

Teachers' Private View at Oriel Myrddin Gallery

Science and Art

This Teacher's Private view, designed for primary schools, set out to explore creative methods for bringing together art and science, taking a guided tour of the art exhibition 'A New Niche for Nature' by Anne Mie Melis as inspiration and springboard for creative learning ideas. The following is document is a concise record of the key areas explored.

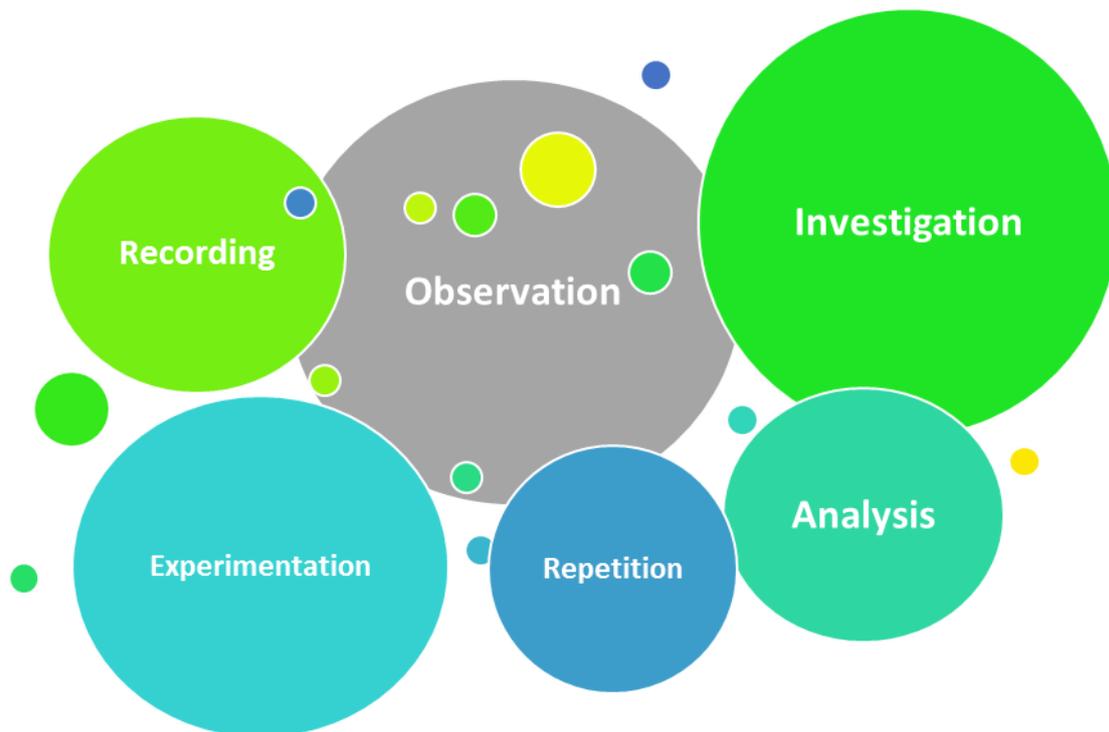


Anne Mie Melis, Prototype for a New Niche for Nature, module IV, 2016

Science and Art: can we transform STEM to STEAM?

We all know that in primary school there is great potential for using creativity across all subjects. While it might seem hard at first glance to relate science and art, there are many areas of crossover between the roles, actions and attitudes of scientists and artists.

Art and science both require the following activity:



Creativity is an attitude which scientists need to solve problems. Scientific technology and methodical approaches help artists to progress. Both seek to understand and interpret the world around them and to affect change.

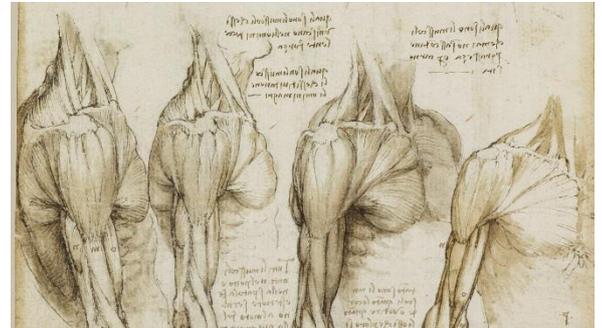
Don't forget that **repetition is important!**

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- In art we need to master skills in order to use them to fluently express ourselves.
- In science rigour is in repetition, to find anomalies and prove theories.

Collaborations between art and science goes back a long way! These examples come from Arthur I Miller's book, *Colliding Worlds, How Cutting-edge Science is Redefining Contemporary Art*¹.

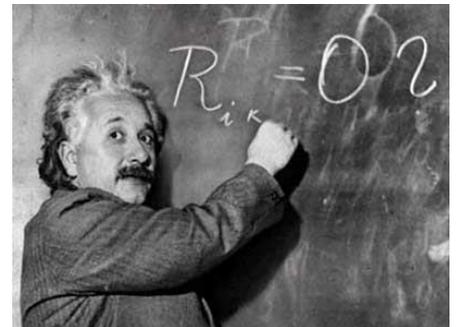
- 1) Leonardo Da Vinci- saw no distinction between art and science. He made huge contribution to science through anatomical study and engineering through his inventions.



- 2)

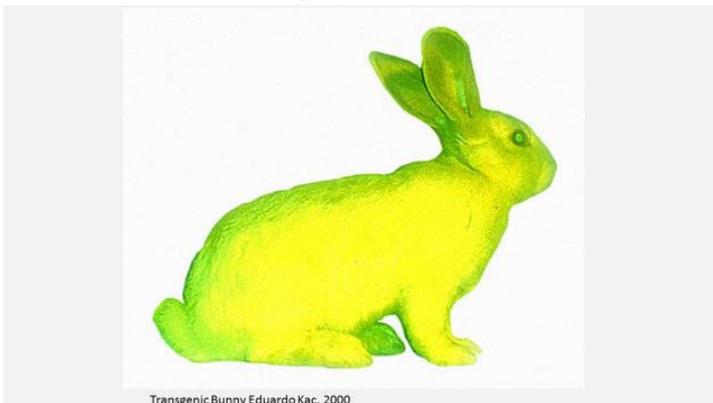
In the early 20th Century scientific breakthroughs such as photography, x-rays and cinematography were quickly picked up by artists and used to explore and question the world around them.

Pablo Picasso was developing on cubism – which deconstructs and analyses objects in space- at the same time as Albert Einstein developed his theory of relativity- a creative endeavour in pursuit of beauty in science.



- 3) In the 21st Century artists not only refer to science, but they also use cutting edge scientific technology to **create** their work. "In recent decades, an exciting new art movement has emerged in which artists utilize and illuminate the latest advances in science." Arthur I Miller.

Art influenced by Biology: From cave painting to Leonardo Da Vinci's human anatomy studies to Eduardo Kac's green rabbit:



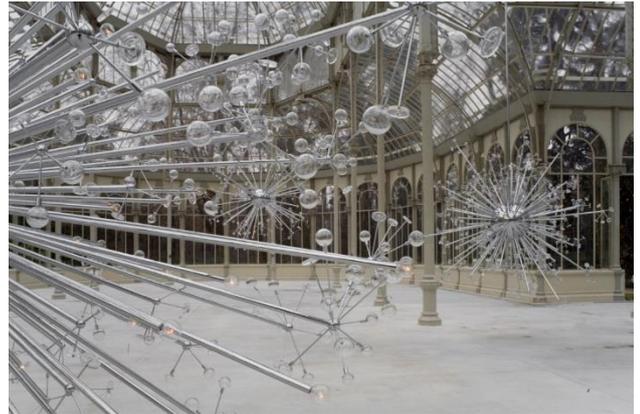
Transgenic Bunny Eduardo Kac, 2000

Through collaboration with scientists Eduardo Kac created a rabbit which glows a luminous green under blue light.

¹ *Colliding Worlds: How Cutting-edge Science is Redefining Contemporary Art* by Arthur I Miller

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Art influenced by Physics: E.g. Josiah Mcelheny's *Island Universe* 2006 is a 3D installation which depicts galaxies as the universe develops following the Big Bang. The work was developed by working with a cosmologist to make the measurements as accurate as possible.



-----Guided Tour-----

The Exhibition 'A New Niche for Nature' by Anne Mie Melis takes the river Towy which runs through Carmarthenshire as a starting point to explore issues of river health, discovering problems with pollution and invasive species, and imagining creative solutions through art and science.

This exhibition makes visible the precarious balance between man and nature. People are part of the problem and the solution. The artist often collaborates with scientists to develop the themes and content of her artwork.²

The artist uses scientific approaches;

Observation: Drawings survey the plants, invasive and native, which exist and are endangered along the riverbank.

Dissection: a tree trunk is dissected to discover evidence that it was once cut and has healed over time.

Experiments: Liquid is pumped around a series of Perspex ponds to observe vascular plant action and explore the potential of algae to clean water.

Creative problem solving: She invented 3D filters to harbour plants which filter and clean water.



Ideas for the classroom.....

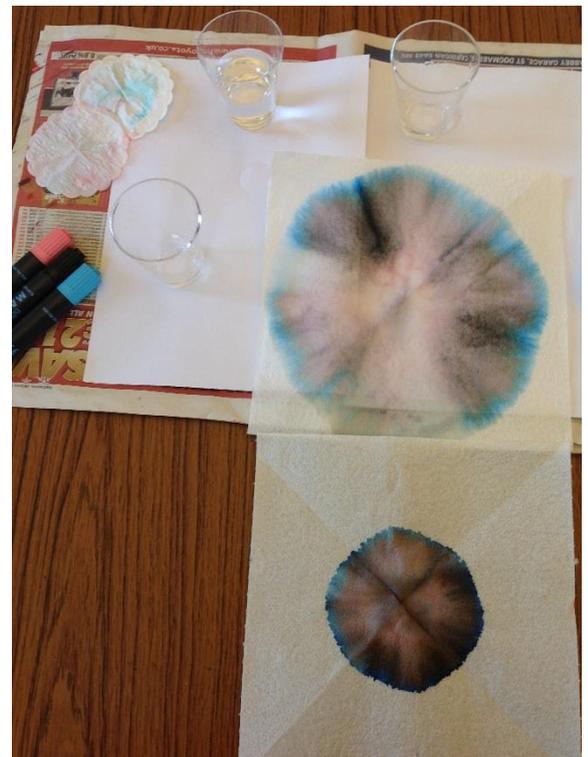
Try some water based art experiments:

Marbling: oil is lighter than water. Use marbling to illustrate how gases and solids are made up of tiny and different particles. Or to highlight the ecological damage of pollution.

Chromatography: Draw with marker pen on kitchen roll or coffee filter and place in water to watch the process of chromatography: a chemical process for separating the component substances. Watch it, time it, display and analyse the results!

Design bio- filters:

use i-pad apps 'Kaleidoscope', 'circle crop' and 'Giffer' to design and animate bio filters inspired by Anne Mie Melis.



² More information about Anne Mie Melis: <http://annemiemelis.blogspot.co.uk/>