

Science Story Adventures



Patterns

Learning outcomes

- » Students will make predictions based on observed patterns and not random guessing. (Grade 2 - Science, Investigation and Experimentation)
- » Students sort objects and create and describe patterns by numbers, shapes, sizes, rhythms, or color. (Grade 1 - Math)
- » Students demonstrate an understanding of patterns and how patterns grow and describe them in general ways. (Grade 2 - Math)

From: California's Science and Math Content Standards

Books we read

One Grain of Rice: A Mathematical Folktale by Demi
Lots and Lots of Zebra Stripes: Patterns in Nature by Stephen R. Swinburne
Water by Emily Neye
The Snowflake: A Water Cycle Story by Neil Waldman

Activities we did

- » We made patterns by clapping and using blocks: We tried to guess the rule of the pattern and work out what would come next.
- » We studied the Fibonacci sequence and looked at how this pattern can make a spiral. We looked at spirals in nature, such as sunflowers, hurricanes, a hawk gliding, water going down a drain, and a nautilus shell

Today's craft: Making a Lei



You will need:

- » Construction paper in different colors, cut in half.
- » Scissors
- » Hole punch
- » Tube pasta
- » Pencil
- » Yarn cut into necklace length.

Directions:

1. Fold each piece of construction paper into fourths.
2. Draw flower shapes on the folded paper and cut out - you will have 4 of each flower. You will need around 20-24 flowers in total.
3. Decide on the pattern you are going to have - it could use colors, shapes or a mixture of both.
4. Thread the flowers and tube pasta onto the yarn in your pattern.
5. Tie up the ends and your lei is ready to wear!

Adapted from Around-the-World Art and Activities by Judy Press

Want to find out more?

Here is a selection of further resources to explore in the Naturalist Center, in the public library or at home. Please ask if you can't find what you're looking for.

Books

Bees, Snails, & Peacock Tails: Patterns & Shapes - Naturally by Betsy Franco ; Illustrated by Steve Jenkins.

Poet Betsy Franco and Caldecott Honor winner Steve Jenkins bring geometry to life in this lively, lyrical look at the shapes and patterns that can be found in the most unexpected places.

Blockhead: The Life Of Fibonacci by Joseph D'Agnese.

An illustrated story of Leonardo Fibonacci that depicts the famed mathematician during his childhood in medieval Italy and on his world travels where he learned about mathematics, leading to his discovery of a sequence of numbers that is now world-famous.

Growing Patterns: Fibonacci Numbers In Nature by Sarah C. Campbell.

The Fibonacci pattern pops up in the most unexpected places. Math can hold secrets to nature and nature can hold secret numbers.

I See Patterns by Susan Ring.

Simple text and photos present some of the patterns in nature and in everyday things

Nature's Paintbrush: The Patterns and Colors Around You by Susan Stockdale.

Simple text and bright pictures explain the many uses of colors and patterns in the natural world.

What's Next, Nina? by Sue Kassirer

When the string of a borrowed necklace breaks, Nina must quickly get the beads back in order and restrung before her sister finds out.

Wild Fibonacci: Nature's Secret Code Revealed by Joy N. Hulme.

Describes and illustrates the Fibonacci sequence, a mathematical formula, as it is expressed in nature in tiger's claws, elephant tusks and more.

DVDs

Math Adventure to the Moon

Tad and Lily introduce the math concepts of counting, sorting, pattern recognition, and more while searching for moon rocks to take back to school on Earth for their assignment. Includes sing-along songs and a sorting game.

Teletubbies. Look!: Playful Patterns and Simple Shapes

For younger viewers: The teletubbies explore patterns and shapes throughout Teletubbyland.

Websites

Fibonacci Numbers and Nature

This dense site provides a sophisticated look at the pattern and includes diagrams and activities.

<http://www.maths.surrey.ac.uk/hosted-sites/R.Knott/Fibonacci/fibnat.html>

Patterns

An interactive lesson on what patterns are and how to understand them.

http://www.linkslearning.org/Kids/1_Math/2_Illustrated_Lessons/5_Patterns/index.html

Patterns in Nature

National Geographic Kids provides beautiful, close-up photos.

<http://kids.nationalgeographic.com/kids/photos/gallery/patterns-in-nature/>

Patterns in Nature

The Utah Education Network has put together a great page of applicable resources.

<http://www.uen.org/themepark/patterns/naturepatterns.shtml>

Syntax Store

This game helps you see patterns in the way we combine words.