



Small Schools Program

As an extension of Flying Arts' Connecting Arts with School Curriculum (CASC) program, the Small Schools Program (SSP) is for schools with 50 or less students in regional and remote Queensland. This unique program offers the support of a registered primary teacher/artist to collaborate with small schools to plan and deliver an incursion combining arts and non-art curriculum. Ongoing support is a unique feature of this specialised program.

This program is intended to develop confidence in the planning and delivery of arts-rich experiences in the classroom, better understanding of how to deliver on arts curriculum, how to connect arts into other areas of curriculum to enhance teaching and learning, to enhance practical skills in the visual and media arts and to collaborate with artist to deliver arts.

This template and materials are intended as a resource and source of ideas for educators to use as a model.

SCHOOL:	Cloyna State School, Moffatdale State School & Windera State School
TEACHER:	Patricia Van Kempen
LOCATION:	Cloyna State School and Moffatdale State School
YEAR LEVEL:	P-6
LESSON LINKS:	Visual Arts / Science
ARTIST:	Claudia Husband

Extracting Colour from Plants

INTRODUCTION:

Students at Windera, Cloyna and Moffatdale State Schools in the South Burnett region are exploring colour changes in science, and are interested in a similar program to the *How artists use materials differently to scientists* Case Study that took place with Flying Arts and artist Therese Flynn-Clarke. A plan was developed to introduce students to two forms of natural dyeing, exploring how colour is extracted from plants with eco-printing and indigo dyeing.

LESSON IDEA:

The day is split into three separate sections, with each to focus on a different element of colour and dye exploration. Students will be shown short presentations before each section to introduce them to each project. The first part of the lesson involves students gathering plants from around the school grounds to use in eco-printed bundles. Part two of the lesson will involve dyeing cotton fabric with indigo dye to

introduce the students to a unique form of dye extraction and colour change. Part three of the lesson involves using the eco-printed papers to explore colour changes with metals, acids and alkalis, and finally making small artist books.

AUSTRALIAN CURRICULUM LINKS:

Years 5-6 Chemical Change

Years 3-4 Materials

The schools are using the Primary Connections program with its links to ACARA.

APPROACH AND SEQUENCE OF LESSON:

Eco Dyeing onto Paper

1. Pots of water are prepared set to boil. One pot to contain a tea solution, one to contain a red cabbage solution.
2. Students are shown a short PowerPoint presentation on extracting colour from plants.
3. Students gather plant matter from around the school yards to use in their bundles
4. All students are given 2 sheets of watercolour paper to work with, which are cut or torn in half lengthways (so that they can easily wrap around the tin cans, and fold to fit the ceramic tiles).
5. Paper is briefly soaked, then plant matter is layered on the paper, along with onion skins, powdered turmeric and beet powder.
6. Paper is either rolled around a tin can and tied tightly with string, or folded and sandwiched between two ceramic tiles (held together with large bulldog clips).
7. The bundled paper is placed into the dye pots, and left to boil for 1 hour minimum.

Indigo Dyeing onto Fabric

1. While bundles are boiling in the dye pots, students are shown an alternative dye method and given the opportunity to create indigo dyed patterns on fabric.
2. Students are shown a short presentation on indigo dye, with a discussion on how indigo is different to other plant dyes.
3. Students are given two pieces of fabric to fold in various ways to create resists, and are placed in the indigo vat for 2-5 minutes.
4. Fabric is removed from the vat, rinsed and hung out to dry.
5. Eco-printed bundles are removed from the bath and left to cool. Bundles are unwrapped and left to dry before lunch begins.

Creating Artists Books

1. Paper is assessed for the different patterns, effects and colours that have occurred.
2. Using brushes, students apply solutions of vinegar, soda ash and iron to the paper in order to observe colour changes.
3. The paper is then cut into quarters (total 8 pieces) and stapled into an artist book.

RESOURCE REQUIREMENTS:

Eco Dyeing

- Heat sources for dye pots — stove, BBQ or portable camping stove (including fuel!) [[Gasmate portable stove](#) from Bunnings, and 4pack [Gasmate Butane Fuel](#) cartridges from Bunnings]
- Large stainless steel pots (2-3)
- Long stainless steel tongs and stirring sticks/spoons

- Ceramic tiles (for clamping paper)
- Tin cans (from canned vegetables)
- String
- Elastic bands
- Large bulldog clips
- Watercolour paper (2 sheets of A4 paper per student)
- Markers and paddle pop sticks for writing students' names
- Collected vegetables, plants and spices (eg, onion skins, tea bags, coffee, turmeric, red cabbage, beetroot powder, gum leaves, grevillea leaves, flowers etc)
- Drying racks for paper and fabric
- Mordants such as iron (either powdered form or from rusty objects) and alum
- Small jars/containers for mixing solutions
- Brushes
- Acids/alkalis — vinegar, lemon juice, soda ash for exploring colour change
- Trays for soaking paper

Indigo Dyeing

- Bucket with a lid for the indigo vat
- Vat materials: Indigo powder, soda ash, sodium hydrosulphite [Suggested supplier: [Kraftkolour](#)]
- Cotton fabric (2x pieces approx. A4 per student)
- Clamping/resist materials:
 - Ceramic tiles or plastic squares
 - Bulldog clips or clamps
 - String and elastic bands
 - PVC pipes
 - Pegs
- Drying racks and pegs (or rope washing line)
- 2 x buckets for rinsing (pre-dye rinse and post-dye rinse)

ADDITIONAL RESOURCES:

Flying Arts Case Study — *How do artists use materials differently to scientists?*

Pioneer Thinking — Making Natural Dyes from Plants [\[Link\]](#)

A Beautiful Wasteland (e-book) — Grace, J & Borradaile, K (2017) *Eco-Printing on Paper*

India Flint — Eco-Printing artist [\[link\]](#)

Kraftkolour — Online store and resource for dyes [\[link\]](#)

Indigo: The Colour that Changed the World (book) — Legrand, C (2013) *Indigo: The Colour that Changed the World*. New York: Thames & Hudson

OUTCOME:

Two very exciting and busy days! At both schools students were very engaged with the varied activities presented by our artist, Claudia Husband. Teachers were pleased with the curriculum links to the Science units they were doing this term. Year 5 and 6 were doing Chemical Change which was covered with the exposure of the indigo dye to oxygen, the eco dyes reacting to the different components in the hot pots and the application of soda ash and iron onto the final eco books. Years 3 and 4 are studying Materials and this was linked with the use of watercolour paper and cotton fabric. The Prep to Year 2 teacher was happy to have the students engaged with hands on activities with the nature items.

PHOTOGRAPHS:



0396jpg

Caption: Josie Lewis from Winderera State School enjoys foraging for natural materials to do her eco-dyeing.

Photographer: Pat van Kempen



0403jpg

Caption: Natural items ready for eco-dyeing.

Photographer: Pat van Kempen



0427jpg

Caption: Layering our natural materials ready for rolling and compressing onto tin cans.

Photographer: Pat van Kempen



0473jpg

Caption: Our artist and printmaker, Claudia Husband lowers the 'packages' into the red cabbage or tea water brewing.

Photographer: Pat van Kempen



0498jpg

Caption: Sisters, Josie and Imogen Lewis, from Windera State School work on tying their fabric ready for immersing in the indigo vat solution.

Photographer: Pat van Kempen



0503jpg

Caption: Cloyna State school student, Bella Borninkhof folds her fabric ready for indigo dyeing.

Photographer: Pat van Kempen



0504

Caption: Excited to be dyeing with indigo is Jodie Pick of Cloyna SS

Photographer: Pat van Kempen



0506jpg

Caption: Moffatdale State School students have their eco-dyeing 'packages' ready for brewing.

Photographer: Pat van Kempen



0516jpg

Caption: Indigo dyed fabric drying at Moffatdale State School.

Photographer: Pat van Kempen



0526jpg

Caption: Zac Borninkhof of Cloyna State School shows off his indigo dyeing using the Japanese 'storm' pattern.

Photographer: Pat van Kempen



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Caption: Madison Holding of Cloyna SS observes the chemical changes with soda ash and iron on her eco-dyed papers.

Photographer: Pat van Kempen



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Caption: Final product...our eco-dyed booklets.

Photographer: Pat van Kempen