

# LEO, ALICE AND THE UNEXPECTED X-RAY EVENT



IN COLLABORATION WITH:



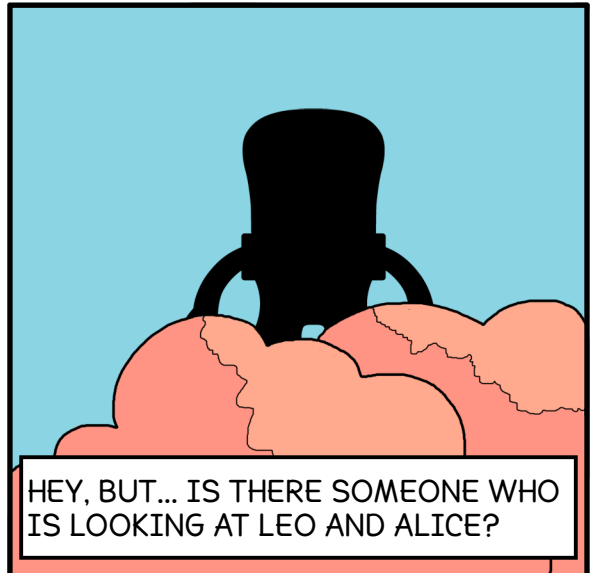
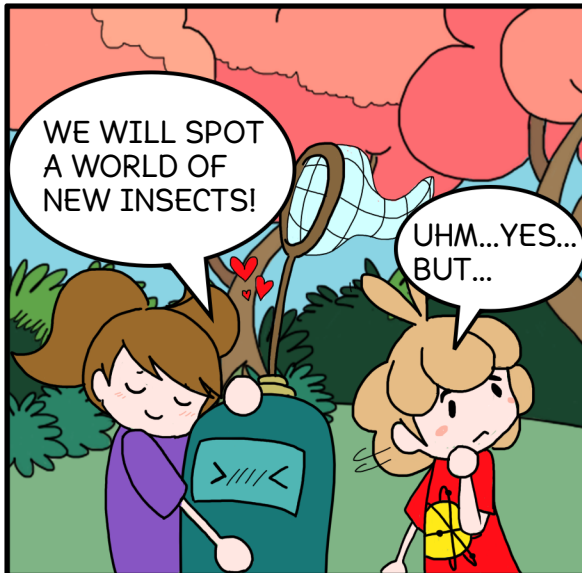
Photon terrace

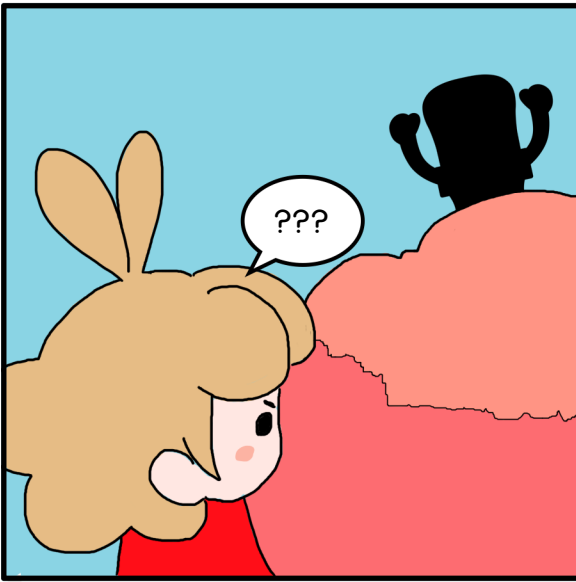




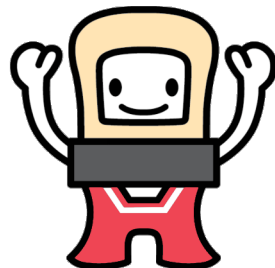
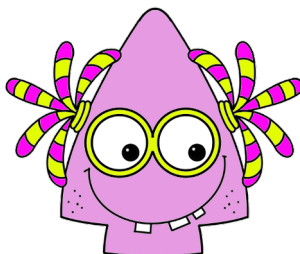
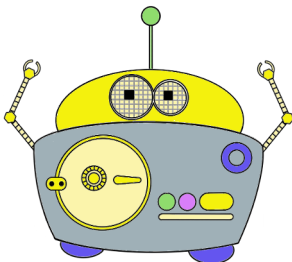
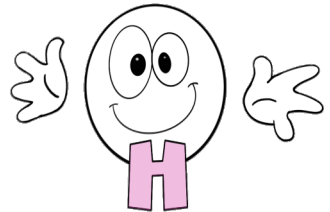
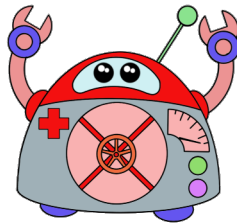
# LEO, ALICE AND THE UNEXPECTED X-RAY EVENT

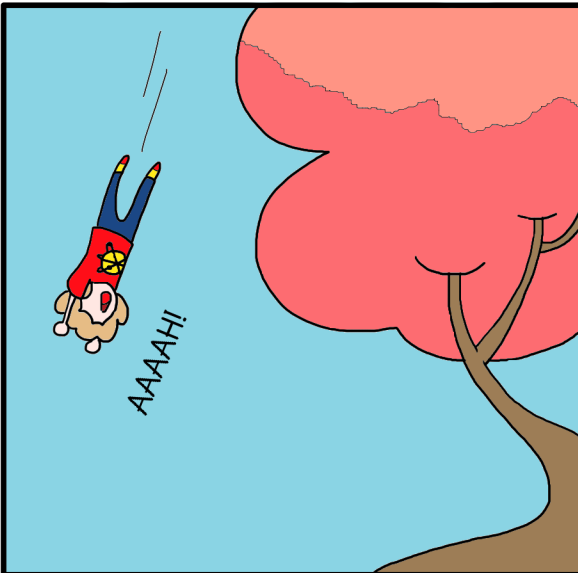
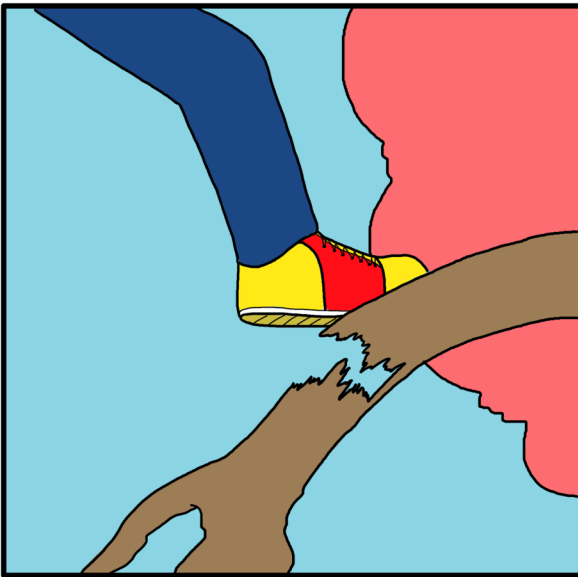
EPISODE 1





WHO IS WAVING AT LEO? A NEW OR AN OLD FRIEND? FIRST, LET'S IDENTIFY HIS SHAPE LINKING THE SHADOW TO THE CORRECT IMAGE.





IT IS TIME TO LEARN WHO THE MYSTERIOUS CHARACTER IS.  
LET'S SOLVE THE ANAGRAMS AND COPY THE LETTERS IN THE COLOURED  
BLOCKS TO THE RIGHT: YOU WILL GET HIS NAME!



EAICL

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REHCYRETR

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EOL

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TROOB

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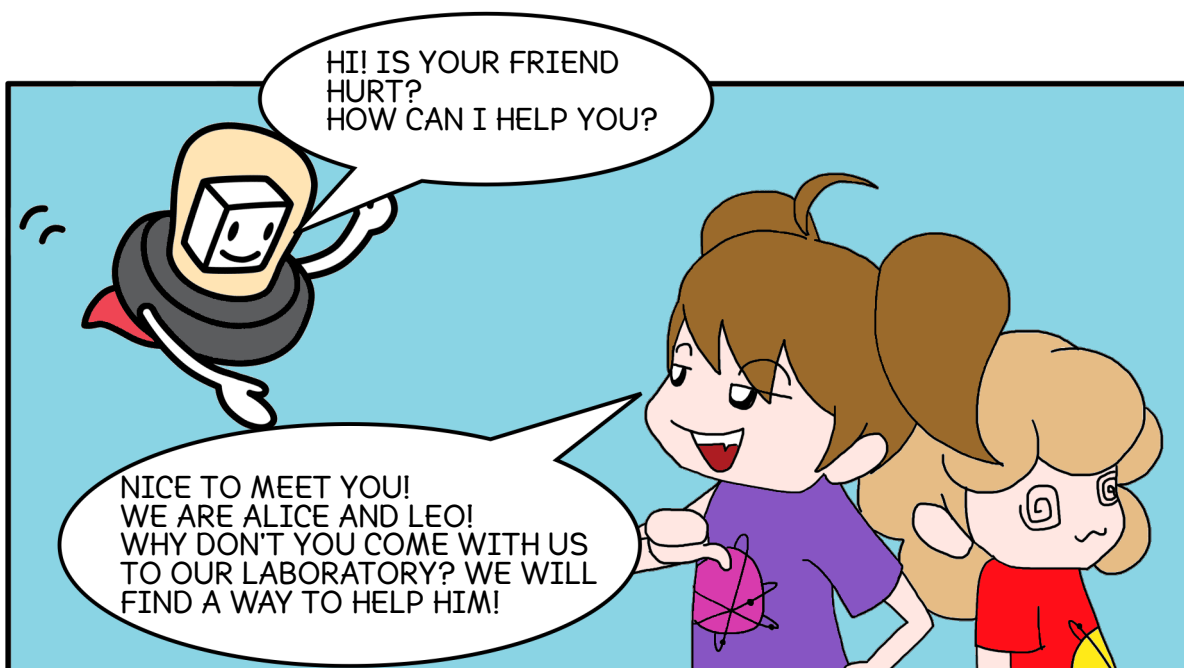
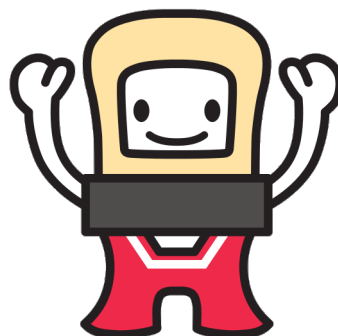
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HELLO, YOU GOT ME!

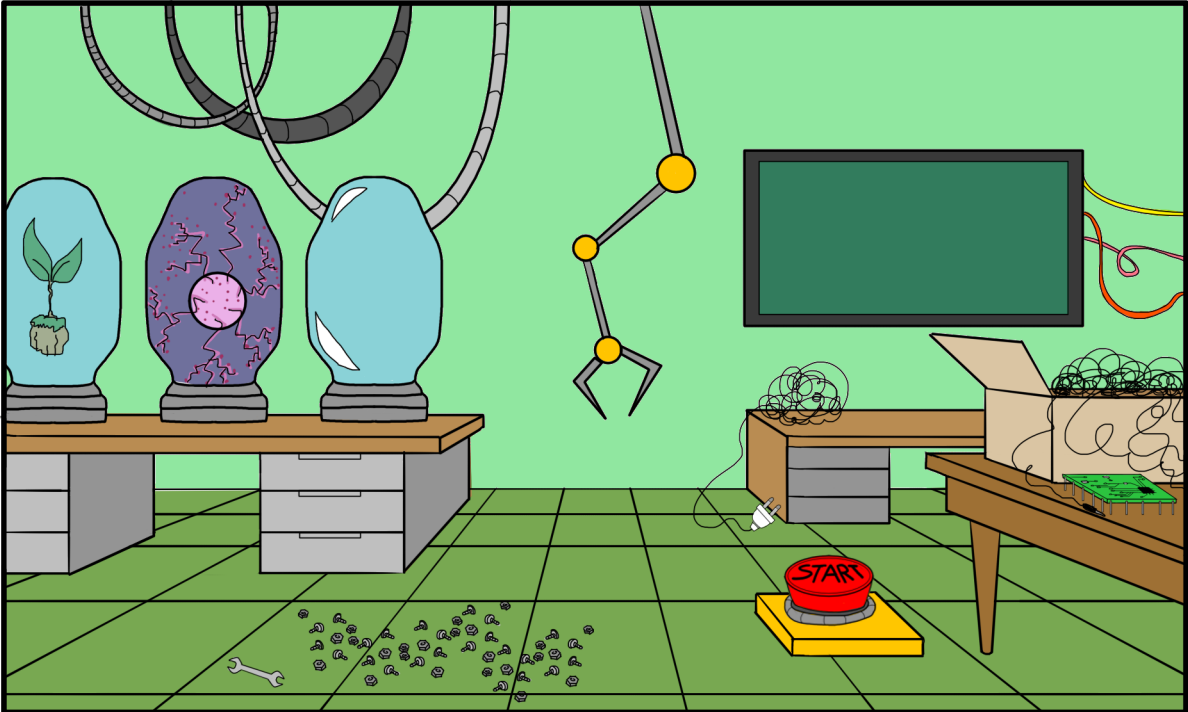
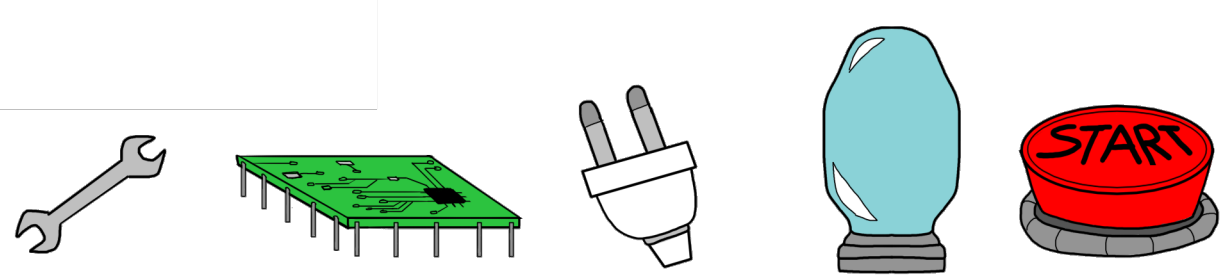
I AM PHOTON BOY!

I AM A VERY CURIOUS GUY.

I LOVE EXPLORING AND STUDYING PHYSICAL  
PHENOMENA, MOSTLY ALL THOSE THAT DEAL  
WITH LIGHT AND OTHER ELECTROMAGNETIC  
RADIATIONS. I COME FROM FAR AWAY, JAPAN  
EXACTLY, AND NOW I'M HERE TO MAKE NEW  
DISCOVERIES.



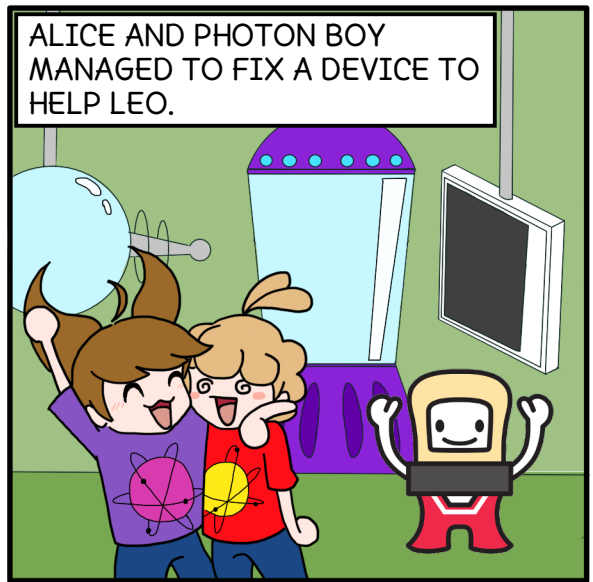
LEO, ALICE AND PHOTON BOY REACHED THE LABORATORY.  
AS USUAL, THE LAB IS A LITTLE MESSY, SO OUR PROTAGONISTS DO NEED YOUR  
SUPPORT TO RESCUE THE NECESSARY EQUIPMENT TO CREATE A DEVICE THAT  
CAN HELP LEO!  
LET'S IDENTIFY THE OBJECTS IN THE FOLLOWING PICTURE.





# LEO, ALICE AND THE UNEXPECTED X-RAY EVENT

## EPISODE 2

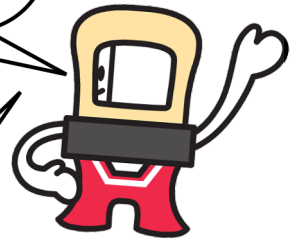


THEY BUILT A MACHINE TO... GET X-RAYS!

THANKS TO X-RAYS, WE CAN DISTINGUISH LIGHT FROM HEAVY MATTER.

IN MEDICINE, WE ARE THEN ABLE TO SEE OUR BONES, EVEN THOUGH THEY ARE INSIDE OUR BODY.

TO CARRY OUT OUR EXPERIMENT, WE NEED A SPECIAL LIGHT TO ILLUMINATE THE BODY WE WANT TO STUDY.

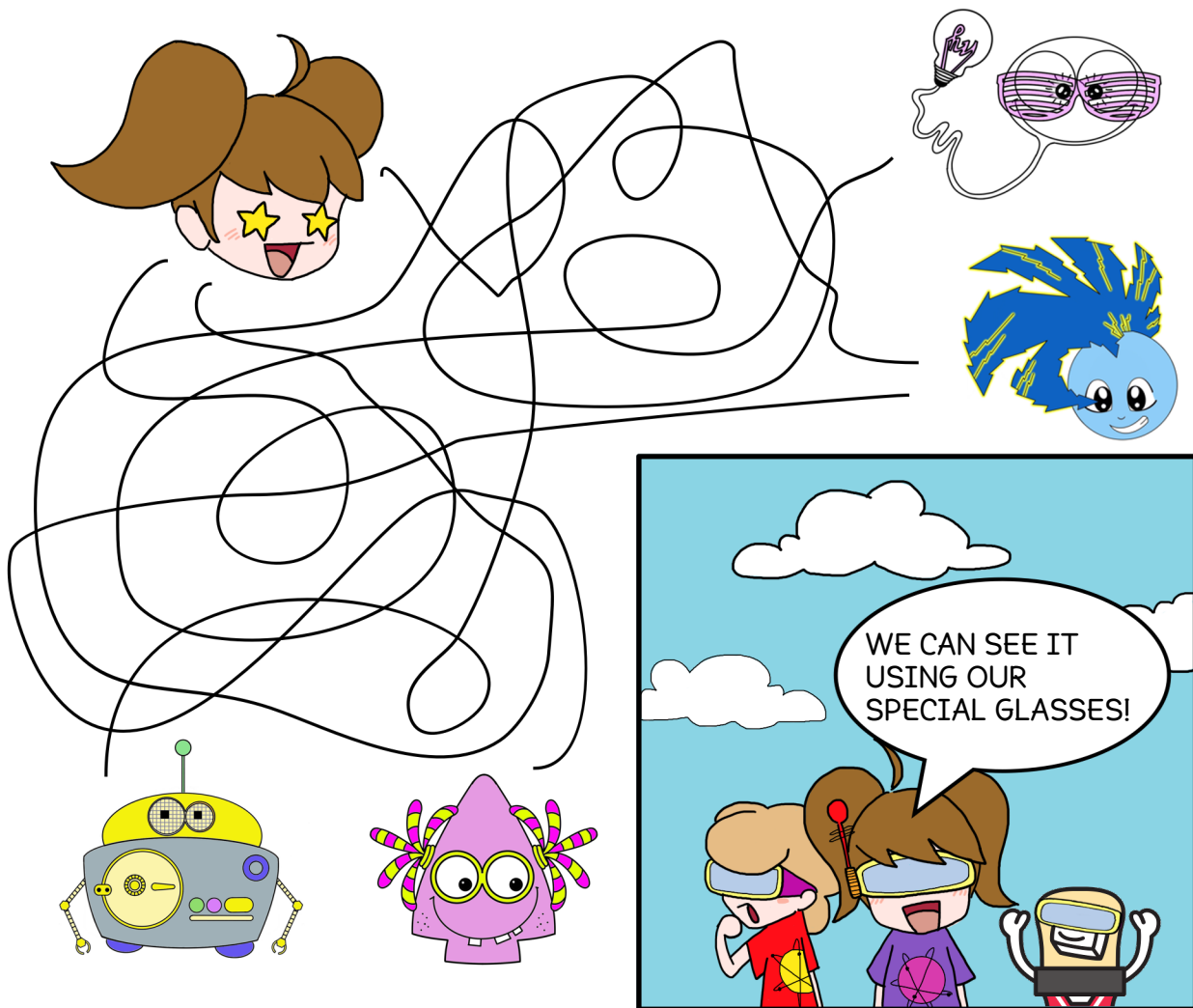


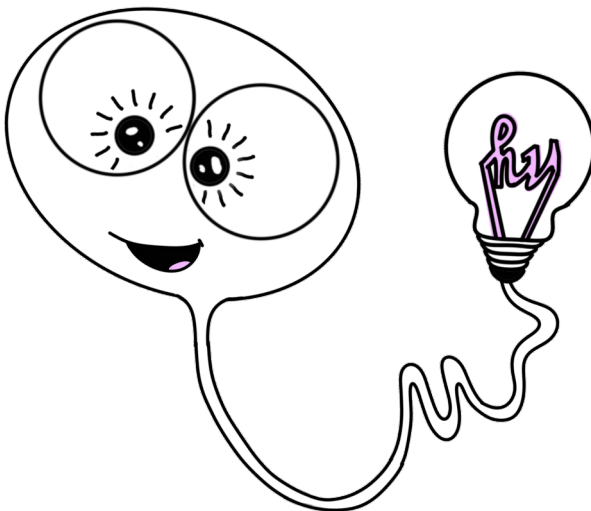
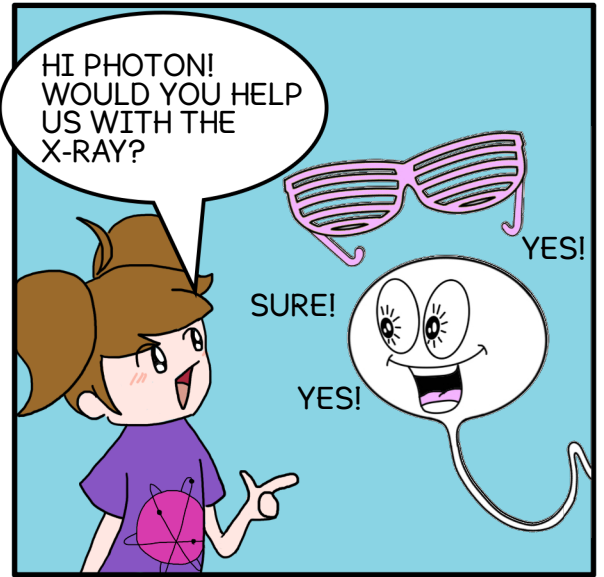
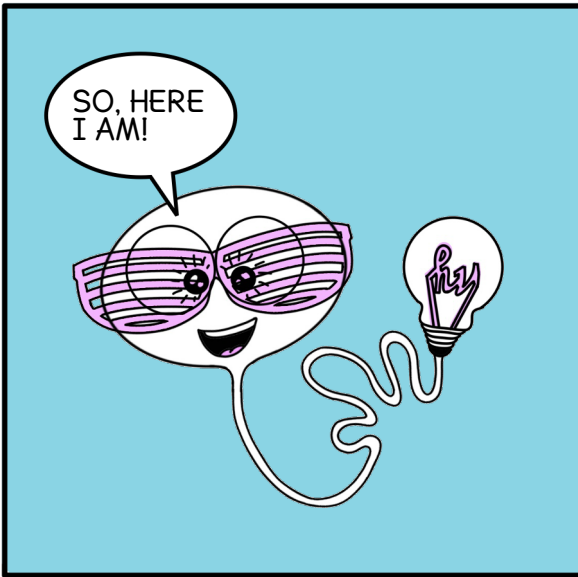
THEN, THANKS TO A SPECIAL CAMERA, THAT IS CALLED DETECTOR BY THE SCIENTISTS, WE CAN SEE HOW MANY AND WHICH RAYS HAVE PASSED THROUGH THE BODY AND WHICH HAVE NOT.

THEREFORE, AN X-RAY MACHINE CONSISTS OF A LIGHT SOURCE, THAT IS OUR SPECIAL LIGHT, AN OBJECT, AS THE BODY INVOLVED IN OUR RESEARCH, AND A DETECTOR.

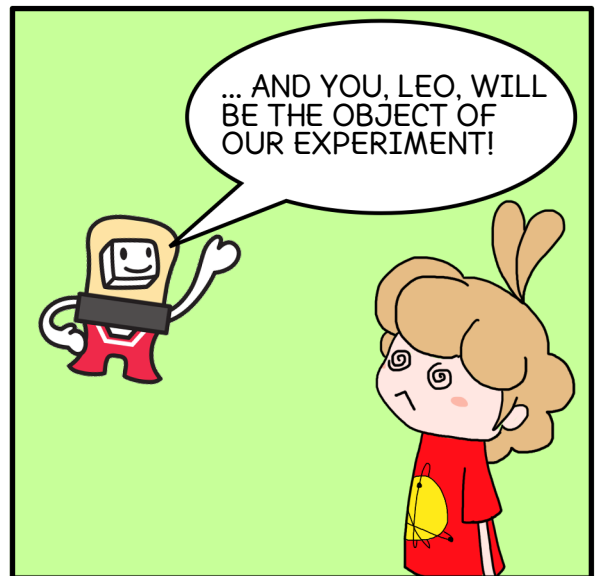
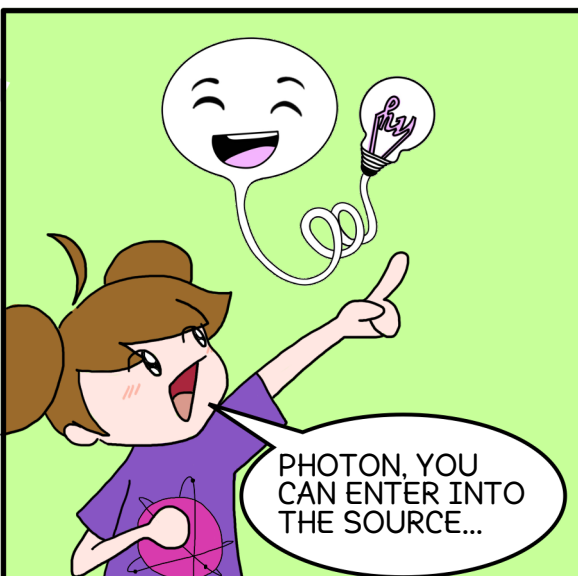


WHICH IDEA HAS JUST COME UP TO ALICE'S MIND?  
LET'S DISCOVER THE CORRECT WAY TO FIND OUT!



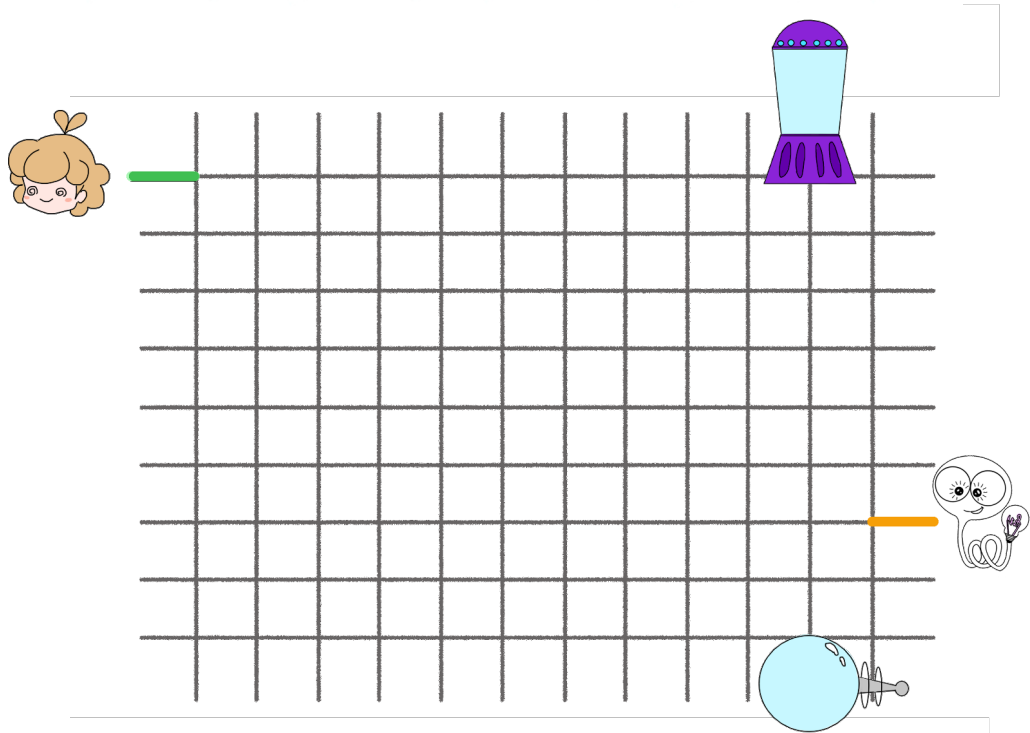


WE AS PHOTONS CAN HAVE MANY DIFFERENT ENERGIES. SOME OF US HAVE THE ENERGY OF THE LIGHT, WHICH IS THE ONE WE CAN SEE WITH OUR EYES. OTHERS, LIKE ME IN THIS MOMENT, HAVE MUCH BIGGER ENERGY. WE ARE CALLED X-RAYS AND HAVE AMAZING PROPERTIES, EVEN THOUGH YOU CANNOT SPOT US. FOR EXAMPLE, WE CAN "TRAVEL" INSIDE THE MATTER.

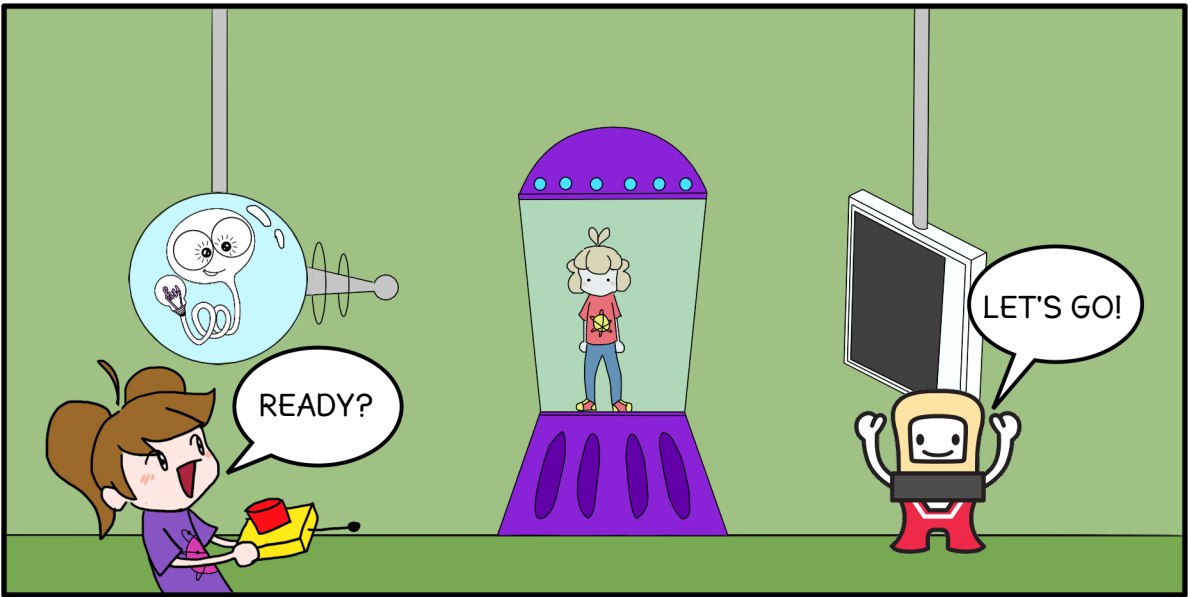


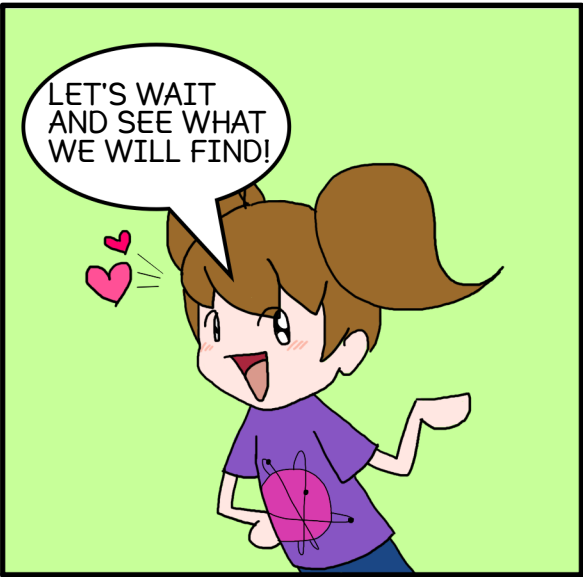
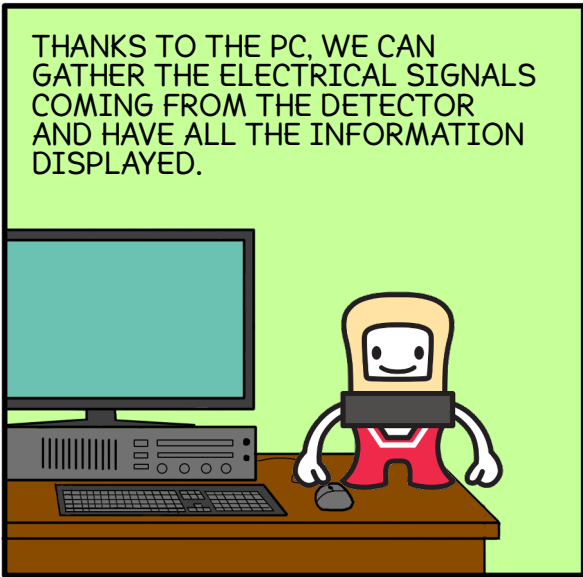
LET'S GUIDE LEO AND PHOTON TO THEIR POSITION.  
AS FOR LEO, FOLLOW THE GREEN ARROWS (FROM LEFT TO RIGHT), WHILE FOR PHOTON FOLLOW THE YELLOW ONES (FROM RIGHT TO LEFT).

2 → 2 ↓ 3 → 1 ↓ 2 → 2 ↑ 2 → 1 ↑ 1 →



→ 2 ↓ 1 → 7 ↓ 1 ← 3 ↓ 1 ← 3 ↓ 1 ← 4 ↑ 2





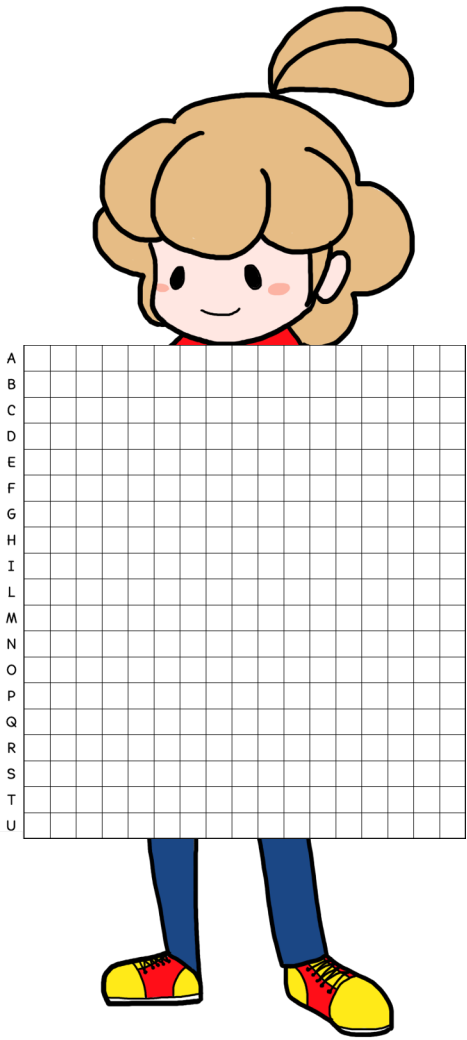
LEO IS READY FOR X-RAY!  
LET'S SOLVE THE CODING GAME  
BELOW, COLOUR THE SQUARES AND  
YOU WILL DISCOVER WHAT OUR  
FRIENDS WILL GET.

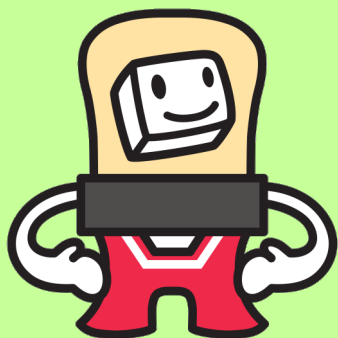
**COLOURS LEGEND:**

- a purple
- b yellow
- c black

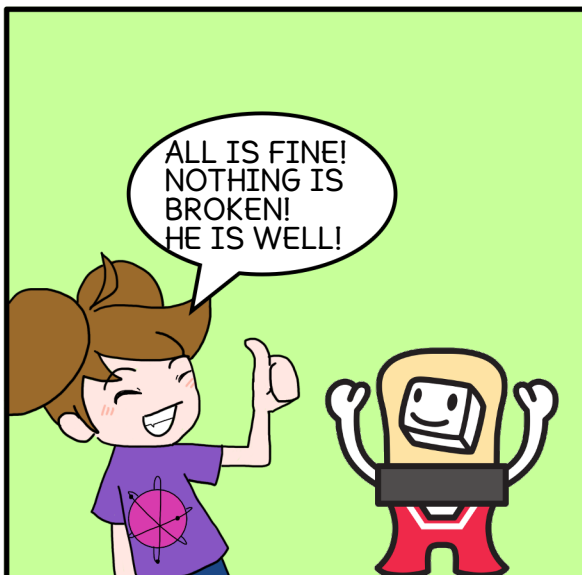
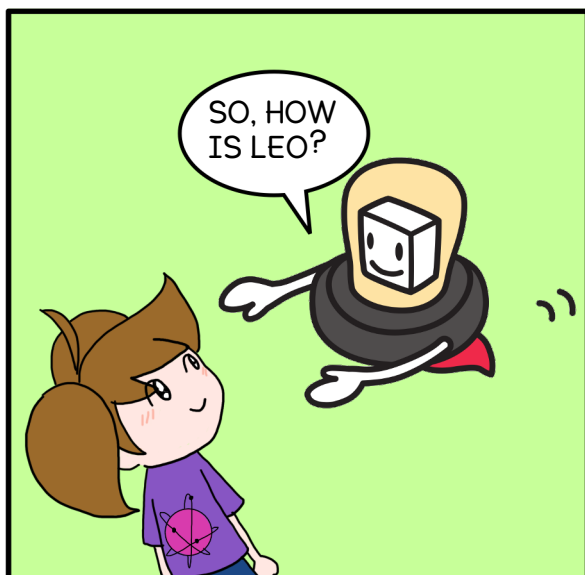
**INSTRUCTIONS:**

- A: 17a  
B: 1a - 4b - 2a - 1b - 1a - 1b - 2a - 4b - 1a  
C: 8a - 1b - 8a  
D: 4c - 1a - 7b - 1a - 4c  
E: 4c - 4a - 1b - 4a - 4c  
F: 4c - 1a - 7b - 1a - 4c  
G: 4c - 4a - 1b - 4a - 4c  
H: 4c - 1a - 7b - 1a - 4c  
I: 4c - 4a - 1b - 4a - 4c  
L: 4c - 3a - 1b - 1a - 1b - 3a - 4c  
M: 4c - 9a - 4c  
N: 4c - 1a - 2b - 1a - 1b - 1a - 2b - 1a - 4c  
O: 4c - 1a - 1b - 1a - 1b - 1a - 1b - 1a - 1b - 1a - 4c  
P: 4c - 2a - 1b - 1a - 1b - 1a - 1b - 2a - 4c  
Q: 4c - 4a - 1c - 4a - 4c  
R: 4c - 2a - 1b - 1a - 1c - 1a - 1b - 2a - 4c  
S: 4c - 2a - 1b - 1a - 1c - 1a - 1b - 2a - 4c  
T: 4c - 2a - 1b - 1a - 1c - 1a - 1b - 2a - 4c  
U: 4c - 2a - 1b - 1a - 1c - 1a - 1b - 2a - 4c

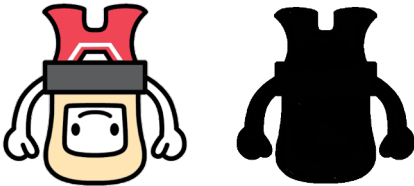




X-RAYS COMING FROM THE SOURCE ILLUMINATE THE OBJECT: THANKS TO THEIR STRONG ENERGY, THEY CAN PASS THROUGH LIGHT MATTER, LIKE OUR SKIN AND MUSCLES, WHILE THEY ARE ABSORBED BY HEAVY MATTER LIKE THE BONES. THIS IS WHY THROUGH THE X-RAYS WE ARE ABLE TO SEE ALL LEO'S BONES!

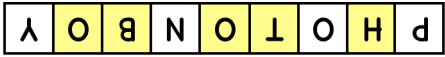
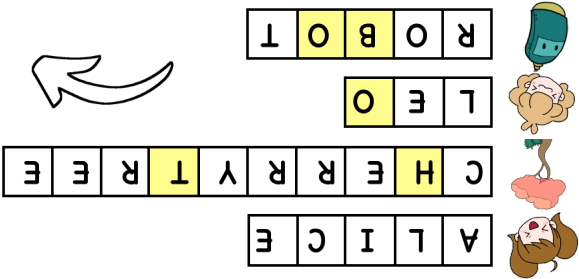


SOLVED PUZZLES

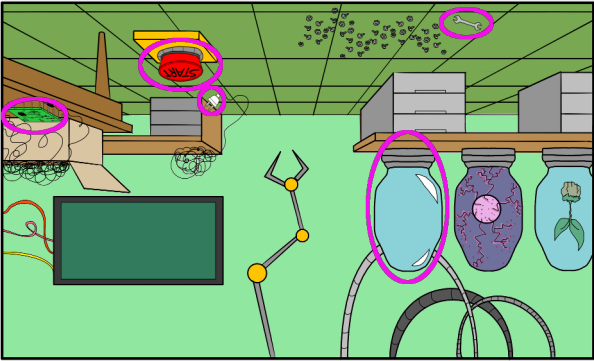


PAGE 2 Linking the shadow to the correct image

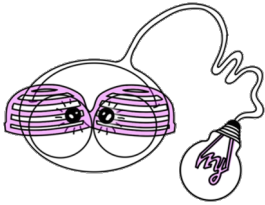
PAGE 4 Solving the anagrams and get the name of the new friend



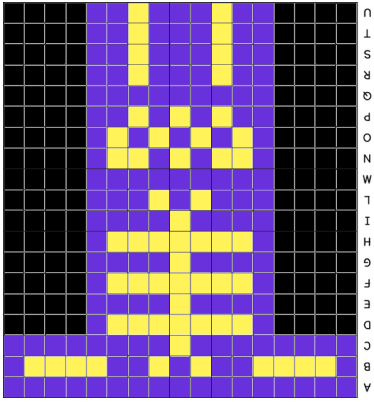
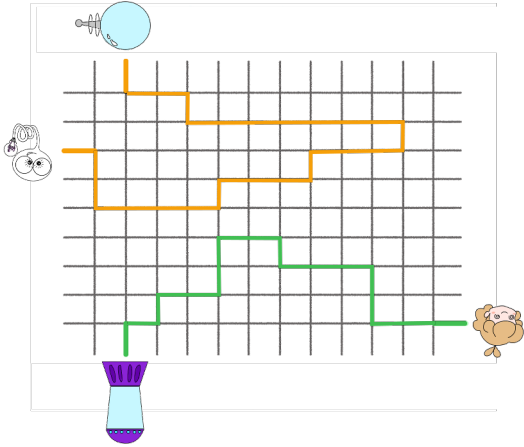
PAGE 5 Identifying the objects in the lab



PAGE 7 Discovering the correct way to find out which the idea od Alice is



PAGE 9 Guiding Leo and Photon to their position  
PAGE 10 Solving the coding to find out the output of X-ray



# LEO AND ALICE IN A NEW ADVENTURE WITH A NEW FRIEND, EXPLORING THE AMAZING PROPERTIES OF X-RAYS.



The National Institute of Nuclear Physics (INFN) is the Italian research institute dedicated to the study of the fundamental constituents of matter and of the laws that govern them. INFN-Kids is a public engagement initiative funded by the INFN Third Mission Coordination Committee (CC3M).

<https://web.infn.it/inf-n-kids/>

YouTube

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Spotify podcast

Hamamatsu Italia is the Italian subsidiary of Hamamatsu Photonics K.K. - a world leader in photonics technology for over 67 years.

Hamamatsu Photonics K.K. develops and sells optoelectronic systems and components, and it is renowned for the high quality and reliability of its devices in many applications.

This year, Hamamatsu Italia celebrates the 30th anniversary of its foundation and addressing the new generation is the most appropriate way to celebrate it, with the aim of showing the opportunities and improvements in the quality of life that photonics can offer.

<https://www.hamamatsu.com/eu/en/>

LinkedIn

Exploring light and understanding it in more depth will enable us to find unlimited possibilities for our future. Photon terrace is a website that Hamamatsu Photonics has produced to encourage the younger generation to think and learn about light and photons, in the hope that they will play an active role in the photonics field.

<https://photonterrace.net/en/>