



## STEM Projects Guide

### The Challenge

Each project in the series is based around one main challenge:

**To address dust issues encountered on the Moon, Mars and Earth**



Buzz Aldrin's boot print on the Moon

Image credit: NASA

[https://www.nasa.gov/centers/marshall/history/apollo11\\_140718.html](https://www.nasa.gov/centers/marshall/history/apollo11_140718.html)

### How To Use This Resource

This series of PALMS STEM projects has been adapted from an in-class project to a series suitable for learning almost anywhere. These projects are presented as a series of PDF interactive booklets that you can download and then complete by typing directly into the document.

- Adobe Acrobat Reader needs to be installed on your device to use these files. You can download it for free here: <https://get.adobe.com/reader/> or find the app in the Apple or Google play stores (**check with an adult before downloading or installing!**)
- Once the Reader is installed, download the PDF interactive booklet you will be working on and save it with a new file name that includes your name. This is just like writing your name on a worksheet.
- Fill in your answer in the boxes provided, making sure to save your work regularly.
- If you are asked to upload a picture, either click on the icon or record the file name as instructed.





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### *Find Out More and Get Thinking*

Before starting on one of the projects, you should do some background research and find out some more about the complex issue of food security and how we can try and address it. To help you with this research, download and complete the [PALMS 5 STEM - Background Research - Digital](#) file.

Search the NASA website <https://www.nasa.gov/> using keywords such as dust, moon dust, particulate and dust storm to find information on the work that NASA has done in the past and is currently doing.

Remember to regularly save your work! Your teacher will let you know how to send your completed booklet to them.

Do you know what STEM Skills are and what they look like? This PowerPoint presentation will help: [What do STEM Skills look like?](#) (file will download). Your teacher may want to discuss this with you and the class.

### *Ways To Meet The Challenge*

Check with your teacher which project you will be working on and download the PDF Interactive Booklet for that project.

- [PALMS 5 STEM - Project 1A - Dust Survey - Digital](#)
- [PALMS 5 STEM - Project 1B - Clean Solar Panels - Digital](#)

Once again, remember to follow the instructions about saving your work.





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Some things to keep in mind as you work on your project:

- Take the time to really think through and refine your ideas. Thinking more about the way you can solve a problem will help you understand the problem more fully. This will ultimately lead to a better solution and it is a more efficient use of resources.
- Prototypes or models do not need to be perfect and are only a representation of what a final product may look like. For some projects, you may not be able to make a working prototype but may produce a detailed diagram or map.
- To help record other research and ideas you might come up with, use the [PALMS 5 STEM - Research Guide - Digital](#).
- Have fun and enjoy gaining some new knowledge or skills!

### *Report Back To Base*

To finish up the Dust STEM Projects, you will need to put together a presentation of some kind to tell everyone what you found out!

There are many ways this can be done such as written reports, posters, oral presentations you could video, a short film or other ways you may think of. Be creative!

Once again, check with your teacher how you should submit your Report Back To Base.



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<https://commons.wikimedia.org/wiki/File:SHB-Red-Dust.jpg>



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