

The Birth of Fotón

Luz Yazmin Villagrán Villegas • Patricia Arieta Melgarejo
Suzel Gómez Jiménez • Paola Delfina Chew Pego
Zujey Berenice Cuevas Carballo



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GOBIERNO DE
POZARICA
H. AYUNTAMIENTO 2024-2029

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The Birth of Fotón. **Authors:** Luz Yazmin Villagrán Villegas, Patricia Arieta Melgarejo, Suzel Gómez Jiménez, Paola Delfina Chew Pego and Zujey Berenice Cuevas Carballo –Veracruz, Mexico. 2026.

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HECHO EN MÉXICO | MADE IN MEXICO

Dedication

To Sophi, who brought light into my life and taught me to love living beings not for their beauty or appearance, but for their perfection, their unique qualities, and their ability to adapt—even now, as that adaptation accelerates in order to survive on an increasingly polluted planet.

To the sense of wonder that is born when something is discovered for the very first time,

and to those who ask questions,

because every question is the beginning of a journey.

In this book, light invites us to explore.

Colours tell stories.

Questions lead us towards discovery.

This book is dedicated to children who see the world through curious eyes, who love nature, and who want to learn through play.

Acknowledgements

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Fotón Explora is aligned with the Sustainable Development Goals (SDGs): 3 (Good Health and Well-being), 4 (Quality Education), 13 (Climate Action), and 15 (Life on Land), promoting experimental learning in physics, chemistry, biology, and emerging sciences (biomimicry and nanosciences), as well as fostering care for life and the planet.



Foreword

Everything begins with something small.

A spark.

A question.

The moment when you stop and look closely.

That is how Fotón is born—full of curiosity and eager to discover the world around him.

Fotón is made of light and travels very fast. So fast that sometimes it seems invisible. It moves, bounces and changes direction.

Fotón helps us see the world. It brings us light, shadows and colours. Open your eyes wide to discover everything this little spark can show you.

This book is the beginning of a story—your story. A place to imagine, observe, ask questions and learn through play.

In these pages, you will travel with Fotón. You will find experiments and surprises along the way. That's what science is—you are already taking your first step.

You don't need much to begin—just a little curiosity.

Open this book with wonder.

Fotón is already on the move.

Ana Carolina Salman Orozco

**May this journey be an invitation
to learn, to care, and to imagine
possible futures where science
and life walk together.**

The adventure of light begins here!

With gratitude to childhood, to the sense of wonder born when something is discovered for the very first time, and to those who ask questions, because every question is the beginning of a journey.



Before travelling, Fotón had to be born.

He was born the way ideas are born:

through curiosity, through questions,

and through the desire to discover.

In this book, his story begins—

a story of light that invites us to observe, imagine, and learn that every journey begins with a first spark.

Today you will meet Fotón, a curious little spark
of light who will go with you on your scientific
discoveries.

He lives inside your Light Box.

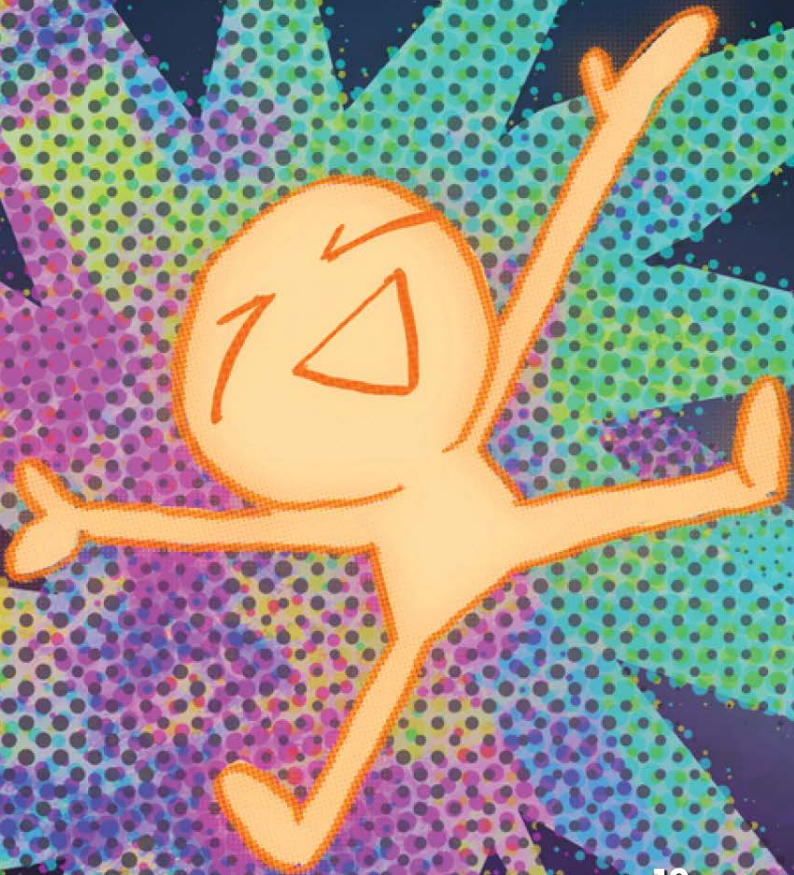


**Before you begin, prepare
your laboratory:**

- **Your Light Box**
- **A clean workspace**
- **Your materials**
- **An adult companion**

**And now, let us begin the
story of how Fotón is born.**

Inside a star far,
far away, a tiny
spark sleeps.



**It was so bright that it seemed
like a whisper of sunlight.**

**The star stretched as it was
waking up from a long dream...
And with a gentle blow.... *poof!***

**The little spark rolled across
the sky, spinning, playing, and
leaving a trail of light behind.**

When he opened his glowing eyes, he said:
“Hello! I’m Fotón. I’m a particle of light.
I travel very fast, I do not have a colour
of my own, and I love to shine, play, and
travel.”



**Fotón was curious and
wanted to know everything.**

**So he travelled on, leaving
a bright little trail behind
him!**

He entered a glass of water and saw how his path changed direction.

“The water plays with me too!”

he said in surprise.

And you can see it too:

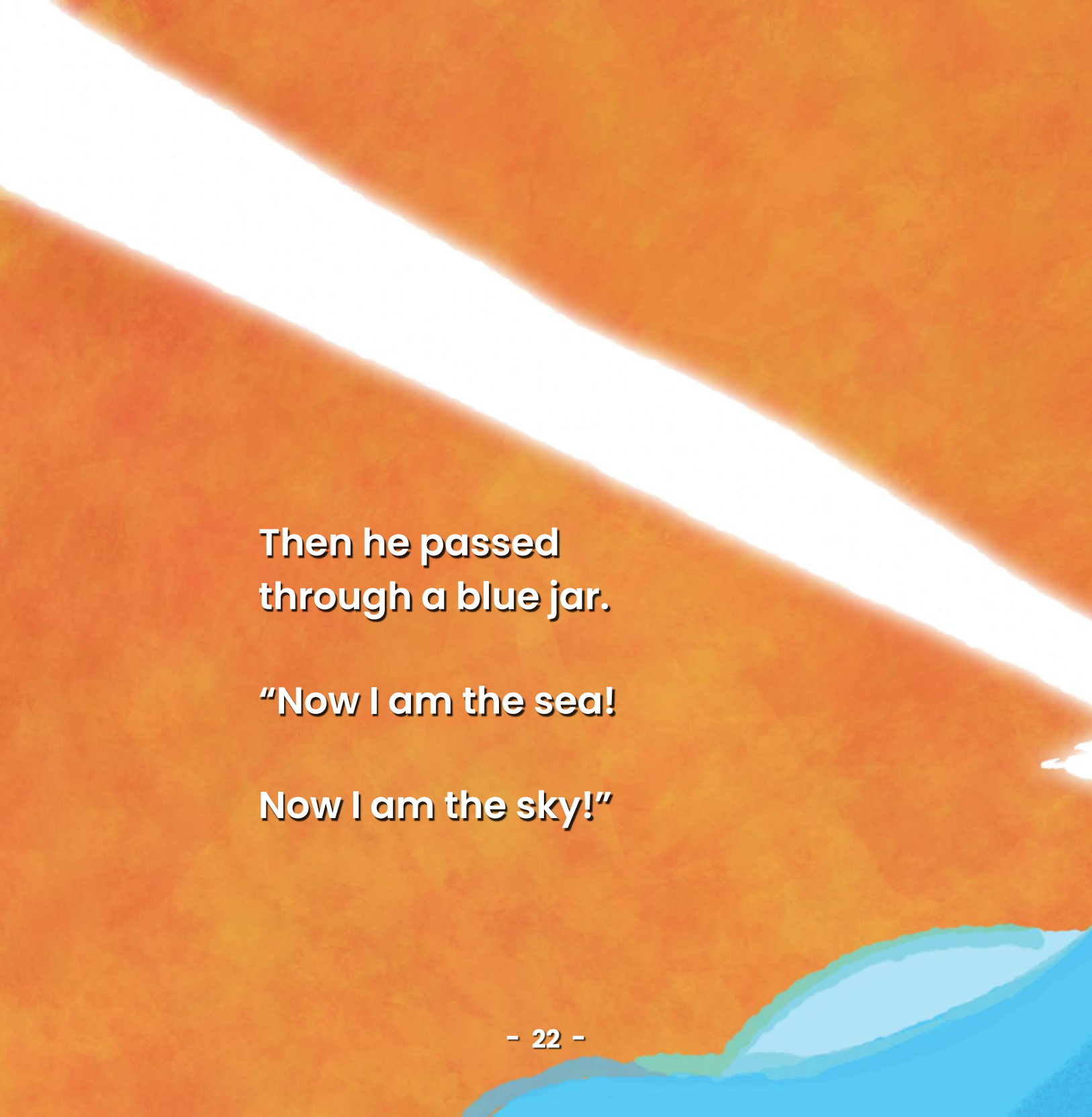
Experiment: Light Bends (Refraction)

1. Find a long, straight blade of grass.
2. Place it inside a glass of water.
3. Observe it from outside the glass.

Does it look bent or broken?
That's Fotón in water
—its path changes.

Refraction:
When light enters
water, it bends.



The background of the page is a vibrant orange color. A bright white diagonal line runs from the top left towards the bottom right, creating a sense of light or a path. At the bottom of the page, there is a stylized blue body of water with a greenish-yellow shoreline.


Then he passed
through a blue jar.

“Now I am the sea!


Now I am the sky!”

Experiment: Light Changes Colour

1. Pour water with a small amount of blue food colouring into your Petri dish.
2. Shine a flashlight on it.
3. Observe how the light changes colour.



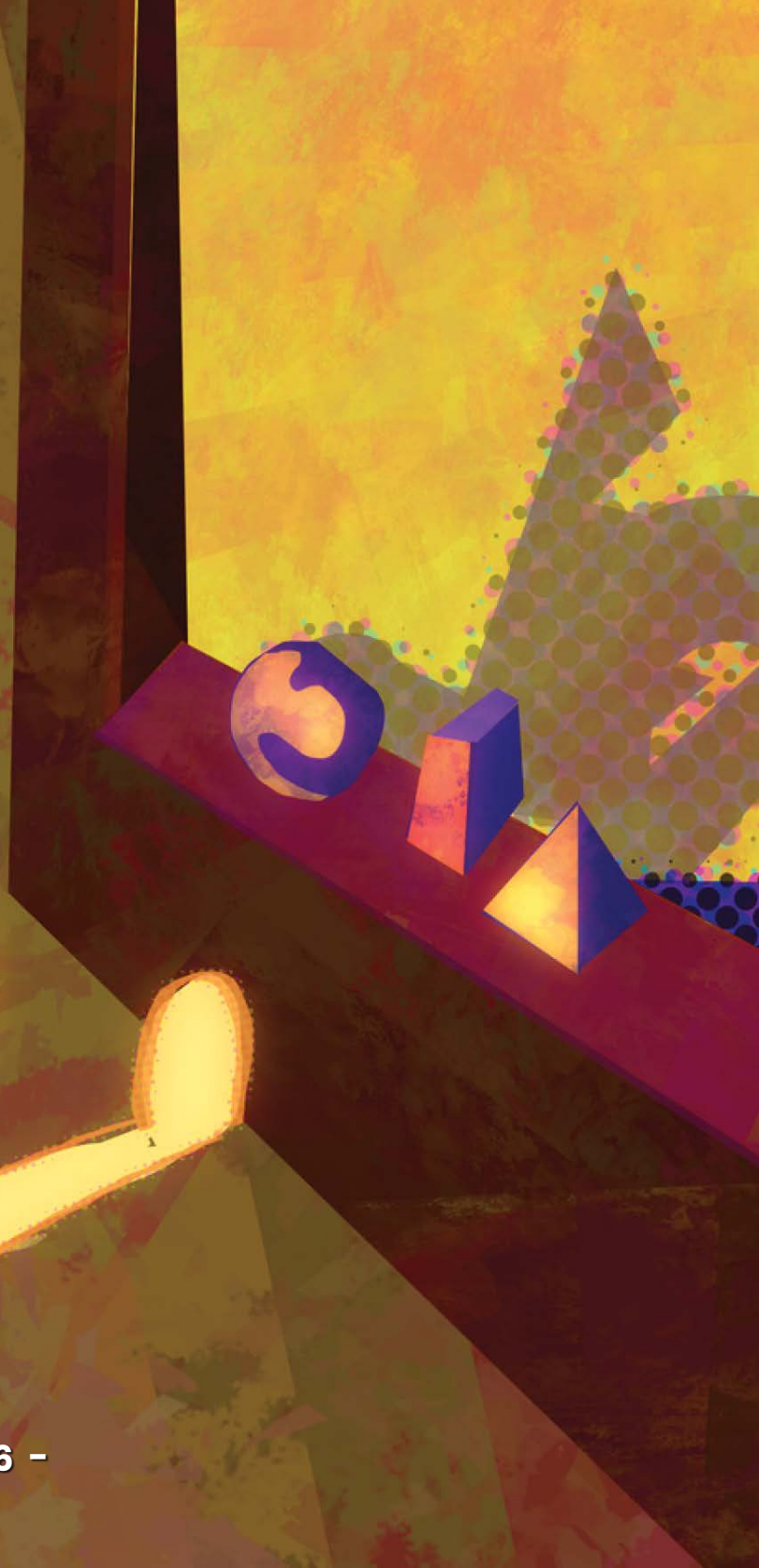
**Colour is light
being filtered.
And
suddenly...**



**Fotón watched
in wonder as he
saw his reflections
everywhere...**

**Reflection:
Light bounces back when it
touches a mirror.
It travels back and forth like
a little shining ball.**

**“Oops! I bounced!”
said Fotón as he spun
around playfully.**



Experiment: Shadows

To create a shadow, all you need is a flashlight. Shine it toward an object, and you will see a shadow appear. When the light is close to the object, the shadow becomes large.

If you move the flashlight farther away, the shadow becomes smaller.

So... shadows can play with you too.

That is how he discovered that light
can travel, return... and even hide.

Fotón continued his journey,
making shadows with everything
he touched

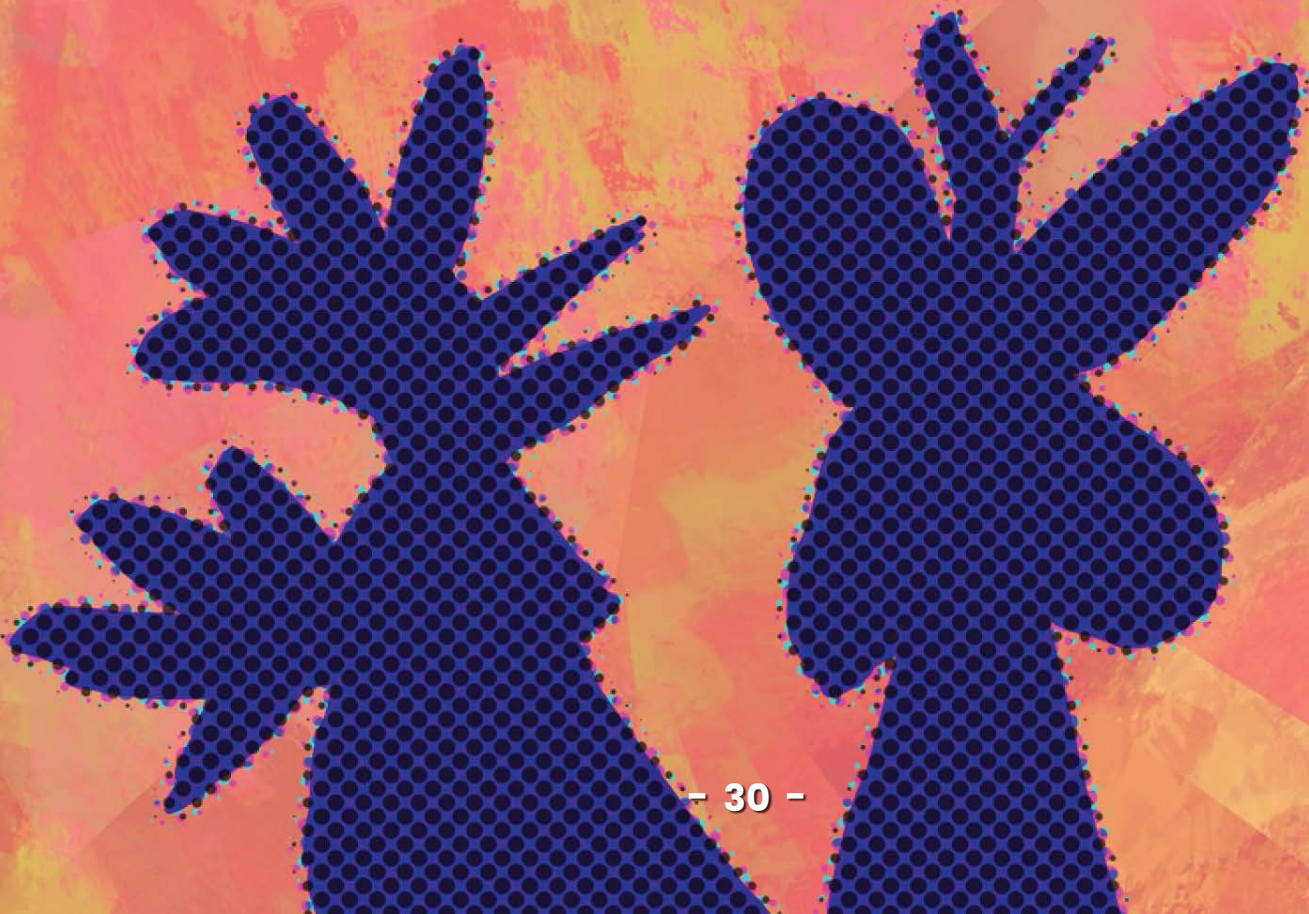




**A shadow appears when something
blocks the path of light.**

That is why shadows change in size.

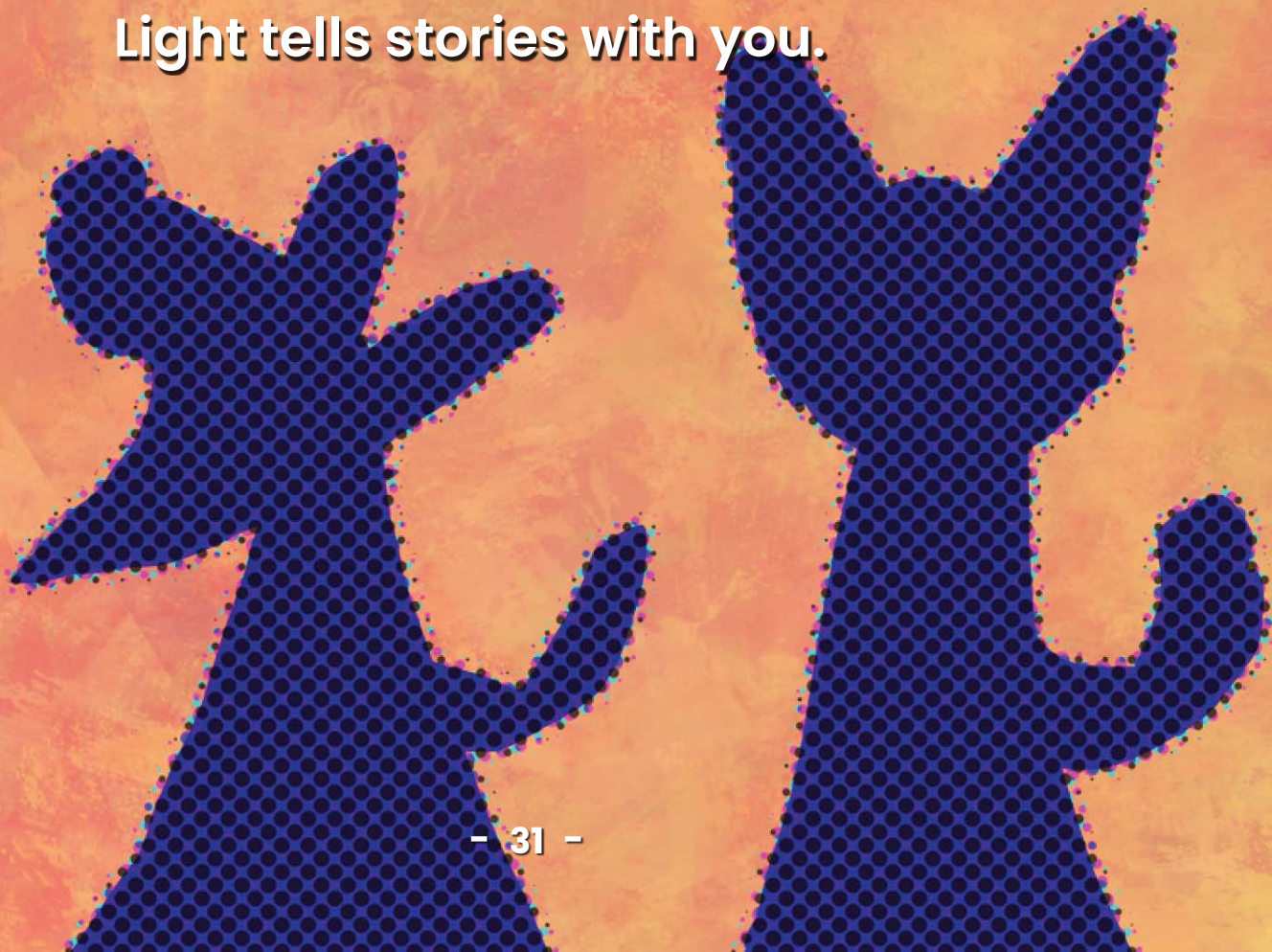
**“Big shadow! Little shadow!”
Fotón laughed as he
watched the shadows
dance.**



Shadow theatre

**Now Fotón invites you to
create figures with your
hands: butterflies, wolves,
birds.**

Light tells stories with you.



Some things let light pass through: water, transparent lids, very thin leaves...

Experiment: Transparent Objects

Place a thin leaf, a plastic lid, and a sheet of white paper in front of a light.

Which one lets more light pass through?

What happens with each one?

The thin leaf:

It lets a small amount of light pass through.

It looks green and soft.

The plastic lid:

It lets more light pass through.

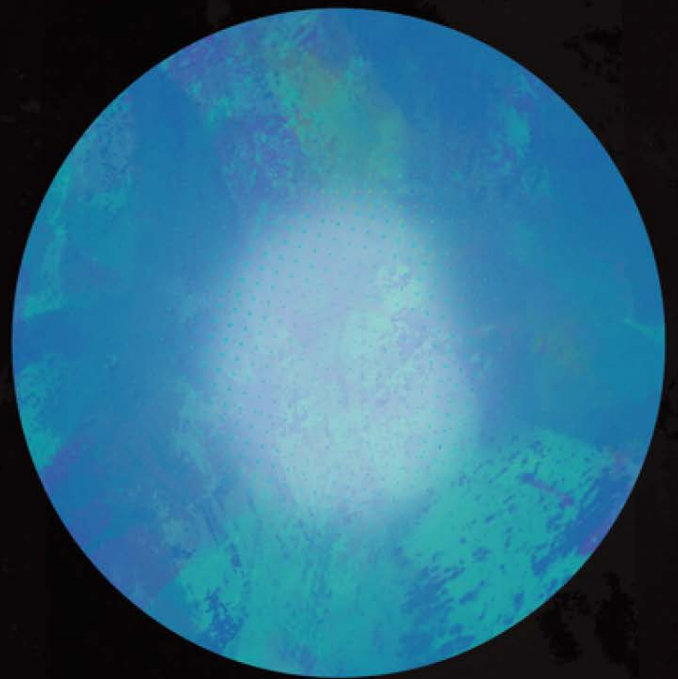
It looks clear or bright.

The white paper:

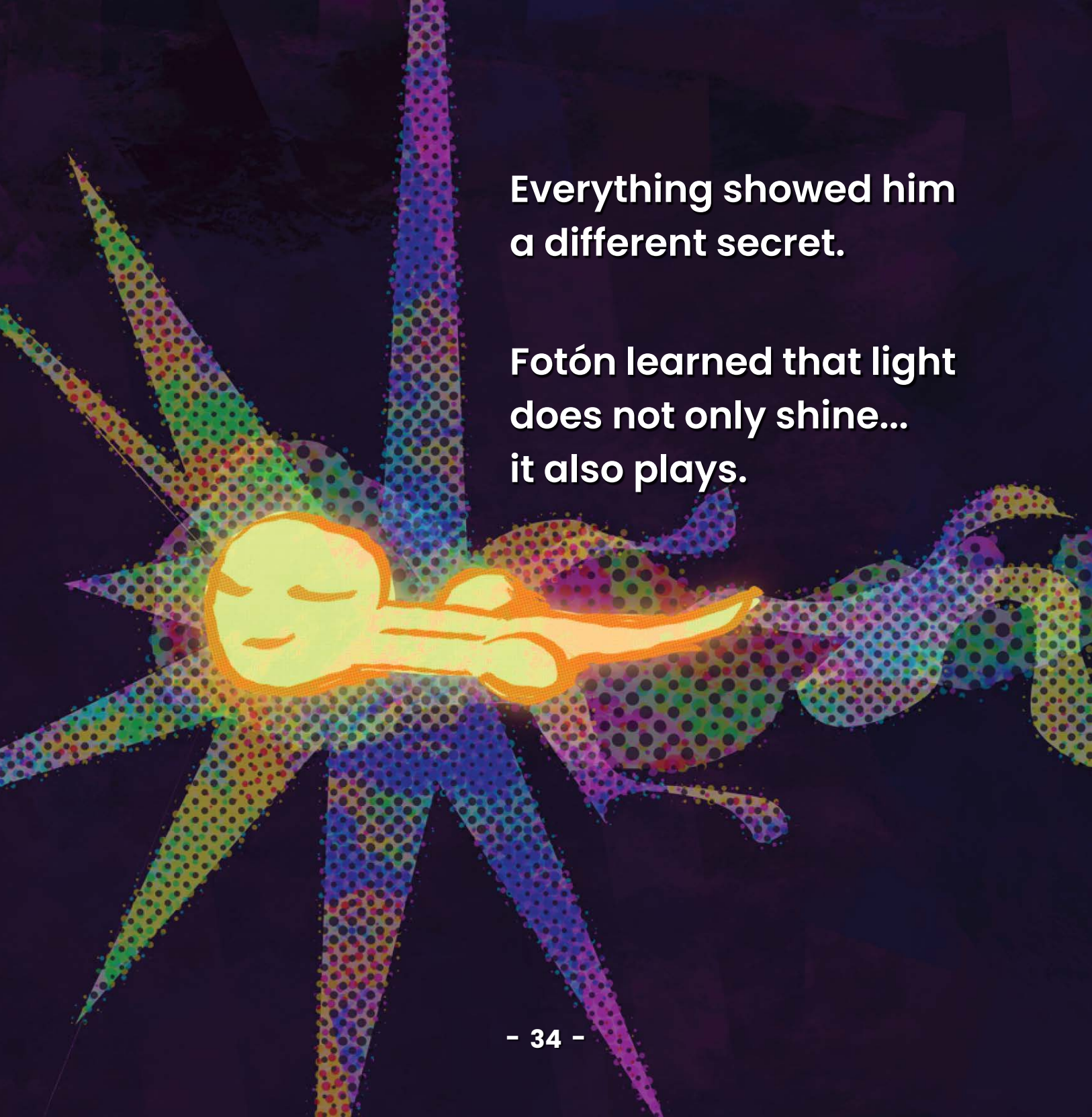
It does not let light pass through.

It creates a shadow.

The plastic lid lets more light pass through.



“Light tells us the answer
when we observe carefully.”



Everything showed him
a different secret.

Fotón learned that light
does not only shine...
it also plays.

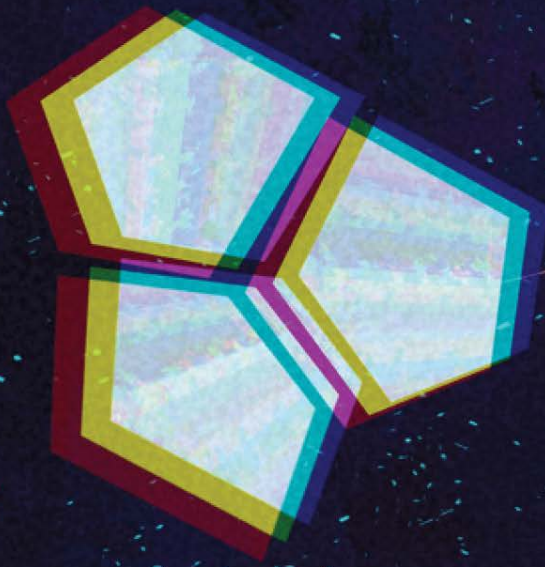
**Fotón always travels in
a straight line, unless
something bends, colours, or
stops him.**



**He lights up water, colours,
and tiny things.
He gives them life and
brightness.**

What does light illuminate?

**Light illuminates toys,
plants, drops of water,
walls, hands, the sea, and
the whole world.**





Light changes the world without us even noticing.

And so, happy with his new glow, Fotón continued his journey.



**Because every light has a story to tell...
and Fotón is ready for the next one.**

**On his next journey, Fotón will meet
new friends in nature: kingdoms that
will share their stories with us, shining
wings, gliding leaves, and living beings
that will teach us about their world...**



The Birth of Fotón.
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Fotón Explores is a children's book collection that brings science closer to young learners through stories, safe experiments, and a gentle narrative.

Throughout the series, Fotón —a curious spark of light— travels through different worlds, discovering physics, chemistry, biology, nanoscience, and biomimicry. Along the way, Fotón learns that natural phenomena are connected and form systems that work together.

This collection encourages observation, care for life, and scientific thinking from an early age, showing that when something changes, other things change too.

Fotón Explores invites children to be responsible, kind to living beings, and to help build a better future. It is an adventure to learn about light, life, and the world around us —and to understand that every small action can make a difference.

Studying light with Fotón is a journey to learn how to care for the world we share!

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Consulta y descarga



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