

The solstice

Topic

December solstice

Aims

- To learn about the significance of 21 December (the winter/summer solstice)
- To understand why there is a shortest (and longest) day of the year on our planet
- To show how the tilt of the Earth gives us the seasons
- To use the present simple to describe facts
- To use comparatives (hotter, colder) and superlatives (shortest, longest)

Age/level

Primary learners aged 9–12
CEFR level A2+

Time

50–60 minutes

Materials

1. worksheet (one per learner)
2. a basketball or similar and a lamp or light source to show the tilt of the Earth and how it affects the length of night and day and gives us the seasons. (If possible, add two circular stickers to indicate the North and South Poles on the ball.)
3. *Fact file: Seasons* reading (you can do all the exercises online, or you can print and copy the worksheet):
<https://learnenglishkids.britishcouncil.org/en/reading-practice/seasons>

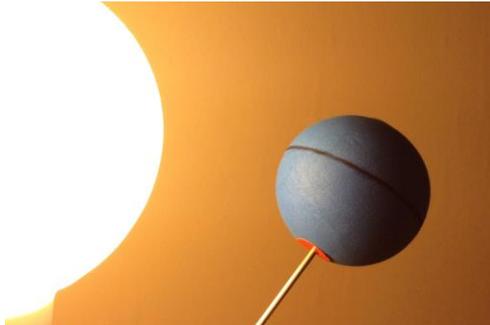
Introduction

In this lesson students learn about an important event on our planet – the December solstice, which occurs on 21 December. It is the shortest day of the year in the northern hemisphere and the longest day of the year in the southern hemisphere. The solstice occurs because the Earth is always tilted in the same direction, affecting the amount of sunlight that hits different parts of the planet, giving us the seasons.

Teachers explain the phenomenon using a ball and light source before discussing the diagram on the worksheet with students, who complete a gapped text. Students consolidate and extend their understanding with a reading and further activities about the seasons.

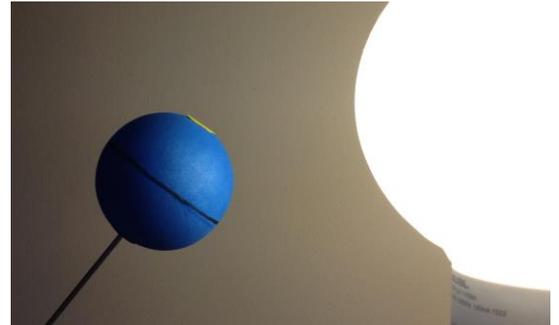
Procedure
Before the lesson

- Prepare the materials, as above.
- If you can, find out what time the sun rises and sets in your part of the world on the day of the lesson.
- Practise using the ball to demonstrate the solstice as in the pictures below. Hold it at a tilt to your lamp or light source. Turn it on the tilted axis so that the top of the ball is always in shadow and the bottom of the ball is always hit by the light. This is clearer if you have added two circular stickers to show the North and South Poles.



This is the December solstice. It is the winter solstice in the northern hemisphere and the summer solstice in the southern hemisphere.

It is continuously night during the winter at the North Pole and continuously day during the summer at the South Pole.



This is the June solstice. It is the summer solstice in the northern hemisphere and the winter solstice in the southern hemisphere.

It is continuously day during the summer at the North Pole and continuously night during the winter at the South Pole.

1. Warmer (3–5 minutes)

- Ask the students to tell you the date and write it on the board. Ask what season it is and what they know about it. Answers could include: *It's winter and it's cold; It's summer and we've got holidays soon*, etc. Go through the seasons, asking students to tell you what they know about each one.
- Ask, *What makes the seasons?* If pupils know that they're caused by the tilt of the Earth in relation to the sun, ask for volunteers to explain it to the others using the ball and light. You will probably still need to help them to do this in English.

2. Demonstration (10–15 minutes)

- Hold up the ball and tell students that this represents the Earth. Elicit or indicate the North and South Poles.
- Tilt the ball so that the top half is facing away from the lamp. As you rotate the ball, keep the North Pole in the shadow.
- As you (or your volunteers) rotate the ball, elicit that the area of the ball in the shadow shows night and the part in the light shows day. Students will be able to see clearly that the southern hemisphere is getting a lot more light, and that the days are longer as well, while there is less light hitting the top of the ball and the nights are longer. It is the strength of light and the length of the days which make summer and winter.
- It's important that pupils understand that the Earth is always tilted in the same direction as it goes around the sun, which is why we have seasons.
- If you know them, write the times of sunrise and sunset on the board for the day of your lesson and ask pupils to guess what the times mean.

3. Worksheet (10–15 minutes)	<ul style="list-style-type: none"> • Give each pupil the worksheet. If your lesson falls before the solstice, you can explain that this solar event happens on 21 December. Using the ball if necessary, elicit an explanation of the diagram from the students – see answer sheet for key points. • Ask students to find the arrows which show day and night in the northern and southern hemispheres. They will be able to see that the day is very short in the northern hemisphere and that it's very long in the southern hemisphere. Students circle the arrows. • Go through the words in the vocabulary box, checking pronunciation. In pairs, students complete the sentences. Check their answers as a class.
4. Extension (20–25 minutes)	<ul style="list-style-type: none"> • Finally check understanding and extend students' knowledge and vocabulary using the <i>Fact file: Seasons</i> reading. • Start with the pre-reading exercise, where pupils match the vocabulary to the pictures. After reading the fact file, put students into two teams to do the follow-up activity. Teams take turns to answer the questions, with you keeping a record of their answers. Each team gets a score out of four. • Note that you can do all the exercises online, asking volunteers to read the sections of the fact file to the class, or you can print out all or some of the activities for pupils to work on individually or in pairs.
5. Recap (5–10 minutes)	<ul style="list-style-type: none"> • Using the diagram, children take turns to recreate the information about the solstice and the seasons using the ball and lamp.
6. Optional extra activities	<ul style="list-style-type: none"> • A song about the solar system: https://learnenglishkids.britishcouncil.org/en/songs/flying-the-sun-the-stars • A space vocabulary word game and flashcards: https://learnenglishkids.britishcouncil.org/en/word-games/space https://learnenglishkids.britishcouncil.org/en/flashcards/space-flashcards • A song about the months and seasons: https://learnenglishkids.britishcouncil.org/en/songs/time-another-year

Contributed by

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