Non-Linear Storytelling Through Rotational Symmetry

https://canadianart.ca/news/susan-point-wins-30k-audain-prize/

- In 2004, Vancouverites were invited to design the covers to the city's storm sewer covers.

  The competition invited anyone who lived, worked, or went to school in Vancouver to submit design ideas for new storm sewer covers, the lids that mark the entrances to our underground network of sewers.

  The Public Art Program received more than 640 entries from Vancouverites of all walks of life and ages.

  These were the top 36 entries.

- http://former.vancouver.ca/commsvcs/oca/publicart/artunderfoot/index.htm

Picture taken from: https://pricetags.ca/2018/07/24/protected-view-cones-are-who-we-are-vancouver-protected-views-should-not-be-for-sale-by-city-council-to-developers/

THE VANCOUVER SUN

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Finally, art you can drive over

Council to debate beautifying city's manhole covers

BY AMY O'BRIAN
VANCOUVER SUN

Vancouver's dirtiest, dankest places may have a little beautification in their future.

Following the lead of cities such as Seattle, Calgary and Kyoto, Vancouver's city council will vote Tuesday on whether to put in motion a plan to decorate the city's sewer access covers.

It's too early to know how the heavy lids that separate pedestrians from the underworld will be decorated, but Bryan Newson, manager of the city's public art program, said the chosen designs will likely have an aspect of environmental awareness to them.

In addition to increasing the "interest and esthetic of the city in a small and subtle way," the sewer access covers — often called manhole covers — will likely be incorporated into a public awareness campaign about fish habitats and water pollution, Newson said.

The project is expected to have a one-time design cost of $20,000, which awaits council's approval on Tuesday and will come out of a $250,000 public arts fund and possibly the city's sewer capital.

Once the metal covers are designed and cast, it is projected to cost an additional $9,000 per year to include artwork on the lids.

The city's engineering department already spends about $94,000 per year buying new and

See SEWER COVER A2

Sewer cover designs could be around into the next century

From A1

eplacement covers, lids and grates, and ne additional cost would be covered by ewer capital, which Newson described s "millions and millions of dollars."

"So this seems to us like a modest xpenditure. We think it'll go a fair way nd it is good value," he said.

Most engineering projects, including ewer access covers, have about a 100-ear lifespan, and Newson said the idea iat these artworks might be around in the next century is part of the appeal of the project.

Councillor Tim Louis is enthusiastic about the idea of decorating the sewer lids, even if it may sound a bit odd to some members of the public.

"I cannot think of a better use of sewer money than to create a bit of art. It's kind of ironic, isn't it?" Louis said.

"This is a very creative way — at no expense to the taxpayer —of putting a little bit of colour, a little bit of art into our world."

It's unlikely any vibrant reds or blues will be incorporated into the designs, but Newson said nothing is finalized yet.

It's not yet decided whether the covers will be designed by professional artists, amateurs or students, and Newson said the number of different designs that will be accepted by the city is still up in the air.

He noted that winning design(s) will have to meet certain engineering and technical requirements to ensure they are safe for pedestrians and vehicles.

Councillor Peter Ladner, who sits on council's minority Non-Partisan Association slate, supports the idea, but said the timing of the report is a bit inappropriate. On Tuesday, property-tax increases of up to 5.3 per cent are on the same agenda as the sewer lids.

"In theory I don't have a problem with it, but I just find the timing is awkward given that we're wrestling over this budget," Ladner said.

"I've always admired the manhole covers in Seattle that are decorated."

Ellen Woodsworth, a councillor with the Coalition of Progressive Electors, said she believes the project will prove to be money well spent.

"I think we're trying to make Vancouver a fun, artistic city," she said.

"This is just one way to liven up the city."

Calgary sewer access cover. Vancouver may do something similar.

Wait a minute, what is a manhole cover?

Manhole cover

From Wikipedia, the free encyclopedia

A **manhole cover** or **maintenance hole cover** is a removable plate forming the lid over the opening of a manhole, an opening large enough for a person to pass through that is used as an access point for an underground vault or pipe. It is designed to prevent anyone or anything from falling in, and to keep out unauthorized persons and material.

Manhole covers date back at least to the era of ancient Rome, which had sewer grates made from stone.

https://en.wikipedia.org/wiki/Manhole_cover

The Public Art Program received more than 640 entries from Vancouverites of all walks of life and ages.

These were the top 36 entries.

Look closely, what stories do you hear?

Where do we see math in these designs?

https://www.ironcladart.ca/competition/examples.php

If we were to take a pin and place it in the center of these designs, can we see rotational symmetry in these?

Which designs stand out for you?

How might artists use rotational symmetry to tell a story?

Which designs might share similar properties?

https://www.ironcladart.ca/competition/examples.php

Coast Salish (Musquem) artist Susan Point and her daughter Kelly Cannell were one of the winners of the contest.

What story might Susan Point and her daughter be sharing through this design?

Why four frogs? Why include the eggs, tadpoles, and adults?

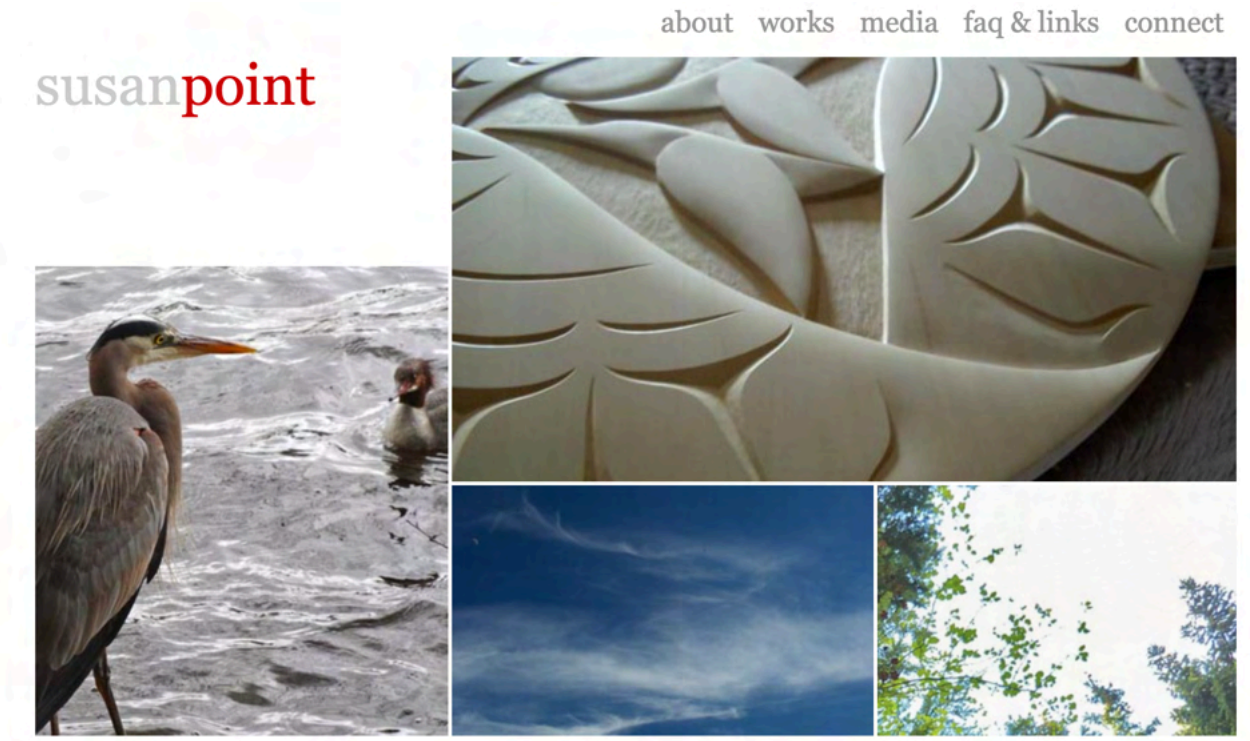
Choosing a design that is from the natural world highlights that the industrial world and the natural world can live in synergy.

https://www.ironcladart.ca/competition/examples.php

Susan Point is a Coast Salish artist from Musqueam, a First Nation in Vancouver, British Columbia.

Let's visit two websites to admire her work.

https://susanpoint.com
https://www.alcheringa-gallery.com/index.php/susan-point.html



Screenshots from: https://susanpoint.com/ and https://nativecanadianarts.com/artist/susan-point/

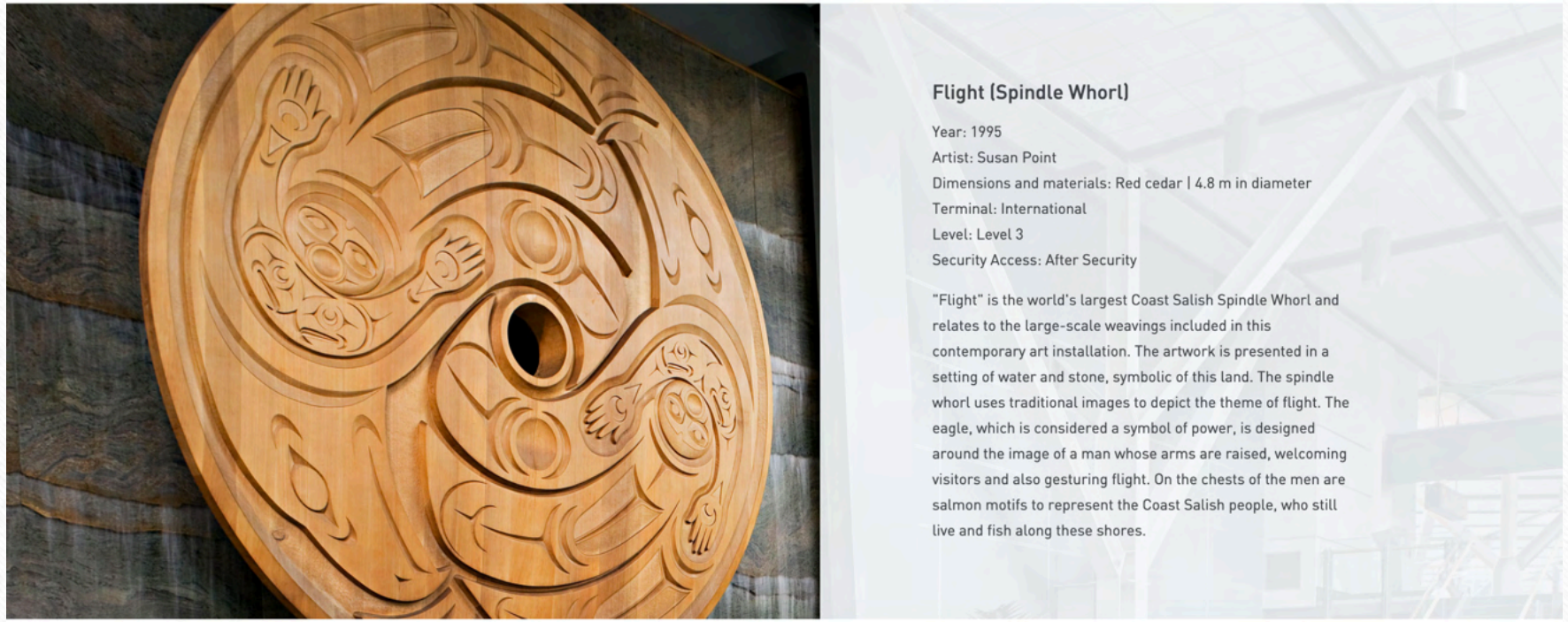
"When I design and work on a piece, regardless of medium, there are countless stories, thoughts and memories that go through my mind,"

Image and quotation taken from: https://salishseasentinel.ca/2017/03/susan-point-spindle-whorls/

"I feel it is important to re-establish our Salish footprint upon our lands, to create a visual expression of the link between the past and the present that is both accessible and people-friendly. I create unique original artworks that honour my own people as well as the diverse groups of people from around the world who have come to live upon our lands in the Northwest Coast. My hope is that my art leaves a lasting impression on locals, visitors and surrounding communities."

Image and quotation taken from: https://www.criticsatlarge.ca/2019/07/people-among-people-public-art-of-susan.html

How does her Spindle Whorl Tell a Story?



Flight (Spindle Whorl)

Year: 1995
Artist: Susan Point
Dimensions and materials: Red cedar | 4.8 m in diameter
Terminal: International
Level: Level 3
Security Access: After Security

"Flight" is the world's largest Coast Salish Spindle Whorl and relates to the large-scale weavings included in this contemporary art installation. The artwork is presented in a setting of water and stone, symbolic of this land. The spindle whorl uses traditional images to depict the theme of flight. The eagle, which is considered a symbol of power, is designed around the image of a man whose arms are raised, welcoming visitors and also gesturing flight. On the chests of the men are salmon motifs to represent the Coast Salish people, who still live and fish along these shores.

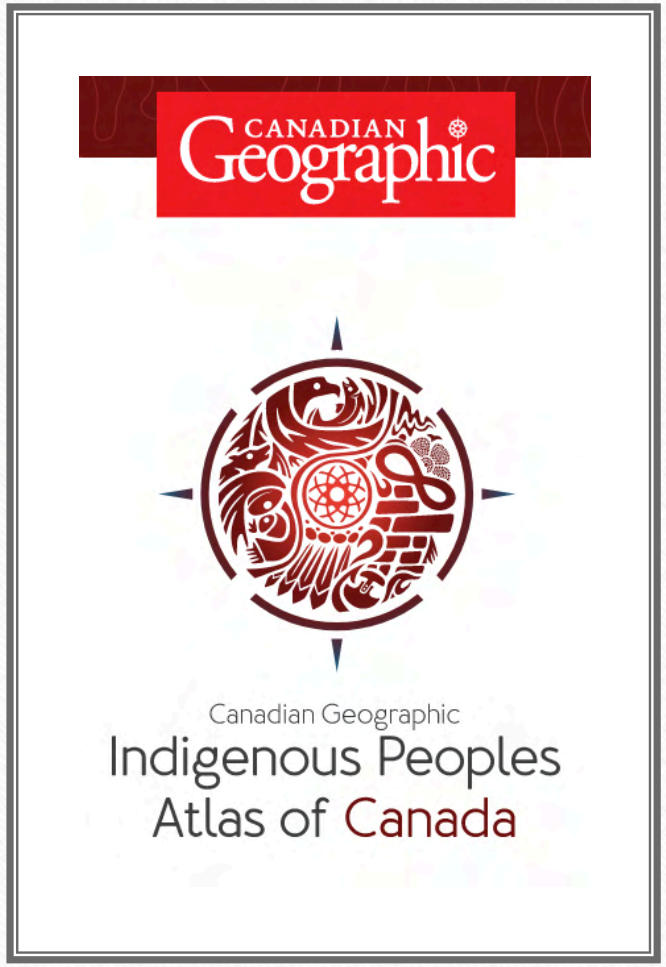
https://www.yvr.ca/en/about-yvr/art/musqueam-welcome-area

By the City choosing Susan Point, a Coast Salish Indigenous Artist, it is honouring First Nations Principles.

- Respect
- Responsibility
- Reverence
- Reciprocity

Coast Salish Artist Dylan Thomas from Lykson First Nation and Rotational Symmetry

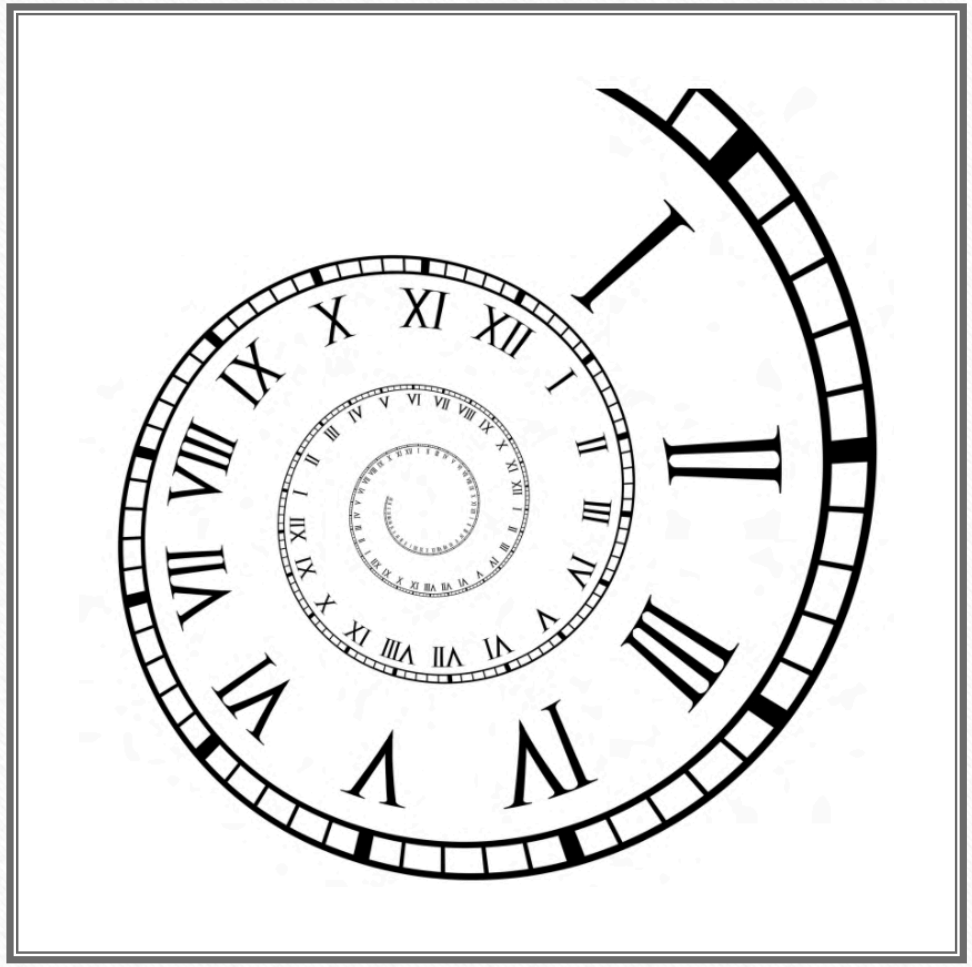
Play video:
https://www.youtube.com/watch?v=Nd_ZXEZY30I&feature=youtu.be&ab_channel=BurnabyArtGallery



Non-Linear Narratives

- All traditional Indigenous stories, including Métis ones, generally have non-linear narratives and, unlike European stories, many of them have no real beginning, middle or end.
- Métis stories are often ongoing and can be carried over through time.
- The stories are layered and have multiple meanings, so people of varying ages will be left with different interpretations.

https://indigenouspeoplesatlasofcanada.ca/article/oral-tradition/



Task:

Let's Time Travel back to 2004 and Enter the Storm Sewer Cover Contest.
Let's use Rotational Symmetry.

We will learn a technique on the next slide to guide our Rotational Symmetry design.

How will you tell a story with your design?

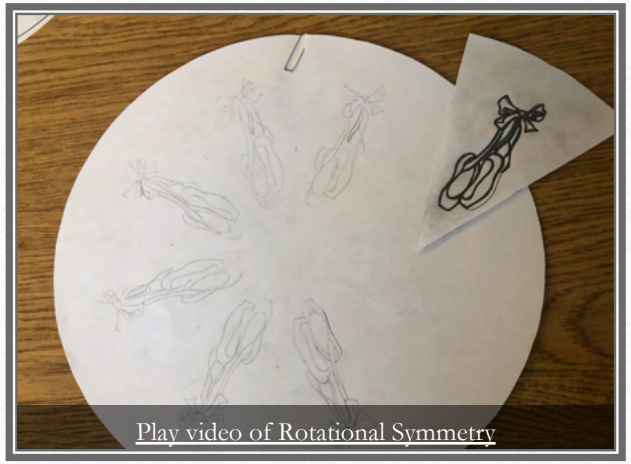
Let's watch this video.

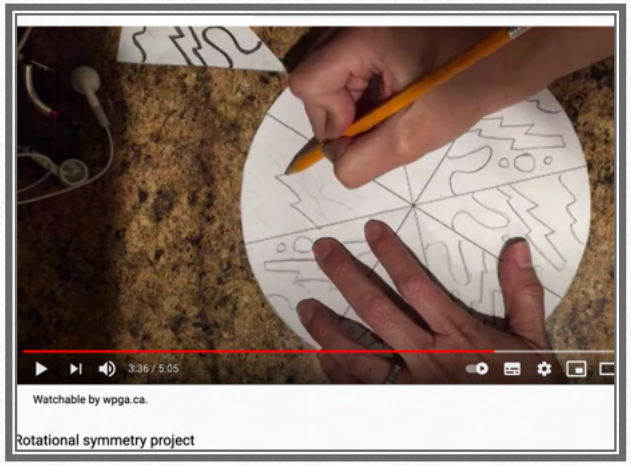
This is how you will create your rotation symmetry.

The artist here is using six slices.

How many slices will you need to tell your story?

Play video: https://www.youtube.com/watch?v=DrOJtPK4zGE&ab_channel=i%E3%80%883math





Questions

- Choose how many times you would like your core slice to rotate around the circle. Perhaps it is intentional—eg) four slices for four seasons,
- What options do we have for how many even slices may go into a circle?
- What do we already know about degrees in a circle?
- Are some amount of slices “friendlier” than other amounts?
-

Together, let's explore circle properties…

Number of Slices or Rotations in the Circle	**Calculation**	Let's Slice Up the Circle Together	**Each Slice will be: (in degrees)**
4 Slices	360 degrees/ 4		
5 Slices	360 degrees/ 5		
6 Slices	360 degrees/ 6		
8 Slices	360 degrees/ 8		
10 Slices	360 degrees/ 10		

Is there an amount of slices that may be trickier?

Materials

PROTRACTOR AND PREVIOUS PROTRACTOR SKILLS

RULER

2 CIRCLE SHEETS

SCISSORS

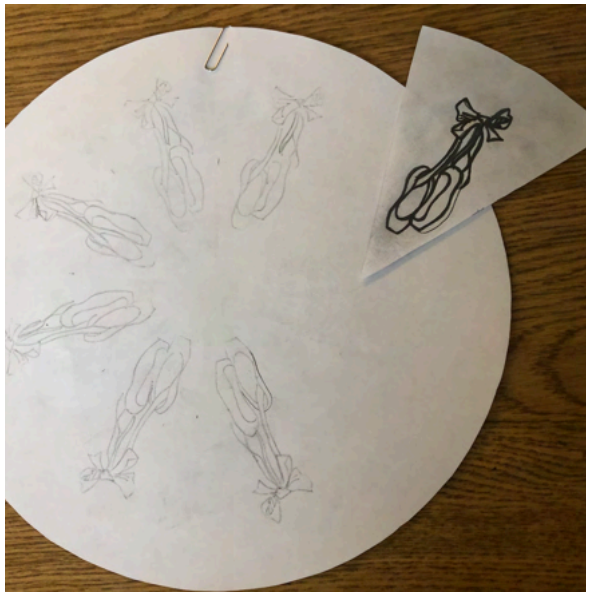
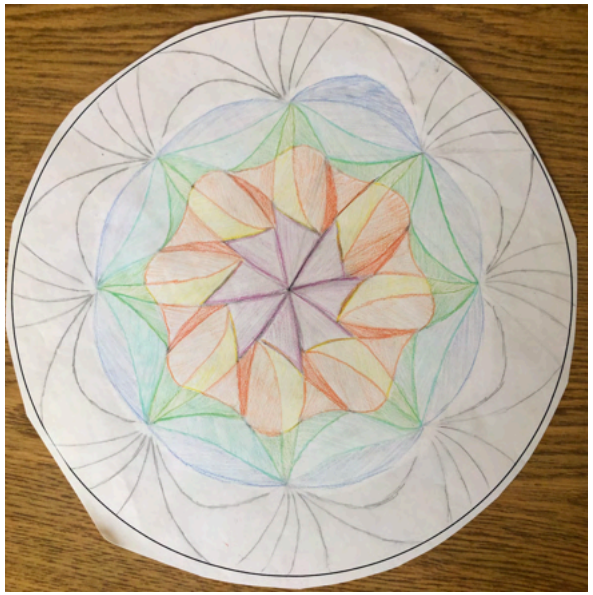
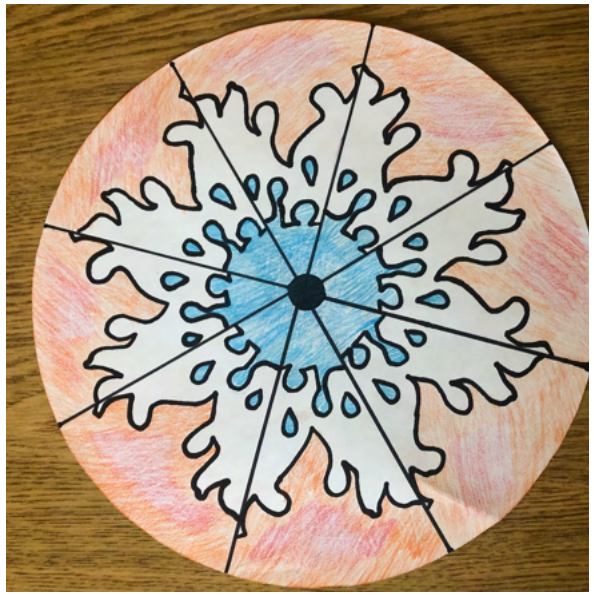
PENCIL

Procedure

- Decide how many slices in your circle.
- Calculate the angle of one slice.
- Use one of the circle sheets and your protractor to measure the one prototype slice. Cut it out.
- Take time to plan your design. Do you have a story to tell? How do you connect with the city of Vancouver? Design with pencil.
- Use the carbon transfer technique to design the rest of the circle or manhole cover on the second circle sheet.
- Color
- Notice symmetry and rotations
- Write an artist statement of minimum 4 sentences long. See next slide.

Artist And Math Statement

- Minimum 4 sentences long.
- Give your design a Title.
- Include one sentence about how you chose the design that you did, or its meaning.
- Include two sentences about how math guided your process. How did your understanding of circle geometry allow you to create your image (include words such as angles, clockwise or counter-clockwise and symmetry).
- Finally, include one sentence about what emerged for you in your art, or what stands out as neat, noteworthy, or significant. Alternatively, you may reflect on what you may do differently next time.

Let's Reflect, Admire, and Share.

Inspired? Want more?

Let's brainstorm where else rotational symmetry exists…

- In nature (a starfish)
- In the industrial world (hubcaps, the evolution of the wheel, Ferris wheels)
- In ancient cultural symbols as mentioned in Dylan Thomas' video.
- In the design world (graphic design)

Let's Extend

We rotated a straight-edged slice around the center. What if we rotated a polygon or a curved shape around the center? Refer to Susan Point's Frogs, or her Spindle Whorl at the Vancouver Airport.

What is the ratio in surface area of our design model to an actual storm sewer cover? Let's calculate the circumference of our model and compare it to the circumference of an actual storm sewer cover.

How could we make a map to locate our designs on our storm sewer cover using 4 quadrants and coordinates?