Dalí and Science

THE DALÍ

One Dali Blvd, St. Petersburg, FL 33701

The Dalí Museum - Teen Zine

Junior Docent Catalog, Vol. 3

What is Teen Zine?

This zine is a continuation of the Teen Zine series, a series of educational booklets produced by high school student volunteers at The Dalí Museum.

This volume was made by **Remy Kim**, a student at [redacted] High School in [redacted]

I love both art and science. Dalí's intense study and artistic interpretation of scientific ideas inspired me to dig deeper into how the two fields were related.

This zine explores Salvador Dalí's relationship with science, and how science and art can always inspire each other. Please enjoy!

With support from Sumaya Ayad, the School Programs and Education Manager, and Riley Karau, Interim Art Director at The Dalí Museum.

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The Woven Connections Between Art & Science

What comes to mind when you think of...

Art?

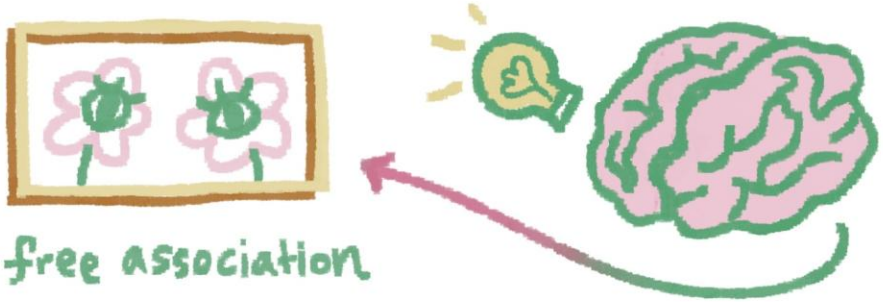
Science?

Write some words that come to mind!

Although these two concepts are often put into boxes of polar opposites, art and science influence each other in impactful ways that shape how we see our world.

Science to Art

In the Surrealist movement, surrealists, or those who tried to express their unconscious mind through writing and art, did not simply create paintings or write literature. Inspired by emerging ideas of psychology at the time, surrealists advocated for a future with less conflict by creating artwork that fully and truly expressed one's mind.

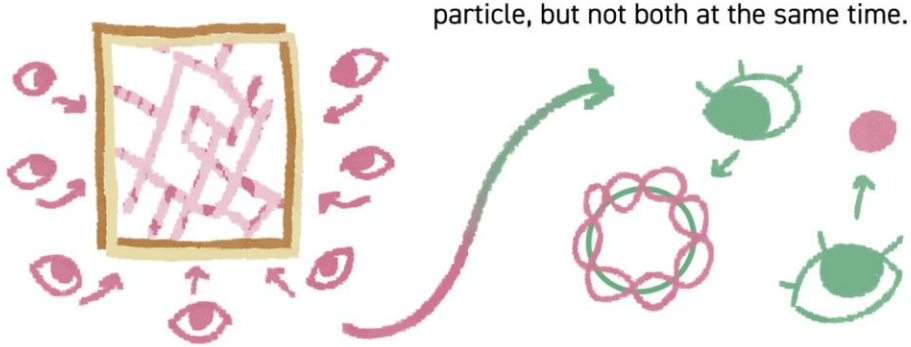


Freud developed free association as expressing the mind without a filter, used to help patients express their own thoughts. This morphed into surrealist automatism, which is allowing the subconscious mind to control the creation of art and writing. While Freud's ideas were impactful in Dalí's time, it no longer dominates the field of psychology, with more research-backed ideas being used.

Art to Science

Neils Bohr, an influential scientist in atomic theory, is thought to have been influenced by Cubism, an artistic movement that breaks images into different planes and shapes, in developing a key concept in quantum mechanics.

Bohr saw cubists trying to paint multiple perspectives on one canvas. The perspective that was observed was decided by the viewer. He applied this idea to electrons to develop the concept of complementarity. Electrons could either be observed as a wave or a particle, but not both at the same time.



Science and art, at their hearts, are both centered around the pursuit of bettering our lives. When scientists and artists collaborate, new doors are opened for this progress.

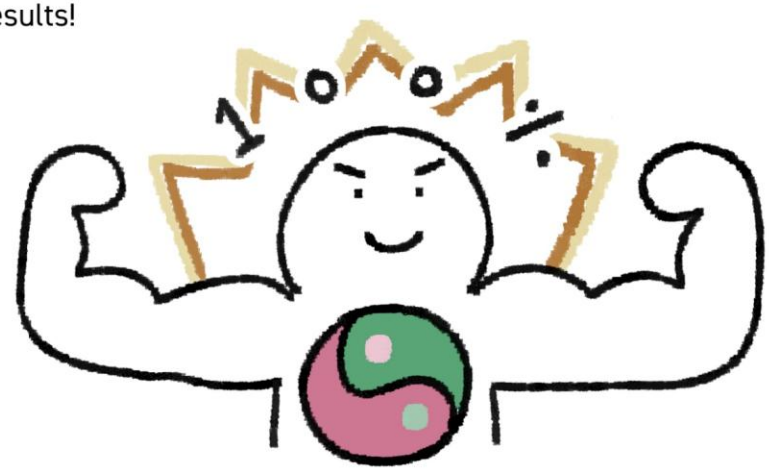
Art inspires scientists to:

- Think creatively!
- See problems in a new perspective
- Approach research in more fluid ways

Science inspires artists to:

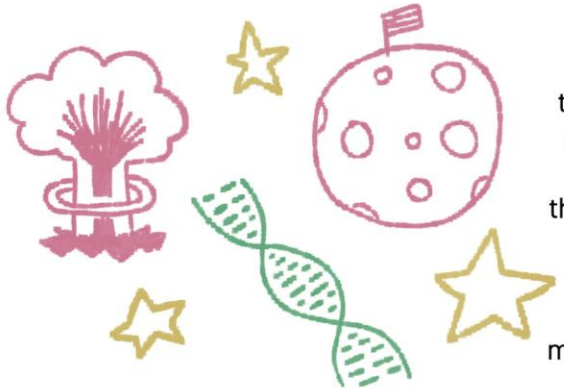
- Interpret scientific ideas in an artistic way
- Communicate complex science accessibly
- Make art using different techniques (like automatism!)

Allowing art and science to exist together in our society and within ourselves opens many possibilities, where the individual power of the two fields combines to have multiplied results!



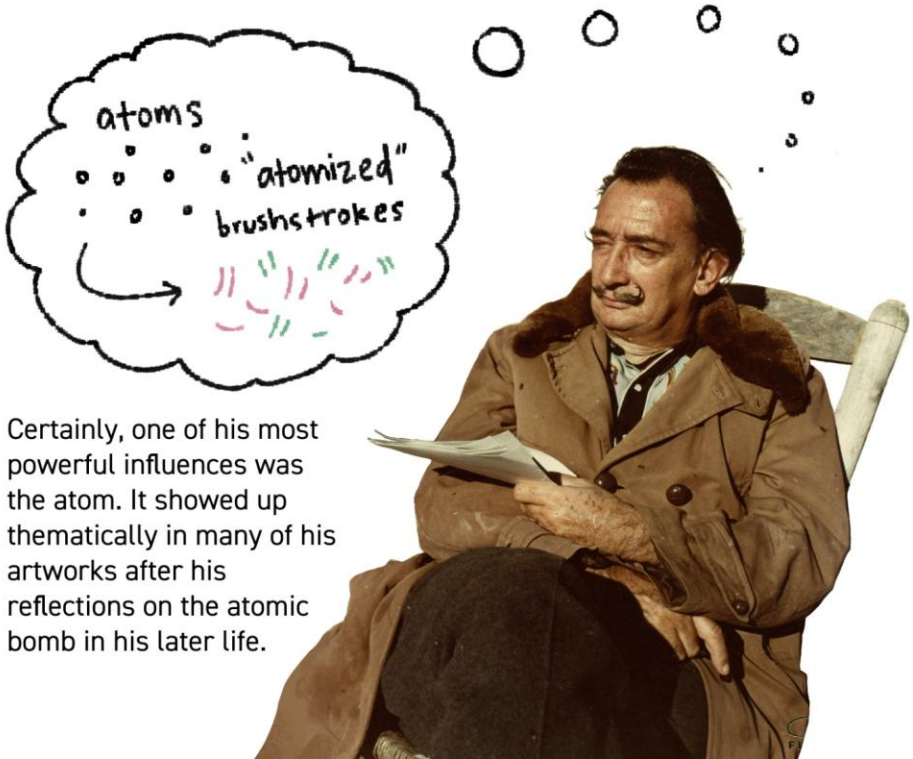
Dalí and Science

An explorer through and through, Salvador Dalí had always been fascinated with a wide range of topics. As a young man, he was already enthralled with various scientific books and articles, building his collection from an early age.



The 20th century was truly a time for scientific surprises, and Dalí was there to witness them all. Quantum mechanics that led to the atomic bomb, the discovery of the shape of DNA, astronomy allowing for space exploration and much more came from this time.

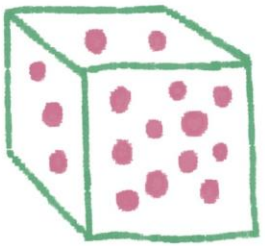
Dalí is a particularly interesting example of how science influences art. He did not only incorporate science into his works, but he incorporated it into his way of thinking about art.

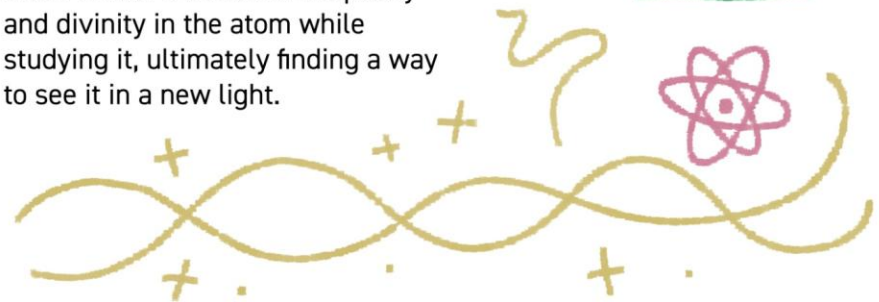


Certainly, one of his most powerful influences was the atom. It showed up thematically in many of his artworks after his reflections on the atomic bomb in his later life.

After the atomic bombings on Hiroshima and Nagasaki during World War II, Dalí began to rethink his entire career. The bombs inspired a great fear in him that made him examine the atomic theory very closely.

Atomic theory states that all matter is composed of atoms, tiny particles that cannot be broken down any further. As he read more and more, the idea that all life was made up of the same building blocks fascinated Dalí. He saw a beautiful simplicity and divinity in the atom while studying it, ultimately finding a way to see it in a new light.





He wove the atomic discoveries with his understanding of religion and philosophy into what he called Nuclear Mysticism, a new structure of artistic thought that imaginatively interpreted scientific findings into explorations about life and death.

Nuclear Mysticism

Of course, Dalí's interpretations were not all scientifically accurate, and scientists did not entirely agree with him due to his philosophical understanding of concepts. However, Dalí still encouraged his audience to take interest in studying the same topics, communicating the core scientific ideas in an intriguing and understandable way through his wonderous paintings.

How did Dalí tie in his scientific influences with his creation of art?

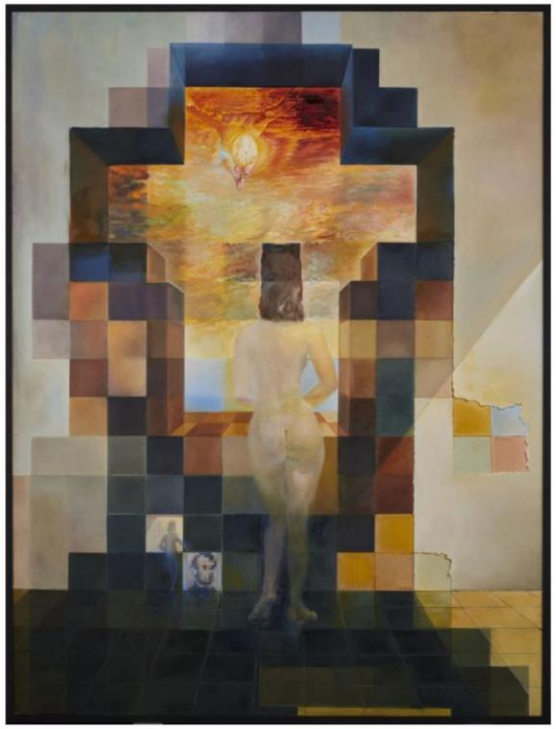
GALA CONTEMPLATING THE MEDITERRANEAN SEA

Which At Twenty Meters Becomes The Portrait of Abraham Lincoln

Homage To Rothko
(Second Version)

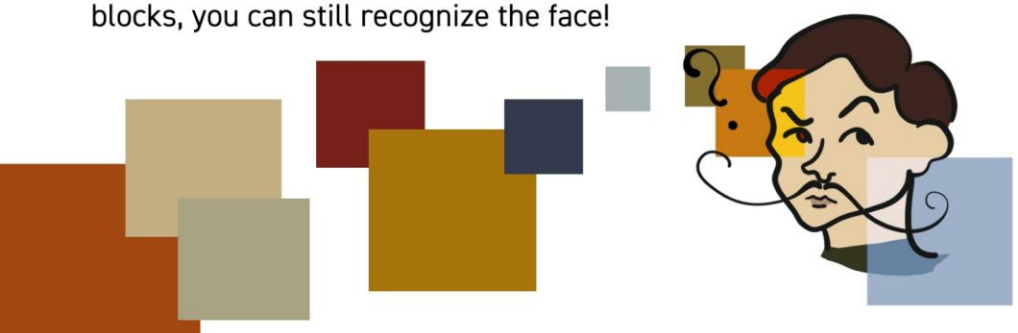
1976

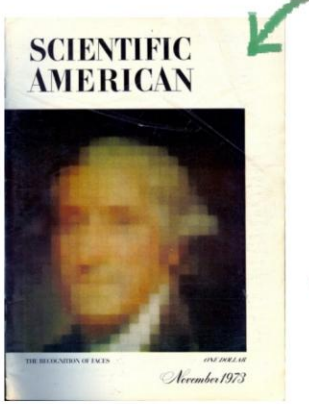
Can you see Lincoln?



Ever since he tested techniques that tap into the unconscious mind in the Surrealist Movement, Dalí was intrigued by the idea of double-images and visual illusions. In this masterwork, he utilized his practice in tricking the eyes with a new concept introduced to him through an article: grids and the recognition of faces.

If you break a picture of a face into color blocks, you can still recognize the face!





Dalí kept up with science. He subscribed to scientific journals, including *Scientific American*, where the concept behind this painting came from.

SCI AM

Neuroscientist Leon D. Harmon, author of the article "The Recognition of Faces," stated that a 16 by 16 grid, or 256 squares, was around the minimum number needed to identify a face. Dalí challenged himself to stay under 256 color blocks for the painting, and managed to paint Lincoln's face with just 121 squares. If you look closely in the bottom left of the painting, you can see that Dalí collaged the original *Scientific American* photograph to directly reference his inspiration.

Fill the grid with a heart, star, circle, or even a face!
Can you still recognize it?

His avid interest in keeping up with new information shows Dalí's dedication to understanding the current scientific landscape. However, he did not just keep up. He interpreted these scientific ideas in his own artistic, Dalí way, adding to the cultural conversation around the core scientific idea.

Nature Morte Vivante - 1956

(Still Life - Fast Moving)

You'll notice that the title of this artwork contradicts itself. Still life, yet fast moving. This was fully intentional on Dalí's part, as this idea was based on his understanding of the atomic theory, which states that atoms are constantly in motion. While objects might seem like they are completely still, the theory states that within that object, atoms are moving the entire time. The fruits, dishes, and glasses are all in motion in this painting.

With *Nature Morte Vivante*, Dalí illustrated his argument that the discoveries of modern physics had shaken people's understandings of space and reality entirely. Werner Heisenberg's uncertainty principle was a key discovery that inspired Dalí's claim. It states that the exact position and speed of an object can never be known at the same time.

That understanding of space and reality, Dalí proposed, would influence the way space and reality were reflected in artwork as well. *Nature Morte Vivante* was his own interpretation of these new findings.

The shadows in this painting are not consistent; there is only one shadow for the two apples on the dish, and the seemingly uniform pattern on the table has differing shadows despite it appearing as though each pattern is in the same position. This is one of the ways that Dalí creates a distorted version of reality.

Dalínian Symbols: Cauliflower

Dalí often used symbolism in his work to tell complicated stories in personal ways.

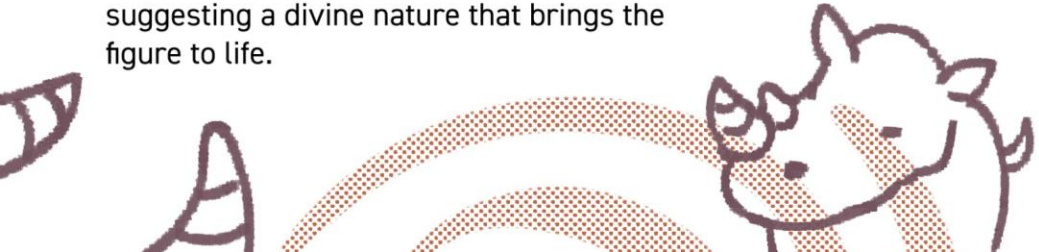
Throughout this painting, Dalí uses spirals. The cauliflower is filled with logarithmic spirals, which he saw not only as beautiful but as evidence of a divine order. The cauliflower also represents nuclear explosion, a topic that certainly influenced Dalí's scientific explorations.

Velázquez Painting the Infanta Marguerita with the Lights and Shadows of His Own Glory

1958

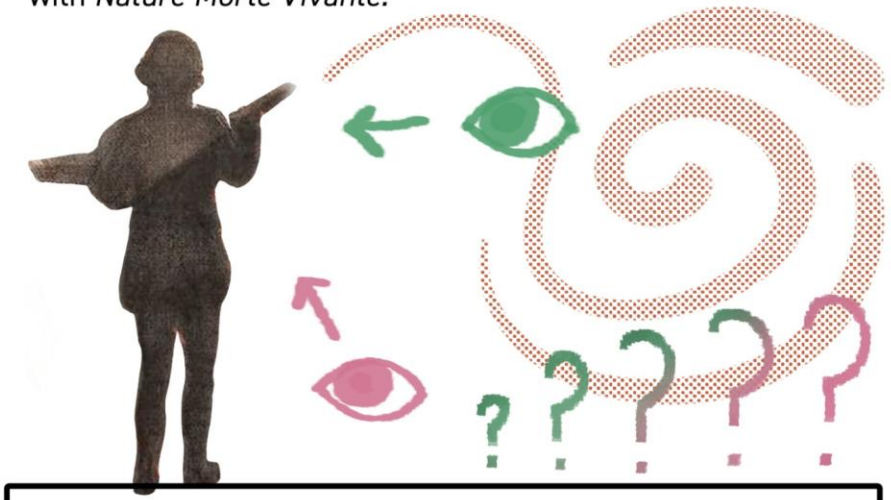
Like *Nature Morte Vivante*, this painting tried to show the movement of atoms. Dalí did so by referencing Diego Velázquez's artstyle, in which he painted with brushstrokes full of movement. Velázquez was a painter from the 1600's that Dalí reinterpreted in the context of modern physics.

Dalí declared that Velázquez's brushstrokes resembled photos he saw of the movement of atoms, chaotic yet confined. He used these brushstrokes to reimagine a Velázquez painting with this new context. Atomic energy makes up the Infanta, suggesting a divine nature that brings the figure to life.



The Infanta, or Spanish Princess, Marguerita is the child depicted in this painting. Velázquez is seen as a small silhouette in the middle of the canvas, painting his Infanta. A second Infanta appears as colorful atomic particles filling the entire canvas. Multiple perspectives are shown, creating a visual illusion within the painting.

This can be interpreted as another way in which Dalí wanted to show the changing understandings of space and reality, as he did with *Nature Morte Vivante.*



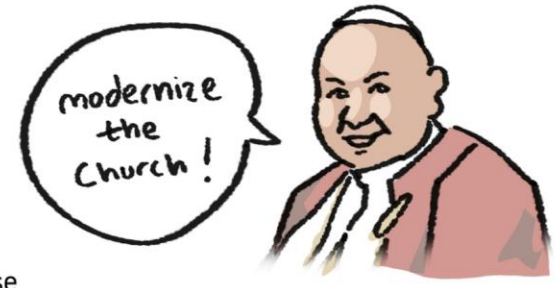
Dalínian Symbols: Rhino Horns

Dalí often used symbolism in his works by creating his own symbols or borrowing from others.

Rhino horns have logarithmic spirals, like cauliflower. The rhino horns also represent the atomization of form in Dali's painting. The Infanta's face is made up of multiple horns, symbolizing the idea that matter is made up of atoms.

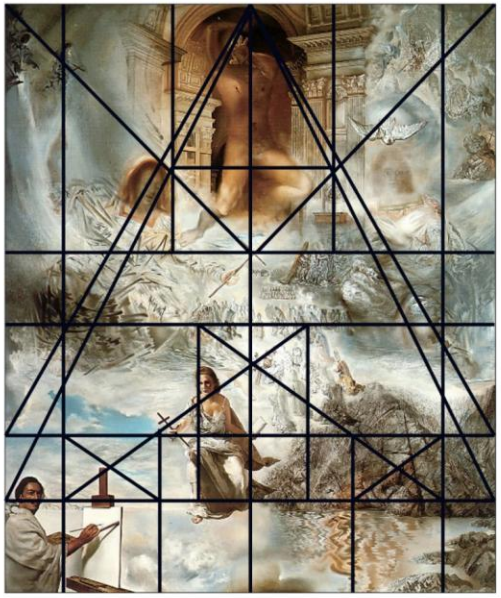
The Ecumenical Council
1960

In *The Ecumenical Council*, Dalí explores the ties between science and religion. The title refers to a meeting called in 1958 by Pope John XXIII to unite Christian churches. Dalí was an avid supporter of the Pope because of his efforts to modernize the church, seeing these efforts as similar to his desire to incorporate modern science into his religious and artistic ideas. In the background of the painting, the Pope's coronation can be seen while three figures preside over the event. From left to right, the Son, God, and the Holy Spirit (the dove) are depicted by Dalí.



The composition of this painting is guided by precise geometry. If you look at the cross held by Jesus, the Son, in the center, it forms the tip of two triangles that guide the viewer along the painting.

Dalí's use of geometry throughout the painting highlights his view of these fundamental shapes being divine.



Similar to the Princess Marguerita, Jesus is shown as "atomized," with his clothing mimicking similar brushstrokes as those in *The Infanta* painting.

Apply Your Knowledge!

How can you use art and science in your own life?

Observe

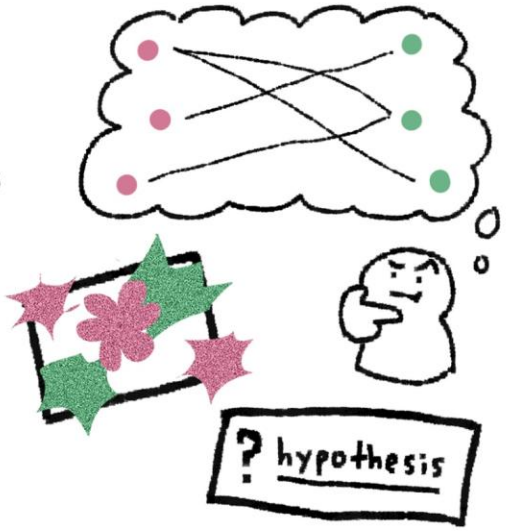
Like Dalí, learn about topics from scientific and artistic fields that you find interesting. Whether that is dinosaurs from the cretaceous period or the fine details of pottery painting, explore what interests you!

Think

Reflect on the ideas that you've explored, and draw connections between them.

Create

Using the new connections you've found, find a way to express that idea!



These two broad fields continue to inspire each other, and combined, they can unlock new ideas and possibilities.

Stay curious about the world around you!

"I believe that artists should have scientific notions, so as to walk on different terrain, which is that of unity."

- Salvador Dalí

This Junior Docent research resource is made possible through the generous support of **Joanne Obenauf**, whose gift enables its printing and distribution of this publication, advancing The Dalí Museum's educational mission.