

Learning about

Nature from images

Continuing the biodiversity articles in *Otherways* by Jeanie Clark

From where did you first learn about living things? Was it direct contact in the backyard, at a park, beach, zoo, or farm? For most environments and living things, your learning was probably second-hand. Take farm animals for example. Most Australians do not live on or visit working farms, yet grow up knowing about farms. Chances are the knowledge came from toys, books, TV, and today, many other types of screens.

The same applies for most people learning about nature. In today's world we are privileged that we can learn much about nature second-hand, and especially from images that other people make for us – whether they are photos or movies with or without sound. Given this, how can we get the most out of images for learning?



Are images decoration around text or resources themselves? Do you make images, such as drawings, diagrams, photos and videos, to develop learning? This article will focus on using and making images for learning, with examples coming from farming to conclude this 2011 series supporting the aims of the Australian Year of the Farmer (AYoF), National Year of Reading (NYR) and of the United Nations Decade of Biodiversity (UNDB).

Images in picture books

Why do the images matter? They **are** what many young children are paying attention to rather than the words. They are often rich in information, and may have much more than the text itself. They can be used for observation and discussion on their own i.e. the images and/or the text can be read with a child. Without the pressure to read at a certain pace, home education makes it much more possible for parents to share the reading of picture books for their pictures than is the case for children at school.

Coinciding with National Science Week, I ran *Read4Nature*, a program to encourage parents to look at picture books from the level of the child who does not yet read – in other words to look at the information in its **pictures**. This project was partly funded by a federal government grant program, *Inspiring Australia* which, as its name suggests, aims to inspire more science.

Read4Nature went to nine libraries in the Wimmera and reviewed over 100 picture books. Each book reviewed now has a sheet which identifies the nature science contained in its pictures, and suggests links to our lives, a craft activity and a non-fiction reference. Most images were drawings, some were photos. For some adults,

looking for information from the pictures only was quite liberating.

The reviews were made into resource folders for each library, with a digital version planned for <<http://www.enviroed4all.com.au/read4nature>>. There will also be adult and child level assessment sheets there for you to assess your own picture books.

The best Australian farm picture books we found were:

- o *A Year of our Farm* by Penny Matthews & Andrew McLean– with lots of changes per month and just delightfully scientific and beautifully drawn pictures.
- o *Two Summers* by John Heffernan & Freya Blackwood– about a good year and a drought one.
- o *The Story of Rosy Dock* by Jeannie Baker – no words, and sadly the truth about garden escapees.

We found no picture books for sustainable farming. However, six science-based picture books, written and illustrated by grade 3-6 farm school children, will be available on the web. They were made for the annual Science Talent Search competitions (which home educated students can also enter) and to a set format to show the science in the stories, which includes putting information into drawings not just text. Set in the Mallee landscape of north west Victoria, each deals with a local sustainable farming issue – a dry time or pest. These are available as pdf books at <<http://www3.sjhopetoun.catholic.edu.au/sts-resources-2012.html>>.

Concept maps

Concept maps are a way of sorting out ideas to review what has been learnt and/or to plan to fill in gaps for what needs to be learnt. The basic idea is to put the concept word in the centre of a page (A3 size is often best) then draw symbols or write everything that is a part of that concept for you around it, trying to link similar things together. It can be used at any age, if you scribe younger children's ideas.

What is your image of 'farms'? Try making a concept map for this. Do you do this in words or images? Either or both, the skill needed is up to you. I think images are more fun and can be used at any age. Scared about drawing? Discuss the basic shapes needed and draw those with your child, laughing about bits that are hard to do! If done first in images, it can then be used later for literacy for younger children. Simply make slips with the words on them to match the images and paste these onto the diagram.

Do you want to develop some IT skills? Check out the diagram section of your computer first, e.g. the 'radial diagram' in the 'diagram' section. It could be used for a concept map. Googling 'concept maps' will show prepared diagrams - easier to use - including free ones. Which one to choose? Try Wikipedia or this blog for a review of some concept maps programs <<http://eduwithtechn.wordpress.com/2007/04/14/some-free-concept-mapping-programs/>>. Is this 'professional finish' needed for this learning? For me, the content is what it is about, so I question the time and energy spent doing this digitally. I think paper and pencil focuses the mind better for this sort of thing.

Using photographs

Concept maps can also be used to analyse an image with a central ring for what is visible in the image and an outer ring for what must be there but can't be seen.



Try this with the photo above for 'living things on farms'. You should be able to see the grain crop in the foreground and trees in the background with stock (sheep) under them – three things for the inner ring.

Now encourage your children's imagination to rip for the outer ring! Draw on direct knowledge (e.g. from gardens and parks) and apply it to this new situation. What else could be living here, at the general or specific level? What sounds might they hear? (Birds – magpies, crows, wattle birds, kookaburras, galahs, parrots, frogs after rain, and crickets in summer evenings.) What might they see scurrying around down on ground level? (Little life, macro-invertebrates – ants, termites, worms in the soil, skinks, snakes, lizards, millipedes, butterflies, bees, bugs, beetles, snails, etc). What might they see lurking under



the bark of the trees, in any hollows and in the branches? (Spiders, ants, bugs, possums, reptiles, birds). If there is a struggle for such ideas, then perhaps its time to do some observations in the garden or local park, as well as traditional indirect learning resources, like books.

What about if it was a different season on a different type of farm? If you do the activity above again for this photo of a wheat farm during harvest, how does the concept map of 'living things on farm' change?

Online photo galleries

Another rich place for learning about farms, biodiversity and nature is in galleries on the web. These may take the form of photographs, as in the Australian Year of the Farmer website, or videos, as in the Food and Agricultural Organisation website, or multi-media, as in the National Geographic website.

During this year, the Fairfax Elders Photographic Competition for the Australian Year of the Farmer attracted many photos. The competition finished in September and there is now a huge photo gallery at <http://photocompetition.yearofthefarmer.com.au/competitions/list>.

What could you do with this AYofF gallery? There are selections which can be made from the seven galleries: on a state or monthly basis.

Try choosing a gallery and seeing how the images vary between states, or within one state over time.



Whether the gallery is farm animals, for which examples follow, or another one, similar Nature Science questions of comparison and observation could be asked. What do you expect the content of this part of the gallery to be? Which farming animal is most photographed here? Which native creature is most represented? How many different creatures and plants are found in the pictures of these farms? Have your expectations about what farming people see as their farm animals changed from seeing this gallery? What does this gallery suggest about biodiversity on farms?

The images could also be used to generate other learning about farming. Did you notice differences between, say, colours of cows – then why not investigate if these colour differences are more than skin-deep, like human hair colours? Did you see something that you couldn't identify? Use the contacts on the website to ask your questions. Could you use a photo as a stimulus for creative writing? Or to create an artwork?

You can do similar things with other online galleries or photographic books, of course, but the trick is finding them. Another Australian farming photo gallery is held by farmer newspaper *The Land*. It is searchable by month, but has no themes for quick groupings. (See <http://theland.farmonline.com.au/content/gallery>). Its images are to accompany news stories and so are quite different to the AYofF ones. They don't have much detail about them, or links to their stories, so they are not quite as easy to create learning from as the AYofF ones.

National Geographic photo galleries

Have you browsed the National Geographic website? Even if you haven't, you probably won't be surprised to find that it is like the magazine with great professional photographs! 'Sustainable Agriculture' is the farming photo gallery, and each photo has an accompanying short article. <http://environment.nationalgeographic.com/environment/photos/sustainable-agriculture-general/>.

The images selected are quite different to the AYofF ones, so the types of questions and investigations they may lead to would be different. What is similar to/different from Australia? For example, do our wheatlands look like the photo titled *Monoculture Wheat Crop* in the afternoon sun?

Photos with locations, like these, can also be used for Geography. Use an atlas to find where the states mentioned are, and an agricultural map to see how the crops/stock vary across the land. Matching that to climate (rain and temperature over the year) and soil maps will give an idea of why the farming changes. Then it could

be brought back to Australia. Flip to a map of Australian agriculture and look at how our climate and soil maps match our farming. Do you find similarities with the American continent?

From living things on the farm to us

How do the crop and the sheep link back to you?



Knowledge of sources of our food and other farm products is an important aim of the AYofF. This takes in food chains and economic chains.

Food chains and webs can be drawn with words and/or images to show their links. For a simple food chain, which assumes knowledge of the concept, visit <<http://www.stephsnature.com/images/Websitelifescience/ecology/>

[foodchainvocab.png](http://www.stephsnature.com/images/Websitelifescience/ecology/foodchainvocab.png)>. The concepts and explanations for making a food chain and web can be found at this webpage <<http://www.woodlands-junior.kent.sch.uk/Homework/foodchains.htm>>. Neither of these chains include humans, so for this visit <http://www.bbc.co.uk/schools/ks3bitesize/science/organisms_behaviour_health/food_chains/revise5.shtml>. This webpage has a food web that includes humans <<http://www.astraea.net/mindimages/foodweb.gif>>. If you want IT for making food (or other) chains, look first in your computer for 'flow charts', under 'autoshares' – but hand-drawn diagrams are quicker!

During the Read4Nature surveys, we found one great picture book which linked foods from the farm to a plate via a recipe – *Honey Biscuits* by Meredith Hooper.

Photo books

Food chains bring us to issues of food security, which our children are likely to face in their lifetimes. Both the AYofF and UNDB, have aims which relate to this issue, though from different perspectives. How can we prepare our children for this possibility? I would argue that understanding where food comes from, and, if possible, growing some, are the most basic steps. Food security need not be discussed too early. Eventually understanding will be needed at all levels – family through to regional, national and global – to tackle this.

The Food and Agriculture Organisation (FAO) of the United Nations has some extensive visual materials for farming at <<http://www.fao.org/about/photography/en/>>. It lists both photo books and videos. They are current, comprehensive and positive materials. Much is suited to secondary levels. However, it would need pre-viewing to check usability for younger children.

Some material will have enough impact just through its viewing. Others could be enhanced with use as both text and/or visual literacy, and for developing understanding of global issues re food security today. These are two good ones: *World Food Day 2011: Food prices – from crisis to stability* at <<http://www.fao.org/english/newsroom/photos/2011/wfd2011PhotoGallery-en/>>

and, from a different slant, *Agricultural Cooperatives-key to feeding the world* <<http://www.fao.org/english/>

[newsroom/photos/2012/wfdphotogallery/](http://www.fao.org/english/newsroom/photos/2012/wfdphotogallery/)>. Both can be summarised into problems and solutions, before discussing their relevance to Australia and the implications for the global medium-term future.

Online simulations

Food security is really about achieving a balance between food and populations, which also is at play in nature. Food chains/webs may look static, but they are not. In reality, the mix between what is available to eat and what is increasing in number is changing and rebalancing all the time, unless a point can be reached whereby the supplies at each level are in equilibrium.

An English food chain game, with grass, rabbits and foxes, shows this well. The images are in three modes – cartoons, numbers and biomass graphs. The text explains changes, and questions what happened. It is worth playing the simulation a few times and noticing the difference the starting points can make to it. <<http://puzzling.caret.cam.ac.uk/game.php?game=foodchain>>. Note that both animals are noxious pests here.

This simulation can be taken further by regarding the effects of a rabbits and foxes as metaphors for other creatures on a food chain. Can you make the rabbits or foxes die out? Use it to help understanding of the loss of species. What about if foxes are a metaphor for humans? This simulation can help develop some understanding of food security issues e.g. what happens as food supplies and animal populations go up and down?

Growing food

Growing and cooking food is now being incorporated into the school curriculum – perhaps catching up with many home educators! Gardening is being seen as important for its tactile, social and personal development values, as well as for academic reasons such as science, numeracy and literacy. I have put some suggestions for garden activities in previous Biodiversity articles in this series since 2010. One very popular program for schools, as it also includes curriculum materials, is the Stephanie Alexander Kitchen Garden Program, which can be found at <<http://www.kitchengardenfoundation.org.au/>>.



Concluding AYofF and NYR

As we come to the end of the AYofF and NYR, there is much that might have been done through books and farm learning, which will support the ongoing UNDB aims for agriculture and biodiversity. Reading both text and images is useful for learning at any age, as well as being entertaining. Knowing about farming, sources and production of food, doing our own bit, and observing how balances between populations and food supplies affect each other, is learning that I think will form a good base from which to meet the expected challenges in our children's lifetimes re biodiversity and food.

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