

Area of Focus: Kindergarten Math and Arts Education

Big Idea:

Math: Repeating elements in patterns can be identified.

- What makes a pattern a pattern?
- How are these patterns alike and different?
- Do all patterns repeat?



Arts Education: Engagement in the arts creates opportunities for inquiry through purposeful play.

Aboriginal Competencies:

- *Belonging*
- *Generosity*
- *Independence*
- *Mastery*

Aboriginal Pathways to Learning: Strategies

- *Cross Curricular*
- *Voice & Choice*
- *Kinship Dialogue*
- *Place-based*
- *Purposeful*
- *Collaboration*

Aboriginal Knowledge:

- *Identity* (worldviews and relationships)
- *Culture* (language, oral traditions, practices, ceremonies, traditions, artistic expressions)

Curricular Competencies: What Students will “Do”:

Math:

- Communicate mathematical thinking in many ways
- Use mathematical vocabulary and language to contribute to mathematical discussions
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

Arts Education:

- Create artistic works collaboratively and as an individual, using ideas inspired by imagination, inquiry, experimentation, and purposeful play
- Experience, document and share creative works in a variety of ways

Concepts and Content: What students will “Know”:

Math:

- repeating patterns with two or three elements

Arts Education:

- symbolism as expressions of meaning
- **music: beat/pulse, rhythm, tempo, pitch, dynamics**
- visual arts: elements of design: line, shape, texture, colour; principles of design: pattern, repetition

- Contributions
- Lands & Rights
- Protocols & Governance
- Historical impacts
- Current issues

Learning Tasks/Essential Questions:

-Read the book "Pattern Fish" by Trudy Harris and Anna Green to the whole class. The class would have the opportunity to Think-Pair-Share about the question "What makes a pattern, a pattern?" We would discuss this.

-This would lead into playing at math centres. There would be provocations set up around the room with photos of patterns as examples and invitations to play with patterns. The photos would sometimes be examples of First People's artwork, patterns found in nature, or of patterns using the supplies on the table. This would be an on-going centre so the pictures would rotate each day for new ideas.

I would set out materials such as rocks, pine cones, large beads, two sided chips, foam shapes, or coloured popsicle sticks. These materials would alternate. Use materials such as stones, polished stones, blue glass beads, pine cones and black stones. **Another day, set out books with patterns, with pipe cleaners and beads in multi-colours to make patterns.**

Add leading questions such as, "How can patterns be alike and different?" Or "Do all patterns repeat? Show me how you know."

Other materials may include: yellow, green and blue glass beads, screws and nuts, and wood beads.

Put out a clipboard and paper for the children to write/record on.

Having pictures of patterns found in nature would be a new way to encourage students to think about patterns.

I would put pattern block strips for students to colour and record their patterns.

Materials may be unifix cubes, buttons, plastic teddy bears in different colours and sizes, writing materials, rocks.

Allowing the children to take pictures of their patterns with ipads, or save their patterns on a shelf, honours their learning. I would also document any conversations I have with the children at this centre to refer to before they return to the centre.

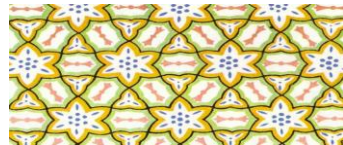
Having a museum walk to walk around and see what each other are doing would motivate others to come to this centre.

Now record your pattern in your journal. Write about your pattern. Some students may need the teacher to scribe for them, or they could use the ipads again and record their ideas orally.

Another activity would be to invite the children to make patterns after asking them "What makes your pattern, a pattern?"

This would be a great lead in to artwork on patterns. We could do an artist study on:

Yayoi Kusama



or Anni Albers



You could study try to make patterns style of artwork.



Kandinsky and following his

Extensions:

Read the book Read Patterns in Nature by Bela Davis and take the class outside to make patterns with found materials such as pine cones, rocks, or leaves.

Music: Make patterns such as clap, pat, clap, pat, clap, pat

Try patterns with instruments such as bells, sticks, shakers

Have the students copy you and then fill in the next pattern.

Have students come up with pattern that the class has to follow.

Ways to Support Diverse Learners:

-having open- ended play based centres where students are invited to explore patterns, how they are alike and different allows children to learn at their own rate. Having hands-on centres supports diverse learners as they play with other children or may be supported by the teacher to make patterns.

-When the students are asked to colour pattern block strips and record their patterns, they may need support and an example to follow before they can do one on their own.

-Changing the pattern materials often allows for the children to repeat the same activity many times to learn deeply about the concept of patterns.

-Saving their patterns allows for discussion to support children as they learn how to make a pattern.

-Using music is another way for students to learn. They may learn better through patterns in music.

Ways of Expressing Learning /Assessments

Does this project lead the students into math or more into arts education? As the students play, this is an opportunity to conference with the children to understand their thinking on these concepts, extend their thinking, and to document their learning.

Counting:

- one-to-one correspondence

Patterns:

- sorting and classifying using a single attribute
- identifying patterns in the world
- repeating patterns with two to three elements
- identifying the core
- representing repeating patterns in various ways
- noticing and identifying repeating patterns in First Peoples and local art and textiles, including beadwork and beading, and frieze work in borders

Resources

rocks, pine cones, large beads, two sided chips, foam shapes, or coloured popsicle sticks.

Use materials such as stones, polished stones, blue glass beads, pine cones and black stones.

Books with patterns, with pipe cleaners and beads in multi-colours to make patterns, plastic teddy bears in different colours and sizes.

Other materials may include: yellow, green and blue glass beads, screws and nuts, and wood beads.

Clipboard and paper
pattern block strips
unifix cubes
buttons
ipads



Resource People:

EA itinerant that works in our district.