

Learner handout and experiment worksheet

Space STEM kit support materials

Topic: Our Planet Earth in our solar system

Designed for Grade 8-11 extra-curricular facilitation | 2 hours | up to 9 pairs

1. What you need to know

Our Planet Earth in our solar system

- Earth is the third planet from the Sun.
- Earth can support life because it has a suitable temperature range, liquid water, sunlight and an atmosphere.
- Sunlight is the main energy source for life on Earth.

Sunlight, air temperature and humidity

- Light intensity tells us how bright the natural light is.
- Air temperature tells us how warm or cool the air is.
- Relative humidity tells us how much water vapour the air holds compared with the maximum it could hold at that temperature.
- In many situations, places with more direct sunlight have higher light readings and can have slightly warmer air.
- Humidity may be higher in shade or indoors, but this can vary.

Key words

Solar System	The Sun and the objects that orbit it.
Atmosphere	The layer of gases around Earth.
Light intensity	A measure of how bright the light is at the sensor.
Relative humidity	A percentage showing how close the air is to being fully saturated with water vapour.
Air Temperature	A measure of the heat or energy in the air.
Variable	Something you change, measure or keep the same in an investigation.

2. Your investigation

Question

How do light intensity, air temperature and relative humidity vary between places with different levels of sunlight?

Hypothesis

We predict that...

Because...

Variables

Independent variable	
Dependent variables	
Controlled variables	
Possible limitations	

Method checklist

- Use the same sensor height and orientation each time.
- Wait for the readings to settle before writing them down.
- Record units correctly: lux, deg C, and % RH.
- Take three readings at each location.
- Keep the kit orientation the same as far as possible.

3. Data recording sheet

Learner Names		Team Name	
		Class / group	

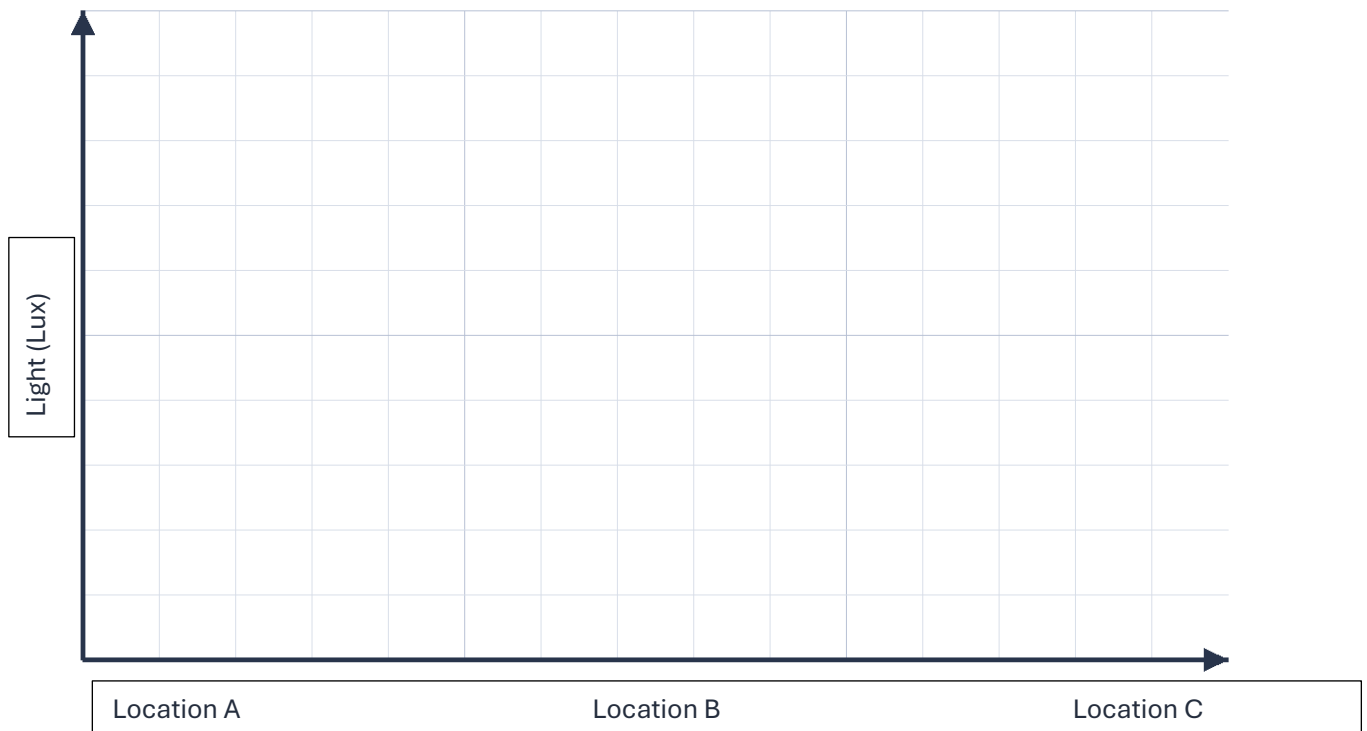
#	Location	Light (lux)	Air temp (deg C)	RH (%)	Notes
1	A				
2	A				
3	A				
4	B				
5	B				
6	B				
7	C				
8	C				
9	C				

Location	Average light (lux)	Average air temp (deg C)	Average RH (%)
A			
B			
C			

4. Graph and analysis

Draw a bar graph using your average values.

- Colour 1: bar of average light intensity by location
- Colour 2: bar of average air temperature by location
- Colour 3: bar of average relative humidity by location



Analysis questions

1. Which location had the highest light intensity? What do your data show?

2. Did the warmest place also have the highest light reading? Explain using evidence.

3. How did relative humidity compare across the locations?

4. What pattern do you think is linked to sunlight, and what might be linked to other environmental conditions?

5. What was one limitation of your investigation, and how would you improve it next time?

5. Presentation planner

Use the structure below for your 1-2-minute presentation.

Claim	Our main finding is...
Evidence	The numbers or graph that support this are...
Explanation	We think this happened because...
Conclusion	Therefore, we conclude that...

Remember: scientific presentations do not need perfect results.

They need honest evidence, careful observation and a sensible explanation.