

BUTTERFLY SPACE RESCUE



NASA Space Apps Challenge 2024

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Executive Summary



The situation is that we want to encourage students to go outside and explore the Earth around them.



Complications include traditional teaching methods that often do not cater to diverse learning environments.



Resolving these issues begins with creating a compelling game that can use pen and paper or via a program.

To support the future of education surrounding Earth and Space, we helped children and classrooms by getting people to go outside and explore while emphasizing storytelling and encouraging them to collect Data.

Game User Personas

Amina, the Curious Learner, Age: 12

Location: Rural Kenya
Her school has limited resources, few books and no computers. The school can receive physical mail. She is bright and eager to learn.



Lucas, the Aspiring Scientist, Age: 14

Location: Urban Brazil
Lucas lives in a bustling city with a decent school but limited funding. He loves science, and watches documentaries on TV. He dreams of becoming an astronaut.



Mr. Patel, the Supportive Teacher, Age: 38

Location: Public School in a Low-Income Neighborhood, India
Mr. Patel often seeks innovative ways to engage his students with limited resources.



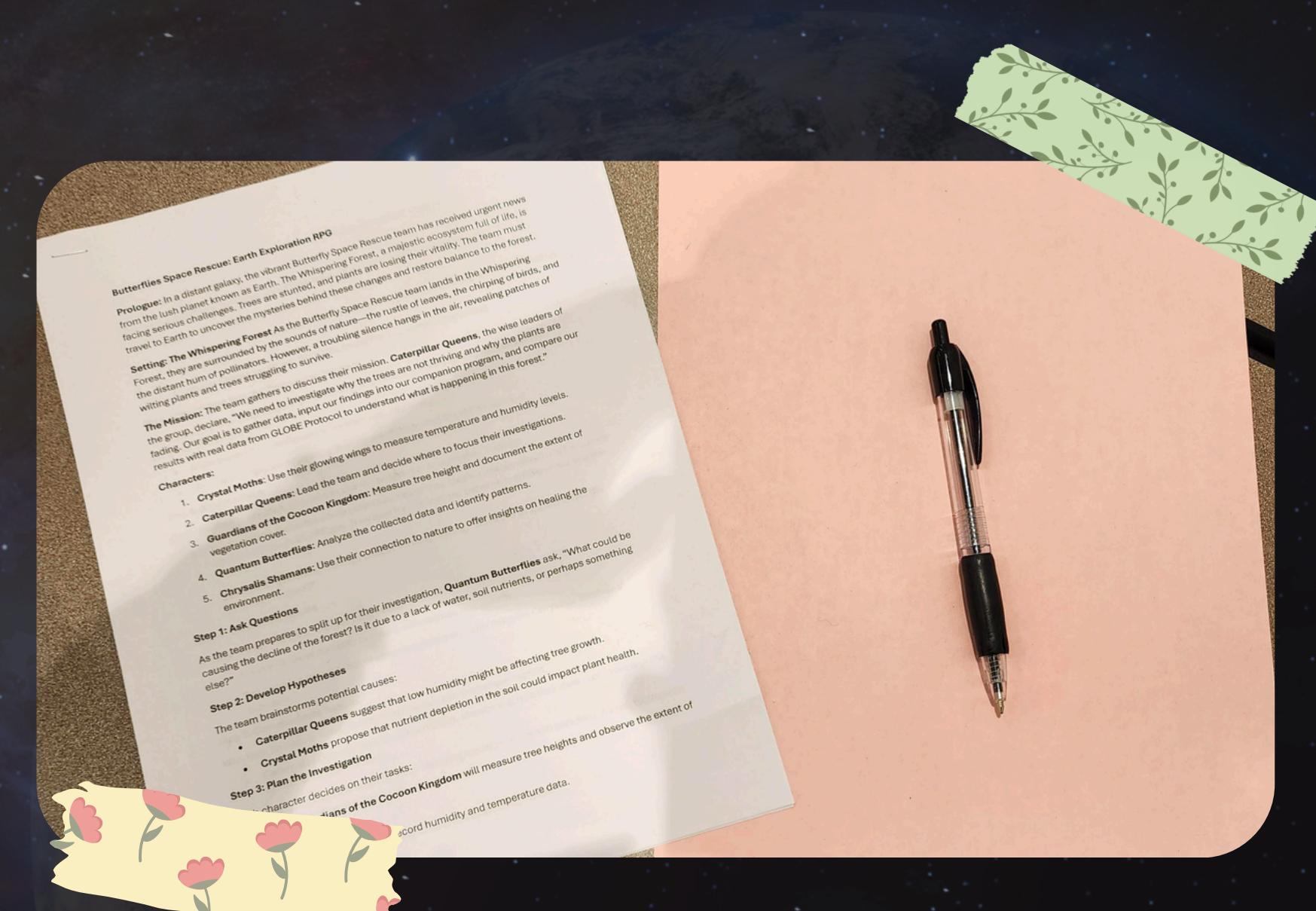
Jamie, the Tech-Savvy Explorer, Age: 13

Location: Brooklyn, NY
Jamie has access to a laptop and an iPad, which he uses frequently. He sometimes feels overwhelmed by the vast amount of information available online.



Game Summary

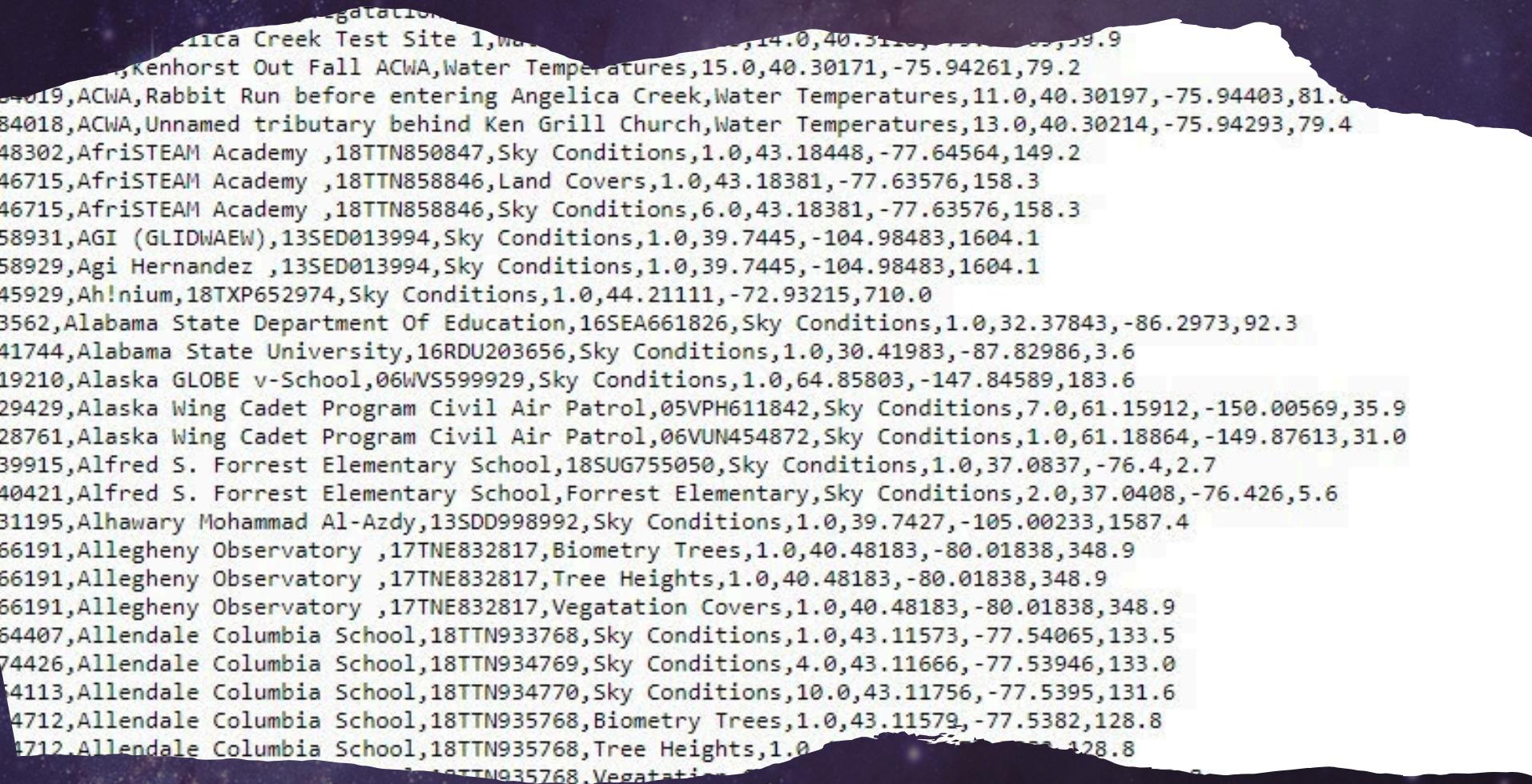
- Players participate in an RPG game.
- It can be played either old fashioned with pen and paper or via a program.
- This game encourages players to embrace creativity and exploration.
- We are also encouraging them to learn about the scientific process and contribute data for others to learn from.
- The game compares student findings against and contribute it to other datasets via the GLOBE Protocol.





Data Used

- GLOBE protocol datasets
- GLOBE protocol API
- Other NASA data via API can also be integrated into expansions



34019,Angelica Creek Test Site 1,Water Temperatures,14.0,40.3118,-75.9426,79.9
34019,ACWA,Rabbit Run before entering Angelica Creek,Water Temperatures,15.0,40.30171,-75.94261,79.2
34018,ACWA,Unnamed tributary behind Ken Grill Church,Water Temperatures,11.0,40.30197,-75.94403,81.6
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346715,AfriSTEAM Academy ,18TTN858846,Land Covers,1.0,43.18381,-77.63576,158.3
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358929,Agi Hernandez ,13SED013994,Sky Conditions,1.0,39.7445,-104.98483,1604.1
345929,Ah!nium,18TYP652974,Sky Conditions,1.0,44.21111,-72.93215,710.0
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341744,Alabama State University,16RDU203656,Sky Conditions,1.0,30.41983,-87.82986,3.6
319210,Alaska GLOBE v-School,06WVS599929,Sky Conditions,1.0,64.85803,-147.84589,183.6
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328761,Alaska Wing Cadet Program Civil Air Patrol,06VUN454872,Sky Conditions,1.0,61.18864,-149.87613,31.0
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340421,Alfred S. Forrest Elementary School,Forrest Elementary,Sky Conditions,2.0,37.0408,-76.426,5.6
331195,Alhawary Mohammad Al-Azdy,13SDD998992,Sky Conditions,1.0,39.7427,-105.00233,1587.4
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366191,Allegheny Observatory ,17TNE832817,Tree Heights,1.0,40.48183,-80.01838,348.9
366191,Allegheny Observatory ,17TNE832817,Vegetation Covers,1.0,40.48183,-80.01838,348.9
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54113,Allendale Columbia School,18TTN934770,Sky Conditions,10.0,43.11756,-77.5395,131.6
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4712,Allendale Columbia School,18TTN935768,Vegetation Covers,1.0,43.11579,-77.5382,128.8

Styles and Branding

Paper Version:

- Simple text (easy to print)
- For use in communities where students may not all have access to internet, smartphones, laptops, etc. at home.
- Low-tech and easy to distribute, requiring minimal resources to play.

Online Version:

- Additions (not replacement) to the paper version.
- Simple design.
- Easy to use.



The Game

Butterflies Space Rescue: Earth Exploration RPG

Prologue: In a distant galaxy, the vibrant Butterfly Space Rescue team has received urgent news from the lush planet known as Earth. The Whispering Forest, a majestic ecosystem full of life, is facing serious challenges. Trees are stunted, and plants are losing their vitality. The team must travel to Earth to uncover the mysteries behind these changes and restore balance to the forest.

Setting: The Whispering Forest As the Butterfly Space Rescue team lands in the Whispering Forest, they are surrounded by the sounds of nature—the rustle of leaves, the chirping of birds, and the distant hum of pollinators. However, a troubling silence hangs in the air, revealing patches of wilting plants and trees struggling to survive.

The Mission: The team gathers to discuss their mission. **Caterpillar Queens**, the wise leaders of the group, declare, "We need to investigate why the trees are not thriving and why the plants are fading. Our goal is to gather data, input our findings into our companion program, and compare our results with real data from GLOBE Protocol to understand what is happening in this forest."

Characters:

1. **Crystal Moths:** Use their glowing wings to measure temperature and humidity levels.
2. **Caterpillar Queens:** Lead the team and decide where to focus their investigations.
3. **Guardians of the Cocoon Kingdom:** Measure tree height and document the extent of vegetation cover.
4. **Quantum Butterflies:** Analyze the collected data and identify patterns.
5. **Chrysalis Shamans:** Use their connection to nature to offer insights on healing the environment.

Step 1: Ask Questions

As the team prepares to split up for their investigation, **Quantum Butterflies** ask, "What could be causing the decline of the forest? Is it due to a lack of water, soil nutrients, or perhaps something else?"

Step 2: Develop Hypotheses

The team brainstorms potential causes:

- **Caterpillar Queens** suggest that low humidity might be affecting tree growth.
- **Crystal Moths** propose that nutrient depletion in the soil could impact plant health.

Step 3: Plan the Investigation

Each character decides on their tasks:

- The **Guardians of the Cocoon Kingdom** will measure tree heights and observe the extent of plant cover.
- The **Crystal Moths** will record humidity and temperature data.

- The **Chrysalis Shamans** will collect soil samples for nutrient analysis.

Step 4: Collect Data

The team sets off into the forest, using their specialized tools to gather essential data:

- **Crystal Moths** measure temperature and humidity.
- **Guardians of the Cocoon Kingdom** measure the height of trees, jotting down their findings

NASA Photo of the Day



The Magnificent Tail of Comet McNaught

Comet McNaught, the Great Comet of 2007, grew a spectacularly long and filamentary tail. The magnificent tail spread across the sky and was visible for several days to Southern Hemisphere observers just after sunset. The amazing ion tail showed its greatest extent on long duration

Mission: Whispering Forest Expedition

Investigate the cause of declining pollinators in the forest.

[Start Mission](#)

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