

Taking Liberties

Topic

What is the solstice?

Learning outcomes

- To show how the tilt of the Earth gives us the seasons
- To identify the summer and winter solstice.
- Practice using vocabulary related to seasons, such as solstice, summer, winter, etc.

Age group and level

Aged 9-12 (A2+)

Time

65-75 minutes

Materials

- What is the solstice? worksheet (1 per pupil)
- A basketball (or other large ball) and a lamp or light source
- Two circular stickers to indicate the North and South poles on the basketball

Optional

- A fact-file reading and quiz about the seasons:

<http://learnenglishkids.britishcouncil.org/en/reading-practice/seasons>

Introduction

In this lesson students learn about one of the most important events on our planet - the Solstice, which occurs on the 21st 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 basketball and light source before discussing the diagram on the worksheet with students, who complete a gapped text. Students extend and consolidate their understanding with a reading activity and further activities about the seasons.

Procedure

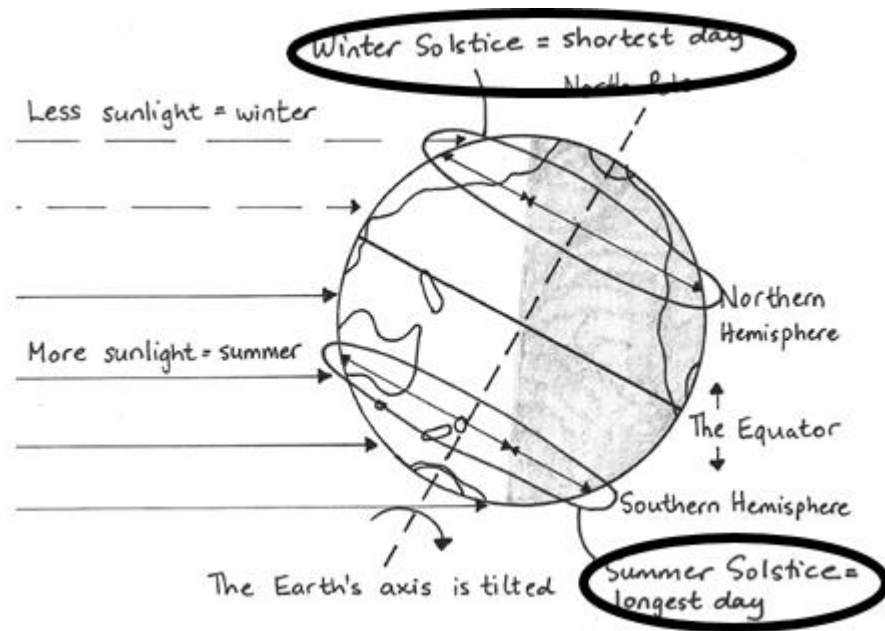
1. Before the lesson	<ul style="list-style-type: none"> • If you can, find out what time the sun rises and sets in your part of the world on the day of the lesson. • Practise using the basketball to demonstrate the Solstice. Hold it at a tilt to your lamp or light source. Turn it on the tilted axis so that the top of the ball is always in shadow, and the bottom of the ball is always hit by the light. See the photos in Appendix 1 to help you. • If you are going to do the Learn English Kids activities online, download the fact-file reading about the seasons, with pre-reading vocabulary activity and follow up quiz (you can print out the reading and activities if you wish).
2. Warmer (5-10 mins)	<ul style="list-style-type: none"> • 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 basketball and the lamp. You will probably still need to help them to do this in English.
3. Demonstration (15 minutes)	<ul style="list-style-type: none"> • Hold up the ball to show students the line which represents the Equator and the line which represents the Earth's axis (they are the lines that intersect each other at a 90-degree angle on the ball). • Tilt the basketball so that the top half is facing away from the lamp. Elicit that the top of the ball is the North Pole. As you rotate the ball, keep the North Pole in the shadow.

	<p>Note: You may need a learner to help you by holding the ball as you adjust the light and tilt the ball</p> <ul style="list-style-type: none"> • 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. See the photos below to help you to position the ball properly. • 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.
<p>4. Vocabulary (10-15 minutes)</p>	<ul style="list-style-type: none"> • Give each learner the What is the Solstice? worksheet. If your lesson falls before the solstice, you can explain that this solar event happens on the 21st of December. • Using the basketball, if necessary, elicit an explanation of the diagram from the students. • 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 showing the phenomenon of the Solstice. • Go through the words in the vocabulary box, checking pronunciation. In pairs, students complete the sentences. Check their answers as a class.
<p>5. The seasons reading (25 minutes)</p>	<ul style="list-style-type: none"> • Check understanding and extend students' knowledge and vocabulary using A fact-file reading about the seasons: http://learnenglishkids.britishcouncil.org/en/reading-practice/seasons • Start with the pre-reading exercise, where pupils match the vocabulary to the pictures.

	<ul style="list-style-type: none"> • Learners read the fact file • Put students into two teams to do the follow-up quiz. Teams take turns to answer the questions, with you keeping a record of their answers. Each team gets a score out of four. <p>Note: 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.</p>
6. Consolidation (10 minutes)	<ul style="list-style-type: none"> • Put learners into pairs • Using the diagram, children take turns to recreate the information about the solstice and the seasons using the basketball and lamp. • Prompt them to use the target language to describe the seasonal changes.
7. Optional extra activities	<ul style="list-style-type: none"> • A song about the solar system: • http://learnenglishkids.britishcouncil.org/en/songs/flying-the-sun-the-stars • A song about the months and seasons: • http://learnenglishkids.britishcouncil.org/en/songs/time-another-year

Answer key for worksheet

A. Discuss the diagram, eliciting the key points: The 21st of December is the Solstice (the shortest day of the year in the Northern Hemisphere and the longest day of the year in the Southern Hemisphere). Because the earth's axis points away from the sun at this time of year, there is less direct sunlight in the Northern Hemisphere and the days are shorter, producing colder weather (winter). In the Southern Hemisphere, there is more direct sunlight, and the days are longer, producing hotter weather (summer). The shaded area in the diagram shows the night. You can see that the North Pole is in darkness at this time of year. Look at the arrows just below the North Pole: the one on the left shows day and the one on the right night. The arrow showing night is longer because the nights are longer, and the days are shorter. This is the Winter Solstice. Note that the opposite occurs in the Southern Hemisphere. At the Equator sunlight is always direct and the days and nights are equal all year long.



B

1. In the Northern Hemisphere, the 21st of December is the Winter Solstice.
2. It is the shortest day of the year. At the North Pole, it is always night.
3. In the Southern Hemisphere, the 21st of December is the Summer Solstice.
4. It is the longest day of the year. At the South Pole it is always day.
5. At the Equator, there are two seasons; the rainy season and the dry season.

Contributed by

Original activity by Karen Elliot

Edited by Suzanne Mordue