

Neil Armstrong Space

Workshop Handbook

All the information you need to
deliver a successful Neil
Armstrong workshop!



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Setting up for the Neil Armstrong workshop

About the workshop

Welcome to your Neil Armstrong workshop. This workshop is all about the children having a wow moment of launching rockets while embedding their learning about space exploration and astronauts.

You will need your rockets, pumps, blocks, wooden trellis and corks for the launch, along with buckets, jugs and water bags to provide the 'fuel'. Then, all your constellation resources for finding out about stars.

Don't forget tarps and sit mats and, if it's looking a little wet (or very sunny), your canopies just in case!

Assessing the space

The class teacher who booked the workshop will be aware that the workshop requires a large space to take place, which is not being used for playtime or other activities throughout the day. However, you may not be greeted by this teacher on arrival, so you may need to share this information with the staff you meet upon arrival.

When you are taken to the space, you will need to conduct a dynamic risk assessment. This means checking that the space doesn't contain any hazards such as litter or trip hazards and the gradient and size is suitable for the activities.

Setting up your resources

This workshop relies on lots of water to launch the rockets, so the most important part of setup is to fill all of your water containers as quickly as possible. If doing a three-workshop day, consider how you will ensure enough water for the second session, as there will be no time to top up between the morning sessions.

Set up your buckets where you are launching the rockets from (with some water already in them), then make piles of the other resources ready for the children to collect.

Choose a suitable space for the constellations activity to take place and ensure the resources are ready.

Preparing for rainy showers

If the forecast looks set to be light rain, the children should arrive dressed for it. But it's always a good idea to look around the outdoor space and consider where you could shelter if it becomes unexpectedly heavier.

If moderate rain is forecast and wind below 20mph, you will need to put the canopies up to provide shelter if there is no other shelter available. Please watch the canopy video on the training platform to see how to do this.



Workshop outline



Introduction

- > Introduce yourself to the children.
- > Share with them your three rules for the workshop:
 1. Always listening
 2. Staying safe outdoors
 3. Having lots of fun!
- > Introduce the children to your working space.
- > Identify the boundaries of where you are working (you could mark this by tying ribbon to fences, bushes, and gateways to signal the edge of the boundary).

Play '3 before me' boundary game:

- > Share three adjectives with children e.g. smooth, cold, damp.
- > Ensure children know what your adjectives mean.
- > Send them off to touch three things in the outdoor space that match your three adjectives.
- > When they've done all three, they come back to you, touching the floor in front of you so you know they've done.
- > When all children are back, ask them to share what they found.

Curriculum Links & Key Skills

- Year 2 children learn 'living, dead & never alive' so including one of those for Year 2 classes will please teachers.
- Choose a well known word for ease and then something children might not be as familiar with such as 'rough' or 'flexible' to extend children's vocabulary.

Rocket launch

- > Share with children a photo of the Apollo 11 team of astronauts, asking children to identify which one is Neil Armstrong. *If doing the workshop for another astronaut, modify information/images shared for the introduction to fit.
- > Share facts about the Apollo 11 mission, its purpose, when it happened etc. Ask children if they know any facts too.
- > Now show them a photo of the rocket Saturn V. Explain that today we are going to launch rockets just like Saturn V.



Rocket launch continued...



Curriculum Links & Key Skills

- The KS1 history curriculum includes learning about the lives of significant individuals in the past who have contributed to national and international achievements. Neil Armstrong (or another astronaut being studied) is definitely one!
- It's important that the children learn (or recap) some of the key facts about him and the moon landing, thinking about what effect this has had on our lives.

> The steps below will help you to have a smooth, and calm, rocket launch setup and delivery.

> Use your judgment on the day to adapt the steps as needed, dependant on the class in front of you (this might take a little longer than you expect, but will significantly help to keep the pace throughout the launches as children are clear on exactly what they need to do).

Steps for rocket launch:

- Ask the teacher to put children into groups, having them stand one behind the other at their bucket.
- Ask children (and help them) number themselves in the line (1-6). Ask for hands up to show children know their numbers.
- One number at a time, children collect a resource and take it back to their station, leaving it next to their bucket e.g. number 1's, collect a measuring jug etc.
- Demonstrate creating the launch pad. **Children copy.**
- Demonstrate filling rocket with 'rocket fuel' to the black line. **Children copy.**
- (in orientation of correct launch route) Demonstrate how to put their cork in, place bottle in launch pad and placement of the pump.





Rocket launch continued...

- Once talked through - undo this and ask children to repeat steps back to you (as you follow them to set up again). **This step can be broken down further with younger/more fidgety class.**
- Emphasise to children that they are waiting for the countdown to start pumping, to keep it safe.
- To reinforce this, show them what happens when pumping begins (bubbles are seen), to reiterate why it is important they don't (the rocket will begin to launch).
- Demonstrate a safe rocket launch (children join in with countdown).
- Emphasise the words 'go and get your rocket' as their cue to collect the bottle, again to keep it safe. Ask a child to collect the bottle.
- Have the class repeat the 'go' phrase and 'collect' phrase back to you.
- Now, set them off with setting up their first launch, asking them to work as a group to do so.
- Instruct number 1 to stand at pump (with one foot on the plate) and all other children stand back.
- Number 1 to launch their rocket on the countdown. Then go to collect it.
- Ask children to reset their rockets, with number 2 having a turn this time (and so on).

> To see this part of the workshop action, watch the training video. It will also show you how you might adapt some of the steps above if wanted. The video also includes some helpful 'troubleshooting' for what to do if the rockets are not launching as effectively as planned.

> During the rocket launches, it is useful to have a whistle available to use as an immediate 'stop'. This can then be used if you spot anything unsafe and saves you from calling out over the excitement.

Curriculum Links & Key Skills

- Collaboration, communication & teamwork - these are key skills many children are missing these days! Encourage those who are disengaged to work together with their team.
- Following a set of instructions is also an important life skill.
- The children will also be starting to develop their measuring of volume too.



Workshop outline continued

Take it a step further:

> Discuss how Neil Armstrong and his team only had 15 seconds of fuel left before landing on the moon and how it almost didn't happen as they needed to be precise. Discuss how it might have felt to have had 15 seconds to do something so difficult.

> Now children will launch the rockets again, but this time using the measuring jugs to measure out different amounts.

> For timings, it is likely that you will only do one launch of each measurement, so have children 'pair up' on the launches so that they all get another turn e.g. number 1 & 2 will launch the rocket together.

> Ask them to start by measuring out 400ml of water. Emphasising that they will fill the jug to the correct measurement marker then pour all that fuel into the rocket. Ask for predictions about what will happen.

> Have children measure the distance of the rockets, discuss the outcomes.

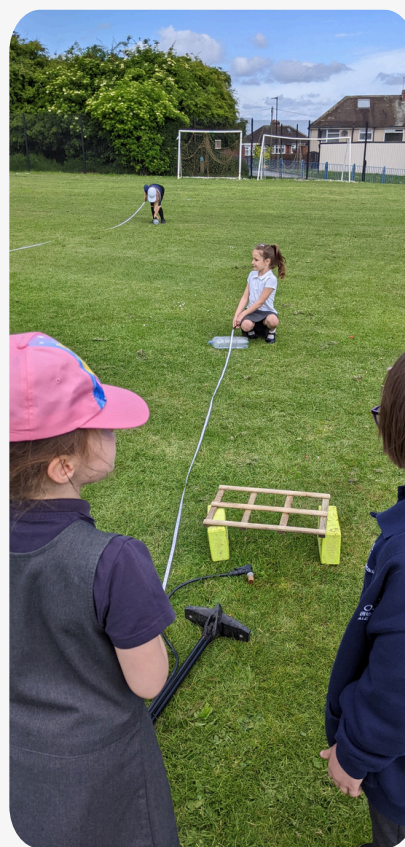
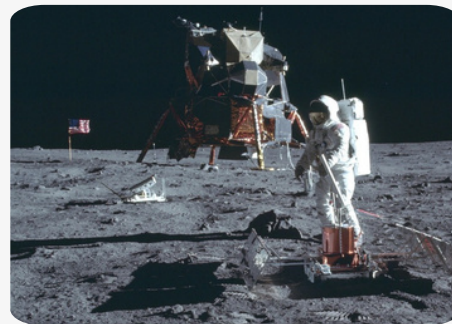
With a Year 1 class, use your judgment on whether tape measures or footsteps would work best, with Year 2, use the tape measures.

> Repeat the launch once again, this time with 1000ml of water measured out with the jugs. Ask for predictions.

> Measure the distance of the rockets.

> Repeat for 700 ml of water (which is to the black line).

> Discuss all three launches (400ml, 700ml & 1000ml) ask the groups to share distances, what they found and whether it matched their predictions.



Curriculum Links & Key Skills

- This activity makes cross-curricular links to measurement in maths, both with volume and also distance.
- It also allows the children to think scientifically, and make predictions about what might happen in an investigation. Although this is more explicitly a KS2 working scientifically skill, this activity is a great way to introduce making predictions.

Workshop outline continued

Transition between activities

Play space tig to introduce some movement and warm up if cold!

- > Choose 2 or 3 children to be the asteroids.
- > Choose 2 or 3 children to be the astronauts.
- > The rest of the class run around. If the 'asteroids' tig them, they stand still and turn into a broken spaceship (holding their hands in front of them and clenching and opening their fists like blinking lights).
- > The astronauts attend each broken spaceship and fix it by pretending to tighten screws and bolts with their screwdriver (with sound effects!) in front of them. The child is released and is back in the game.

To break the rocket launches up a little, either partway through to get moving, or between the regular launches and the section on measurement for a chance to refocus, play Space Tig at that point.

Curriculum Links & Key Skills

- Physical movement for warmth and to shake off any wriggly bottoms!
- Team work

Creating constellations

- > Put the children into groups of 3 (or same groups as previously).
- > Discuss the sights Neil Armstrong and his team might have seen in space, showing the picture of the stars from the ISS.
- > Ask the class if they know what constellations are. Share how they are like mini maps of the stars.
- > Explain that we are going to replicate the night sky by creating some constellation artwork on the playground (*see adaptations below for taking this part indoors*).
- > Give each group a bag with the constellation cards, bark stars and chalk in.
- > They then work together to recreate the constellations, large-scale on the ground.
- > Once complete, all take a moment to step back and admire the art they've created.



Curriculum Links & Key Skills

- This activity supports KS1 art, with the children learning to use a range of materials creatively and developing a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space.
- In this activity, the children are also learning more about space and the night sky.

Timings for a Neil Armstrong workshop



Timings for a typical workshop (1 class & 2 class)

20 mins e.g. 10:00-10:20

- > Introduction
- > Boundary game
- > Introducing Neil Armstrong and Apollo 11 mission

15 mins e.g. 10:20-10:35

- > Modelling rocket launches and building this up with the groups in steps

55 mins e.g. 10:35-11:30

- > Launch rockets
- > Complete measured launches (if there is time)

10 mins e.g. 11:30 - 11:40

- > Have children reset their rocket stations
- > Play space tig

20 mins e.g. 11:40 - 12:00

- > Create star constellations

These timings are rough guides to keep you on track for the workshop, ensuring that you don't finish too early or late. They may change slightly depending on your group.

Adaptations of the workshop

Small class of children e.g. 20

- > Keep groups to sizes of at least 4 to avoid running too quickly.

Less time for the workshop (e.g. 1.5 hr booking, children come out late/go in early)

- > Remove excess explanations, while keeping the core information
- > Once all the children have launched a rocket, move on to resetting the stations without undertaking the measured launches
- > Ask children to tidy up the resources ready for the next group
- > Shorten the time spent on Space Tig.

More time to fill? Go further with the discussion points, spending time on the different volumes of fuel, making predictions and coming to conclusions on the investigation.

Cold/wet weather: Take the constellation art inside and use large rolls of black poster paper to chalk on instead of the playground surface.





Timings for a Neil Armstrong workshop

Timings for a 3 class workshop (1hr 30 mins) :

10 mins e.g 09:00 - 09:10

- > Introduction
- > Boundary game
- > Introducing Neil Armstrong and the Apollo 11 mission

15 mins e.g. 9:10 - 9:25

- > Modelling rocket launches and building this up with the groups in steps

45 mins e.g. 9:25-10:05

- > Launch rockets

10 mins e.g. 10:05 - 10:15

- > Have children reset their rocket stations
- > Play space tig

15 mins e.g. 10:15 - 10:30

- > Create star constellations
- > Tidy up and finish - **this is especially important for these workshops!**

These timings are rough guides to keep you on track for the workshop, ensuring that you don't finish too early or late. They may change slightly depending on your group.

Tips for running the workshop in less time:

- > Remove excess explanations, while keeping the core information
- > Once all the children have launched a rocket, move on to resetting the stations without undertaking the measured launches.
- > Ask children to tidy up the resources ready for the next group.

Adapting for a Reception class (1 hour workshop)

10 mins e.g 09:00 - 09:10

- > Introduction
- > Boundary game
- > Introducing Neil Armstrong and the Apollo 11 mission (less facts)

40 mins e.g. 9:10 - 9:50

- > Rocket launches.

45 mins e.g. 9:25-10:05

- > Launch rockets



Timings for a Neil Armstrong workshop



Adapting for a Reception class (1 hour workshop)

10 mins e.g 10:00 - 10:10

- > Introduction
- > Boundary game
- > Introducing Neil Armstrong and the Apollo 11 mission (emphasis on joint in with famous quote, name of mission, what it involved, size of rocket - remove excess information)

35 mins e.g. 10:10 - 10:45

- > Demonstrate launch
- > Rocket launches

15 mins e.g. 10:45-11:00

- > Play space tig
- > Space themed artwork in chalk

Running the workshop with Reception children:

- > Ask the teacher what they have covered with the children so far - this will guide you in how much detail to share with them/which bits of content to give more focus.
- > If working with smaller group sizes, keep 5 in a group, but have less groups e.g. 15 children, have 3 groups of 5.
- > Have all resources set up at stations, ready for children to use.
- > Break down **every** step of the rocket launch setup, for children to copy after each step.
- > If needed for safety, launch each group rocket one at a time (rather than all groups launching together).
- > Provide more support in the setting up of rockets after each launch.
- > For the space artwork - discuss with children what they can see from space and share their ideas too. Then, in their groups, ask them to complete space themed chalk artwork. Provide the constellation packs for this, but leave the artwork open-ended (they might choose to draw rockets, planets, stars etc.).



Key facts to memorise



Key facts to share with children

General facts - discuss with the image of the three astronauts

- Who are the three people in the image? What job do they do? How can you tell? This could include a discussion about the space suit or helmet.
- Discuss with children what an astronaut does (goes into space - not necessarily to the moon!)
- Introduce them to Neil Armstrong and his fellow crew (Buzz Aldrin and Mike Collins)
- The names of the astronauts were on their suits (so that they can tell who is who when the helmets are on as they are reflective)

Facts about the moon landing

- Date of Moon Landing was July 1969. The rocket launched on 16th July and the lunar module landed on the Moon on 20th July.
- The mission for them to land on the moon was called Apollo 11 - the rocket they used to get there was called Saturn V (show the rocket image)
- Share with children the size of the rocket (tall as 36 storey building) to get them to the moon and the space they occupied (to give them a sense of how big it was)
- Neil Armstrong and Buzz Aldrin went down onto the moon in the Lunar Module (The Eagle), while Mike Collins stayed in the command module. They spent 21.5 hours on the moon in total.

Famous quotes

- When they landed on the moon 'The Eagle has landed'
- When Neil Armstrong took his first step on the moon 'That's one small step for man, one giant leap for mankind'.

Challenges

- When it got to the moon landing, Neil & Buzz only had 15 seconds left of fuel in order to land on the moon in the right spot, and have enough fuel to get them back off the moon too.
- Buzz was the one who landed the lunar module, Neil was in command.



Maintaining resources

Replenishable Resource List



Resource	Recommended supplier & price	Maximum reimbursement
Jumbo chalk (for constellations)	<u>Muddy Faces</u> £5.99 + postage or <u>Amazon</u> £7.99	£8 per pack
Bottle (for rocket)	Supermarket - cheap pop bottle (2.5l)	£1
Corks (for rocket)	<u>Make it Magic</u> £1 (for 9) + postage	£3 per pack
Pump needles	<u>Amazon</u> £3.99 (must be 0.9cm in diameter at the connection point)	£5 per pack
Parcel tape (for wrapping new corks)	Supermarket	£2.50
Black poster paper	<u>The Range</u>	£3.99



Important information about this weather guidance

When delivering an Alfresco Learning workshop, our insurance will be used for your session. Our insurance will not cover you/us for an accident that has occurred during a workshop taking place in weather that is deemed to be unsafe. Ultimately, the decision on whether a workshop can go ahead is yours, this guidance is to help inform your own judgment on weather suitability for workshop delivery.

Wind speed

The wind speeds detailed in these matrix grids are the **gust speeds**. If the underlying, constant wind speed is above 30mph, you should discuss the workshop conditions with us.

Canopies

Canopies should not be used in wind gusts over 20mph. Please use your judgment for when putting up canopies would be appropriate. In some sheltered areas, canopies may cope fine at the above wind gusts, while in open areas, wind gust speeds lower than 20mph may not be safe to use them and will cause damage.

Trees

In many conditions, trees can be used for shelter. **However**, if the wind speeds/gusts are forecast above 30mph, ensure you assess the safety of **any** nearby trees and move the workshop away from them. Above this wind speed, branches are more likely to become unstable and break off.

Thunderstorms

Workshops **must not** go ahead if there is a storm warning (of any level). This is something to be especially mindful of with higher temperatures and moderate/heavy rain.

Neil Armstrong

Conditions: **Clear**

		Feels like temperature (°C)								
		Below -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
Wind gust speeds (mph)	0 - 5	R	O	A	A	✓	✓	✓	A	R
	5 - 10	R	O	A	A	✓	✓	✓	A	R
	10 - 15	R	R	A	A	✓	✓	✓	A	R
	15 - 20	R	R	A	A	✓	✓	✓	A	R
	20 - 25	R	R	A	A	✓	✓	✓	A	R
	25 - 30	R	R	O	A	A	A	A	A	R
	30 - 35	R	R	R	R	R	R	R	R	R
	35 - 40	R	R	R	R	R	R	R	R	R
	40 +	R	R	R	R	R	R	R	R	R

Neil Armstrong

Conditions: **Light showers (<0.5 mm/h)**

		Feels like temperature (°C)								
		Below -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
Wind gust speeds (mph)	0 - 5	R	O	A	A	✓	✓	✓	A	R
	5 - 10	R	O	A	A	✓	✓	✓	A	R
	10 - 15	R	R	A	A	✓	✓	✓	A	R
	15 - 20	R	R	A	A	✓	✓	✓	A	R
	20 - 25	R	R	O	A	✓	✓	✓	A	R
	25 - 30	R	R	O	A	A	A	A	A	R
	30 - 35	R	R	R	R	R	R	R	R	R
	35 - 40	R	R	R	R	R	R	R	R	R
	40 +	R	R	R	R	R	R	R	R	R

Neil Armstrong

Conditions: **Moderate showers (0.5 - 1 mm/h)**

Feels like temperature (°C)										
		Below -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
Wind gust speeds (mph)	0 - 5	R	R	O	A	A	A	A	A	R
	5 - 10	R	R	O	A	A	A	A	A	R
	10 - 15	R	R	O	A	A	A	A	A	R
	15 - 20	R	R	R	A	A	A	A	A	R
	20 - 25	R	R	R	A	A	A	A	A	R
	25 - 30	R	R	R	R	R	R	R	R	R
	30 - 35	R	R	R	R	R	R	R	R	R
	35 - 40	R	R	R	R	R	R	R	R	R
	40 +	R	R	R	R	R	R	R	R	R

Neil Armstrong

Conditions: **Heavy showers (1 - 2 mm/h)**

Due to the nature of the Neil Armstrong workshop, where you are out in the elements for the majority of the workshop, if the forecast is predicting heavy showers for longer than 1 hour, think carefully about whether the temperature, wind and rain combination will be safe for the workshop to go ahead.

If the showers will be for one hour or less, using the matrix below will help you decide on whether it can be safely adapted and delivered or if it needs to be rescheduled.

		Feels like temperature (°C)								
		Below -5	-5 - 0	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
Wind gust speeds (mph)	0 - 5	R	R	R	O	A	A	A	A	R
	5 - 10	R	R	R	R	A	A	A	A	R
	10 - 15	R	R	R	R	A	A	A	A	R
	15 - 20	R	R	R	R	O	O	O	O	R
	20 - 25	R	R	R	R	R	R	R	R	R

R - Unsafe weather - reschedule the workshop

- Use the rescheduling flowchart to work with the school to find a suitable new date

O - Unpleasant weather - give school the option

- Workshops in these conditions could go ahead with adaptations, but might feel unpleasant for the children. In this scenario, give the school the decision on whether they wish to proceed or reschedule. If they proceed, adapt as needed.
- Use the email template provided to inform the school of this.



Workshops go ahead and run as usual.

A - Cold temperatures

How to adapt the workshop in these conditions:

- Use warm water and take regular breaks from rocket launches to play 'space tig'.
- Try to set up in an area that shelters from any breeze.
- Use rolls of sugar paper to take the constellation artwork indoors.
- Put canopies up to provide shelter from any rain - temperatures are too cold for children to be wet.
- Be vigilant with how children are dressed - if anyone is not in a waterproof & warm coat ask the teacher to provide this for them to take part.
- Ask children to dress with warm joggers and warm jumpers underneath coats.

Questions to consider for workshops in these conditions:

- Have there been snowing or icy conditions prevalent prior to the workshop?
- Is it below 0°C with any rain/snow forecast?
- Is the rain/snow forecast to be prolonged?
- Is the forecast to the extremes - e.g. -5°C and 15mph winds?
- Do you think the combined temperature and wind speed makes it safe to go ahead if the workshop is adapted?
- What have the weather conditions leading up to the workshop been? Will the ground be suitable e.g. not iced over?
- Are the roads safe for you to travel on?

A - Windy weather

How to adapt the workshop in these conditions:

- Use warm water and take regular breaks from rocket launches to play 'space tig'.
- Try to set up in an area that shelters from any breeze.
- Use rolls of sugar paper to take the constellation artwork indoors.

Questions to consider for workshops in these conditions:

- Is there a suitable shelter available at the school?
- Have you received any information from the teacher about the shelter available?
- Is there an indoor space that could be used for part of the workshop?
- Would shelter size make it suitable to gather under and communicate/model activities?
- Are the wind gust speeds prolonged over the time of the workshop?
- Is the underlying wind speed close to the gust speed e.g. 20 mph wind & 30 mph gusts?
- Do you think the combined temperature and wind speed makes it safe to go ahead if the workshop is adapted?
- Is there significant rain forecast? If so, see Wet weather adaptations as well.

How to adapt the workshop in these conditions:

- Use sheltered spaces for discussions with children. This includes the demonstrations of the rocket launch (if the size of the sheltered space allows).
- Use canopies if wind gusts allow.
- Play 'space tig' repeatedly to keep children warm.
- Waterproof coats are a non-negotiable, work with the teacher to ensure all children are appropriately dressed.
- Use rolls of sugar paper to take the constellation artwork indoors.
- Switch the order of the constellation activity and the rocket launches if more rain is predicted at the start of the workshop compared to the end.

Questions to consider for workshops in these conditions:

- Is the forecast scheduled to rain continuously for more than 1 hour?
- Is it forecast to be moderate or heavy rain?
- Is it forecast to last longer than two hours at a time?
- Is the wind speed low enough to put up the canopies?
- With the forecast provided, could parts of the workshop be delivered indoors and parts outdoors safely?
- How wet have conditions been? Will the ground be suitable i.e not too boggy? Is there a possibility of using the playground instead?
- Have you received any information from the teacher about the shelter available?
- Do you think the combined temperature and rainfall makes it safe to go ahead if the workshop is adapted?
- How changeable has the forecast been?

A - High temperatures - adapt the workshop

How to adapt the workshop in these conditions:

- Use the canopies to provide shade for rocket launches.
- Contact the teacher beforehand to say everyone must have a water bottle, sunhat & sun cream applied. Take water breaks where needed.
- Also advise the class in the afternoon is encouraged to stay in the shade at lunchtime to avoid prolonged exposure to the heat.
- If the classroom is cool, make use of it for the constellations, otherwise use a shaded spot outdoors.

Questions to consider for workshops in these conditions:

- Have you received any information from the teacher about the shelter available?
- Are the conditions suitable to put up and use the canopies?
- Is there a cool indoor space that could be used for part of the workshop?
- Would shelter size make it suitable to gather under and communicate/model activities?

A - Wet weather - adapt the workshop

- Canopies must go up as the children are stationary for longer, please allow time for this to be done before starting the workshop.
- If the ground is too wet, take the constellation artwork into the classroom using rolls of sugar paper.
- If weather conditions decline and the canopies cannot withstand the wind safely, stop the workshop, ask the class teacher take the children indoors and contact Hollie/Jenny for next steps.