Earth and space

**Learning sequence Science and technology Stage1**

## Resource considerations

This lesson sequence allows for continuity of student learning and could be adapted to fit in with your existing teaching and learning program. Students will be supported to meet outcomes from a Key Learning Area. Each task has a duration of 30 minutes and could be used in conjunction with your [framework, designed using the K-6 template](https://education.nsw.gov.au/teaching-and-learning/curriculum/learning-from-home/teaching-and-learning-resources/k-6-resources). This lesson sequence uses a balance of synchronous and asynchronous learning strategies. The tasks provide options for students with and without technology. They can be used with any online platform. Suggestions about how your school will plan students’ learning from home and ways to communicate with students can be found through the [Learning at home, school planning page.](https://education.nsw.gov.au/teaching-and-learning/curriculum/learning-from-home/school-planning) Assessment strategies are included to ensure evidence of learning is monitored and collected.

## Stage 1 learning sequence

**Outcomes**

**ST1-1WS-S – observes, questions and collects data to communicate and compare ideas**

**ST1-10ES-S – recognises observable changes occurring in the sky and on the land and identifies Earth’s resources**

**Learning sequence overview** – students are introduced to regular atmospheric and astronomical events and their effect on the Earth.

**Key concepts**:

identifying patterns in the Sun and Moon’s positions, and appearance, in the sky

identifying seasonal changes in our daily lives and how they affect living things.

**Key language** – Moon, Sun, seasonal, patterns, events, observation.

**Key inquiry question – How can we investigate the observable changes that occur in the sky and on the land?**

### Aim of lesson sequence

* To develop students’ understanding of the observable changes that occur in the sky and on the land.

### Teacher notes

* Students observe, record data, question, describe and identify the changes that occur in the sky and on the land.

### Activities

1. **Record the observable changes that occur in the environment around us and in the sky.**
   1. **Digital:** **What things change and what stays the same?**
   * Students investigate the environment around them and make a T-chart to list as many objects that they can in each category of ‘Change’ and ‘Same’.
   * Examine the results in the two categories and conclude that non-living things, such as desks, seats and monitors, usually don’t change their basic shape (unless they are damaged or are made to change for a purpose). Natural things, such as plants, clouds and sky always change as they move and grow.
   * Think about what makes these natural things change. Responses could include, seasons, wind, rain, heat, cold, day, night. List one or more of these factors next to each of the things that ‘Change’ in the T-chart.
   * Highlight the things that change in the sky (clouds, sun, moon, stars).
   * Create a ‘solar day’ sundial to track the progress of the sun across the sky.

[Sundial investigation](https://www.clearwaycommunitysolar.com/blog/science-center-home-experiments-for-kids/sundial-experiment/) Note: tape can replace hot glue and plasticine can replace modelling clay.

* Using the [moon journal](https://www.nwf.org/~/media/PDFs/Kids/Ranger%20Rick/Educators/moon%20journal%20single.pdf?dmc=1&ts=20130228T1242117968) printout record how the moon changes its appearance over the next few weeks. What patterns can you start to see? How many different shapes (or phases) can you count?
* Think about this question. Do the Moon and Sun really change their position and appearance in the sky, or does it just look this way to us on Earth? Do some online research with parents, grandparents or older brothers and sisters. Write down what you found.
  1. **Non-digital:** **What things change and what stays the same?**
  + Students investigate the environment around them and make a T-chart to list as many objects that they can in each category of ‘Change’ and ‘Same’.
  + Examine the results in the two categories and conclude that non-living things, such as desks, seats and monitors, usually don’t change their basic shape (unless they are damaged or are made to change for a purpose). Natural things, such as plants, clouds and sky always change as they move and grow.
  + Think about what makes these natural things change. Responses could include, seasons, wind, rain, heat, cold, day, night. List one or more of these factors next to each of the things that ‘Change’ in the T-chart.
  + Highlight the things that change just in the sky (clouds, sun, moon, stars).
  + Track the position of the sun for as many hours in a day as possible, on the hour, and document through drawn pictures or photos. Make sure you choose a day that isn’t overcast.

**Hint:** you need to stand in the same position each time you draw or take a picture. Make sure there are other objects in the picture frame to give the sun’s position perspective. **Don’t** look directly at the sun, this may hurt your eyes.

* + Make sure all the pictures have the time added to them.
  + Over the next few weeks, at the same time each night after its dark, document the shape of the moon in the sky through pictures or photos. Write the date and your observations underneath. Can you start to see some patterns?
  + Think about this question. Do the Moon and Sun really change their position and appearance in the sky, or does it just look this way to us on Earth? Ask your parents, grandparents or older brother or sister what they think and write that down.

1. **How do the seasons affect living things?**

**a. Digital: How do the seasons affect the land around me?**

* **Watch the** [Dirt Girl](https://education.abc.net.au/home#!/media/2035485/seasons-with-dirtgirl) **clip. She talks about the four seasons and explains what happens to her garden as the seasons change.**
* **Divide a piece of paper into 4 even boxes. Label each box with a season name.**
* Draw a tree in each box that you might find in Dirt Girl’s garden. Change the tree’s appearance for each season to show how it has been affected by the changing temperatures of the 4 seasons.

**b. Non-Digital: How do the seasons affect what I wear and do?**

* **What are the four seasons in the year? Write down some adjectives (describing words) that tell us more about what each season means to you.**
* **Clothing is a way we change as humans when we are living in different seasons. Divide a piece of A4 paper into 4 even boxes. Draw a picture of yourself in each box dressed in what you might wear for each season. Label each box with the season name and add any words that might give more information about your pictures.**
* **Add anything else around you in the environment, which you might notice that changes for each season, in the box. Some examples could be trees, weather or activities that may change or be different for each season.**

### Differentiation

Differentiation is a targeted process recognising that individuals learn at different rates and in different ways. Differentiation refers to deliberate adjustments to meet the specific learning needs of all students.

Here are some questions that you might consider when adapting the learning sequence to meet the needs of your students:

* What adjustments might you put in place for students who require additional support to access the task? For example, how will they get help when needed?
* Do you need to adjust the content to ensure it is adequately challenging and allows students to operate at their own level of thinking, skill and knowledge?
* Will you adapt the instructions so they are provided in a way that EAL/D students can easily interpret them? For example, through the use of visuals, checklists, diagrams or flow charts.
* Could you suggest ways that home language can be used as a tool to support learning? For example, bilingual dictionaries.
* Can you demonstrate that you value the Identity, culture, heritage and language of your Aboriginal students through your teaching practices?

### Assessment

Opportunities include:

* Completion of sun and moon data collection and analysis.
* Pictorial representation of how seasons change living things.

### Activity resources

* Digital:
* sundial resources- pencil, plasticine, cardboard/ A3 paper, tape, string, watch.
* moon phases journal printout, pencil.
* Non-digital:
* A4 plain paper, pencils, coloured markers, camera (optional), watch.
* T-chart – is a table that has a line through the centre of the page. One heading is on one side and the other heading on the other side. Organise information under these headings.
* Parent advice: Please supervise children when taking pictures of the sun- do not have them look directly at the sun. Be available for discussions or to help research. Please supervise your children when they are online.