



SEEDS

Means for a sustainable art practice

Toolkit

projectseeds.eu 2024













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Introduction

Welcome to the Seeds Toolkit – a comprehensive guide to the culmination of creativity and sustainability.

This toolkit presents the innovative, sustainable art techniques used within the Seeds project.

The project is a collaboration of four non-profit organisations from Portugal, Spain and Greece and it is implemented within the framework of Creative Europe.

The Seeds Toolkit aims to foreground a world of transformative creativity. It encompasses a rich repository of instructions, techniques, and insights cultivated during the course of the project.

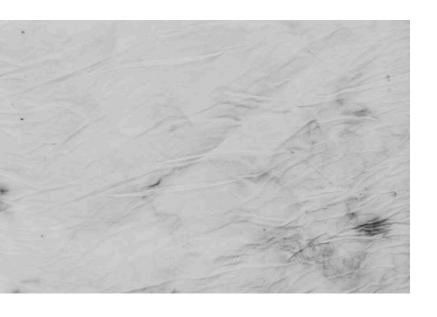
The techniques included have been carefully developed, tried, and tested by artists who share a common vision – one that aligns with the principles of environmental responsibility and cultural evolution.

The toolkit includes techniques in four categories:

Natural dye & inks Working with organic material Clay, Ceramics & Earth Fabric & paper



CATEGORY A: NATURAL DYES & INKS



Creating Curcuma Tint & Alcohol Tints



Materials & supplies list

- Turmeric Root (it can also be done with powder)
- Vinegar (cleaning vinegar, alcoholic)
- Salt
- Water
- Soy Milk
- A piece of fabric
- A piece of paper
- One pot
- A Mortar
- Alcohol Isopropyl 96-99%

Techniques & processing

Prepare your fabric or paper by dipping them in soy milk for a while. This will help the plant juices and colours to stay for longer. Use both fabric and paper, still a bit humid, not wet.

Prepare your turmeric: break the root in little pieces and crush them in the mortar until most fibres break and start freeing their juices. Cook your crushed turmeric in a pot with water for a while depending on the colour you wish to obtain and the concentration you want. Don't let it boil up to 100°C or it may alter the colour. Remove from heat.

Add a pinch of salt (to preserve mixture), vinegar and alcohol to your mixture and let it rest (the more it rests, the more concentrated it will be). Strain the turmeric fibres and you can keep the obtained tint in a glass jar. Try it on the prepared fabric and PH neutral paper. If the intensity of the colour is not to your taste, brush it again in layers.

NOTES: All tints that are made with plants that don't turn with alcohol, can be created this way. For example, using dragon blood or oxalis.

Extracting dyes and ink out of plants

Materials & supplies list

- Try walnut shells
- Chestnut spikes for tint
- Chestnut spikes
- Crushed oak apple nuts
- Beetroot
- Oxalis flower
- Dragon tree resin
- Blueberries
- Hibiscus
- Onion peels (ink)
- Tickseed (coreopsis)
- Water
- Pots
- Alcohol



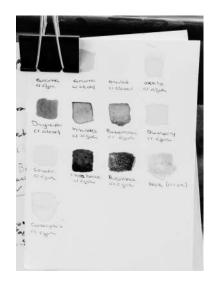
Techniques & processing

Each of these are cooked in different temperatures, according to each color you want to obtain: there must be an attentive observation to the pots so that as soon as the mixture arrives to the color intended you stop it from cooking further.

NOTE that if this mixture is used for tinting, the longer the fabric stays emerged the more intense the color will be.

Use different pots for all these experiments according to the dilutions you've used: powder, alcohol or water.

- Oxalis in WATER and ALCOHOL
- Turmeric in WATER and ALCOHOL
- Dragon tree in ALCOHOL only
- Blueberries in WATER
- Hibiscus in WATER
- Oak galls in WATER
- Black walnuts in WATER
- Onion in WATER
- Coreopsis in WATER
- Chestnuts with WATER
- Beetroot with WATER
- Dragon blood in POWDER



Fabric preparation

All fabric can be dyed as long as it has natural fibers (so no petroleum derivates or similar) such as cotton, linen, hemp, etc. The whiter a fabric is, the more the colors will make a contrast and impact (the logic will always be that of added colors: if your fabric is originally yellow, any blue tint will become green).

Fabric should be prepared in order to receive the inks.
To do so, it must be washed simply with water and basic soap, stay in water for some hours and than well rinsed without being twisted (avoid squeezing the water by twisting the fabric not to break its fibers and mark it too much).

After rinsing, dip the fabrics in soy milk and let them soak for some hours (preferably overnight). Rinse again.

The fabric must be still a bit damp when you want to dye it.
To discover the effect of the colors, on each pot put a bit of fabric in so that you could see the color changing.





Did you know?

• The PH factor:

When cooking plants pay attention to the PH factor of water-it will influence the final result of dying or painting. For example, if we apply an ink on a common paper it is likely for it to disappear, whereas if the ink is applied to acid free paper it will remain longer. This is going to happen with fabric as well. When putting the plants to cook, the ph of the water can interfere with the process as well. To regulate the ph of a dye it is recommended to use alcohol vinegar or sodium bicarbonate (whether to lower it – sodium bicarbonate (alkaline) – or to increase it (vinegar)).

Alumen and friends:

If some dyes are boiled in an aluminum pot their color tone will intensify or help fixing. (SALT also helps to fix colors). Some industrial inks include alumen (chemical solution) to hold color.

• Ink and preservation:

It is advisable to use poppyseed oil to preserve the ink for further use, it will both add matter to the mixture as well as enhance the intensity of the color. Impressionist painters used it and there is more research about this referring to its use.

Avocado Pink



Materials & supplies list

- Avocado seeds
- Sodium bicarbonate
- Gloves
- Pot
- Jar
- Water

Techniques & processing

Boil fresh seeds for a few minutes to remove the skin, peel them, and cut each into 8 pieces.

Boil them for 15 minutes with a couple spoons of sodium bicarbonate: 15 minutes later you would have a pink dye!



Did you know?Natural colours are toxin-free & 100% environmentally friendly





Fungi Oil Pastel



Materials & supplies list

- A mouldy mushroom
- Linen Oil
- Natural wax
- Mortar

Techniques & processing

Extract the mold you want to use and keep it in the mortar. Mix it with a bit of linen oil and wax until they blend well. Let it dry completely in the shape you wish to obtain.







Walnuts Ink



Materials & supplies list

- Walnuts with shells
- Pan
- Jar

Techniques & processing

Remove the seed and crush the shell. Boil the skin for a couple of hours and voilá! You'll get a dark brown ink that can be stored in a glass jar.







CATEGORY B: WORKING WITH ORGANIC MATERIAL



Caffenol - Developing a black & white photographic emulsion with coffee



Materials & supplies list

- 350ml of water
- 6 rounded teaspoons of instant coffee
- 4 leveled teaspoons of washing soda
- Half a teaspoon of vitamin c powder

Techniques & processing

Start by dissolving the coffee in 150 ml of water.

Stir it well.

Dissolve your washing soda in 200ml of water.

If you don't have washing soda you can make it using baking soda by heating it on a stove in a well ventilated area for 1 hour. Store the excess in an airtight container. Mix your solutions and add the vitamin c.

You got caffenol! Let's try it! You can develop films or photographic paper.







Techniques & processing

Choose the black and white negative you want to enlarge.

Place the negative in the enlarger and expose the paper - e.g. for 15 seconds. Place the paper in the caffenol solution for about 9 minutes and keep moving the paper around to avoid imperfections in the image. To stop the development rinse the paper well with water. Change the water about 4 times for a couple of minutes.

As a fixer you may use a solution of salt and water with as much salt as you can dissolve.

To get more contrast you can leave it longer in the enlarger or in the caffenol solution.





Pomegranate Wine & Fermentation





Materials & supplies list

- 1 glass jar
- 2 peeled pomegranates
- fennel
- 3 tablespoons of white sugar
- water

Techniques & processing

Put the pomegranate into the jar. Mix the fennel (to taste) and the sugar. Then cover the pomegranate with water. Cover the jar with a plate. Twice a day mix well for oxygenation and keep it covered with the plate. Once it stops bubbling, close the jar hermetically and it's ready to drink.





Bioplastic with corn starch



Materials & supplies list

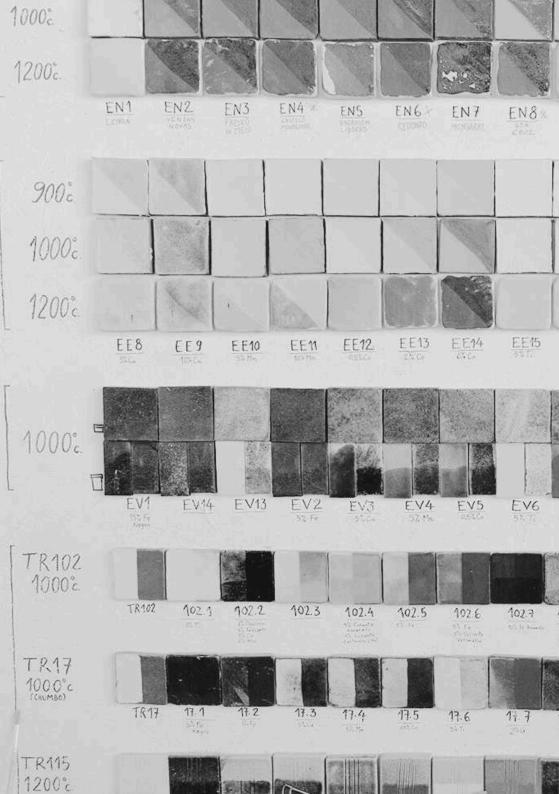
- 4 cups of water
- 1 cup of vinegar
- 1 cup of corn starch
- 1/2 cup of honey
- Pot
- Spoon
- Mould

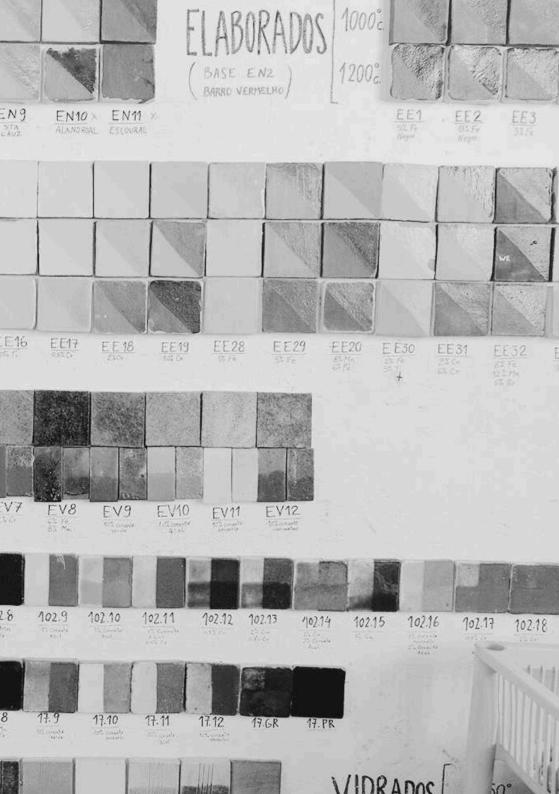
Techniques & processing

Mix everything really well in a pot and let it boil until it gets somewhat transparent and sticky. Pour it in a mould and let it dry for a few days. The thicker your pour is the longer it will take to dry.



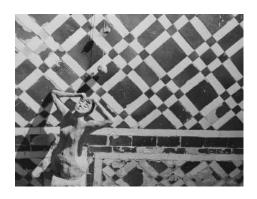






CATEGORY C: CLAY, CERAMICS & EARTH





Find, collect and prepare clay for ceramics

Materials & supplies list

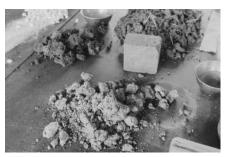
- Clay
- General tools bowls, buckets, containers

Techniques & processing

Collect clay, prepare clay, grind and add water until it is ready to use. Cracked soil during dry weather is a good indication of the presence of clay in the ground.

Remove the superficial layer of (organic) soil and collect a small sample with a tool or hands. Add a little bit of water, mix and make a ball with your hands. That's the **first test** of plasticity!





Secondly, roll a coil between your hands. If it keeps its shape and doesn't crumble, great! Second test completed and a good indication that you found some malleable clay.

Thirdly, roll the coil around your finger. If you can make a nice ring out of the clay, you have a great clay to work with.

After these empirical tests, collect some clay, remove any roots, stones or other materials.

Let it dry completely for a couple of days, crush it into smaller pieces using a stone, hammer or similar tool.

Then, add some water to a bucket and add the clay to the water (the reverse sequence is also possible but doesn't work as well).

Don't add too much water.

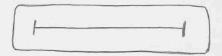
Add more clay than water and let it soak for a while (30 min or more). After this, mix well with your hands or tool, until plastic, to wedge on a surface. Often we add more water than needed. If that happens, let the clay dry a bit in the air or wedge it over a plaster or terracotta surface, to absorb excess water.

Wedge the clay very well and shape it as desired.



PROPERTIES OF CLAY	KAULIN STONEWARE PORCELAIN PORCELAIN WATER PRIHARY CLAYS	RED CLAY BENTONITE ON ONO HORE ONO ON WATER SECONDARY CLAYS
PLASTICITY Allows the clay to be shaped and to keep that shape.	LESS PLASTIC	MORE PLASTIC
HARDENING The more the clay dries, a more hard and stiff it gets.	FAST DRYING	SLOW DRYING
SHRINKAGE WHILE DRYING As water evaporates, the clay shrinks.	REDUCED SHRINKAGE Lower risk of crack	HIGH SHRINKAGE Higher risk ocks
POROSITY Less porosity = bigger mechanical resistence	LESS POROSITY	MORE POROSITY
COLOR Depends on the type of clay, firing temperature and if it has pigments added.	LIGHT	DARKER COLORS
SINTERING Happens at 573°C and turns the material into ceramics.	HIGH TEMPERATURE 1200°C or higher	LOW TEMPERATURE Up to 1000°C

TEST YOUR CLAY AFTER THE SAMPLE IS FIRED



- 1 SHRINKAGE %.
 measure the 10cm mark.
- 2 DOES IT HAVE LIMESTONE?

 put the sample under water

 see if the sample is ok in the next day.
- (3) ABSORPTION %.

 weigh the sample when dry → "dry weight"

 put it under water for 24 hours

 take it out of the water and quickly dry the surface

 weigh the sample again → "damp weight"

 apply the following formula:

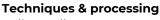
Absorption ! = damp - dry weight X 100

Earth techniques for art and sculpture - Building a rammed earth block



Materials & supplies list

- Different types of local soil and fibers;
- Rammed earth and adobe formwork;
- Shovels, wheelbarrows, buckets compression hammer and other generic construction tools;



Collect soil

Spray some water on the earth pile and mix it at the same time.

Add a layer of earth it in the formed block and press with the compression hammer. Press it well so it becomes dense and hard. Then add another layer and repeat the process, and another layer until you fill up the block.

Unscrew the formed block, and there you have your earth block!



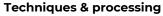




Ceramic Sculpture

Materials & supplies list

- Ceramic clay
- Water
- Clay knife or cutting wire
- Ceramic needle or knife
- Smoothing tools (like a spatula or a piece of wood)
- Brush and sponge
- Plastic (to cover the piece while it dries)



Avoid excessive dust exposure;

Preparing the Clay:

- Start by kneading the clay to remove any air bubbles and ensure the texture is uniform. This also helps make the clay more workable.

Forming the Base:

- Shape a piece of clay into a ball, then flatten it to form a disk. This will be the bottom of your vase.
- Use a roller or your hands to ensure the base is flat and even. The thickness should be about 0.5 cm

Making the Coils:

- Take a quantity of clay and roll it on a flat surface to form a coil (or "snake"). The coils should have a uniform thickness, approximately the diameter of a finger.













Building the Vase:

- Place the first coil around the edge of the base. Make sure it is well-adhered to the base. Use a bit of water and a ceramic tool or your fingers to smooth the joint between the base and the coil to avoid cracks.
- Continue adding coils one on top of the other, smoothing each joint as you go. Use your fingers or a tool to gently press the coils together, ensuring there are no gaps between them.
- With each new coil added, shape the vase (wider or narrower) as desired.

Smoothing and Refining:

- After reaching the desired height and shape, use a smoothing tool or your fingers to smooth the inside and outside surfaces of the vase. This helps fully integrate the coils and gives a more uniform appearance.
- A damp brush can be helpful to further smooth the surface.

Drying:

- Let the vase dry slowly in a controlled environment. Cover it with plastic to prevent it from drying too quickly.

Obvara Firing



Materials & supplies list

- 1 big bucket
- 20L of water
- 2 kg of wheat flour
- 20 gr of white sugar
- 20 gr of baker's yeast

Techniques and processing

In a bucket pour the water and the flour and mix well. Then add the sugar and keep mixing.

Lastly, add the yeast and mix well until dissolved.

Keep it to rest for 3 days, mixing several times a day.

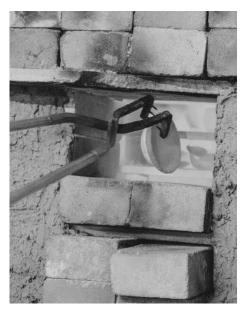
Cook your clay pieces in the wooden oven at 800-1000 degrees

Take it out from the oven while still hot and deep it in the flour mix.

Take out and dip it in water.

Then leave it to cool and dry.





BY INÊS COELHO DA SILVA



CATEGORY D: FABRICS & PAPER



Making paper out of fibers

Materials & supplies list

- Fibers (hera plant, banana leaves, onion leaves, etc)
- Pot
- Water for boiling
- Caustic soda
- Open, low height containers
- A frame with net of about 3mm wide to drain water
- Glass or acrylic piece

Techniques and processing

Cut the fibers: concerning the banana "leaves", extract the fibers from the stem right next to the leaf support (pedunque), which is a bit chunkier. Note that the more fiber a plant has, the more cellulose it will produce and the best paper will originate.

Strong fibers come from plants that hold up well vertically (the more vertical and better a plant holds up, the better fibers it will have).

The cut should be in the opposite direction of the fibers (horizontal) and of about 1,5 cm/2 cm – big enough for the fibers to intertwine and small enough for them to do so without causing lumps or weird textures;

Boil all cut fibers in a pot with water. Each plant can take different times to cook properly, for example, the banana stems need around 5/6 hours of boiling.

Note that sometimes we add caustic soda to accelerate the process of breaking the fibers while boiling (about 2 spoons for a 3 liter pot). We know that the fibers are good enough to be used for the paper when we start seeing them somehow forming masses and sticking well to one another.

Mix fibers with a blender and wash/rinse with water. When blending plants, like the banana stems, we must understand at what point should we stop so that the fibers become neither too little not to blend and stick together, nor too big to create too much texture and not stick.

Techniques and processing

NOTE: Sodium Hydroxide is used to help the fibers break when boiling them and helps accelerate the process. Around 2 spoons for a pot of around 3 liters.

After coming down to room temperature, the boiled broken fibers are added to an open, low height container along with hot water, another with cold water as well as another basin of warm water. Different temperatures give different levels of cellulose.

Using the frame: Take the fibers out of the water, spread them as homogenously as possible on the framed net and drain them. Press the other side of the fibers with an absorbant cloth that does not wrinkle. Finally, place this wet paper against a glass or acrylic, to dry as upright as possible.

NOTE: to get it straighter and dry it even more, the paper can always be squeezed in a proper press.

NOTE 2: When using this process on seaweed papers, add a little bit of ash as it will prevent it from developing bacteria.

NOTE 3: There are some fibers that don't hold up as well as others, if you notice the fibers are not sticking, add a bit of paper paste to have some cellulose in the fiber mixture.

Let it DRY. If you believe the paper needs to get flattened further, you can iron it against a piece of cloth. If the fibers were good enough, it will hold as paper, if not it will probably crumble.







Wool Felting

Materials & supplies list

- Washed wool
- Wool dyed with natural dyes (Example: thyme dye and beetroot dye)
- Rolling Mat
- Mosquito net
- Hot water
- Liquid Soap





Techniques and processing

Clean and separate the washed wool. Prepare the rolling mat with the mosquito net over it.

Distribute the wool over the mosquito net. You can use the dyed wool to create patterns.

Pour the soap over the wool.

Gentle pour the hot water over the wool.

Roll the mat, with pressure, to keep it tight.

Keep rolling for about 5 minutes.

Unroll it and cover the wool with more mosquito net.

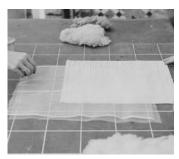
Roll it again, and keep rolling for about 25 minutes.

Unroll, take off the mosquito net and put it to dry.

















Pampas Paper



Materials & supplies list

- A basket of pampas leaves
- Big pot
- Long Woodspoon
- Water
- Sodium Hydroxide (optional)
- 1 or 2 Small Net Canvases (holes of around 3mm)
- One tray/basin
- A blender machine
- 2 or more felter absorbent cloths



Techniques and processing

1- SELECT AND CUT - The fibers are extracted from its stem, by hand. Try to keep the softer parts without the stems, if you are unable to remove all stems, cut them in the opposite sense of growth.

2- BOILING: all cut and selected pieces are placed in a pot with water and cooked. It can take different times to cook properly, in this case, we used 3 hours. We know that the fibers are good enough to be used for the paper when we start seeing them somehow forming agglomerates and sticking well to one another.

Note that if your fibers are not sticking well too loose, you can add sodium hydroxide (soda caustica) to accelerate the process of breaking the fibers (ATTENTION: about 2 spoons for a 3 litre pot, no more and never while boiling or you risk a very dangerously foamy result; be very careful handling this product, it may cause burns).

3- After the boiling process the fibers are mixed with a blender and rinsed with water.

Techniques and processing

- 4- After coming down to room temperature, the boiled broken fibers are added to an open low height basin along with room temperature water.
- 5- MAKING SHEETS OF PAPER: To start with we'll need a net canvas/frame with a net of about 3mm wide or even smaller (beware that these pampas fibers are very small so the net can get clogged and not drain water);

This sort of canvas is dived in the basin, the fibers are spread as homogeneously as possible on its net while we take out the water and drain it. We can press the fiber side of the net to another cloth (preferably something that doesn't wrinkle) and as we press it backwards with an absorbent cloth through the net, the drier our piece of fiber paper will get.

Finally, we can place this wet paper against a glass or acrylic, so that it dries as straight as possible.

NOTE: to get it straighter and dry it even more the wet fiber paper can always be squeezed in a press. To avoid wrinkles, avoid using materials that provide humidity or get wrinkled as they dry.

LET it DRY - If you believe the paper needs to get more flattened, you can iron it against a piece of cloth.

Hammertime Plant Print



Materials & supplies list

- Hammer with flat surface
- A piece of fabric (preferably already previously dipped in soy)
- A piece of paper (preferably ph neutral and dipped in soy previously)
- An assortment of plants to your taste (play with colours and shapes)





Techniques and processing

Prepare your fabric or paper by dipping them in soy milk for a while. This will help the plant juices and colours to stay for longer. Use both fabric and paper, still a bit damp, not wet. Work on a resistant flat surface

Work on a resistant flat surface that can suffer impact. Place your fabric and paper of more or less the same size and the plants you want to print between them.

Hammer your "sandwich", slowly and patiently if you want more detail to get printed, or harder if you just want blurry juices to stain the fabric.

Open your fabric paper plant sandwich and remove the leftover plants. Let them dry completely.

NOTE: the print will not last forever, as all plant stains, they will alter colours and very slowly fade away.

Printing on fabric with iron sulphate mordant



Materials & supplies list

- 100 ml of cider vinegar
- 4 gr of iron sulphate
- 2,5 gr of quicklime
- 1 cotton cloth
- 1 mortar
- 1 bowl
- 1 paint brush
- 3 natural dyes (Example: Dragon berries dye, Cistus ladanifer dye and Pomegranate peel dye)



Crush the iron sulphate on the mortar.

Pour the iron sulphate powder on the bowl.

Pour the cider vinegar on the bowl and mix it well.

Paint the cotton cloth with the mixture.

Soak the cotton cloth on the hot natural dye.

Leave to act for approximately 2 minutes, until the cloth absorbs the colour.
Leave to dry.







Binding



Materials & supplies list

- paper
- something to press the folded paper (it can also be a pen or pencil that doesn't leave off colour)
- two clips
- needle
- thread
- scissors
- pencil
- nail (or something with which holes can be made)

Techniques and processing

Cut your pieces of paper in rectangle shapes of the same dimensions and proceed to cut them in half.

Hold the folded papers with the clips and make some holes on the spines - making sure to mark at the same points. We take something with a sharp point (not too thin, not too big) and, after laying each folded paper flat on the table, we puncture every mark.





Techniques and processing

After threading the needle and knotting the thread, go through the holes (starting from the outside part of the spine, going in one hole and then out to the next one)

On the first folded paper once you reach the final hole, thread back the opposite way. When you reach the final hole, take another folded paper, adjust it on top of the first one - here use the clips again to stabilise the two papers together. From now on the thread is visible on the inner part of the spine. Every time you take the needle and thread on the outer part of the spine, instead of moving to the next hole, hook it under the thread of the previous paper and then drive the needle back into the hole from which it came out. We move accordingly for each hole.

When you reach the end of the paper instead of threading backwards add another paper on top.

At the final piece of paper, once we have passed through all the holes we take the needle out the last hole and with the remainder of the thread we create knots on the spine to create more stability.



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SEEDS mentors & workshop leaders:

Ana João Almeida Caterina De Viti João Rolaça Liliana Velho Linda Weintraub Sónia Francisco Yasmine Ostendorf-Rodríguez

SEEDS Artists:

Alicia Monreal Ortega
Alkyoni Papakonstantopoulou
ana amarante
Camila Almeida
Carme Ayala
Diana de Brito
Eva Manaridou
Folie a Deux
Inés Ballesteros
Inês Coelho da Silva
Leah Saraiva
Rafael Raposo Pires

Artworks presented:

Rafael Raposo Pires - Untitled (erecting from the ground) (cover)

Inês Coelho da Silva - Caterpillar's poetries. Garlic, camomile, wood, honey, salt, onion, ivy,

clover, clay, cotton, hibiscus, oak gall, various dimensions (p.6, p.18-19)

Eva Manaridou - We see the dreams we can contain. Clay, earth, straw, wool, wood,

container and bench, various dimensions (p.26)

Carme Ayala - 23 retratos das miñas mans. Set of 23 ceramic pieces in obvara technique (b.26)

ana amarante - No-go zones. Clay, 3D printing, various dimensions (p.31)

Eva Manaridou - Dream filter. Clay, wire, 41 x 28 cm (p.35)

Leah Saraiva, experience (interior-anterior). Natural ink on paper, 20,5 x 29,5 cm (p.36) Alkyoni Papakonstantopoulou - Research diary. Natural inks (dragon's blood, hibiscus, curcuma, oak gals, black walnut), natural dyes (hibiscus and chamomile), fabric, watercolour paper, ink for descriptions, leaves and flowers for ecoprints 24 x 16,5 x 2 cm (p.48) Alicia Monreal, weather, time - Ecosystem: the oak gall. Clay from Freixo do Meio, earth from the castle of Montemor-o-Novo, straw, sticks, plastic chair, earth from the floor of Oficinas do Convento (with all their natural inhabitants). Clay from Vendas Novas, straw, plant and found pot, found clay head, wool, paper. 50 x 20 x 20 cm (p.50-51)

Photo credits: André Estrela Katarina Nikulina Rafael Raposo Pires Tiago Fróis

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