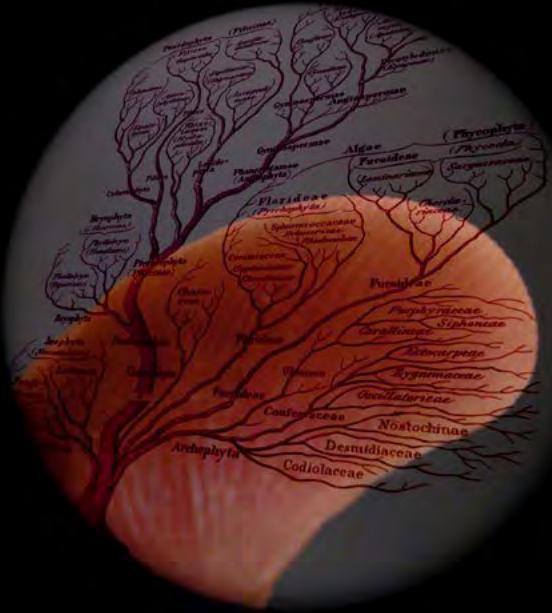


# Vital Patterns

## Exhibition Guide



Alberta  
**Foundation** for the **Arts** TRAVELLING EXHIBITION PROGRAM



# Alberta Foundation for the Arts

# TRAVELLING

# EXHIBITION

# PROGRAM

The Alberta Foundation for the Arts (AFA) has supported a provincial travelling exhibition program since 1981. The mandate of the AFA Travelling Exhibition Program is to provide every Albertan with the opportunity to enjoy visual art exhibitions in their community. Three regional galleries and one arts organization coordinate the program for the AFA:

**Northwest Region:** The Art Gallery of Grande Prairie, Grande Prairie

**Northeast and North Central Region:** The Art Gallery of Alberta, Edmonton

**Southwest Region:** The Alberta Society of Artists, Calgary

**Southeast Region:** The Esplanade Arts and Heritage Centre, Medicine Hat



Each year, more than 300,000 Albertans enjoy many exhibitions in communities ranging from High Level in the north to Milk River in the south and virtually everywhere in between. The AFA Travelling Exhibition Program also offers educational support material to help educators integrate the visual arts into the school curriculum.

Exhibitions for the TREX program are curated from a variety of sources, including private and public collections. A major part of the program assists in making the AFA's extensive art collection available to Albertans. This growing art collection consists of over 8,000 artworks showcasing the creative talents of more than 2000 artists. As the only provincial art collection in Alberta, the AFA collection reflects the development of the vibrant visual arts community in the province and has become an important cultural legacy for all Albertans.





## Vital Patterns

Patterns are all around us. We are often enamoured with the beauty of the natural landscape that surrounds us, and artists are no different. Nature serves as a significant inspiration and when we look closer at the building blocks of the natural world, we often find similar interconnecting patterns; the roots of a tree system and our nervous system, the veins of a leaf and the veins in our own body, the pattern of bark and the texture of our own skin.

Some of the most common patterns are the driving force behind both humans and plants. These systems are vital to survival and there is beauty in the simplicity of these patterns and the complexity of these systems.

This exhibition features artworks from the Alberta Foundation for the Arts (AFA) collection and include artists Clint Wilson, Doris Freadrich, April Dean, and William Laing.



# ABOUT THE ARTISTS

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## CLINT WILSON

Clint Wilson is an Edmonton based multi-media artist and founder of Integrated Wilderness Systems, a platform for the development and dissemination of critical thinking about neo-ecologies, post natural wilderness and natural resource management. Wilson received his Master of Fine Arts from the University of Victoria and has had a productive career producing exhibitions for galleries, founding Artist-Run Centres across Canada and in the United States, serving on peer juries, and assisting artists from around the world in the production and realization of their work through his twenty-eight year role as Senior Preparator at the Art Gallery of Alberta. In his recent work, Wilson's fascination with late Victorian idealism and the life of designer William Morris have led him to reimagine the potential of utopian ideologies to be subversive and to reform contemporary life. Wilson was inspired for his Second Growth series while walking in the replanted forests of Kunexalas reserve lands on South Moresby Island, Haida Gwaii. There he saw the dazzling green of new growth emerging from the old logged trees, and he explains that "confronted by this remarkable display of entropy in recession, these self spawning re-constructions coaxed me into a half conscious dream like state through which hallucinations of pre industrial, impossible utopias emerged in my mind." He explains that his Second Growth series "reconstitutes a Victorian garden within an old growth boreal forest. This new photographic ecosystem described in the project brings forward contradictions between romantic world views infused with denial of predatory states and the real world cycle of production and consumption. The images are in a state of flux, Victorian snapshots of idealic [sic] wilderness scared by the remains of the botanical harvest that took place there a few decades ago."

# DORIS FREADRICH

Doris Freadrich was raised on her family's farm near Forestburg, Alberta, and moved to Edmonton as a young adult to pursue a Bachelor of Education degree through the University of Alberta. After completing her BEd in 1976, she shifted the focus of her studies to visual arts, completing a Bachelor of Fine Arts degree in 1979, and a Master of Visual Arts in printmaking in 1990. Though she has worked in a variety of printmaking disciplines, the materials that she has principally used in her exhibited work are copper, aluminum, and photographic film. Her prints have been shown in numerous national and international exhibitions, and are currently in many public and private collections, including the Canada Council Art Bank, Alberta Foundation for the Arts, Art Gallery of Alberta, and the University of Alberta. Freadrich now lives and continues a leisurely artist practice in Sechelt, British Columbia. She describes her Ardent Fragility series as follows: "Our existence is determined and sustained by a unity of cyclic and opposing forces. My artworks in this exhibition are an attempt at a personal excavation to reveal for the viewer an emotional sense of the fragility and power within these relationships. Allusions are made to the harmony and chaos around and within us, and to our corresponding struggle to maintain some kind of balance. There is no definite sense of scale; the imagery suggests personal psychological struggles as well as large scale environmental concerns. The images incorporate elements of found objects, photography, metals and drawing. The images portray erosion, growth, harmony and friction that are both natural and man-made in origin. A balance of physical and psychological tensions and rhythms is the ultimate goal."



# ABOUT THE ARTISTS

## WILLIAM LAING

William Laing is a Scotland-born multi-disciplinary artist with an impressive teaching career of forty-two years. Laing received his own art education at the Vancouver School of Art (now the Emily Carr University of Art and Design), Brighton Polytechnic in England, and the Royal College of Art in London, England. After moving to Alberta in 1974, Laing established a serigraphy and etching department at the Alberta College of Art and Design, then went on to become a professor at the University of Calgary in the printmaking department. His dedication to his profession and his students earned him the University of Calgary's Student Union Teaching Excellence Award in 1992/93. Laing's artistic work has been equally successful; his work has been shown in over forty solo exhibitions around the world and is held in many public collections, he has been commissioned to paint murals, create statues, and design a Canada Post stamp commemorating Canada's National Parks. Laing's contribution to art in Alberta was acknowledged by his appointment to the Royal Canadian Academy of Arts in 1995. William Liang's series Terrain of the Domestic is featured in the Vital Patterns exhibition. He describes his purpose as such: "This series of prints and constructions reflect on the experience of looking and looking through layers that combine to form complex images of nature. Interior space juxtaposes with exterior. Botanical patterns on lace are a veil through which the landscape appears. In the constructions, scale shifts into miniature: a branch cutting is an imagined tree against an etched detail of landscape while clear plexiglass becomes a reflective pool. These works ponder the question of how we see, imagine and respond to the natural world."

# APRIL DEAN

April Dean is a drawing, video, installation and print artist working in Edmonton and teaching at the University of Alberta. She holds a Diploma in Photographic Technology from the Northern Alberta Institute of Technology, a Bachelor of Arts with Distinction in Art and Design, Printmaking from the University of Alberta, and a Master of Fine Arts from the Nova Scotia College of Art and Design. Her work has been shown in several solo exhibitions in Edmonton and Halifax and is included in the public collections of Alberta Foundation for the Arts, The University of Alberta's Printmaking Department, and the Provincial Archives of Alberta. In 2016, Dean was recognized as a Top 40 Under 40 Edmontonian for her revitalization of the Society of Northern Alberta Print-artists (SNAP) as the society's Executive Director. Under her leadership, SNAP has flourished as a centre for art creation and exhibition as well as collaboration with diverse community organizations. Dean's recent artwork explores themes of intimacy and isolation. In her artist's statement, she explains "the objects I represent, often photographically, are transformed by the processes of printmaking allowing these representations to read as both familiar and bodily as well as with aspects of estrangement and alienation. [...] I have an attraction to objects which seem worn and weathered by love. Objects whose fragile nature and delicacy force me to consider my own physical construction."



# IMAGE INVENTORY

Clint Wilson

**SECOND GROWTH**  
N5890322 m E318097 m

2018

Photograph on paper

17.3 x 13 in.



Doris Freadrich

**ARDENT FRAGILITY #3**

1991

Photograph, ink on copper plate

Actual: 15.2 x 15.2 cm (6 x 6 in.)



Doris Freadrich

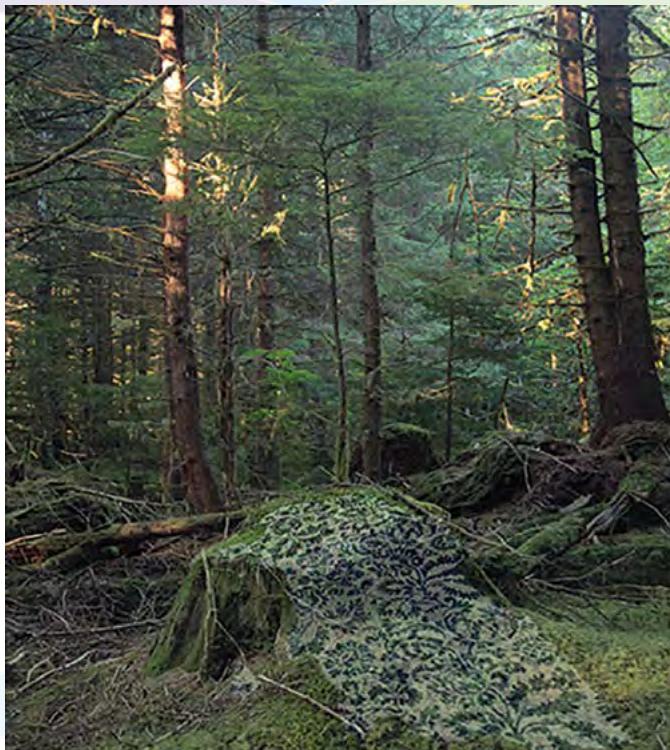
**ARDENT FRAGILITY #4**

1991

Mixed media, beeswax, photograph,  
walnut shells on cardboard

Actual: 15.2 x 15.2 cm (6 x 6 in.)

# IMAGE INVENTORY



Clint Wilson

**SECOND GROWTH**  
*N5889703 m E320641 m*

2018

Photograph on paper

17.3 x 13 in.

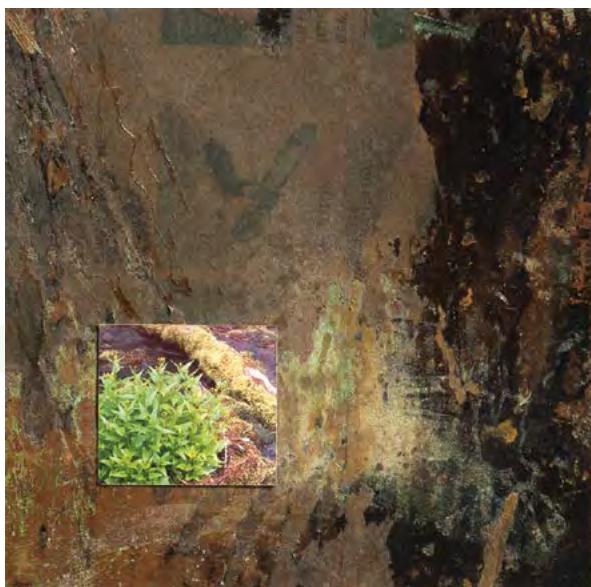
Doris Freadrich

**ARDENT FRAGILITY #9**

1991

Photograph, ink on copper plate

Actual: 15.2 x 15.2 cm (6 x 6 in.)



Doris Freadrich

**ARDENT FRAGILITY #8**

1991

Photograph, paper, asphaltum on copper plate

Actual: 15.2 x 15.2 cm (6 x 6 in.)

# IMAGE INVENTORY



Doris Freadrich

***ARDENT FRAGILITY #11***

1991

Paper, photograph, ink, asphaltum on  
copper plate

Actual: 15.2 x 15.2 cm (6 x 6 in.)



Clint Wilson

***SECOND GROWTH***  
N5889701 m E319554 m

2018

Photograph on paper

17.3 x 13 in.



April Dean

***SATIETY***

2009

Woodblock, silkscreen, wax on rice paper

Image: 40 x 60.2 cm (15 3/4 x 23 11/16 in.)

Sheet: 57.5 x 76.2 cm (22 5/8 x 30 in.)

# IMAGE INVENTORY

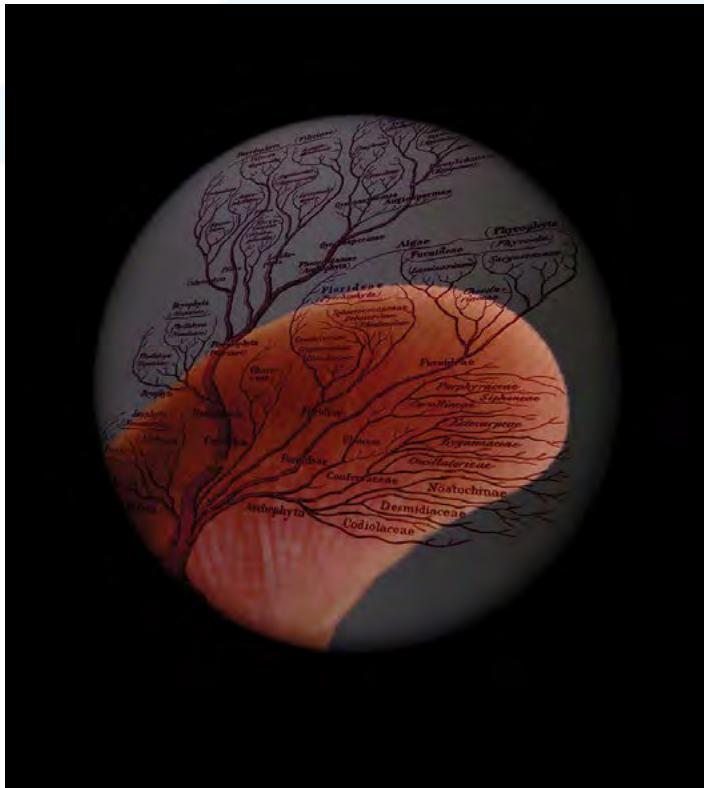
Doris Freadrich

*ARDENT FRAGILITY #14*

1991

Photograph, ink on aluminum plate

Actual: 15.2 x 15.2 cm (6 x 6 in.)



Clint Wilson

*SHADOWPLAY (MENISCUS)*

2004

Photograph on paper

Actual: 68.3 x 60.6 cm  
(26 7/8 x 23 7/8 in.)

April Dean

*THE RETURN*

2009

Woodblock, silkscreen, wax on rice paper

Image: 39.7 x 59.8 cm (15 5/8 x 23 9/16 in.)

Sheet: 49.7 x 59.8 cm (19 9/16 x 23 9/16 in.)



# IMAGE INVENTORY



William Laing

*BLUE PRINT*

2000

Silkscreen on paper

Image: 57.3 x 38.7 cm (22 9/16 x 15 1/4 in.)

Sheet: 76.2 x 56.5 cm (30 x 22 1/4 in.)

Clint Wilson

*SHADOWPLAY (MENISCUS)*

2004

Photograph on paper

Actual: 68.3 x 60.6 cm  
(26 7/8 x 23 7/8 in.)



# IMAGE INVENTORY



Clint Wilson

**HORTICULTURE**

1992

Mixed media collage, silver prints,  
leaves, twigs, wax, copper

Actual: 24.6 x 24.6 x 3.7 cm  
(9 11/16 x 9 11/16 x 1 7/16 in.)

William Laing  
**TERRAIN OF THE DOMESTIC #10**  
2006  
Colour Serigraph  
24 x 34.5 in.



# CRATE LISTING

## CRATE # 1

1. SATIETY, April Dean
2. THE RETURN, April Dean
3. TERRAIN OF THE DOMESTIC #10, William Laing
4. ARDENT FRAGILITY # 4 , Doris Freadrich
5. ARDENT FRAGILITY # 8, Doris Freadrich
6. ARDENT FRAGILITY # 3, Doris Freadrich
7. ARDENT FRAGILITY # 14, Doris Freadrich
8. ARDENT FRAGILITY # 11, Doris Freadrich
9. ARDENT FRAGILITY # 9, Doris Freadrich
10. SECOND GROWTH: N5889701 m E319554 m, Clint Wilson
11. SECOND GROWTH: N5890322 m E318097 m, Clint Wilson
12. SECOND GROWTH: N5889703 m E320641 m, Clint Wilson
13. HORTICULTURE, Clint Wilson

NOTE: FRAGILE WORKS- Carefully review how the works are packed.

NOTE: Only remove foam packing that is marked remove/replace.

Keep all packing with the crate.

Rewrap – Line up the numbers.

Concerns Contact: Art Gallery of Grande Prairie

Danielle Ribar – Associate Curator, 780.357.7483  
Region 1, AFA Travelling Exhibitions

# CRATE # 2

- 14. SHADOWPLAY (MENISCUS), Clint Wilson
- 15. SHADOWPLAY (MENISCUS), Clint Wilson
- 16. BLUE PRINT, William Laing

D. TREX Didactic

D. Vital Patterns Didactic

NOTE: FRAGILE WORKS- Carefully review how the works are packed.

NOTE: Only remove foam packing that is marked remove/replace.  
Keep all packing with the crate.  
Repacking – Line up the numbers.

Concerns Contact: Art Gallery of Grande Prairie  
Danielle Ribar – Associate Curator, 780.357.7483  
Region 1, AFA Travelling Exhibitions

# Vital Patterns

## EDUCATION GUIDE

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Alberta  
Foundation  
for the  
Arts

TRAVELLING EXHIBITION



TREX

Region 1: Northwest Alberta

# HOW TO LOOK AT ART

## Using the Four Stages of Criticism

» **What is criticism in art?** In everyday speech, the word “criticism” is often used to describe “finding fault” with a person or their work. In the vocabulary of art, criticism has a broader definition: **criticism describes looking carefully at, questioning, and forming conclusions about artistic works.**

The four stages of criticism listed below help the audience viewing the art to spend time analyzing the work and their own reactions to the work. Without spending that time, we may miss important aspects of the work’s technical content, its message, or our own connection to the piece.

**AGE LEVELS:** If age-appropriate language is used to ask critical thinking questions, children of all ages can participate in all four stages of questioning. Further suggestions for age-appropriate questions can be found in the “Educator’s Guided Tour” section of this educational package.

### STAGE 1: DESCRIPTION

*What do we see when we look at a work of art?*

Note: In this stage, we list or describe everything that is literally in the image. The things that the image implies to our imagination or emotion will be discussed in Step 3. For this stage, it will be useful for students to know the Elements of Art and Design (line, shape, form, colour, texture, value) as they name aspects of the work.

- » Describe the subject: What do we see in this image? Landscape, nature, people, animals, flowers, still life, etc.
- » Describe media (materials): what is this work made of? Oil painting, clay, sculpture, digital photography, film photography, etc.
- » Discuss Elements of Art and Design: (line, shape, form, colour, texture, value)
  - › What colours are used (bright, dull, monochromatic, analogous, complementary)?
  - › What kinds of lines are used (horizontal, vertical, wiggly, straight, angular, curved)?
  - › What kinds of shapes are used (organic, geometric, large, small)?
  - › Does the image depict or literally have texture (rough, smooth, wet, dry)?
  - › Does the work have dark and light areas/values?
- » Describe the style of the work: Is the work non-objective (abstract)? Is it experimental or traditional when compared to other works in the same medium? Does it focus on expression, or on documenting the subject (or possibly both)?

## ► STAGE 2: ANALYSIS – OBSERVING RELATIONSHIPS

*How is this artwork (composition) arranged?*

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Note: It will be useful to discuss relationships in the work using the Principles of Art and Design (movement, contrast, harmony, balance, emphasis, rhythm, scale and space). With younger students, it may be more effective to discuss the work without first teaching these terms, and instead provide the terms as you discuss different relationships in the work.

- » Are there contrasts of dark and light colours?
- » Are colours or shapes repeated to create unity or rhythm?
- » Is there one object that stands out and is more emphasized than other objects?
  - › What makes that object stand out?
- » What type of balance is it, symmetrical or asymmetrical?
- » Is movement implied in the image? How do the lines, balance, and rhythm direct the movement of your eye when you look at the work?
- » How does the scale of the objects change how we perceive the space? Does the image seem flat (all the objects are pressed up against the front of the image), or is the image deep (objects recede in space)?

## ► STAGE 3: INTERPRETATION

*What meaning or intent did the artist have in making this work?*

---

Note: In this stage, the viewer imagines the meaning or intent behind the technical choices and content that they have observed in the first two steps. This stage can be challenging, because the meaning is often unclear, and it is often left to the viewer to use their own knowledge to formulate the meaning of the work. For this reason, interpretation requires creativity, empathy, and courage. The interpretation is an educated conclusion that utilizes the viewer's observations of the content of the artwork and the viewer's own experiences to imagine the intent of the artist.

- » What mood or feeling do you get from this work?
- » Does the work remind you of other works, or of other experiences you have had?
- » How does this work fit into or respond to historic and contemporary trends in art?
- » What does this work tell you about how the artist feels about the world?
- » Is the artist trying to solve or comment on a challenge in art?
- » Is the artist trying to solve or comment on a challenge in society?
- » Is there a narrative (story) that is being told?
- » Why did the artist create this work?
- » What do you think this work is about?

Remember, there are no right or wrong answers in interpretation; each viewer's experiences will provide a different insight into the work's potential meanings. For educators, instead of approaching students interpretations as correct or incorrect, it can be helpful to ask the student to explain their conclusion, and then allow others to share why they feel the same or differently about ideas that are being presented.

# HOW TO LOOK AT ART

continued

## Using the Four Stages of Criticism



### STAGE 4: JUDGEMENT – CONCLUSION ABOUT WORK

*What do I think or feel about this work?*

---

Note: In this stage, we decide what we like or dislike about the work. This decision is subjective, but an explanation for the decisions should be provided. The judgement stage is an important opportunity to practice using art vocabulary and participating in art critiques, potentially discovering ways to improve the work.

- » Do you like the work? Why or why not?
- » Do you agree with the message the artist is sharing?
- » What are the strengths about this work?
- » What are the weaknesses and how could they be changed?
- » How did your initial opinion change or stay the same after analyzing the work?

# Vital Patterns

## EDUCATOR'S GUIDED TOUR

When was the last time you noticed a cloud that looked like a familiar object? From childhood, humans are eager to recognize shapes, lines, and ultimately patterns in the world around them, including their own bodies. With an interest in exploring the significance of pattern in nature and humanmade designs, the Vital Patterns exhibition brings together works from four diverse artists that satisfy the eye's longing to find familiarity in surprising places. William Liang, Doris Freadrich, April Dean and Clint Wilson have created these works in a variety of media, including serigraph, silkscreen, photographs, metalwork, and woodblock printing. Through each of these media, the artists in Vital Patterns invite us to see the consistency, and even connectedness, in the aesthetic design of living things, the natural environment, and the environment of visual culture we create for ourselves through art.

The reason that we recognize shapes in the clouds, are able to learn written and spoken language, and can build social relationships is that our brains function on pattern recognition. Our brains are experts at fitting new information into the pattern of information we already know, so that we can understand, conclude, and make predictions about the world around us.<sup>1</sup> And that world around us is truly filled with patterns! One of the most ubiquitous patterns in nature is a fractal design, meaning that the pattern is made of repeating self-similar but increasingly smaller parts, like the branches and twigs of a tree. Because patterns are so essential to our process of thought and expression, and so common in the world around us, it's no wonder that humans find patterns to be aesthetically pleasing.

In visual art, repeating shapes, colours, and lines can provide balance to a piece. A visual pattern can provide a sense of movement as the shapes and lines unfold, or it can lend a sense of stability. Pattern can also be presented in art through a thematic motif. Many artists use thematic motifs, referencing the same theme or idea multiple times in the same work or body of works, in order to create meaning, narrative, and unity. For instance, a common motif in European medieval designs is the symbol of the cross, meant to remind viewers that purpose of the work was to incite religious reverence. The works in Vital Patterns include both types of patterns; the pieces all include aesthetic reference to natural forms built on visual repetition, but they also often seek to use these repeating forms symbolically.

<sup>1</sup> For a breakdown of the patterned process of the human brain, check out this article from tech publication Praxis: <https://praxis.fortelabs.co/a-pattern-recognition-theory-of-mind/>

One symbolic use of natural pattern in Vital Patterns is the comparison of the bodies of animals and plants to the structure of the human body. Clint Wilson's photograph from his series SHADOWPLAY (MENISCUS) depicts a human hand that is seen through a fisheye lens. This close-up view allows us to see the direction of the hairs and lines on the back of the hand. Imposed on the hand to look almost as if drawn onto the skin is a delicate and detailed red ink illustration of a taxonomic tree.

Taxonomy is the branch of science concerned with classifying things; living things are classified in a hierarchical chart called a taxonomic tree that identifies them in broadest to most specific categories. In Wilson's photograph, the form of the tree is drawn in flowing lines that suggest it also serves as an illustration of the veins in the depicted hand. The many veins of the tree are labelled with the Latin names of different taxonomic Kingdoms and Phyla. By layering these images, Wilson suggests to our pattern-friendly minds that the biological structure of the hand, including the pattern of its skin and hair on the surface, and the red network of veins within, is akin to the flowing taxonomy of living beings. The suggestion is that, like a fractal, the shape of the whole (taxonomy of living things), can be found within the smallest part such as in the veins of the human hand.



Clint Wilson, *SHADOWPLAY (MENISCUS)*, 2004,  
Photograph on paper



April Dean, *SATIETY*, 2009, Woodblock, silkscreen, wax on rice paper

April Dean also calls viewers to consider the congruence between the human body and the forms of nature, though she does so with more subtlety, even describing her work as "explicitly vague"<sup>2</sup>. The piece SATIETY, made from a silkscreened woodblock, is centered on an oval-shaped object: a textured whorl in high contrast shades of black and white. Viewed on its own, the piece might depict the burl of a

tree, a topographical map, or a birds' eye view

of waves on a body of water. The ambiguity of the form forces viewers to consider the similar textures found in a variety of natural objects and landscapes; the series of mental images that our minds scan in an effort to identify the object create a motif of their own. Bark, mountains,

<sup>2</sup> April Dean, Wordpress artist's statement

waves – a pattern of micro and macro texture. Taken in the context of the series, however, it seems likely that the object April Dean portrays is a wasp nest, its papery layers torn to create high contrast texture.

Texture seems to be a central element of the design, and yet, if the eye of the viewer flattens the texture into a pattern of inky, black and white lines and whorls, the object looks like a symbol of human biology: a fingerprint. The most micro of all the likenesses seen in the object, a fingerprint reinforces the idea offered by Wilson's photograph of the hand and taxonomic tree: the whole of nature (sea, topography) can be found in the smallest part (human fingerprint).

While some pieces suggest kinship in the aesthetic of the human body and other biological structures, other works in Vital Patterns use pattern to blur the dichotomy of natural and human made environments (a dichotomy is created when two things are established as opposing or completely different than one another). William Laing states this theme clearly by naming his colour serigraph, "Terrain of the Domestic".



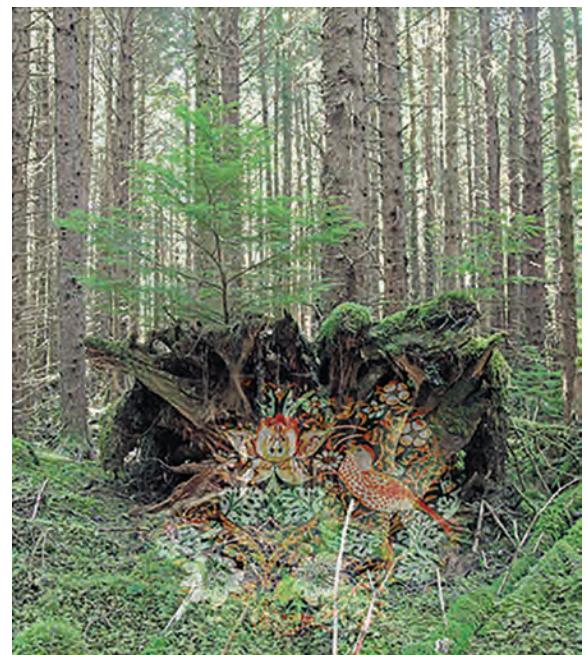
William Laing, *TERRAIN OF THE DOMESTIC #10*, 2006, Colour Serigraph

This elegant serigraph shows two different patterns; one is human drawn and looks like the design of lace fabric, the other is a high contrast rendering of a light-dappled forest. The eye first sees the colour tones of the individual halves; the lace is coral and gold in sharp contrast to the pale green and black forest. The dichotomization of the halves is also instantly noticeable; despite the similarities in form, the halves are contained in their own boxes

and in no way intertwined. Upon looking closer, the viewer will notice that the coral and gold pattern, though it is representative of leaves, stems, and flowers, is human drawn, and likely references the lace of a doily or other table decor. The design created by the light and dark shapes of the forest, although formed by similarly delicate shapes, is naturally occurring. By creating a strong dichotomy between two obviously comparable designs, Liang seems to suggest the futility of dividing our concept of human visual culture, and of ourselves, from that of the natural world. The forms that we surround ourselves with in our homes, through art and craft, mimic the forms of the natural environment long habited by our species. In questioning the dichotomy between the "terrain of the domestic" and the outdoor terrain, we pull at threads of

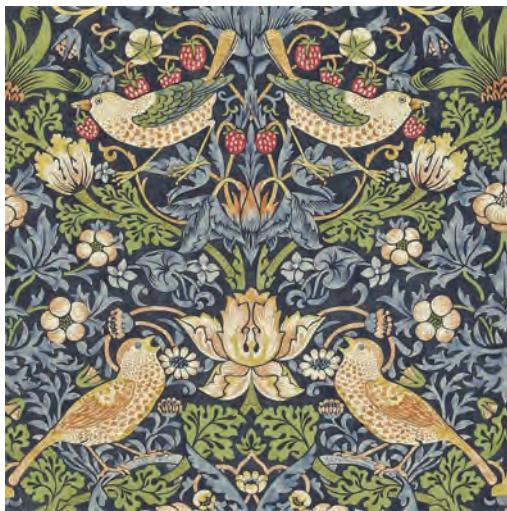
other deep and loaded issues, like the way that gender plays into the dichotomy of spaces. The lace square contains many elements that are traditionally associated with the feminine and women: lace suggests the women's "domestic" environment in the home, and pink colour and floral patterns have long been associated with a feminine aesthetic. Meanwhile, the dark depths of the forest in tones of green and black create an aesthetic traditionally associated with masculinity and depict the traditionally "masculine" environment outside the home, a place of adventure, danger, and reward. By demonstrating the similarity in both environments, Laing seems to suggest that this dichotomy is false, and that we cannot divide beautiful design and the natural world into gendered categories.

Clint Wilson fully embraces the blurring of natural design and human-made designs in his Second Growth series. Wilson was inspired for this series while walking through a formerly logged and replanted forest in Kunexalas reserve lands on South Moresby Island, Haida Gwaii. Struck by the way that the old growth stumps provided opportunities for the growth of new trees, Wilson found himself imagining "pre-industrial, impossible utopias"<sup>3</sup> in which this sort of revitalization was universally possible. He envisioned the designs of artist William Morris, leader of the anti-industrial Arts and Crafts movement, spread over the forest growth as if by graffiti. With this idyllic imagery in mind, he created the photographic series by superimposing



Clint Wilson, *SECOND GROWTH: N5890322 m E318097 m*,  
2018, Photograph on paper

Morris's designs onto photographs of old and new growth in the forest. William Morris and



William Morris and Co, STRAWBERRY THIEF, 1883,  
216476 Indigo/Mineral wallpaper

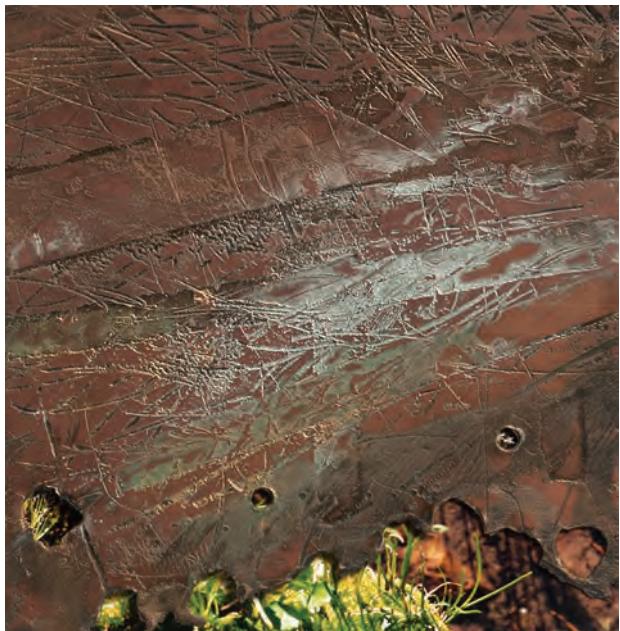
his contemporaries in the Arts and Crafts movement sought a utopian standard for production of human material and visual culture; they desired to return to traditional forms of production and harmony with the designs of the natural world. By grafting Morris's rich, nature-themed patterns into the rich, patterned chaos of the forest, Wilson creates for us tiny moments of visual utopia – the complete integration of the human romantic ideal of nature with the natural world itself. However, the imposition of art from a utopian movement into spaces that have been

<sup>3</sup> Clint Wilson, statement on Second Growth: Kunexalas

industrially logged also presents a contradiction, and a reminder that our idealism still exists within what Wilson refers to as the “real world cycle of production and consumption”.

In her series Ardent Fragility, Doris Freadrich goes beyond commentary on the patterned similarities between the natural and human-made world, seeking to explore the interplay of natural and manufactured materials. Her goal, she states, is to let her images “portray erosion, growth, harmony and friction that are both natural and man-made in origin”.

In the work Ardent Fragility #9, Freadrich depicts the correlation of erosion and growth; the



Doris Freadrich, *ARDENT FRAGILITY #9*, 1991

Photograph, ink on copper plate

worn copper plate appears to be in the process of disintegrating, revealing a startling shock of green growth beneath. The plate is distressed by a multitude of thin scratches worn into its surface; the scratches are illuminated with ink. They serve both to suggest that the plate is aged and battered by time, and to mimic the spiky shapes of the grass growing beneath the copper. The suggestion, it would seem, is that the scratching and destruction of the copper are united with the new growth of plant life. The plate is also shaped along its bottom edge by a pattern of half-circle cut-outs, and full holes are formed within the lower half of the plate. It looks as if the copper itself is melting away, being evaporated to reveal the new life below. In an era of environmental concern,

the destruction of the manufactured copper plate to make way for the growth of grass sends a message of hopefulness: the soft forms of the living world can overcome the weight of human imposition.

In creating their works, the artists in Vital Patterns draw on an element fundamental to human cognition and biological structure: the pattern. In doing so, their works become part of the vast number of designs created by human beings that mimic or are inspired by the patterns that exist everywhere in the world around us. These patterns are aesthetically pleasing to our senses of artistic beauty (in no small part) because pattern is the essential structure of the living world – of “vitality”. The networks of cells, veins, roots, branches, neurons and myriad other systems in the bodies of living things are all built upon repeating, often fractal-like growth.

In Vital Patterns, artists like Clint Wilson and April Dean seek to demonstrate the commonalities between the bodies of living things, while William Laing, and Wilson in his Second Growth series, show that the designs created by humans for aesthetic pleasure can not be separated away from the natural world that is often their inspiration. Doris Freadrich speaks to the vitality of the living world, suggesting that the wild patterns of life are a force against the weight of environmental damage. As a whole, these works are an invitation to see what may have been too ubiquitous to notice: the vital patterns in and all around us.

The following are questions that may be asked for different ages and abilities when looking at the *Vital Patterns* exhibition.

**Accessible Questions:**

- » What is a pattern? Why might artists use patterns or motifs?
- » Where in this image do you see two shapes or lines that are similar? Do you think they make a pattern?
- » What are all the objects/shapes you see in this piece? What do you think they are supposed to be? What other things have the same shape or design?
- » Have you ever seen a similar design? Where did you see it? Outside? Inside? In a book? In another work of art?
- » How does the title help you to figure out what the work might be about?
- » Do you like this piece? Do you think you will remember it? Why or why not?
- » Which piece is your favourite? Why?

**Activity Suggestion:** If pieces are arranged on a wall, ask students to stand next to the piece that is their favourite. Give the groups corresponding to each “favourite” piece three minutes to discuss amongst one another why they like the piece, and then explain its strengths to the class.

# A CLOSER LOOK AT...

## PATTERNS IN NATURE

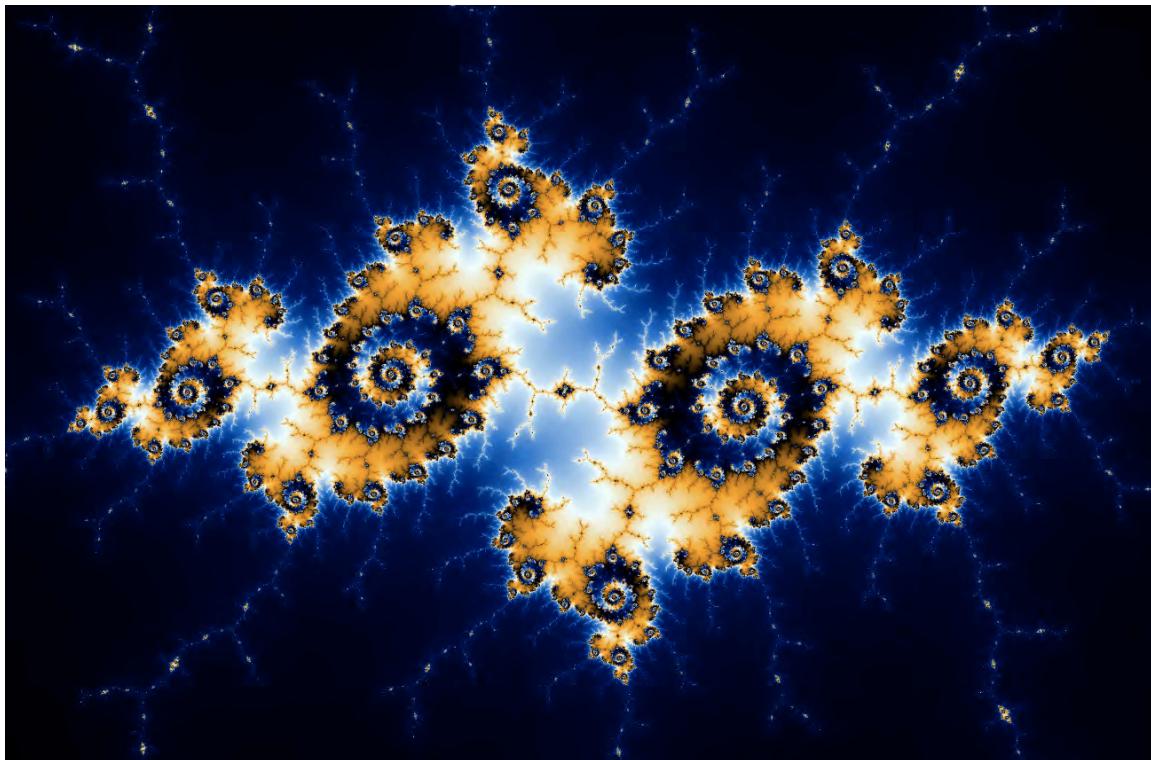
Patterns are the most ubiquitous design in the world around us. In fact, they're so common that when we identify the patterns in our homes, we might select only the most complex designs, like the exciting prints on our bedding or clothing. It may go unnoticed that nearly every object in our homes displays some element of patterned design: the scalloping on a bedframe, the tile on the bathroom floor, the border on the edge of a plate. With so many eye-catching designs to fill our minds, we might not even consider that perhaps the richest patterns in our homes are even closer at hand – literally in our own bodies. Repeating rows of cells, networks of neurons, and geometric criss-crosses across the backs of our hands are just some of the intricate patterns decorating and – more importantly – structuring the human body.

There are a couple reasons why human beings choose to surround ourselves with patterns. One reason is summed up by tech productivity expert Tiago Forte, who explains that, "the human brain has evolved to recognize patterns, perhaps more than any other single function." Our brains operate on a structured system, sorting segments of information into hierarchical categories. What we do best is recognize the patterns within these categories. Our brains are experts at fitting new information into the pattern of information we already know, so that we can understand, conclude, and make predictions about the world around us. The ability to compare thousands of patterns and process multiple pieces of information at once is called massively parallel processing, and it's what allows our brains to compete against even the much faster "thoughts" of computers. Our knack for predicting pattern also shapes what we see and experience; our brains are constantly searching for recognizable information and will tell us that we are seeing a pattern, even when that pattern is not quite complete. This is why we might misread words if we are expecting a certain word order, or why we might recognize animal shapes in the clouds. The human tendency to interpret a vague stimulus as something familiar, like hearing an expected phrase in a song or thinking a car looks like it has a face, is called pareidolia.

But humans are not silly for wanting to see patterns in everything around us; we evolved that way because most things around us are part of a larger pattern. The familiarity of patterns in the natural world also contributes to our tendency to surround ourselves with pattern in our homes. Right down to the atomic level, all material on Earth exists according to a structured design, and, in living things, that design is often essential for survival. No wonder we find patterns aesthetically satisfying! Below are some examples of patterned design in nature that may be interesting to discuss with students.

# FRACTALS

A fractal is a pattern made up of repeating, self-similar shapes which are increasingly smaller. In a fractal, the structure of the whole can be found in the smallest part. Because many natural and difficult-to-measure phenomena, like galaxies and coastlines, can be described as having fractal-like structure, fractals are sometimes referred to as the “patterns of Chaos”. The mathematician Benoit Mandelbrot contributed much of what is known in the field of fractal geometry, including the term “fractal”. He described fractals as the “art of roughness”, and the “uncontrolled element in life”<sup>1</sup>. Mandelbrot created equations that could be used to create a potentially infinite fractals called Mandelbrot Sets. Because the Mandelbrot Set is infinitely repeating, aesthetically pleasing, and operates on the mathematic notion that the whole can be seen in the smallest part, some people consider the Set to be a spiritual symbol, akin to a mandala. Mandelbrot’s work has put the chaos of topographical forms like mountain ranges and river networks into mathematical language, allowing them to be rendered artificially with computer graphics for movies and video games.



This image shows a section of a Mandelbrot Set. Mandelbrot Sets are, in theory, infinitely repeating. To “zoom into” a Mandelbrot Set, watch this hypnotic video, created by YouTube user tthsqe12:  
<https://www.youtube.com/watch?v=PD2XgOOyCCK>

<sup>1</sup> [Benoit Mandelbrot: Fractals and the art of roughness - Youtube video](#)

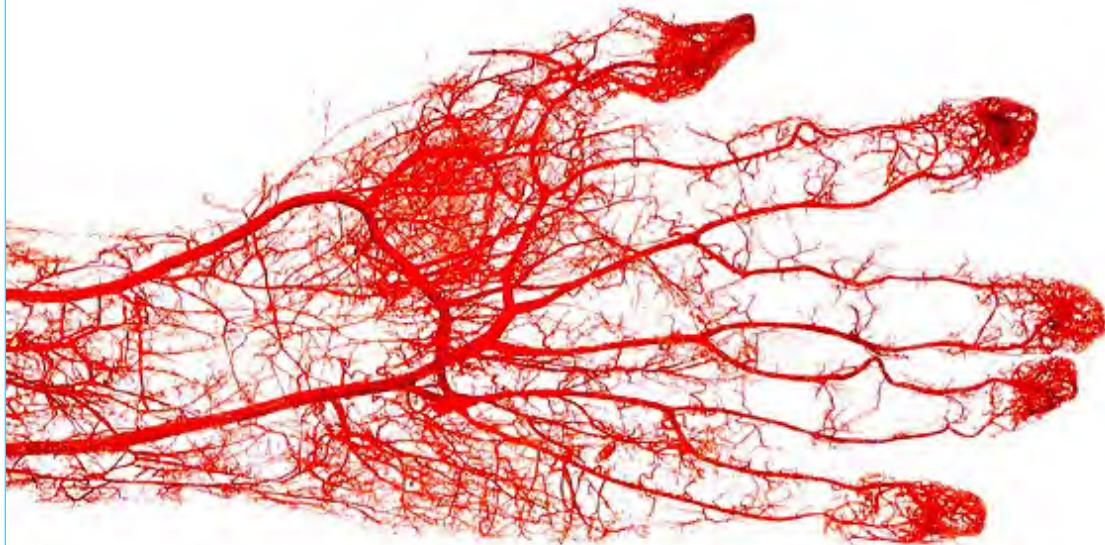


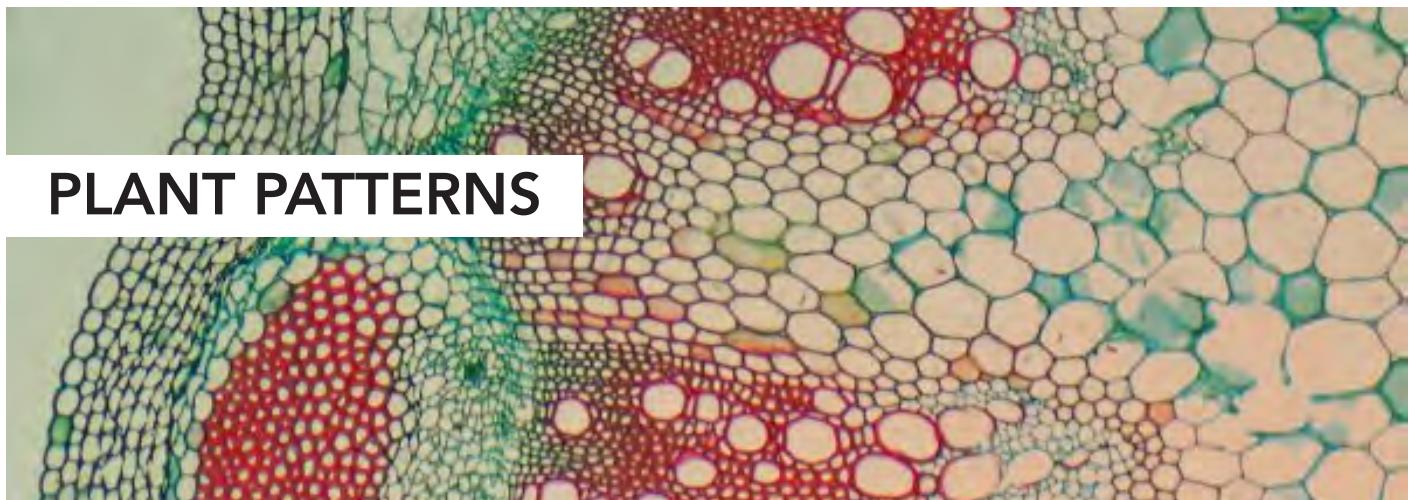
## CIRCULATORY SYSTEMS

The venation pattern on this leaf is structured like a fractal. The veins of a leaf transport water, minerals, and food energy through the leaf and on to the rest of the plant.

Most multicellular creatures have a circulatory system that operates on a system of blood vessels. Blood vessels in the human body spread outwards from the heart with a fractal-like pattern; the vessels are similar in design but grow increasingly smaller as they move towards the extremities of the body. This patterned network of vessels makes it possible that every part of the body is delivered oxygen and nutrients, and that carbon dioxide and other waste products are carried away. Though all humans have similar circulatory systems, each person's blood vessel pattern is unique, like a fingerprint. A Swedish researcher, Fredrik Leifland, has even developed a way to pay at the store using a biometric scan of the hand's blood vessels to determine the identity of the shopper. Below is an acid-corrosion cast of the arteries (vessels

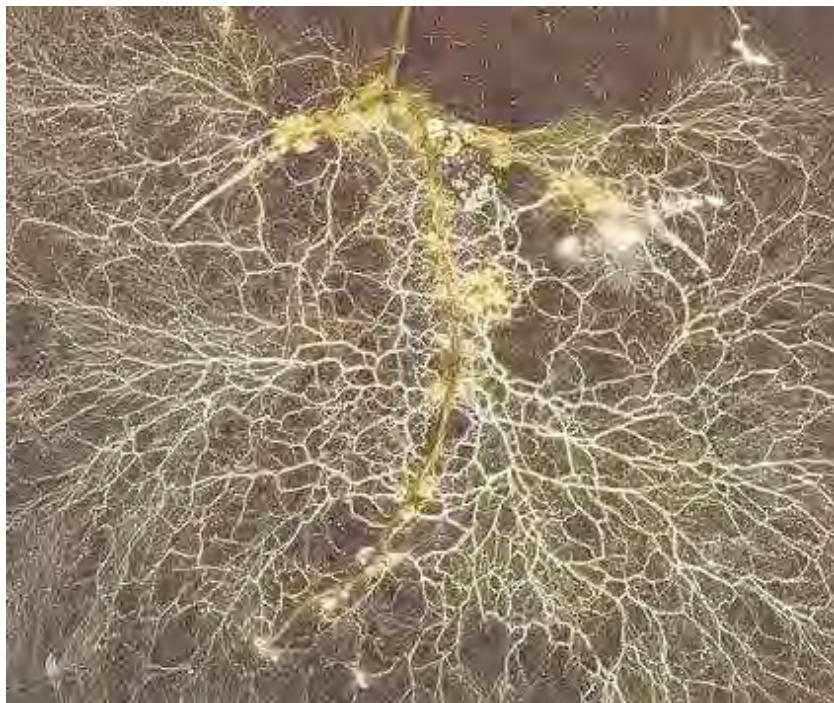
that carry oxygenated blood) in an individual's hand and forearm. Note the fractal spread of the arteries and the locations where the network of vessels becomes denser to allow for more sensitivity.





## PLANT PATTERNS

Plants do not have blood vessels like humans and other animals. Instead, they transport food, minerals, water, and gases through a vascular system – a network made of fibres and tissues that runs up and down the tree. Within the roots of the plants, as well as its leaves, stem, and branches, are a system of “veins” called phloem and xylem, which sit close to one another in a “vascular bundle”. Phloem is responsible for transporting food produced by photosynthesis, and xylem transports water and minerals. A cross section of a plant reveals the open tubes of phloem and xylem, which, especially when seen in colour, appear as an aesthetically pleasing pattern.



An essential part of the vascular system are the roots of a plant, which spread outward into the ground in a fractal pattern of increasingly smaller roots. The pattern of roots is not unlike the pattern of blood vessels seen in the human hand; by spreading out in smaller and smaller rays, the roots are able to maximize their access to water and nutrients in the soil.

This outward spreading pattern is seen in multiple parts of the plant: in the root system, the venation pattern on the leaves, and in the branches of trees, with each branch holding more smaller but self-similar branches. This form of growth is stable; it ensures that each small component, whether root or vein, is supported by a larger, albeit similar component in order to keep the plant, or person, healthy and alive.

# TOPOGRAPHY

Topographical forms like river systems, coastlines, and mountain ranges are in many ways unquantifiable. How long is a coastline, really? While walking down two kilometres of beach, you walk past a near infinite perimeter of jagged rock, mussels, seaweed, and grains of sand which make up the true distance of the coastline. Using fractals geometry, humans can begin to describe the natural "chaos" of topography in mathematical language – at least enough to create likenesses of it using computer graphic technology. While the phenomena of the natural world are grand and, in some ways, defy measurement, they are also patterned and form by repetitious systems and cycles.

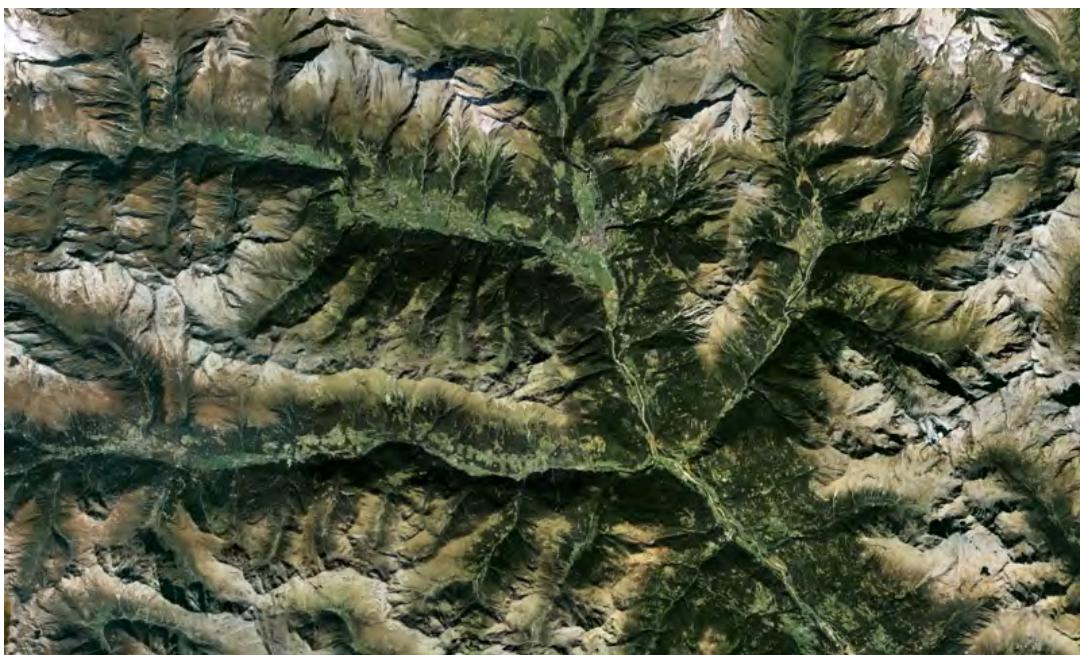
The pattern of the water cycle is fairly simple: water is evaporated out of water bodies, it forms into clouds, and then falls as precipitation from the sky. This pattern creates extraordinary topographical features on the landscape, shaping mountains, canyons, valleys and of course river and lake systems themselves. River systems flow downhill, and streams join creeks, which join larger rivers, until the water reaches lakes and seas, creating a fractal-like effect when seen from above. Satellite technology allows us to see the patterns of water systems with a bird's-eye view. Artist Paul Bourke scours Google Earth to find striking images of river systems; see a satellite image of a Canadian river system below. Consider the similarities and differences in pattern between river systems and the circulatory system of an animal, or the vascular system of a plant.





While mountains are shaped, and sometimes even formed, by water systems, most mountain ranges are created from the collision of tectonic plates, which are pieces of the Earth's crust. Some mountains are formed by volcanic activity. Young mountain ranges, like Himalayas and the Andes, are also the tallest and craggiest because they have not yet been rounded by erosion. Although collisions of Earth's crust, volcanic activity and erosion by wind and water may seem like a chaotic process for the formation of mountain ranges, a birds' eye view of different mountain ranges reveals that mountains form in a recognizable pattern.

Patterns are ubiquitous in nature – they are found in the materials and structures of topography, of living things, and even in the way that our brain processes its understanding of the world. It is no wonder that humans find patterns to be aesthetically pleasing and seek to surround ourselves with them in our homes both for functional and decorative purposes. To be patterned is, really, to be a feature of the magnificent natural world.



# GLOSSARY OF TERMS

## Aesthetic:

- » (adjective) referring to how something looks, often with regards to beauty  
example: "the car had aesthetic detailing"
- » (noun) a set of principles underlying the stylistic appearance of an artistic work, artist, or movement  
example: "she expressed herself through a punk aesthetic"

## Contemporary:

- (adj) belonging to or occurring in the present. In the art world, contemporary art refers to works produced in recent years.  
example: Banksy is one of the most widely known contemporary artists. His work has been produced in recent years and his artistic practice is ongoing.

## Dichotomy:

- (noun) a division or contrast between two things that are or are represented as being opposed or entirely different.  
example: the dichotomy between light and dark

## Fractal:

- (noun) A fractal is a pattern made up of repeating, self-similar shapes which are increasingly smaller. In a fractal, the structure of the whole can be found in the smallest part.  
example: in a snowflake, the formations of each branch of crystals repeat in smaller sizes to create the whole

## Idealism:

- (noun) the practice of forming or pursuing ideals, especially unrealistically  
example: "university students who think they can end poverty should at least be admired for their idealism"

## Motif:

- » (noun) a decorative design or pattern
- » (noun) a distinctive element or dominant idea in an artistic or literary composition.  
example: medieval art used the cross as a motif to represent Christian ideology

## Serigraph:

- (noun) a printed design produced using a screen. The word "silkscreen" is commonly used interchangeably with serigraph, although the screens in most print production are not made of silk.  
example: William Liang's work "Terrain of the Domestic" depicts two serigraphs

## Symbolism:

- (noun) the use of symbols to represent ideas or qualities  
example: the scythe is often considered a symbol of death

## Taxonomy:

- (noun) the branch of science concerned with classification, especially of organisms.  
example: in the taxonomy of living things, animals are classified in order of greater specificity by kingdom, phylum, class, order, family, genus and species.

## Utopian:

- (adjective) modelled on or aiming for a state in which everything is perfect  
example: Plato believed a utopian society could be achieved through rigid social structure and the philosophical education of the ruling class

## Visual culture:

- (noun) visual culture is the aspect of human culture associated with images and design  
example: billboard advertisements are part of the visual culture of capitalism

# Watercolour Leaf Rubbing



## Purpose

Students will use negative space and colour as elements of pattern design.

## Objectives

Program of Studies, Alberta Education:

- (Art 1-2) Texture is a surface quality that can be captured by rubbings or markings.
- (Art 1-2) Textures form patterns
- (Art 3-4) Looking at negative shapes helps create a different view of something.
- (Art 5-6) Interesting negative space complements and binds the positive areas into an harmonious whole.

## Materials

- » Treed outdoor area
- » Paper bags (to collect leaves in)
- » White crayons (light pink/yellow could also be used)
- » Watercolour paints
- » Paintbrushes
- » Paper (thin enough to feel leaf pattern beneath)
- » Paint smocks
- » Local plant identification books (for grade 3-8)

## Motivation

Patterns can be found throughout the natural world. Leaves contain veins that provide structure and transport water and minerals through the leaf and on to the rest of the plant. The pattern of veins on a leaf is called a “venation pattern” and can be used by naturalists

to identify different leaf and plant types. In this activity, students will consider the many functions of leaf design: the design of a leaf enables the plant to transport resources, it enables a naturalist to identify the species of the plant, and it offers design inspiration for an artist. Students will see the ways in which pattern and design enable survival for living things, and also appeal to artistic sensibilities.

## Project

- 1 INTRO: Bring leaves of different species into the classroom (in Alberta, common examples are trembling aspen, balsam poplar, willow, and wild rose). Point out the venation pattern on a leaf, and discuss the function of veins for the plant. Explain that naturalists use leaf variations to identify plants. Provide small groups of students with two or three different types of leaves. Ask them to discuss the differences in the leaves. Return attention to the teacher and have the teacher identify the species of a leaf and describe its pattern. Have students in groups select their leaf of the same species. Repeat until all the leaves have been identified.

Resource: Guide to Common Native Trees and Shrubs of Alberta (PDF)

[http://www.insideeducation.ca/wp-content/uploads/files/Guide\\_To\\_The\\_Common\\_Native\\_Trees\\_and\\_Shurbs\\_of\\_Alberta\\_2018\\_web.pdf](http://www.insideeducation.ca/wp-content/uploads/files/Guide_To_The_Common_Native_Trees_and_Shurbs_of_Alberta_2018_web.pdf)

- 2 Provide students with a paper bag for leaf collection. Explain that the class is going outside and will collect some leaves to be used for an art project. Request that students use leaves that have already fallen to the ground if possible.

Option: When outside, educators can set up an informal station with plant identification books or sheets for students to use once they have collected some leaves.

- 3 Once students have a couple of leaves, preferably from a few different species, return indoors. Discuss the leaf patterns and the ways that pattern could be used in art. Show example of Leaf Rubbing Watercolour and discuss options for pattern and use of negative space. Explain that students should plan their pattern before they start rubbing or drawing their leaves, as it can be hard to see where the light-coloured crayons have marked the white paper. Demonstrate use of crayon for leaf rubbing (Crayon should be laid on its side and rubbed gently across the paper.)

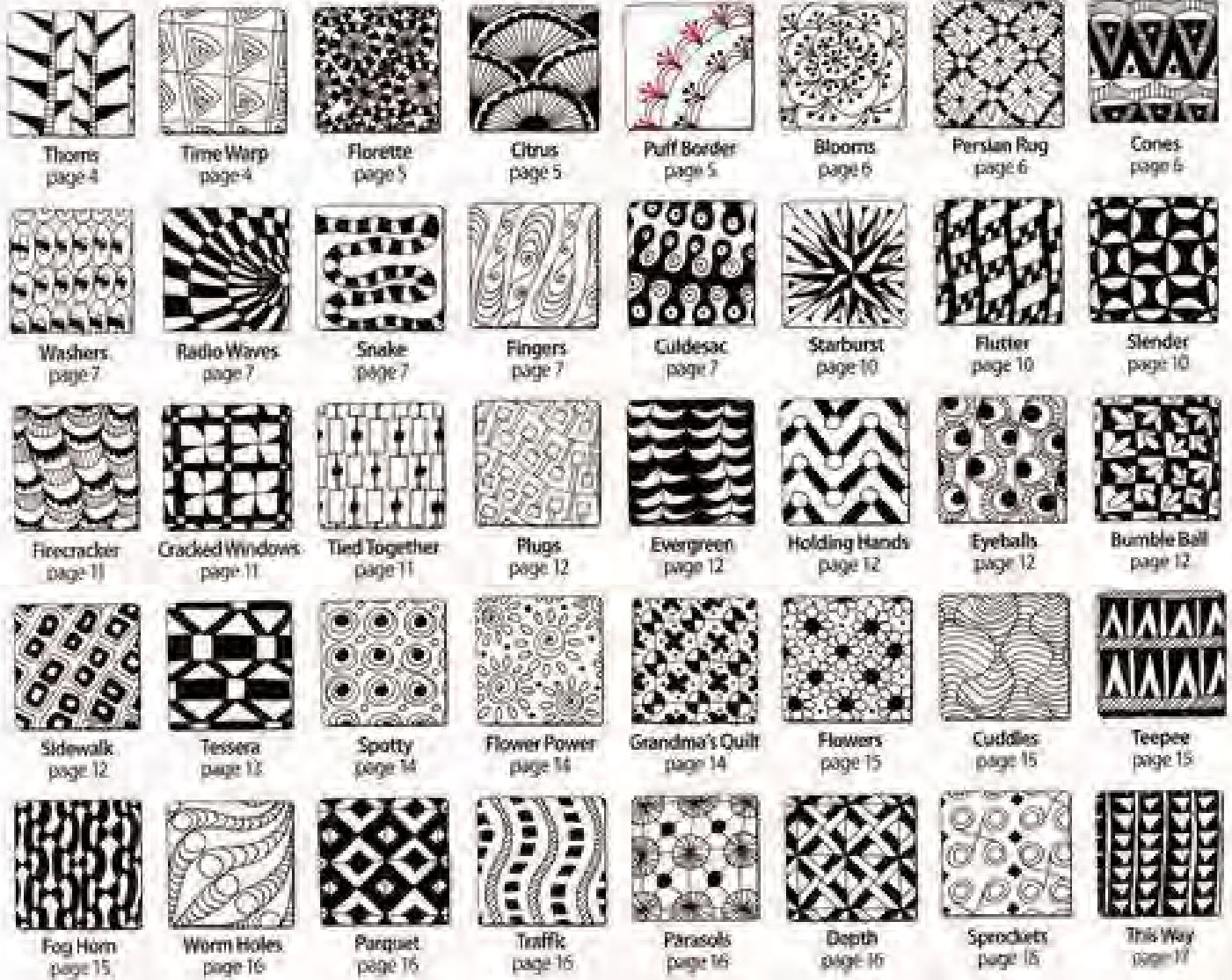
- 4 Pass out paper and light coloured crayons to students. Younger students can rub leaf patterns onto their paper by placing the leaf below the paper, with the ridged side touching the paper, and rubbing the crayon over the paper to pick up the pattern. They should still draw an oval around the venation pattern when finished rubbing. Older students can trace their leaf through the paper, or draw their leaves freehand with close attention to the venation pattern. After completing leaf renderings, students may choose to add their own designs to areas of negative space using their crayon (see Zentangle resources).

Optional: Have students who are finished rubbings glue paper to heavier sheet of cardstock to prevent paper from warping when painted.

5

Students who finish all elements of crayon design can collect a watercolour palette, cup of water, and paintbrush. They can use paint over their crayon design with a single colour (recommended for K-3), or can try colour mixing with watercolours (recommended for grade 3+). The wax of the crayons will resist the watercolour and the leaf patterns will be revealed as white outlines in the colourful paint.

### 40 Fun Tangle Patterns from Zentangle® 7



#### Resources:

Zentangle Ideas: [http://www.fineskids.net/wp-content/uploads/2013/11/zentangle\\_ideas.pdf](http://www.fineskids.net/wp-content/uploads/2013/11/zentangle_ideas.pdf)  
 Zentangle 7 Examples: <http://colorsandshapes4thgrade.blogspot.com/>

Guide to Leaf Identification and Function: <https://courses.lumenlearning.com/boundless-biology/chapter/leaves/>

## Common Deciduous Leaves of Alberta

### Balsam Poplar



© 2012 Katy Chayka

### Trembling Aspen



### Willow



### Rose



## 40 Fun Tangle Patterns from Zentangle® 7



Thorns  
page 4



Time Warp  
page 4



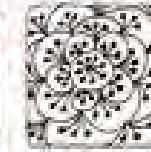
Florette  
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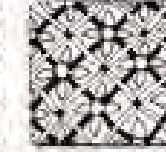
Citrus  
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Puff Border  
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Blooms  
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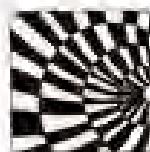
Persian Rug  
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Cones  
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Washers  
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Radio Waves  
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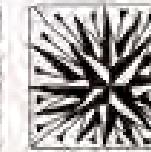
Snake  
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Fingers  
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Culdesac  
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Starburst  
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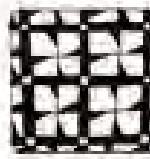
Flutter  
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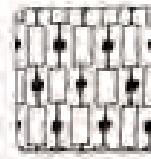
Slender  
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Firecracker  
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Cracked Windows  
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Tied Together  
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Plugs  
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Evergreen  
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Holding Hands  
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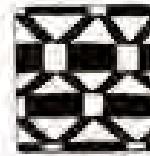
Eyeballs  
page 12



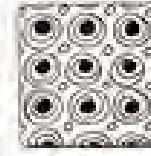
Bumble Ball  
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Sidewalk  
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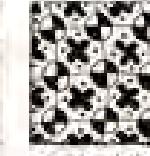
Tessera  
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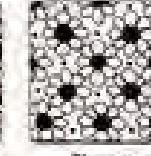
Spotty  
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Flower Power  
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Grandma's Quilt  
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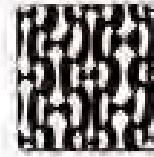
Flowers  
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Cuddles  
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Teepee  
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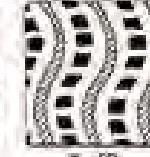
Fog Horn  
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Worm Holes  
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Parquet  
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Traffic  
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Parasols  
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Depth  
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Sprockets  
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This Way  
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# Nature Exploration and Mandala



**Purpose** Students will use observe patterns that occur naturally in the environment.

**Objectives** Program of Studies, Alberta Education

- (Art 1-2) Natural forms have different surface qualities in colour, texture and tone.
- (Art 1-2) Natural forms display patterns and make patterns.
- (Art 3-4) Earth and water forms reveal many variations.
- (Art 5-6) Natural forms tell something about the way they were made.
- (Art 5-6) Natural forms can be examined for less visible characteristics.
- (Art 5-6) Natural forms reveal many different structures; e.g., skeletal, spiral, orbital, radial, floating, grid, fan, arch, concentric, faceted.
- (Art 7-9) Students will investigate natural forms, manmade forms, cultural traditions and social activities as sources of imagery through time and across cultures
- Art 10-12) Artists select from natural forms in order to develop decorative motifs.
- (Art 10-12) The function of an artwork can be emphasized by its decoration.

## Materials

- » Natural outdoor space with plants, rocks, pinecones, sticks etc.
- » Appropriate outdoor clothing
- » Optional: phone cameras, digital camera
- » Optional: snow paint (water and food colouring in bottle with very small spout – repurposed mustard bottles work well)

## Motivation

Many biological and topographical forms are structured by patterns. Nature tends towards pattern because of the stability, efficiency and reproducibility in patterned designs. These designs are often aesthetically pleasing to the human eye, and inform an artistic and practical sensibility for the designs created by humans. In closely observing natural forms, students will have the opportunity to form scientific hypotheses about the function and formation of evolutionary or geological structures. Through the excitement of observation and discovery, they will experience the intersection of scientific observation and artistic inspiration.

## Project

-  1 INTRO: Draw a couple of simple patterns on the board that might resemble patterns found in nature (concentric circles, lines, or large and small triangles). Ask students to think of natural forms that might look similar, or other patterns that can be found in nature. Make simple sketches of the suggestions students give (ripples, tree roots, venation on leaves or insect wings, stripes on animals, mountains). With older students, discuss the function or formation of different patterns. For instance, roots spread outwards from the tree in a fractal-style multiplication in order to find more minerals and water for the tree.
-  2 Have students dress appropriately for an outdoor trip. Explain to students that they will be going outside to look for naturally occurring patterns. Their task is to find patterns and hypothesize the function or cause of formation for those patterns. In winter, look for patterns in the shape of snowflakes, snow drifts, frost crystals, icicle clusters, clouds, tree branches, tree bark, or evergreen needle growth.
-  3 Once in the outdoor area, outline exploration boundaries for students. Establish a "call-back" strategy, and a time frame for the exploration. Then send students out to find patterns.

Option: If working with older students, have them use phone cameras to record their findings.
-  4 Call students back and discuss findings. With older students, discuss hypotheses for the function of the pattern or how it was formed. Record unanswered questions to be searched up when back in the classroom.



Example 1: the “design” on this rock is made by the white fossils of prehistoric worms.

Example 2: lichens cling closely to this rock to absorb its minerals.

5

Show students a mandala, which is a human-made pattern. Mandalas are sacred symbols in Buddhism, Hinduism and Jainism. They represent the universe, and are used as instruments of meditation. Traditionally, they represent one of two metaphysical views of the universe: either the many becoming one, or the one becoming many. Discuss this cultural significance with students. Ask students if the mandala reminds them of any natural forms that they have seen before (flower, rays of the sun, etc.). Discuss how the design of the mandala relates to patterns in nature or fractal geometry. With older students, discuss how the view of the universe represented by the mandala could relate to recurring patterns in nature, or to fractal geometry



« Traditional Hindu mandala.



Contemporary mandala design »  
created with computer graphics.

designed by freepik.com

6

Tell students that they will be making a mandala using objects they find outdoors. Discuss potential materials, and encourage students not to destroy living things as they gather materials. Split students into groups. Reiterate boundaries, time limit, and call-back strategy. Send students out to make mandalas.



Option: IN WINTER – students may still use objects to create a mandala if they can find enough rocks, sticks, needles, icicles etc. to make one. If not, students can use their footprints to make a mandala pattern in the snow, or can use snow paint

7

Get students' attention and instruct them to go around and look at each others' mandalas. Students can then have the option to leave their mandala for passerbys to see, or can return their objects to where they were found.

# Discovering Fractals

## Purpose

Students will recognize the significance of fractal geometry in natural forms.

## Objectives

Program of Studies,  
Alberta Education

(Conceptual Framework, Math K-12)  
Mathematics is about recognizing, describing and working with numerical and non-numerical patterns.

(Math K-9) Use patterns to describe the world and solve problems.

(Math 2-3) Demonstrate an understanding of increasing patterns

(Math 5) Determine the pattern rule to make predictions about subsequent elements

» Develop an understanding of real-life application for geometric equations and study in the field of mathematics.

» Visualize the process by which a watershed is created.



## Materials

- » White paper (the bigger, the better)
- » Colourful, water soluble markers
- » Spray bottle
- » Water
- » Optional: Aluminum baking pan (from dollar store)

## Motivation

Fractals patterns are ubiquitous in the natural environment. The concept that the smallest part of a pattern is self-similar to the whole has meaning in the fields of math, science, art, and even philosophy, creating an opportunity for cross-curricular study. The study of fractals in nature lends a sense of discovery and practical application to a mathematical approach to patterns, and also to a scientific exploration of the function of fractal geometry in natural forms.

## Project

- 1 Begin by showing students a photo of a fractal in nature, such as a fern [pg 28]. Point out that each smaller portion of the whole resembles the whole. Explain that a fractal is a pattern where each piece is self-similar. This means it looks the same as the whole, or the original, but it is smaller. Show students the fractal pattern in veins [pg 29].

- 2 Explain to students that fractal geometry can be described in mathematical language – in equations. Show students the artistic Mandelbrot Set that can be generated using mathematical equations by watching a Mandelbrot “zoom” video.

Mandelbrot Zoom 10<sup>10</sup>: <https://www.youtube.com/watch?v=PD2XgQOyCCk&t=1s>

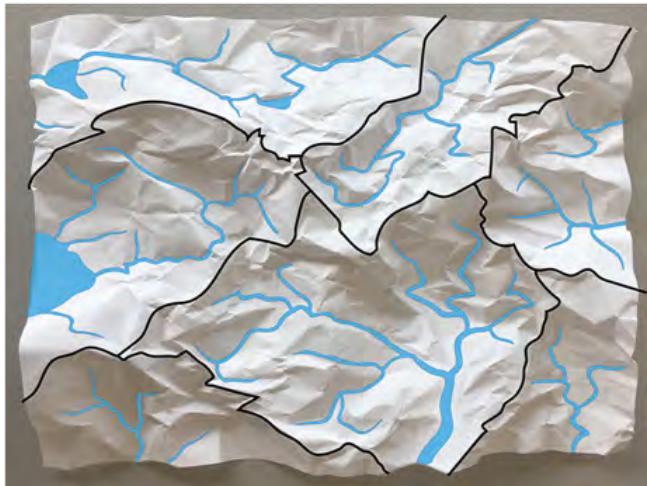
**For older students:** Tell students that mathematician Benoit Mandelbrot “discovered” much of what we know about fractals; he is even known as Father Fractal! Show students the first four minutes of Benoit Mandelbrot’s TEDTalk, “The Art of Roughness”, then discuss the fractal nature of the examples shown in the video. Discuss why creating artificial mountains for films and video games would require fractal geometry and equations.

TED: The art of roughness: <https://www.youtube.com/watch?v=wQTnVEXAtBY>

- 3 Show students a satellite image of a watershed. [pg 29] Discuss how the watershed follows a fractal pattern. Ask students what factors would shape the design of a watershed (gravity, erosion, precipitation, landforms).

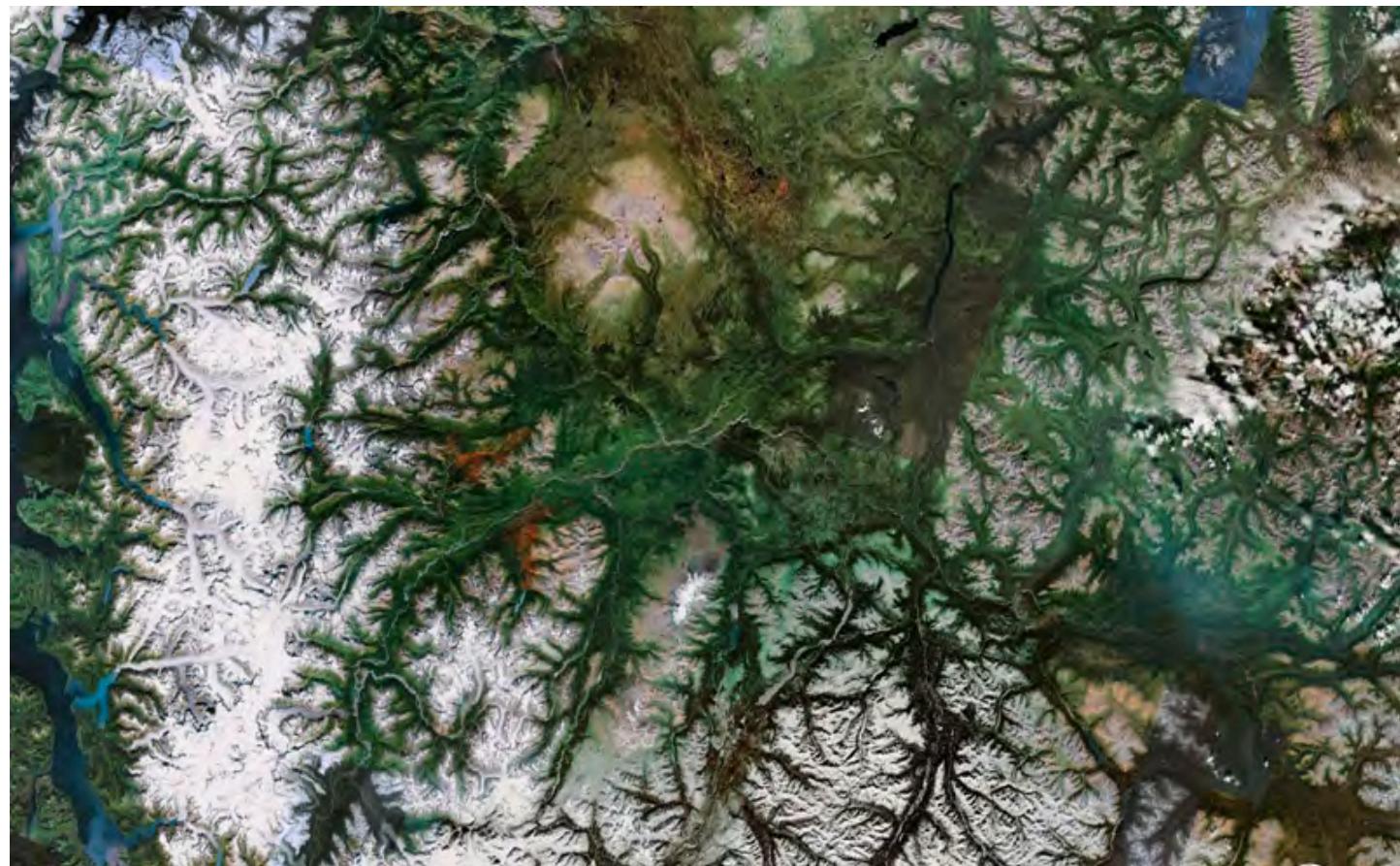
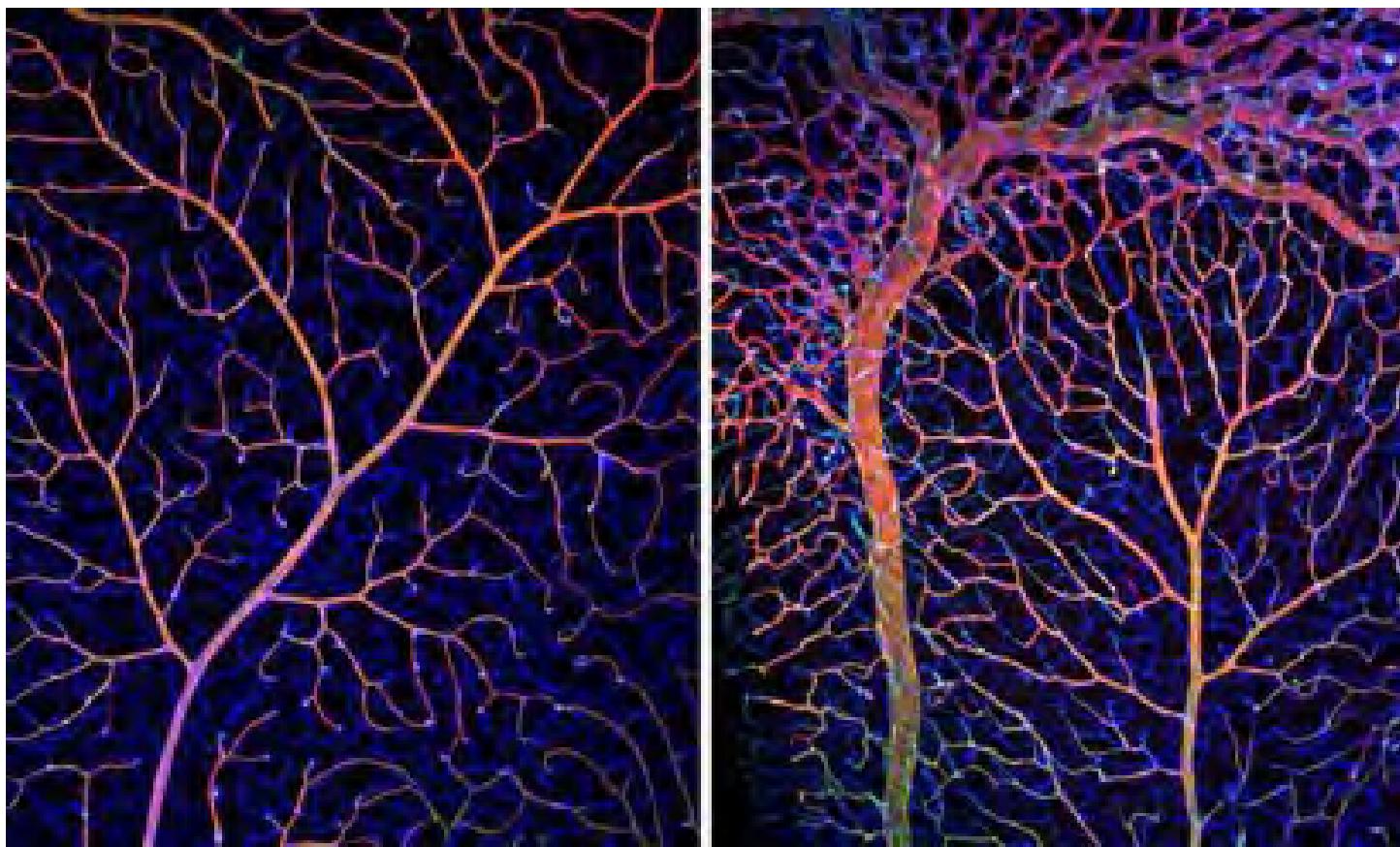
- 4 Tell students that they will be making their own watershed. If you have enough aluminum pans, students can each make their own. If not, divide students into groups. Demonstrate how to crumple up their sheet of paper (not too much), then set it in the pan. Take out markers and demonstrate how to colour the ridges of the “mountains” created by the crumples. Tell students they will have to take a blue marker (or another colour that they choose to represent water) and colour in the parts of their “topography” that they think will fill with water and become the watershed. To help younger students be successful, explain that the “valleys” will fill with water and should be coloured accordingly.

[image on following page]



- 5 Once students have completed their topography, come around with a spray bottle and spray their landscape. The markers will bleed, highlighting the flow of water down from the ridges. If students have correctly predicted where the water would gather, these areas will bleed and form “rivers” and “lakes”.
- 6 Wrap-up: review what students learned about fractals. Discuss why fractals are important to understand. Discuss why it is important to understand the fractal nature of watersheds (rivers and water bodies flow into one another, meaning that it is important to care for our local water systems lest the whole watershed be affected).





# Homemade Serigraph

## Purpose

Students will be introduced to the silkscreening process.

## Objectives

Program of Studies, Alberta Education

- (Art 1-2) Looking at negative shapes helps create a different view of something.
- (Art 1-2) Explore the use of print-making materials and the application of paint, using brushes and rollers (brayers).
- (Art 3-4) Further explore print-making materials and their uses and effects.
- (Art 3-4) Make prints using stencils.
- (Art 5-6) Continue to use print-making techniques learned in lower grades.
- (Art 7-9) Geometric and organic shapes can be used to create positive and negative spaces.
- (Art 20-30) Positive and negative space are essential to the description of two- and three-dimensional forms.



## Materials

- » Embroidery hoop
- » Nylon pantyhose
- » Pencil
- » Paper
- » Black marker
- » Paintbrushes of various sizes
- » Mod Podge or Acrylic Medium
- » Newspaper
- » Paper plate (wider than embroidery hoop)
- » Old credit card or gift card
- » Thick acrylic paint (if printing on clothing, use fabric paint)
- » Q-tips
- » Surface to be printed on (canvas paper, wood, fabric)

## Motivation

The Vital Patterns exhibition showcases the serigraphs of artists William Laing and April Dean, while the works of Doris Freadrich and Clint Wilson feature elements of other forms of printmaking. Serigraph is a more general term for what is commonly known as a "silkscreen" (this common word is not always accurate because modern-day serigraph screens are rarely made of silk). Serigraphs and other types of printmaking are among the most prolific and ancient artistic processes used today, although the artform of printmaking is often less familiar to the public. Their use in both practical arts like clothing and décor design and in fine art make printmaking techniques some of the most versatile skills used in contemporary creative work. By making their own serigraph screen, students will be introduced to the art of serigraph and encouraged to consider art processes outside the standards "school arts" of drawing and painting.

## Project

This video from HGTV Handmade provides a clear tutorial of how to make a serigraph at home <https://www.youtube.com/watch?v=bGrisPxu6Hk>

- 1 Cut the pantyhose off around the "knee" and keep the end with the "foot" of the stocking. The teacher must determine the length of pantyhose necessary for the size of embroidery hoop, but the hose does stretch.
- 2 If necessary, sand the embroidery hoop to remove slivers, then put the inside ring of the hoop into the pantyhose (the hose will stretch to accommodate the ring). Secure the outside ring around the pantyhose and the inside ring, and cut off excess lengths of pantyhose on either side.
- 3 Cut into **one side** of the pantyhose, and cut around the ring to remove one "screen". Do not cut through both "screens" that have been created across either side of the inside ring.
- 4 In a sketchbook or on a scrap piece of paper, design the shape to be serigraphed. Younger students might be more successful to design a shape with no interior negative space.



Option: for younger students or students who need extra help, the educator could cut a stencil into a thin sheet of projector transparency (cellulose acetate), then cut the sheet into a round shape to be fitted into the embroidery hoop for stability. This will form the stencil for students, allowing them to skip to step 8.



5

- Trace the design onto the embroidery hoop screen.



6

- Using an appropriate size of paintbrush for the different sections of the design, paint all the negative space on the screen with Mod Podge. The goal is to fill in all the small squares of space between the nylon fibres with Mod Podge; it will be visible when spaces between fibres are empty. It will likely be necessary to allow the first coat of Mod Podge to dry slightly and a second coat to be applied before all the negative space is fully sealed with Mod Podge. If Mod Podge is erroneously applied to areas that should be positive space, wipe the area clean with a wetted Q-tip end and dry with the dry end of the Q-tip.



7

- Allow the Mod Podge to dry by balancing an embroidery hoop on the lip of a paper plate so that it does not dry onto the plate or another surface.



## Art Activities

- 8 Place the hoop screen-down on the surface which will be printed upon. Apply a thick line of paint onto the screen above the image. Using an old credit card or gift card, scrape the paint in a steady, firm motion across the image.

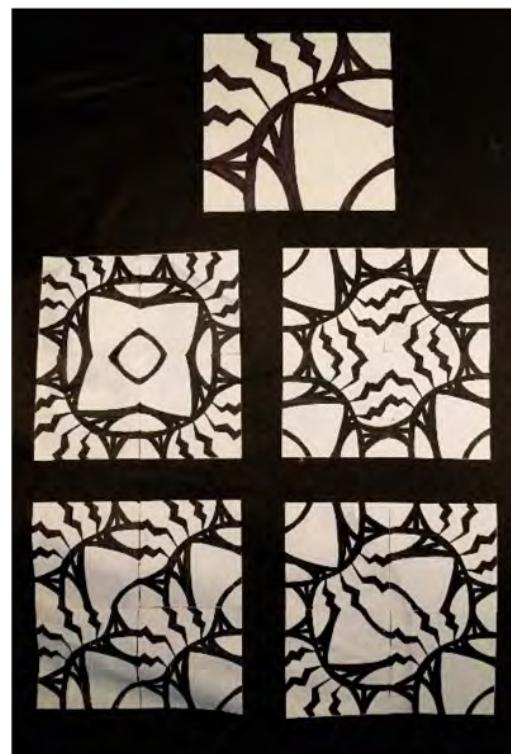
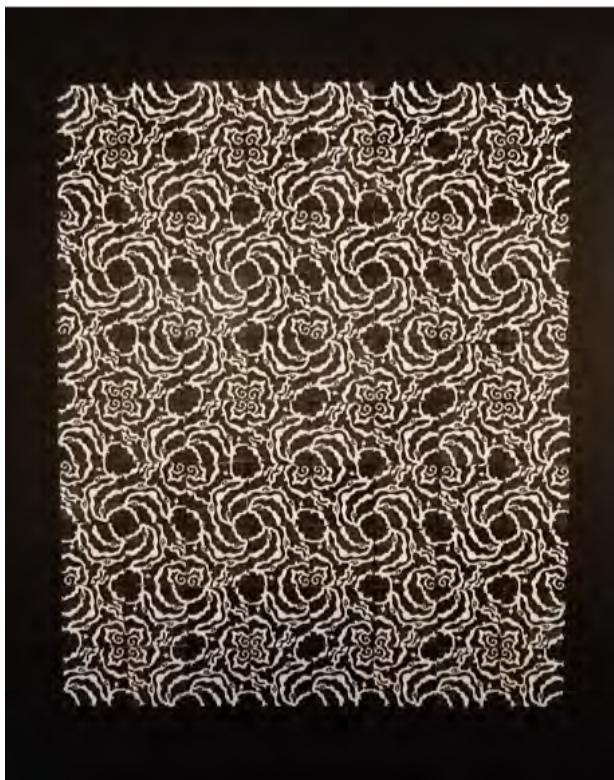


- 9 Lift the screen straight up off the printing surface. If all negative space is sealed with Mod Podge, only the positive space of the image should be left on the printing surface.



- 10 Wash the paint from the screen. Once dry, it can be used again.

# Wallpaper Patterns



**Purpose** Students will learn to repeat a design in order to create a pattern on large scale.

**Objectives** Program of Studies, Alberta Education

- (Art 7-9) Students will investigate natural forms, manmade forms, cultural traditions and social activities as sources of imagery through time and across cultures.
- (Art 7-9) A pattern or motif can be repeated to create certain spatial effects.
- (Art 7-9) Geometric and organic shapes can be used to create positive and negative spaces.
- (Art 10-12) Natural forms can be used as sources of abstract images and designs.
- (Art 10-12) Different cultures exhibit different preferences for forms, colours and materials in their artifacts.
- (Art 10-12) Artists select from natural forms in order to develop decorative motifs.
- (Art 10-12) The function of an artwork can be emphasized by its decoration.

## Materials

- » standard 8.5 x 11" paper, cut into six 3"X3" squares
- » Pencil
- » Black marker
- » Scissors
- » Black and white cardstock or mounting board
- » Rubber cement (preferable) or glue sticks
- » Photocopier or Scanner

## Motivation

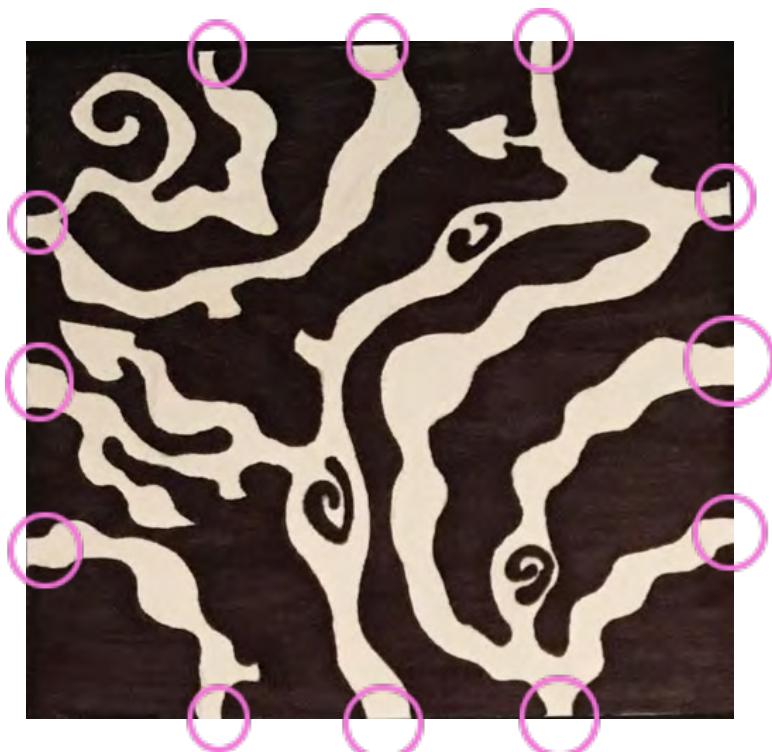
Designs with organic lines and forms or representations of nature have been popularized across eras and cultures in large scale pattern prints for clothing, wallpaper, fabrics, and textile arts. Vital Patterns artist Clint Wilson explicitly incorporates the work of Arts and Crafts master William Morris, who created iconic wallpaper patterns depicting stylized illustrations of plants, fruits, and birds. Both in nature and the designs inspired by it, patterns are often created by a core shape or design that repeats in all directions. The bark on a tree, for instance, may be formed by a series of diamond-shapes textures that repeat in all directions to wrap the trunk.

## Project

**INTRO:** Introduce students to patterned textile, fashion, and décor arts with a variety of examples. Clint Wilson, William Laing, William Morris, Christie Belcourt (esp. in collaboration with Valentino) as well as the geometric patterns of traditional Diné (Navajo) textiles, Arabic textiles, and sub-Saharan African textiles and pottery, may be useful examples. Discuss the diverse cultures and time periods in which patterned products have been and still are created. Why is there a demand for artists and artisans to create nature-themed designs for the purpose of decorating human homes and bodies?

1

- Explain the task of designing the original pattern block. On each side of the block, the lines or forms must meet the edge of the square in the same place and at a standard width. For instance, a student may have a block in which each edge is intersected by two lines, each meeting the edge at a width of one centimetre. Each place where the lines meet the edge must be the same width. The lines must also be located in the same position on each edge. For instance, a block might be designed such that the first line might always meet the edge two centimetres from the corner, and the third seven centimetres from that corner.



This will be complex for students to understand, so it will help to show them an example.

Note how on each side of the original cube, the lines intersect (highlighted by the circles) with the cube's edge at the same line width and at the same distance apart from the other lines.

2

Students can brainstorm various designs in their sketchbooks or on loose paper by dividing the paper into squares and testing different ideas. Once students have chosen a design, they should work on developing it, in pencil, to their own approval and also to the specified requirements (lines or forms meeting the edges at the correct intervals and widths). Before using ink to make the design permanent, they should show the design to the teacher or another classmate to verify that these intersections are correct.

3

When students are sure of their design, they can colour the negative space black if they want to mount the pattern on a black board, or colour the positive space black if they want to mount the pattern on a white board.

Optional: For a more advanced project, students can use colour to decorate the positive space, and leave the negative space either white or colour it black depending on their choice of mounting board.

4

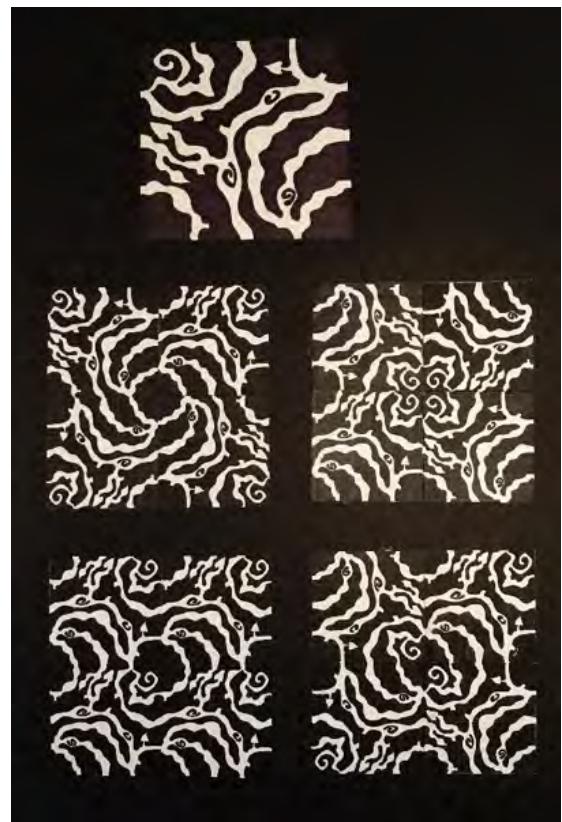
**A** With a photocopier: create copies of the 3"X3" square and have students cut out the squares (once you have four squares, students can create a "photocopy" page with four squares spaced at intervals). They will need approximately 24 3"X3" squares to work with.

Have students arrange squares into a few possible variations of their pattern (this will require four squares for each pattern) and mount these variations on mounting board or cardstock with rubber cement. Have them select their favourite arrangement, copy three times, and place them together to create a sixteen square arrangement on a larger piece of mounting board or cardstock

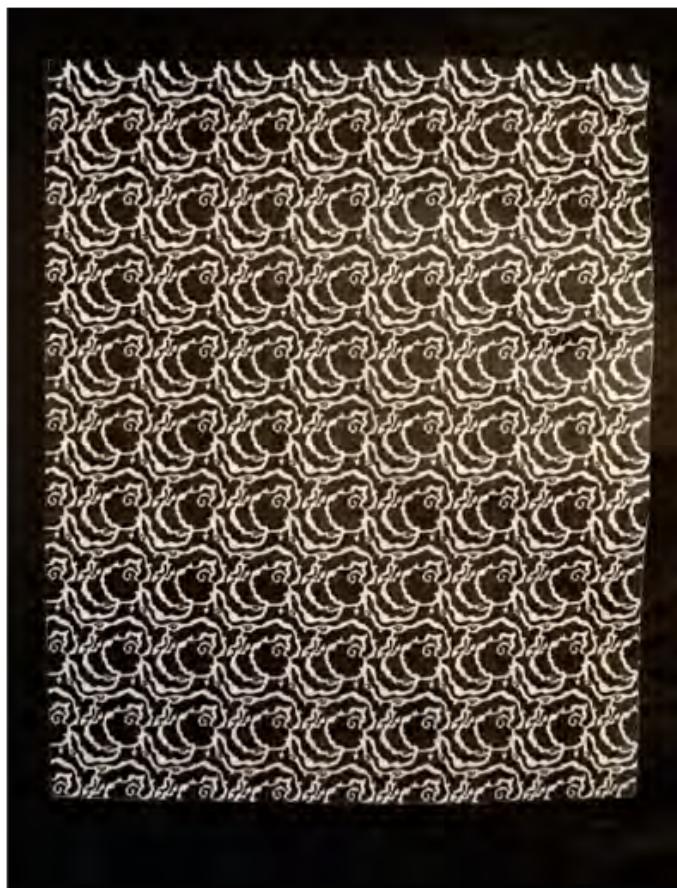
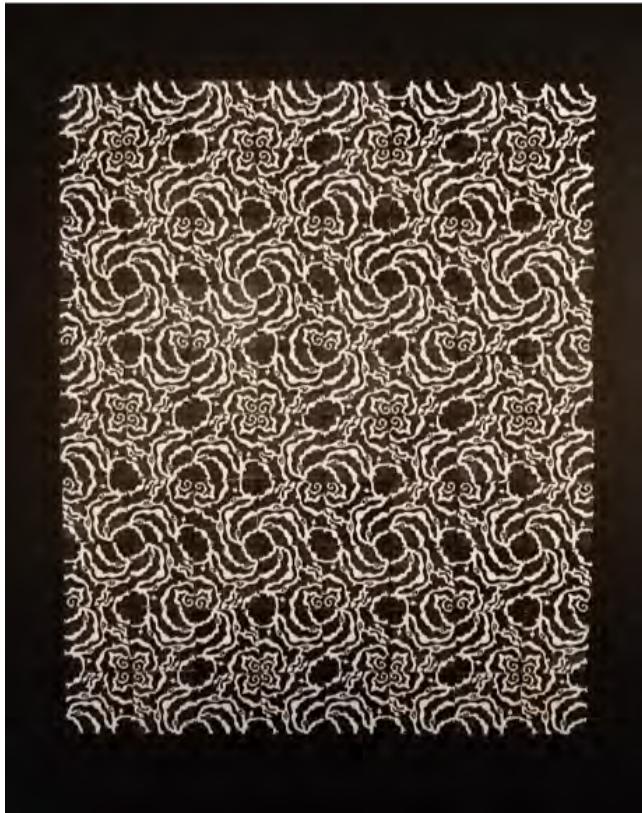
or

4

**B** With a scanner: scan the original square to students' emails and have them import the image into Microsoft Word or Google Slides (Slides has easier image orientation than Docs). In the processor, have students copy the image and create at least two variations of a four-square arrangement. Have students print off these arrangements and mount them on a board with rubber cement. Students can then use the processor to create an arrangement of 24 or more squares (students can decide whether to resize the squares to fit on a sheet of office paper, or leave squares large and attach multiple sheets of paper). Students can print off the large arrangement and mount this on a board.



## Art Activities



# RESOURCES

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## Activity – Homemade Serigraph

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# ACKNOWLEDGEMENTS

## MANDATE

The Alberta Foundation for the Arts (AFA) has supported a provincial travelling exhibition program since 1981. The mandate of the AFA Travelling Exhibition Program (TREX) is to provide every Albertan with the opportunity to enjoy visual art exhibitions in their community.

The purposes of the foundation are:

- ▶ To support, promote, and contribute to the development of the literary, performing and media arts in Alberta.
- ▶ To provide people and organizations with the opportunity to participate in the arts in Alberta.
- ▶ To foster and promote the appreciation of artworks by Alberta artists.
- ▶ To encourage Alberta artists in their work.

Three regional galleries and one arts organization coordinate the program for the AFA in the province of Alberta:

- ▶ REGION 1 – Northwest Alberta  
Art Gallery of Grande Prairie, Grande Prairie
- ▶ REGION 2 – Northeast and North Central Alberta  
Art Gallery of Alberta, Edmonton
- ▶ REGION 3 – Southwest Alberta  
Alberta Society of Artists, Calgary
- ▶ REGION 4 – Southeast Alberta  
Esplanade Arts & Heritage Centre, Medicine Hat



These coordinating organizations offer a wide range of exhibitions to communities from High Level in the north to Milk River in the south, and virtually everywhere in between.

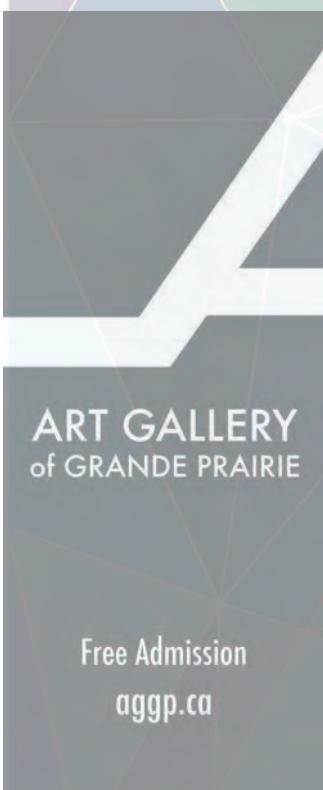
## ACKNOWLEDGEMENTS

- ▶ Alberta Foundation for the Arts (AFA)
- ▶ Government of Alberta
- ▶ The AFA Collections Management Unit
- ▶ Art Gallery of Grande Prairie Staff and Contract Staff
- ▶ Participating Albertan Artists
- ▶ Education: Jane Sunderwald
- ▶ Framing: Christina Wallwork
- ▶ Crating: Rob Swanston and Serge Cormier
- ▶ Curator: Danielle Ribar
- ▶ KMSC Law LLP, Region 1 Sponsor



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The Art Gallery of Grande Prairie is one of the largest Free Admission galleries in Western Canada. Our mission is to enrich the community through the creation, conservation and sharing of art. Located in the Montrose Cultural Centre, this beautifully designed art gallery offers a diverse display of local, regional, national and international exhibitions and provides guided tours, educational programs, and activities for all ages.

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Located in the Montrose Cultural Centre PH:  
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[info@aggpca](mailto:info@aggpca)

Sunday	1 pm – 5 pm
Monday	Closed
Tuesday	10 am – 6 pm
Wednesday	10 am – 6 pm
Thursday	10 am – 9 pm
Friday	10 am – 5 pm
Saturday	10 am – 5 pm



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