SPACE GUARDIAN TRILOGY

The SpaceGuardian eBooks will be comprised of 2 related stories to explore the astronomy topics and related preschool curricula telling the story of the Space Guardians Task Force.

The first book mainly explores topics like the Moon, Earth and Sun. The second book allows to consolidate and go deeper on the topics presented in the first ebook. The third book will focus more on the planets and the solar system.

The reader will be able to choose the sex -boy or girl - and name of the main character, so he/she can identify more with the story.

Partners may adapt the text when translating the ebooks to attend language-specific aspects.

LAM and PLATON must validate scientific and pedagogical aspects in interactive features.

Finally, the suggestions for interactive features and visual effects, need still to be technically validated by both BOON and CIVIC.

#1. The MOON was stolen!

1 (Home: room)

It was getting dark in (insert the name of your country, city, local community). In her room, Rita had just arrived home from school. As she opened her backpack, a small piece of paper fell out.

Interactive feature/Effects

- Movement of the paper falling.
- Touching the note on the floor, opens it.

2 (Home: close view of the piece of paper)

She picked it up. It said:

"I've stolen the MOON, ahahaha!

I dare you to find it!

Look for the locker with this symbol "  " (Note: it should read "SG" in a mirror, an abbreviation for SpaceGuardians) and leave there a note with your findings.

You have 3 days…"

3 (Home: yard)

Rita ran outside. She searched the sky for the MOON…but it was not there. The MOON had disappeared! Someone had stolen the MOON!

Interactive feature/Effects

Moving slightly to the left and to the right the head of the character, changing what she sees in the sky – kind of 180° effect (check if it is technically possible) – ok from CIVIC

4.

She heard a noise from behind the bushes. "Who's there?" she asked, but all she could see was a distant figure moving away.

Interactive feature/Effects

Sound of a bush is heard

Alarmed, she rushed back inside.

(Note: a figure lurking in the shadow shows in the corner of the page (and in several other pages), to create a bigger mystery and sense of urgency. At the end the figure is revealed)

5 (Home: room/device up close)

Her parents were sleeping…but perhaps she could ask her friends over the Internet, she thought.

First, she sent a message to her friend Masha, in Russia. “Have you seen the MOON?” she wrote. Masha replied after looking through her window, “No, it’s dark over here, but I don’t see the MOON!”

Interactive feature/Effects

- She has a phone and must introduce the phone number for her friends
- Or she may have a tablet that needs to be turned on
- We see the location of the friend on Earth in the device, to allow better understanding of day and night
- We see the sequence of the messages

6 (Home: device up close)

Rita then sent the same message to Vivaan, in India. The day was about to begin and the message woke him up. He was also intrigued as he could not find the MOON either.

Note: we can show Vivaan’s face, almost like a sleepwalker, and with the hair sticking up.

7 (Home: device up close)

Rita was getting worried. Finally, she asked her friend Tau in Australia. Tau seemed surprised by the question as it was daytime in Australia. He could see the SUN, but not the MOON.

It was getting late and Rita had no answers yet. She would start her search for the MOON again, after a good night’s sleep. She bid farewell to her friends and went to bed.

In class

The teacher can explore the **concept of day and night** and **Earth rotation**

8 (Home: room)

The next day Rita woke up early. She could barely sleep that night. She had to come up with a plan to solve the mystery of the stolen MOON.

She opened a blank page on her notebook and drew a diagram. In the middle a question, “WHERE IS THE MOON?” and on the sides, 3 other questions, WHO (would steal the MOON?), WHY (would anyone steal the MOON?) and HOW (could anyone steal the MOON?)”

9

She would start with the “WHO?”

She gave it some thought. The only thing clear in her mind was that WHO ever had stolen the MOON knew her. It was someone from school that had placed the note in her backpack.

She would stay alert for any suspects that day in school.

10 (In school: outside at the door)

As she was entering school she saw Alice. “Alice loved science and was super smart. She would be capable of stealing the MOON.” She took note of Alice’s name in her notebook.

(note: Alice has a green overcoat)

11 (In school: entrance hall)

Rita was so distracted that she almost bumped into Boris. Boris loved to play tricks on people. Could this be one of his elaborate pranks? Another name was added below “WHO?” in her notebook.

(note: Boris has a green t-shirt)

12

She stopped and looked around. “Who else could have placed that note in my backpack. Who could have stolen the MOON?” Elias sits next to her in class. He could have easily placed the note in her backpack, but could he have stolen the MOON?” She did not think so, but she would keep an eye on him too, just in case. She added his name to the list.

(note: Elias has a green sweater)

13 (In school: class room)

The class started. That day their teacher, Mrs. Brown was lecturing about the Solar System, the Sun, Earth and the other Planets.

She explained that we live on a PLANET called EARTH. EARTH moves around a STAR called the SUN, that provides light and heat, and is responsible for the day and night. “Without the SUN,” said Mrs. Brown, “we could not live on this PLANET.”

(Note: represent the solar system in the classroom. In the classroom, there is another kid, very discreet, wearing green – none of the 3 previously mentioned)

Interactive feature/Effects

By touching the solar system map, reader can magnify it to see more detail.

14

Mrs. Brown continued with explanations about the other PLANETS that move around the SUN and why no one lived there. They were either too cold or too warm and they did not have water.

“Can anyone live without water to drink?” she asked the class. “Nooo,” they all answered.

Note: we can have a pupil sticking his finger in the nose or something else for a humorous take

In class

The teacher may explore the **solar system**

Examples of materials:

https://www.youtube.com/watch?v=XMlrdUNb1is&t=55s
https://www.youtube.com/watch?v=B-b4XvuQo1Y
https://www.youtube.com/watch?v=cGhqDqs6s8Q
https://www.youtube.com/watch?v=4NftvpeOpvU
https://www.youtube.com/watch?v=XYGvCuiRijI
https://www.youtube.com/watch?v=wdN6GY9uCqg

also check materials from ESA and NASA

15

“What about the MOON?” Rita suddenly asked.

“Good question!” the teacher smiled. “The MOON is always with us. It’s like the EARTH’s closest friend. The MOON provides us light during night, is responsible for the tides in the ocean and seas, helps regulate the climate on Earth and shelters Earth from asteroids…”

In class

The teacher can raise awareness about the **importance of the MOON.**

(Note: the teacher points to the MOON in the Solar system representation)

16

Suddenly a bell rang. The class ended. “For those interested, go to the Space Museum. It’s a wonderful place to learn about Space,” Mrs. Brown added just as the kids began running to the playground.

Interactive feature/Effects

The bell is heard.

17 (In school: hall)

Rita was still trying to wrap her head around the mystery. She had 3 suspects, but that was not enough.

“WHY would any of these 3 steal the MOON? As Mrs. Brown explained, we need the MOON to survive, so why would anyone want to steal it?”

“That’s it! Someone stole the MOON to keep it for him or herself.” Then she took a note under “WHY”.

18

As she turns her head around, she sees someone spying behind the lockers. She tried to chase the person, but the figure disappeared into a poorly lit corridor. She could only see a green piece of clothing.

(Note: several characters had green shirts…the Elias, the Alice, Boris, and another unnamed character showing in different pages)

19 (at home: room)

Later in the day and back in her room, she reviewed her notes. “I’m missing the “HOW?” How could someone steal the MOON? A giant spaceship? A special laser beam? A giant ladder?”

“That’s it! Tomorrow I’m going to the Space Museum to look for answers!” she thought.

20 (Street)

The next morning, before school, Rita took her bike to the Space Museum.

On the way, behind a street lamp, a figure observed her. “I’m being watched,” Rita realised. She decided to pedal as fast as she could to mislead the spy.

21 (Museum: hall with a view to a showcase with items)

The Museum was enormous. It was filled with rocks coming from space, models and objects from space voyages.

Interactive feature/Effects

By touching the items, a short explanation may appear. In this case, items should be carefully chosen so that they can be portraited in the illustrations.

Note: LAM could perhaps suggest a few objects to be represented in the museum and a short description for each.

22 (Museum: view of the model)

She moved towards a model with the MOON, the EARTH and the SUN. A museum assistant approached her. “I’m Lisa. May I help you? I see that you are very interested in this model,” she said.

“Yes, thank you! I was wondering if anyone could make the MOON disappear?”

Lisa smiled. “Well, for that to happen we would have to be able to reach it first and the MOON is very far from the EARTH. You would need a spaceship or a rocket to get there. Then, the MOON is actually very big when you see it up close. No one could really make it disappear.”

23

Rita was puzzled. “If no one could make it disappear, how come I could not see it? Yesterday, I looked up at the sky and it was not there!”

Lisa pointed to the model and said, “Try the model. You tell me why you could not see the MOON yesterday.”

Interactive feature/Effects

Create some kind of interactive map that allows to simulate (or has a few defined frames) the position of the earth and sun and see what happens to the MOON.
LAM's support defining and orienting the illustration will be essential.

After exploring the model, the solution was clear. Rita thanked Lisa and returned home thrilled. She was happy that she had solved the mystery.

23 (School: hall, next to the lockers)

The next day, Rita was still wondering who and with what purpose, had fabricated that elaborate, wild-goose chase.

When she got to school, Rita searched for the locker with the symbol "ƧϘ".

There it was, last in the row. There was no-one around.

24 (School: view with the locker and the paper)

She got closer to the locker. It was open. She placed a small piece of paper inside. The paper read "The MOON was not stolen. It was a NEW MOON."

Interactive feature/Effects

Reader must touch the locker door for it to open and place the paper.

Then she stayed vigilant for anyone coming near the locker.

25 (school: hidden, seeing the locker)

Rita spent the day looking at the locker, but no one had even got near it.

Suddenly, she received a text message on her phone from a mysterious number. It said, "Well done, you got the answer right! Go to the locker and open it if you want to find out more…"

26 (School: facing the locker)

There was no-one around. The school day was ending.

Rita got to the locker and opened it. Inside there was a strange pad with numbers and letters. She received another text message.

Interactive feature/Effects

Reader must touch the paper to read it.

The message said, “This is your final test. To get all the answers, you need to enter the right code on the pad.”

Here is a clue: *not everything is what it appears*. *What is the reverse image of the symbol on the locker?*”

Interactive feature/Effects

Reader must use a mirror to get the reverse image and introduce the right code to proceed: “SG” (abbreviation for SpaceGuardians)

27

As Rita entered the right code, the back wall on the locker opened. “It was a secret door!” she shouted.

She entered the locker, went through the secret door that lead to a stairway and walked down with caution.

28

When she got to the end of the stairs she could not believe her eyes. It was a massive room with all kinds of equipment; monitors, computers and gadgets.

“Ahhhhhhhhhhhhg!” she screamed. There was an alien just before her eyes! It all appeared to make sense now.

“Hello?” Rita said, timidly. She got no immediate reaction from the green creature standing in front of her.

But suddenly…

29

“Hey! I fooled you! Ahah,” said the boy inside the alien suit. It was Boris!

“You!?” said Rita.

From the back of the large room others appeared, among them many familiar faces.

(Note: Alice, Elias and Boris were part of the group)

30

A kid with a green shirt stepped forward. “Hi, I’m Andy, the leader of the SpaceGuardians. Welcome to our Headquarters!”

(Note: Andy’s sex is not referred, and the name works for both boy or girl. The illustrations should be neutral so that through the stories we cannot tell for sure if it is a boy or girl)

31

Andy explained to Rita who the SpaceGuardians were, whilst showing her their Headquarters.

(Note: we see kids experimenting, others at the computers and looking at large monitors with space-related content, etc.)

“We are scientists, adventurers and protectors. We study Space, we go on dangerous missions and we protect our Planet,” said Andy.

Rita was speechless.

Andy continued, “I know this is too much to take in. But we need people like you and that is why we challenged you…and you passed! Will you join us?”

32

“WOW, this is just awesome! And YES, I want to be a SpaceGuardian!”

That day they all celebrated the arrival of the new member and Rita was given her SpaceGuardians badge!

Interactive feature/Effects

There is a SpaceGuardians badge for printing

#2. Is there anybody out there?

1. (SG HQ: meeting room with Rita, Andy, Boris, Alice)

That day, Andy had an important new mission for Rita and her SG friends.

“For the past few months we’ve been picking up a strange signal coming from somewhere on the Solar System,” said Andy.

“Yeyyyy! Aliens, finally!” interrupted Boris excitedly.

“We can’t figure out what this signal is, so there is only one solution… Go out there and have a look for ourselves!” continued Andy.

“How will we get there?” replied Rita, astounded.

“On SG One, our spaceship,” said Andy with a smile on his face.

2. (SG HQ: spaceship hangar)

“This is SG One. We finished building it last week and it’s ready for space travel,” said Andy, pointing to the large spaceship.

Rita could not believe her eyes. “It’s a real spaceship!”

“Yes, it was built according to detailed plans left by the Pioneers,” continued Andy.

3. (SG HQ: spaceship hangar)

It was the first time Rita was hearing of the Pioneers. “Who are they?”

“The Pioneers were space explorers, like us. Years ago, Alice and I found their abandoned headquarters by chance. We decided to continue their mission, creating the Space Guardians.

“But who are the Pioneers and where are they now?”

“Unfortunately, no one knows,” replied Andy. “Well, we have a big mission to plan. Lift off is in a few days!”

4. (SG HQ: view of the control room – spaceship on monitor)

The big day had arrived. Inside SG One, Rita, Boris and Alice were wondered what they might find out there. Could it be the aliens that are sending this signal or was there another explanation?

In the control room, the excitement of the first space mission gave way to complete silence. The launching sequence was playing on the big screen: 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, LIFT-OFF!

Interactive feature/Effects

Kids must put the numbers 1-10 in a reverse order
It may be visible a scheme with the Earth (layers of the atmosphere) and the Moon a simulation of the trajectory.

Effect of the spaceship taking off

In class

The teacher practice counting and countdowns

5. (SG One: view right after take-off)

The spaceship had just taken off. Rita looked out from the hatch. She could see the ground, tiny houses, the clear sky and clouds passing by.

6. (SG One: view of the Earth getting farther away from the hatch of the ship)

Finally, the spaceship left Earth's atmosphere. All around was dark except for the MOON, which appeared bigger as they got closer, and the small bright dots sprinkling the vast space.

Rita looked down to the Earth. It was beautiful. She could see the ocean and the continents.

The mission would still take some hours to complete.

(Note: shows an image with the Earth, the Moon with the dark side showing and the Sun in perspective, to help understanding how the position of the 3 contribute for having the Moon phases)

In class

The teacher may explore:

- the landscape of the Moon and its importance for life on Earth
- Day/night
- Moon phases
- Eclipses

eventually using simulation. In the Facilitator's Guide we might propose and activity in which the sun, the moon and earth are represented by kids and the teacher does a series of simulations changing their position to see what happens)

The teacher may also explore the idea that the Moon does not rotate and that we see always the same side of the Moon from Earth. Hence, there is a far side on the Moon that we never see from here.

In class

The teacher can explore several topics:

- the atmosphere
- difference between sky and space
- how big is the Earth, how big is the Moon
- how distant is the Moon
- World maps as a representation of the Earth

7. (SG One: control room with a large window with a view to the planets and sun ahead)

“That is Venus ahead, then Mercury and finally the SUN, at the centre of our solar system” Alice said.

“Yeah, but I bet the signal comes elsewhere. Everybody knows that those PLANETS and the SUN are just too hot. No aliens would live there!” he laughed.

Rita turned on the spaceship’s sensor to trace back the signal.

Interactive feature/Effects

- Reader pushes the button to the space sensor.

8. (SG One: control room with a large view over the sensor monitor with the entire solar system)

“Seems that the signal comes from Mars!” Boris said excited. “I’ve always believed there were aliens in Mars!”

“Aliens or no aliens, we must follow the leads” said Rita, as she set course to Mars, also known as the “Red Planet”.

Interactive feature/Effects

Monitor can be clicked to show a closer view of the SUN or each Planet, stating simple facts (e.g. size compared to Earth, temperatures compared to Earth, gravity compared to Earth, distance to Earth, existence of water, breathable air, etc.)

9. (SG One: view of the ship landing on Mars and view of other planets and Earth)

When, at last, they landed on Mars, Rita and her friends were relieved. Now they had to find the exact location of the signal.

“What happens if we find aliens?” she wondered.

10. (SG One: inside – gear room)

“Ok, let’s go!” said Rita. “Put on the spacesuit, strap the oxygen tanks to your backs so that you can breathe outside. Be careful when you step out, remember the gravity is lower than the Earth’s and that you will feel much lighter”.

(Note: the image might show Boris dressing and showing funny underware)

Interactive feature/Effects

Kids must gear up Rita. This enables them to realize what and why they need certain items - oxygen, special suits.

In class

The teacher may explore:

- Conditions for life on Mars
- Gravity

11. (Mars: getting off SG One)

“HELP!!! Mommy, I’m floating away!” Boris shouted.

“What are you yelling about? Your feet are well on the ground! You just feel lighter” said Alice smiling.

“Brrr, it’s so cold” said Boris

“Stop complaining, and switch on your suit’s temperature regulator” replied Alice.

Rita took a device and start searching for the signal’s source.

In class

The teacher may explore the idea that the Moon does not rotate and that we see always the same side of the Moon from Earth. Hence, there is a far side on the Moon that we never see from here.

12. (Mars: surface with view to a structure)

They were now very close to where the source of the signal. At a distance, they noticed something.

“There’s a big structure over there!” said Rita surprised.

“I told you so!” added Boris. “It’s an alien base!”

“There are no aliens!” replied Alice.

“We will see about that!” mumbled Boris.

13. (Mars: next to the big structure)

They got closer to the structure. It was a big metal tower attached to a small building. The tower seemed to be damaged.

“Well, it seems you are right, Boris, it’s some kind of base,” said Rita. “We must go there and solve the mystery once and for all.”

14. (Mars: in front of the door)

They were now just outside the building when they noticed a small crater.

“It looks like a meteor might have hit the big metal tower, causing the damage,” Alice observed.

There was no one around and the heavy metal door on the small building wouldn’t open.

“There is a pad next to the door,” Rita said.

They looked closer. “We must figure out the code to enter,” said Boris.

In class

The teacher may explore what is a meteor

15. (Mars: close-up of the door pad)

“I think these symbols represent the solar system. Perhaps we should put the Planets in the right order,” proposed Alice.

Interactive feature/Effects

Kids must click the pad to see closer, showing representations of the solar system in the wrong order. They must put in the right order to progress.

The metal door opened.

“Aaaaaaaaaaaaaargh!” Boris screamed.

16. (Mars: inside the structure)

“Why did you scream?” asked Rita.

“Sorry, I was just sneezing…” Boris excused.

The three were intrigued by what they saw. It was a room full of screens, buttons and switches.

“It looks like a control room,” Alice said.

Boris smiled. “This is a communication room and the big tower is an antenna.”

In class

The teacher may briefly explain what an antenna is, and also introduce other instruments/tools related to space explorations, like the telescope (may even have one in class to show/use)

17. (Moon: inside the structure, close-up of a metal plate on the equipment)

Boris was known for being a prankster, but he was also an expert in mechanics and electronics. “From what I see, this must be an antenna to receive and send long distance messages!”

They were more and more intrigued. “Who would have built an antenna on the Mars?”

“Wait, there is something over here,” said Rita.

18.

Rita cleaned the dust off the object to uncover a metal plate.

Interactive feature/Effects

Kids must click over the plate to clean the dust and reveal the message/symbol.

“That’s the Pioneers’ symbol!” said Alice. “This antenna is theirs!”

“So…it’s not from aliens?” mumbled Boris, disappointed.

“We have to report this to the SG Headquarters,” concluded Rita.

19.

Andy seemed excited, when Rita informed him about their discovery over the radio.

“I had heard of a Pioneers’ project to set up an antenna on Mars to search for alien life in space. But I thought it was only rumours,” said Andy. “Is there a way to fix the antenna?”

“I can try!” replied Boris promptly.

20.

Interactive feature/Effects

Kids must pick up tools and drop them on the damaged antenna to fix.

It took him some hours and the help of Rita and Alice, but Boris fixed the antenna.

“We can now receive and send messages from the SG Headquarters to the space!” Rita informed Andy on the radio.

21.

Meanwhile, whilst Rita and Alice were distracted reporting to Andy, Boris was typing on a keyboard, “Is there anybody out there?” Then he pushed “enter.”

“Time to return home. Mission accomplished!” said Rita, finally.

“So, Boris, as you see, there are no aliens,” provoked Alice.

“Yes, no aliens…for NOW!” replied Boris.

(NOTE: in the image we see a signal being transmitted by the antenna to space)

Interactive feature/Effects

There is a SpaceGuardians badge for Solar System Observer