

USING MATH IN YOUR ART JOURNAL

When you are observing nature and recording images, it's important to also record the date for each entry (many people like to add the time as well). Consider adding the temperature, or a specific address; the extra information adds a new dimension to your memories. You can use numbers and their functions to convert to metric, to notate sounds, to estimate, or to create charts or graphs.

Below are more ways to combine math with your art and writing, with examples for your student, child, or self!

1. Counting

- Number of things: 5 petals; 3 eggs in 1 nest; 2 colors of feathers.
- Number of behaviors: the cricket make 3 hops; the vine twisted 2 times.
- Number of times or days: Today the bird ate twice; in 1 hour I saw...

2. Measuring

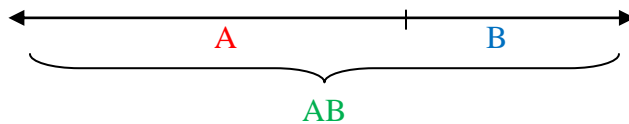
- Size and shape: a leaf about the size of my hand; the seeds are 5 cm long.
- Time: The tortoise walked 5 steps in 15 minutes; the plant grew 2 inches this week.
- Amount/area: 2 inches in the rain gauge; the forest covers 1 acre.

3. Comparing

- Scale: A sycamore leaf is twice the size of a maple leaf; I drew this bug at half scale.
- Time: This bee flies faster than that beetle, last year this tree grew less than that one.
- Patterns: The flower has 3 petals and sepals; ivy has 3 leaves, but creepers have 5.

4. Finding patterns and relationships

- Seeing patterns: beetle with two spots; 5 stripes on the animal's tail.
- Fibonacci numbers: 1,1,2,3,5,8, etc. Each number plus the number after it equals the next number in the series (for example: $1+1=2$, $1+2=3$, $2+3=5$, $3+5=8$...). This relationship shows up in flower, fruit, and seed spirals (pine cone, sunflower seedheads, pineapple fruit). It also shows up in the phyllotaxis (leaf arrangement) of leaves along the stem of certain plants. This sequence is also related to the golden ratio.
- Phi – the Golden Ratio: 1.6180339887. A relationship between measurements.



Line **A** is to line **B** as line **AB** is to **A**
Shows up in mollusks and plants, and some geometric shapes in various ways.

Google Fibonacci and the golden ration to explore further!

Also see the book *The Golden Ratio* by Mario Livio, Random House, 2002.

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