# The Poetry of Math and the Math of Poetry

A Lesson by Hamzah Jhaveri
Chief of Interdisciplinary Mathematics and Design, Orlando Math Circle

"Pure mathematics is, in its way, the poetry of logical ideas."

*Albert Einstein*

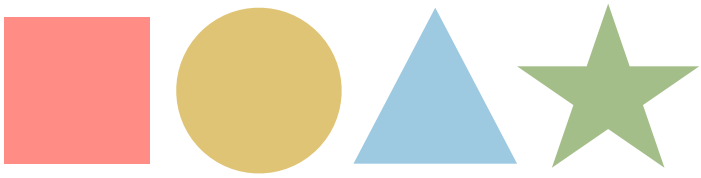
## Introduction

Many people believe that certain things don't mix well. Ketchup and waffles. Sweaters and summertime. Math and poetry. While the first two of these examples may be true for some people, the third is certainly not. Though the subjects seem so far apart, math and poetry are actually connected in several ways. For one, they have both been around for ages, and have evolved much since their original development. They can both be bound by certain rules or free from them. And, they both require an incredible amount of creativity. Though there are many intersections between math and poetry, for the sake of simplicity, we are only going to observe three: **symmetry**, **patterns**, and **symbols**.

## Symmetry

In math, symmetry is most commonly seen in geometry and graphing. Squares, triangles, circles, rectangles, octagons, pentagons, and hexagons are oftentimes symmetrical in some way. Asymmetry, when an object is not symmetrical, is also common in math. Certain irregular shapes are not considered symmetrical. In poetry, authors often use symmetry and asymmetry to give their poems a certain effect. For example, a Diamante poem is a seven-lined, diamond-shaped poem that follows certain rules (see **Activity 2**). Here are some examples of symmetry and asymmetry in poetry and math.

Symmetrical



A Diamante Poem

square
symmetrical, conventional
shaping, measuring, balancing
boxes, rooms, clocks, halos
encircling, circumnavigating, enclosing
round, continuous
circle

*** Challenge**: draw the lines of symmetry on the shapes and the poem!

Asymmetrical



"Batty" by Shel Silverstein

The baby bat
Screamed out in fright,
"Turn on the dark,
I'm afraid of the light."

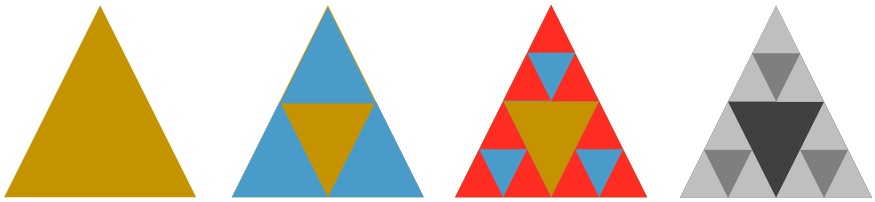
**Patterns**

One of the most common themes in math is the pattern. Patterns of numbers, shapes, and functions are all key to understanding how math works. For example, if you saw the numbers 1, 3, 5, and 7 what would be the next number in line? It would be 9 because the pattern is of odd numbers starting at 1. Similarly, patterns are also key to poetry. The most common type of pattern in poetry is rhyming. Rhyming uses patterns of repeated sounds to give a certain effect to the reader. Although rhyming is the most common pattern in poetry, it's not the only type. Poets often repeat sentences, words, and the way they organize their poems. Explore some examples of patterns in poetry and math!

from *One Fish, Two Fish, Red Fish, Blue Fish* by Dr. Seuss

Black fish
blue fish
old fish
new fish

This one has a little star.
This one has a little car.
Say! what a lot
of fish there are.



complete this fractal!

1, 2, 1, 2, 1, 2, 1 …
2, 4, 8, 16, 32, 64 …
1, 10, 100, 1000, 10000 …

Tricky!
5, 9, 17, 33, 65 …

* **Challenge**: find the next number or shape in the math patterns!

**Symbols**

*What is a number?* It's a symbol that represents a value. When I write the number 300 on a check, I'm really saying three-hundred dollars. Our age is a number that represents how long we've lived in years. Symbols can change (we learn about this in Algebra!), or even mean the same thing (2 = 1+1). So because a number is a symbol, symbols are a big part of math. Symbols are also used in poetry, but in a different way. Poets use words or ideas to *symbolize* different words or ideas. For example, if a poet says her dog's personality is like the summertime, she might really be saying that her dog is as joyful as summer is. Or if a poet talks about the color red, he could be in love! As in math, symbols in poetry often mean the same thing, like in those two examples of summertime (happiness) and the color red (love). But be careful! Symbols in poetry are not as straightforward as they are in math. Here are some examples of symbols in poetry and math.

**Math Symbols**

x = 3
y = 9
4 = 3 + 1 = 2 + 2 = 2 x 2 = 8 / 2 = 5 - 1

**Color Symbols**

red = love OR anger
orange = energy
yellow = happiness
blue = sadness
green = jealousy
purple = royalty

**Other Common Symbols**

river = adventure
spring = life
eagle = freedom
skull = death
full moon = danger
rainbow = friendship, promise
dove = peace

* **Challenge**: what is the name for a letter that represents a number in math?

# Let's Try It!

**Activity 1**

Identify the Connection! For this assignment, you will either be given a poem or a math situation. You must identify the connection(s) (symmetry, patterns, symbols) in each example. Then you must match the poem with a math situation that relates or the math situation to a poem that relates!

**Example:**

**1, 100, 10000, 1000000, 100000000**

connection: ___pattern___

Match:

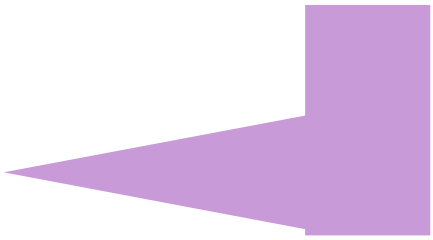
A.

The apples were green
and so was his cloak.
The rabbits are mean
and they rarely croak.

B.

I was looking
for the answer
of a question
I knew not.

1.



connection: _____

Match:

A.

Once upon a long, long time,
I couldn't think of any rhyme.

B.

Buzz
goes
the
bee.

2.

**5 + 3 = 8 x 1 = 10 - 2 = 32 / 4**

connection: _____

Match:

A.

I was so mad
that I turned red.
A skull and crossbones!
I could have been dead!

B.

The old man jumped
because he was free.
But he broke his hip
because he was 93.

3.

**Roses are red,**
**Violets are blue.**
**I think I like math**
**more than you do!**

connection: _____

Match:

A.

B.

1 x 0 = 8 - 7 - 1 = 3 + 3 - 6

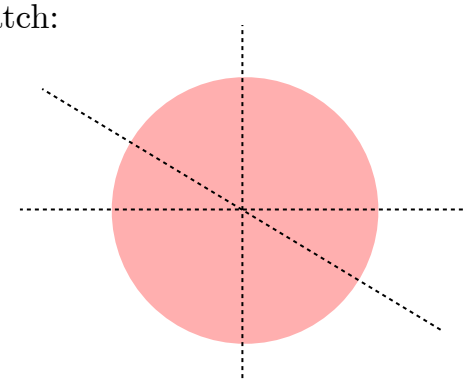
4.

**In her eyes,**
**their new friendship**
**was like a rainbow.**

connection: _____

Match:

A.



B.

x = 3,000

**Activity 2**

Write a Diamante Poem (see **How to Write Diamante Poem** below)! Your poem must include all three math and poetry connections (symmetry, a pattern, and a symbol). Then, draw a picture using symmetry below your poem!

How to Write a Diamante Poem:

A Diamante poem is a diamond-shaped poem with seven lines. It is usually about two different objects that the author describes. It does not have a title!

Line 1: ONE Noun (First Object)

Line 2: TWO Adjectives (About First Object)

Line 3: THREE Verbs (About First Object)

Line 4: FOUR Nouns (First TWO about First Object, Second Two about Second Object)

Line 5: THREE Verbs (About Second Object)

Line 6: TWO Adjectives (About Second Object)

Line 7: ONE Noun (Second Object)

**Example:**

Red

Bright, Hot

Burning, Flaming, Itching

Fire, Blood, Water, Tears

Crying, Moving, Gushing

Cool, Soft

Blue

Write your poem on the lines provided! Draw a picture on the blank page below!

Author: _____ Date: ____ / ____ / ____

_____

_____ _____

_____ _____ _____

_____ _____ _____ _____

_____ _____ _____

_____ _____

_____

## References


http://mathforgrownups.com/the-math-of-poetry-yep-theres-a-connection/

https://www.maa.org/press/periodicals/loci/joma/mathematics-in-poetry

https://www.theguardian.com/books/booksblog/2009/feb/04/maths-poetry-pi-fibonacci

https://image.slidesharecdn.com/nathans-poetry-anthology-1218441716204219-8/95/nathans-poetry-anthology-17-728.jpg?cb=1218416530

http://www.readwritethink.org/classroom-resources/student-interactives/diamante-poems-30053.html


For more activities like this, visit

orlandomathcircle.org