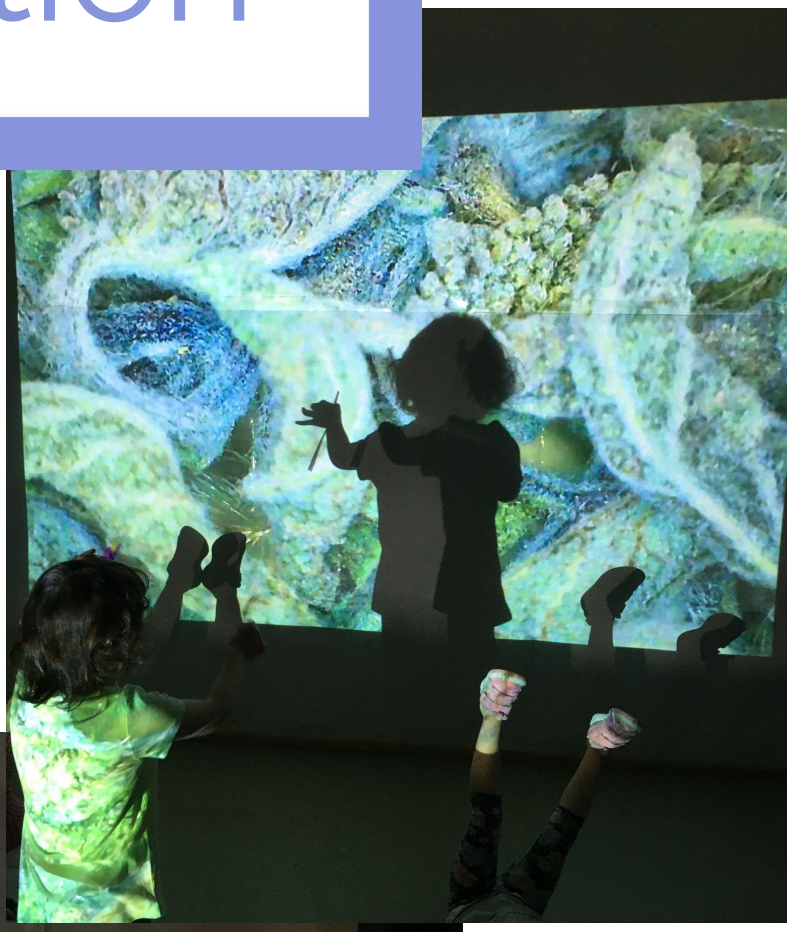
DA #14

Italy

Nature in Projection



Nature in Projection

An idea from:

Sara Battistel - **Cristina Zecchin**, ECEC educators at Kindergarten "Tre Piere", Oderzo - Italy. **In co-design with Zaffiria.**

Age: 4-5 years

Keywords: #nature #sciences #mediaeducation #projection #digitalmicroscope

Key question: *How are shadows generated and what lays behind (or in front of) them?*

General objectives:

- Knowledge of the projector, as a technological tool, to express oneself with intentionality and awareness;
- Participation in the discovery of shadows, exploring and experimenting with different tools and materials;
- Peer collaboration and cooperation in playing and building a common project
- Support for imagination, fantasy, invention of stories within a playful context;

Time: 8 activities of about 30 minutes each for a total of about 4 hours

Materials

At school	At Home
• Projector • Pc • Digital microscope • Batteries • Candles • Natural elements • transparent materials • Box as a transitional element school-home	• smartphone (torch and video camera) • Battery • Natural elements • transparent materials

Software/ Apps:

Canva	**Emaze**	**iMovie**	**QR code generator**
Objective: Creation of graphic material **Media:** Computer; smartphone; tablet **Link:** https://www.canva.com **Alternatives** Google draw, Google Presentations, Powerpoint, Inkscape, Illustrator	**Objective:** Organisation of a virtual exhibition **Media:** Computer **Link:** https://www.emaze.com **Alternatives** Keynote/Microsoft Power Point, Google presentations	**Objective:** Audio/video editing **Media:** Computer; smartphone; tablet **Link:** https://www.apple.com/it/imovie/ **Alternatives** VN, CapCut, InShot, windows photos tool	**Objective:** Linking to a QRCode **Media:** Computer; t **Link:** https://www.qr-code-generator.com/ **Alternatives** Google Chrome integrated tool, bit.ly

Short Presentation

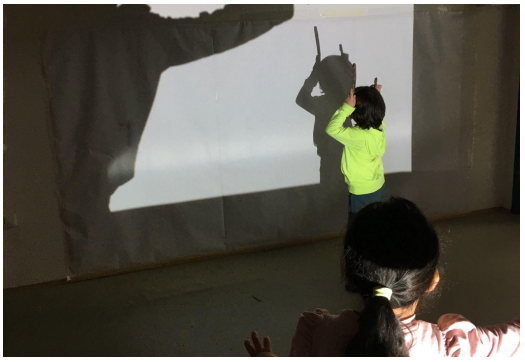
Children discover the nature of shadows and the properties of projection through a series of experimentation activities with different light sources and materials. At school, in a dark room, they will first experiment what happens when the light from the projector passes through natural materials (leaves, flowers, branches, stones), through coloured transparent materials, to afterwards discover what the materials look like if they give a "closer look", through the lenses of a digital microscope. At home, children and parents will go for a "shadow hunt" and experiment with different light sources and materials, also thanks to a "transition" box, which the children take home from school and vice versa.

Step by Step

Step 1

At school

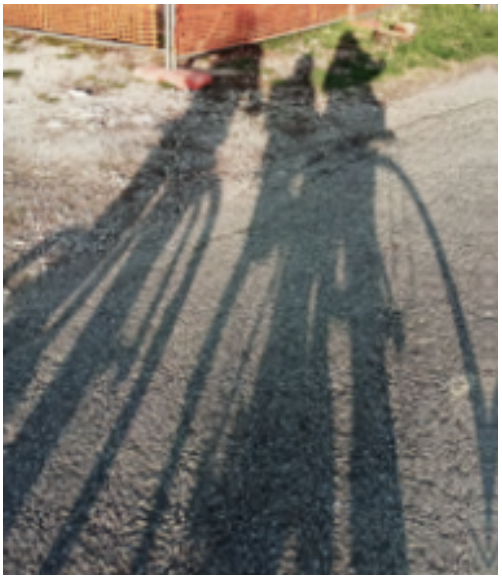
Children experience light as a generator of shadows, using different light sources as projectors: the projector, mobile light (as a torch), light in movement as in case of a candle and natural light as from the sun. While experimenting they build theories and observe how shadows are created, what conditions are necessary, where to position the body according to the light, what happens when using different light sources, etc.



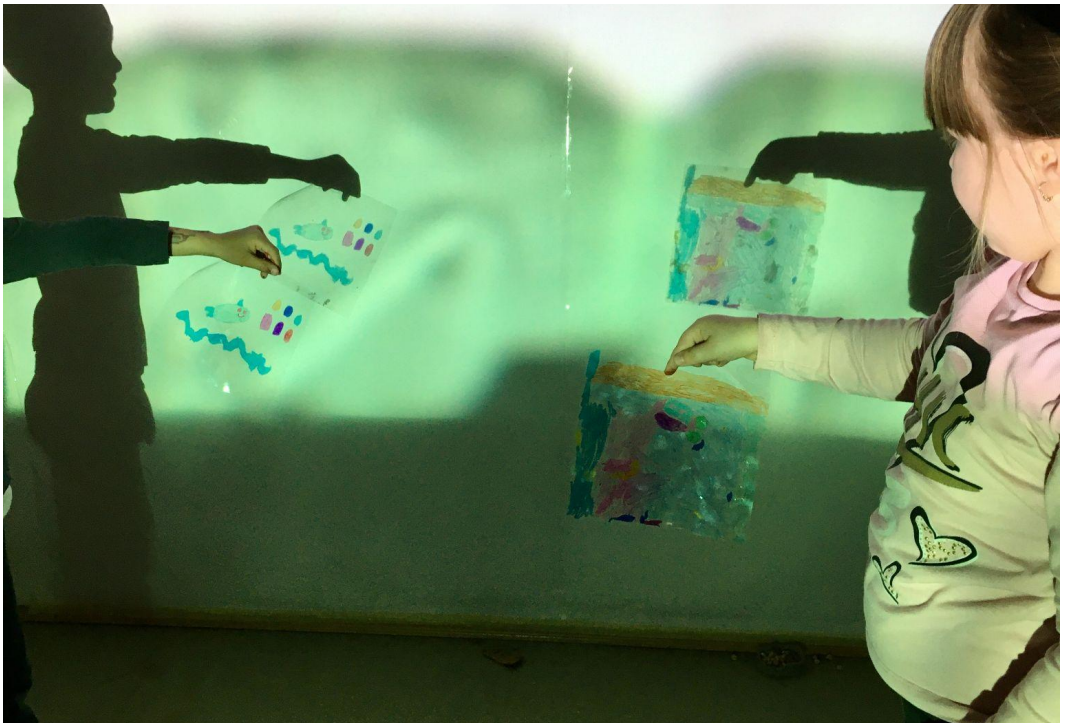

For distance learning
Once children are helped in the creation of a dark or shadowy room, the

	children can play autonomously to create shadows, involving siblings or parents by using different bright light sources: e.g. spotlight, lamp, or the torch from the smartphone.
Step 2 --- *At school*	educators give each child an empty box to be personalised. The box will become the "Kit-box" that will be used to contain materials and objects that have to be transported from school to home and back. Each child takes his/ her box home for the next step.  
	For distance learning Children are invited to create the box at home, using recycled material.
Step 3 --- *At home*	Together with their families, the children search and collect natural elements (in the garden, kitchen, woods, city park, etc.) that they would like to bring to school to experiment with the projector. The collected objects are placed in the kit-box. educators collect materials as well, to have a selection of interesting materials ready to add to what the children have brought in case there are children that arrive at school without or with an empty box.
Step 4 --- *At school*	Creating shadows of nature: All elements brought from home and those collected by the educators are placed on a table, so all children can use them in the free experimentation with the projector.

Children are invited to play with the shadows created by juxtaposing the natural elements between the light beam and the wall and observing how shadows change by moving closer or further away objects from the projector, putting them close together to create new silhouettes, moving and rotating them, fantasising on their appearance....

	For distance learning The (transition) box turns into a kit containing various natural elements to experiment with shadow play at home. It is necessary to add to the content of the kit a light source, e.g. torch of a parent's mobile phone, or an analogical torch to play with the shadows created by juxtaposing the natural elements between the light beam and the wall and observing how shadows change by moving closer or further away objects. Parents are invited to photograph these moments and share the photos with the educators. The activity can also be re-proposed at school.
Step 5 --- *At home*	educators invite families to accompany the children outside in the garden, park, vegetable garden, etc. and to look for "natural" shadows, but also to do a "shadow hunt" at home. Children photograph the shadows and send them to the educators with the help of the parents.  
Step 6 --- *At school*	Discovering coloured shadows Until now, shadows experienced by children have always turned out to be black ...But can shadows also be coloured? Which materials have a coloured shadow? educators prepare and place different coloured materials, transparent and opaque inside and outside the classroom and invite children once again to go for a shadow hunt.

Back in the atelier, the children get to explore the issue of coloured shadows, experimenting in many ways with different materials and light sources: using transparent coloured sheets of paper, cardboard cuttings, coloured plastic bottles.... / using natural light, torches and the projector - to play and invent funny situations and scenes. Here a video with an example:



For distance learning
Go directly to step 7

Step 7

At home

In addition to the previous natural elements, transparent and coloured acetate sheets of different shapes are placed in the box-kit.

The children can use all materials, modifying and adjusting them according to their playing needs (they can draw characters or objects on the transparent acetate sheets, they can cut out the coloured transparent sheets to create other shapes, ...) to invent stories.
Parents are invited to film the scene on a short video (taking care to film only the scene, without the child's face) and send it to the educators, who edit and create a QR code of each video.
Here an example of a video made at home:

Step 8

At school

Discovering “digital” shadows
The natural elements, brought by the children at the start of the experience, are now observed under a digital microscope.

Projected onto the wall, they give rise to a different kind of shadow than the one experienced so far. This 'shadow' becomes the subject of investigation and also leads the children to question about the operating mechanisms of the projector. The projection of the enlargements gives rise to imaginative and evocative environments, a backdrop for games and inspiration for imaginative stories.

For distance learning
Go directly to conclusion

Conclusion

Presence	Virtual
Families are invited to visit the exhibition showcasing the project documentation and try out some of the activities (e.g. digital microscope) for themselves, guided by the children.	Educators create a virtual exhibition with eMaze and send the QR code to families.