

# MY BOX OF STEAM

## Science PIGMENTS OF THE FLOWERS

### NATURE PAINTER

Arduina loved to walk in nature, she did so in the company of her faithful friend Eberardo. A small boar she had found in a bush one day. Perhaps he had gotten lost or perhaps hunters had killed his mother. Arduina had taken good care of him.

Every day she adorned him with a corolla of flowers, which he then gently ate. Arduina and Eberardo walked in the paths but sometimes they walked with no apparent destination, simply attracted by a scent, the shape of a tree or leaf, the colour of a flower that had blossomed or was yet to blossom. Arduina often did this barefoot to better feel the strength of the earth. When she walked, she kept her eyes closed simply guessing from the scents and smells the names of plants.

However, the thing she enjoyed most was the incredible variety of colours with which the flowers were adorned. The wonderful hues made her heart leap with happiness. She was convinced that an insect lived inside her, be it a bee, a bumblebee or a butterfly. She liked it so much that she and Eberardo would lie in the meadows, their faces in the flowers, and stay like this for hours, almost to store the memory to tell each other about it in the dark months of winter. These, in fact, were the most melancholy months, the stored memories seemed not to be enough.

"I wish I could take the flowers with me, the meadows and flower gardens, I wish I could always have them around," she said with a sigh.



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Eberardo grunted in response. One day, while they were lying in the sun in the flowery meadow, amidst the buzzing of bees and other insects, Eberardo a little annoyed by an overly insistent bee, started running and kicking to get her away. He ran without looking where he put his little paws and jumped, falling back heavily, not noticing that he was stepping on Arduina's beautiful white dress which he lowered his gaze, seeing that it was all dirty.

"Oh, my beautiful dress," she said, a little sorry. However, looking closer, she noticed that there were not only Eberardo's footprints, but it seemed that flowers had printed themselves on the fabric.

"Look!" she said in amazement "Look Eberardo what a great thing you have done!" she said happily hugging her friend.

"I finally know how we can carry flowers with us all the time."

From that day on, they went around picking up fallen leaves or plucking some from the trees, always with kindness and respect, or gathering flowers, to take home to print on the fabrics Arduina used to make her own clothes, blankets and curtains for her home. Each flower had a different colour, a pigment that nature seemed to have given it, an endless palette of hues.

Arduina was happy, it was like wearing a garden that was always in bloom, even when the flowers lay in the ground waiting for spring to arrive.





## WORKSHOP: FLOWER POUNDING

What happens in this story is a simple printing technique that uses the natural colouring of flowers.

Colour is present in flowers thanks to two chemical groups: the **Flavonoids** which include **anthocyanins** i.e. blue, light blue, purple pink and red colorations, but also **flavanones**, **flavones** and **flavonols** which instead have light, white, cream or even golden colorations...

The second group called **carotenoids** is responsible for colorations such as yellow, orange (e.g., marigold), and red. Flavonoids and carotenoids are contained in petal cells that can be dissolved in water (water-soluble). Through colour, flowers "talk," telling pollinating insects, for example, whether it is the right time to be visited and pollinated or whether they are still too young or perhaps too old.

Let's return to our technique of transferring flower pigments onto a substrate, paper or fabric.

### MATERIALS:

- leaves and flowers, (the ones you like and prefer, depending of course on the seasons. You can pick up fallen ones or gently pull some off the plants);
- watercolor paper;
- a hammer;
- baking paper or some paper towels.

### PROCEEDING:

Arrange the flowers with the corolla and leaves with the ribs toward the backing (watercolor paper fabric) you have chosen. You can arrange them randomly or make a small composition.

Cover them with baking paper and start hammering gently but firmly. Give them many small strokes. You have to make the pigments (but also the shape) transfer. Good luck!

