Tropical Isle
Accessibility	Traffic Count	
My People's Land:	Migration	Birth Places
Rural Aust	Indigenous	Refugees

GIS underpins your GEOG/SOSE activities

- ENGAGEMENT
- STEP-BY-STEP for Teachers safety net
- Student's IN-TIME LEARNING
- Cross-Curriculum relevance
- Geography Sustainablity

Constructing Learning

- Do Activities as in-time learning
- Experiment
- Evaluate
- Constructively Redo Activity
- Encourage Individuality
- Allow safety net: explain improvements

Constructive Process Activities Evolve:

- Teacher Facilitates learning
- Student/Teacher collaboration
- Peer mentoring
- Spatial Skills improve
- Encourage investigation of local issues
- Apply GIS Skills across the curriculum

Teacher facilitates:
Engage students:

- Relevant teen issues eg local sport
- Variety of issues - consider audience
- Students construct their own learning on interest issues
- Make a difference
- Sets up individual fieldwork patterns for Senior classes

Sustainable Futures
Investigate real issues:

- In or around your school
- Local area/sport
- Global issues
- on local scale: water / rubbish

- your response to the issue: brainstorm, write, share, do something!

Ideas for Issue Exploration

- Litter Issue: patterns
- Water Use/Waste
- Cricket pitch & footy erosion/lack of cover
- Uneven surfaces
- Inconvenient bus stops
- More bins
- Worm farm/herbs
- Recycling

Geography & a Sustainable Future

- Understand processes and interconnections
- guide through structured process of inquiry
- decisions positive for the future
- Geography provides framework to make sense of spatial data
- spatial perspective: human-environment interactions
- using a range of scales

Geography is multidisciplinary

- Interconnectedness
- issues at range of scales
- increasingly emphasising thinking skills
- problem solving
- civics & citizenship
- Knowledge + understanding
- analytical
- decision making
- research
- communication