**Unit planning guidance**

**Unit context**

This is the second physics unit pupils will study, which follows on from Unit 2 *Autumn and winter*. The teaching of this unit begins in spring and ends in summer, so pupils can experience seasonal changes first-hand.

Before the unit begins, ideally set up a weather station for pupils to experience. You could make a classroom display tracking the weather each day, the amount of rainfall, and the temperature outside. This will help build up a picture of the changing weather from spring to summer, which supplements the learning and helps bring it to life. A chart recording the hours of daylight (rounded to the nearest hour) should also be part of this display, to support pupils in accessing the lessons on this. Time should be made each day (at the same time, if possible) to fill this display in together. In addition to this, the pupils should be taken on planned local walks in both spring and summer.

* In Lesson 1, pupils describe and name the four seasons, and learn which months fall into each season.
* In Lesson 2, pupils find out how the weather changes between winter and spring, including how daylight hours change from month to month.
* In Lesson 3, pupils investigate some of the changes that happen to plants and animals in spring, including going on a nature detectives walk.
* In Lesson 4, pupils learn about the changes in the weather from spring to summer.
* In Lesson 5, pupils look at some of the changes that happen for plants and animals in summer, including identifying and tasting some fruits and vegetables that are harvested in summer.
* Lesson 6 looks at seasonal activities and celebrations, exploring how humans can behave differently and do different things in the different seasons.

**General resources**

The *Additional resource: Knowledge quizzes* contains all the knowledge quizzes for Year 1, as well as the charts where pupils record their scores for each quiz. You could print and make these into a small booklet to hand out to pupils every lesson.

The *Subject knowledge guidance* and *Knowledge organiser* for the unit are available as printable documents on Oxford Owl.

The full curriculum can be viewed in the *Science progression document* for Years 1–6.

***Pupils are not expected to read the text in the pupil workbook independently; it should be read as part of a guided reading exercise with an adult.***

***Each lesson has been designed for a two-hour duration.***

**Links to previous and future learning**

The knowledge from previous and future units which closely link with this current unit are shown below. For more information about how this unit fits into the wider sequence of learning, please see the Science progression document.

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| **EYFS** | **Year 1** | **Year 3** |
| **Understanding of the world*** Pupils described the features of their own immediate environment and how environments may vary from one another.
* They made observations of animals and plants and explained why some things occur.
* They talked about changes in the world around them.
 | **Unit 2: Autumn and winter*** There are four seasons in the year.
* The seasons are autumn, winter, spring, and summer.
* There are different months in each season.
* We can use symbols to show what the weather is like.
* Weather forecasts tell us what the weather is going to be like.
* In autumn, it gets colder and the weather can be sunny, cloudy, windy, and rainy.
* In autumn, we can see many changes in the world around us.
* Leaves change colour and fall from the trees.
* We can see lots of berries and nuts.
* Some birds migrate to warmer places, and some animals store food for the winter.
* The temperature gets colder from autumn to winter.
* Some trees lose their leaves and become bare.
* The days get ‘shorter’, meaning that in winter we get fewer hours of daylight during our usual 24-hour day.
* In winter, the weather gets much colder.
* It sometimes snows in winter, but not always.
* In winter, some animals change the way they act.
* Some animals hibernate for the winter.
* Some animals stay near their homes.
* Some animals are still active in winter.
 | **Unit 3: Light and shadows*** Light travels from a light source.
* Light travels in straight lines.
* When looking at a light source, the light travels straight into your eye.
* When seeing an object, light travels to the object and then reflects into your eye.
* Shadows are formed when light is blocked by an object.
* Shadows are areas where there is no light.
* Opaque objects form the clearest and darkest shadows.
* Transparent objects do not form shadows.
* Translucent objects form faint shadows.
* The closer an object is to a light source, the bigger the shadow becomes.
* The height of a light source above an object affects the size of the shadow produced.
* Sundials use shadows to tell the time of day.
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| **Unit overview**  |
|  | **Key knowledge** | **Key vocabulary** |
| **Lesson 1*****Can we describe the four seasons?*** | * There are four seasons in a year: spring, summer, autumn, and winter.
* There are 12 months in a year.
* There are three months in each season.
* Each season looks and feels different.

**Working scientifically*** Record findings using simple scientific language, drawings, and labelled diagrams.
* Present data as a chart.
 | * **month**
* season
* spring
* summer
* weather
 |
| **Lesson 2*****How does the weather change from winter to spring?*** | * As the season changes from winter to spring, the days get longer, and we have more daylight.
* In spring, the temperature gets warmer.
* Spring weather can vary from warm and sunny to cold and rainy.

**Working scientifically*** Present data as a pictogram.
* Report on findings from enquiries, including oral and written explanations.
 | * cooler
* daylight
* **temperature**
* warmer
 |
| **Lesson 3*****What happens to plants and animals in spring?*** | * Spring is the season of new life.
* The warmer weather and longer daylight hours make plants grow buds and flowers.
* In spring, many animals start to have babies.

**Working scientifically*** Make careful observations.
* Report on findings from enquiries, including oral and written explanations.
 | * birdsong
* blossom
* bud
* ducklings
* frogspawn
* **spring**
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| **Lesson 4*****How does the weather change from spring to summer?*** | * Summer is the warmest season in the UK, and has the highest temperatures.
* Summer is the season with the most daylight hours.
* In summer, it is important to stay safe in the Sun.

**Working scientifically*** Use a range of equipment.
 | * average
* degrees Celsius
* rainfall
* **Sun**
* temperature
 |
| **Lesson 5*****What happens to plants and animals in summer?*** | * The warm, sunny days of summer help plants to grow and flower.
* Many types of fruit and vegetables grow during summer.
* In summer, bees and other insects are very active.

**Working scientifically*** Make careful observations.
* Report on findings from enquiries, including oral and written explanations.
 | * crop
* fruit
* harvest
* seasonal
* **summer**
* vegetable
 |
| **Lesson 6*****How do the changing seasons affect humans?*** | * Humans do different activities during the different seasons.
* The weather in each season affects the activities that humans do.
* Different festivals and celebrations take place in different seasons.

**Working scientifically*** Record findings using simple scientific language, drawings, and labelled diagrams.
* Use results to draw simple conclusions and make predictions.
 | * activities
* affect
* **celebrations**
* festivals
* hobbies
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| **Lesson question** | **Key knowledge** | **Learning resources** | **Key vocabulary** |
| **Lesson 1:*****Can we describe the four seasons?*** | * There are four seasons in a year: spring, summer, autumn, and winter.
* There are 12 months in a year.
* There are three months in each season.
* Each season looks and feels different.

**Working scientifically*** Record findings using simple scientific language, drawings, and labelled diagrams.
* Present data as a chart.
 | Pupil workbookKnowledge organiserTeaching slidesSubject knowledge guidanceVideo clip showing the four seasonsAdditional resource: Months of the yearWeather station and display set up in classroom | * **month**
* season
* spring
* summer
* weather
 |
| **Outcomes/Assessment** | **Disciplinary and substantive concept/s** | **Key term** | **Key takeaway** |
| Pupil workbookExit questions | **DC5:** Record findings using simple scientific language, drawings, and labelled diagrams.**DC6:** Present data as a chart.**SC:** There are four seasons: autumn, winter, spring, and summer. | month | There are twelve **months** in a year. |
| **Teaching notes****NB: If you have access to a weather station, set it up before the lesson and introduce pupils to it. Explain that every day you will use it to find out about the day’s weather, and add the information to your chart.*** **Existing knowledge:** Remind pupils of their work in Unit 2, on autumn and winter. Ask: What did we learn about those seasons? Explain that the new science unit focuses on the next two seasons: spring and summer. Using the teaching slide, look at the seasonal photos together and discuss pupils’ ideas about differences between the four seasons. Use this as an opportunity to correct any misconceptions.
* **Introduction:** Share the Learning journey through the unit, the lesson question, and the Key knowledge and vocabulary (see the teaching slides).
* **Talk task:** Ask: What is happening to these trees? What season does each tree show? Remind pupils of how some trees shed their leaves in autumn and are bare in winter. But then the trees change again in spring and summer. What changes can pupils spot?
* **Talk task:** Ask pupils to identify the season shown in each picture. Ask them what clues the pictures give to help them identify each season. Answers are provided on subsequent slides.
* **Retrieval:** In pairs, pupils complete *Workbook 1C page 4*, naming the seasons and identifying the correct season in each picture. For support, you could give pupils a list of the season names to help with spelling. For an extra challenge, pupils could choose one of the pictures and write a sentence explaining how they know which season it shows. Answers are provided on subsequent slides.
* **Group task:** Give pupils the month cards from Unit 4 *Additional resource: Months of the year*. Working in small groups or pairs, pupils put the names of the months in order. You may wish to play the children a ‘months of the year’ song before they attempt this—for example, <https://www.youtube.com/watch?v=5enDRrWyXaw> [Oxford University Press is not responsible for content available on third-party websites. The content of these websites may have changed since publication.] Alternatively, display a chart showing the months in order to help them recall. The next slide shows the months in the correct order.
* **Retrieval:** In pairs, pupils complete the activity on *Workbook 1C page 5*, colouring the months of the year as directed, to show which season each month falls in. Answers are provided on the next slide.
* **Investigation:** Using the teaching slides, recap the different weather symbols and what they mean. Pupils should remember most of these from Unit 2. Encourage them to work together to match the correct symbol to each picture. Answers are provided on subsequent slides.

**Exit questions:** Ask pupils to answer the multiple-choice exit questions by holding up one, two, or three fingers. The exit questions can be found on the final teaching slides for this lesson.  |

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| **Lesson question** | **Key knowledge** | **Learning resources** | **Key vocabulary** |
| **Lesson 2:*****How does the weather change from winter to spring?*** | * As the season changes from winter to spring, the days get longer, and we have more daylight.
* In spring, the temperature gets warmer.
* Spring weather can vary from warm and sunny to cold and rainy.

**Working scientifically*** Present data as a pictogram.
* Report on findings from enquiries, including oral and written explanations.
 | Pupil workbookKnowledge organiserTeaching slidesSubject knowledge guidance ThermometerWeather station and display set up in classroom | * cooler
* daylight
* **temperature**
* warmer
 |
| **Outcomes/Assessment** | **Disciplinary and substantive concept/s** | **Key term** | **Key takeaway** |
| Pupil workbook Knowledge quiz 4.1Exit questions | **DC6:** Present data as a pictogram.**DC7:** Report on findings from enquiries, including oral and written explanations.**SC:** Different types of weather are associated with different seasons.**SC:** Day length varies in different seasons. | temperature | The **temperature** is how hot or cold it is. |
| **Teaching notes*** **Knowledge quiz:** Begin the lesson with the Knowledge quiz. Pupils complete the quiz to assess knowledge retention from Lesson 1. Printable copies of the quiz can be found on Oxford Owl. Answers are included in the teaching slides.
* **Introduction:** Share the Learning journey through the unit, the lesson question, and the Key knowledge and vocabulary (see the teaching slides).
* **Talk task:** Discuss the questions on the teaching slide, about the season we are in now, and how we know. If the weather is not yet very springlike, also talk about spring weather and how it differs from weather in winter.
* **Investigation:** If possible, go outside briefly and encourage pupils to describe the weather. If that’s not possible, observe the weather through the window.
* **Read:** Explain that we will now be looking at hours of daylight and how they change as we move from spring to summer. If you have a classroom display which has been updated with this information daily, pupils will already be coming to this section with some knowledge and understanding. Discuss that, in summer, we can wake up early and it can be light outside. It will also still be light when we go to bed. However, at the beginning of spring, the hours of daylight are not so long. Ask if pupils have pupils noticed this.
* **Retrieval:** Working in groups or pairs, pupils use *Workbook 1C page 6* to complete their own pictogram, by drawing the correct number of suns to show the hours of daylight in each month. Model this on the whiteboard using the teaching slide before pupils start. A completed pictogram is shown on the next slide.
* **Talk task:** Encourage pupils to look at their own completed pictograms in their workbooks to answer the questions on the teaching slide. Read the questions and ask pupils to answer them using the pictogram.
* **Read:** Read the information on changeable spring weather.
* **Group task:** Ask pupils to help you decide which clothes would be a good choice for the weather today. Make the point that, in spring, the weather can change a lot from day to day, but it is not normally as warm as in summer. Discuss which would be a good choice of clothes for a different type of spring day. (For instance, if today is rainy, what might we wear on a sunny day?)

**Exit questions:** Ask pupils to answer the multiple-choice exit questions by holding up one, two, or three fingers. The exit questions can be found on the final teaching slides for this lesson. **NB: The next lesson involves a seasonal walk to a local park or other outdoor area, to look for signs of spring, which needs to be planned in advance.** |

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| **Lesson question** | **Key knowledge** | **Learning resources** | **Key vocabulary** |
| **Lesson 3:*****What happens to plants and animals******in spring?*** | * Spring is the season of new life.
* The warmer weather and longer daylight hours make plants grow buds and flowers.
* In spring, many animals start to have babies.

**Working scientifically*** Make careful observations.
* Report on findings from enquiries, including oral and written explanations.
 | Pupil workbookKnowledge organiserTeaching slidesSubject knowledge guidance Clipboards and pencilsWeather station and display set up in classroom | * birdsong
* blossom
* bud
* ducklings
* frogspawn
* **spring**
 |
| **Outcomes/Assessment** | **Disciplinary and substantive concept/s** | **Key term** | **Key takeaway** |
| Pupil workbook Knowledge quiz 4.2Exit questions | **DC4:** Make careful observations.**DC7:** Report on findings from enquiries, including oral and written explanations.**SC:** Different types of weather are associated with different seasons.**SC:** Day length varies in different seasons. | spring | **Spring**is the season between winter and summer when plants begin to grow. |
| **Teaching notes****NB: This lesson involves a seasonal walk to a local park or other outdoor area, to look for signs of spring, which needs to be planned in advance.*** **Knowledge quiz:** Begin the lesson with the Knowledge quiz. Pupils complete the quiz to assess knowledge retention from Lesson 2. Printable copies of the quiz can be found on Oxford Owl. Answers are included in the teaching slides.
* **Introduction:** Share the Learning journey through the unit, the lesson question, and the Key knowledge and vocabulary (see the teaching slides).
* **Talk task:** Share pupils’ prior knowledge and ideas about what happens to plants and animals in spring. Use this opportunity to correct any misconceptions.
* **Read:** Read and discuss the information on changes that affect plants and animals during spring.
* **Investigation:** Give pupils copies of *Workbook 1C page 7* (the *Nature detective* sheet). Before taking pupils outside to look for signs of spring, make sure they know what the pictures on the *Nature detective* sheet show, and what they are looking for. After the trip, look together at the signs of spring that pupils spotted. Did they see any signs that were **not** listed on the sheet? Encourage them to record those too. Challenge pupils by asking them to write their favourite sign of spring from the ones they spotted, and explain why they like it.

**Exit questions:** Ask pupils to answer the multiple-choice exit questions by holding up one, two, or three fingers. The exit questions can be found on the final teaching slides for this lesson.  |

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| **Lesson question** | **Key knowledge** | **Learning resources** | **Key vocabulary** |
| **Lesson 4:*****How does the weather change from spring to summer?*** | * Summer is the warmest season in the UK and has the highest temperatures.
* Summer is the season with the most daylight hours.
* In summer, it is important to stay safe in the Sun.

**Working scientifically*** Use a range of equipment.
 | Pupil workbook Knowledge organiserTeaching slidesSubject knowledge guidanceBBC video clipWeather station and display set up in classroom | * average
* degrees Celsius
* rainfall
* **Sun**
* temperature
 |
| **Outcomes/Assessment** | **Disciplinary and substantive concept/s** | **Key term** | **Key takeaway** |
| Pupil workbookKnowledge quiz 4.3Exit questions | **DC3:** Use a range of equipment.**SC:** Different types of weather are associated with different seasons.**SC:** Day length varies in different seasons. | Sun | The **Sun**is a star that gives Earth light and heat. |
| **Teaching notes*** **Knowledge quiz:** Begin the lesson with the Knowledge quiz. Pupils complete the quiz to assess knowledge retention from Lesson 3. Printable copies of the quiz can be found on Oxford Owl. Answers are included in the teaching slides.
* **Introduction:** Share the Learning journey through the unit, the lesson question, and the Key knowledge and vocabulary (see the teaching slides).
* **Talk task:** Discuss the questions on the teaching slide, about the season we are in now, and how we know. If the weather isn’t yet very summery, talk about how today’s weather differs from the weather in summer. You could also watch a video on summer, such as <https://www.youtube.com/watch?v=w12ZbGBWZ_k> [Oxford University Press is not responsible for content available on third-party websites. The content of these websites may have changed since publication.]
* **Investigation:** Encourage pupils to describe the weather in the images on the teaching slide. Emphasise how different the weather can be in summer in the UK.
* **Read:** Read the information on the teaching slides. Discuss the information about temperature, and how it changes from spring to summer. Show pupils a thermometer and explain how it is used.
* **Investigation:** Take pupils outside and measure the temperature, using a thermometer. Then record the temperature inside the classroom. Discuss the difference (if any). If you have more than one thermometer, let pupils practise measuring the temperature for themselves. Record the temperature for your classroom display.
* **Read:** Read the information about summer weather and clothes.
* **Group activity:** Discuss the pictures on the teaching slide. Ask: Which of the clothes shown would be sensible to wear in summer?
* **Retrieval:** Look at *Workbook 1C page 8*. Model completing this activity. If it isn’t a hot day, tell pupils they need to imagine the weather is warmer than today. Using *Workbook 1C page 8*, pupils draw the clothes they would wear in summer and label them.
* **Read:** Using the teaching slide, discuss how (and why) we keep ourselves safe from the Sun in summer.
* **Retrieval**: Using *Workbook 1C page 9*, pupils write and draw two things that keep us safe in the Sun.

**Exit questions:** Ask pupils to answer the multiple-choice exit questions by holding up one, two, or three fingers. The exit questions can be found on the final teaching slides for this lesson. **NB: The next lesson involves pupils tasting seasonal fruit and vegetables, which need to be bought/prepared in advance. Be aware of any allergies.** |

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| **Lesson question** | **Key knowledge** | **Learning resources** | **Key vocabulary** |
| **Lesson 5:*****What happens to plants and animals in summer?*** | * The warm, sunny days of summer help plants to grow and flower.
* Many types of fruit and vegetables grow during summer.
* In summer, bees and other insects are very active.

**Working scientifically*** Make careful observations.
* Report on findings from enquiries, including oral and written explanations.
 | Pupil workbookKnowledge organiserTeaching slidesSubject knowledge guidanceSeasonal fruit/vegetables for pupils to handle and tasteWeather station and display set up in classroom | * crop
* fruit
* harvest
* seasonal
* **summer**
* vegetable
 |
| **Outcomes/Assessment** | **Disciplinary and substantive concept/s** | **Key term** | **Key takeaway** |
| Pupil workbook Knowledge quiz 4.4Exit questions | **DC4:** Make careful observations.**DC7:** Report on findings from enquiries, including oral and written explanations. | summer | **Summer**is the warmest season of the year, coming between spring and autumn. |
| **Common misconception**The following point is a common misconception to be aware of when teaching this lesson. * Fruits are sweet, vegetables are not/are savoury.

**Teaching notes****NB: This lesson involves pupils tasting seasonal fruit and vegetables, which need to be bought/prepared in advance. Be aware of any allergies.*** **Knowledge quiz:** Begin the lesson with the Knowledge quiz. Pupils complete the quiz to assess knowledge retention from Lesson 4. Printable copies of the quiz can be found on Oxford Owl. Answers are included in the teaching slides.
* **Introduction:** Share the Learning journey through the unit, the lesson question, and the Key knowledge and vocabulary (see the teaching slides).
* **Talk task:** Share pupils’ prior knowledge and ideas about what happens to plants and animals in summer. Point out the insects in the photographs and explain that we often see insects outside in the sunshine during the summer. Draw children’s attention to the ripe tomatoes. Explain that lots of fruits and vegetables ripen and are ready to eat in the summer.
* **Read:** Read and discuss the information about what happens to plants and animals in the summer.
* **Talk task:** Help pupils name some of the seasonal fruits and vegetables on the teaching slides. Point out that some fruits, like plums and cherries, grow on trees. Other fruits, like strawberries and raspberries, do not. Introduce the difference between fruits and vegetables. At this level, it is fine to say fruits contain seeds, while vegetables can consist of roots, stems, and leaves.
* **Retrieval:** Look at *Workbook 1C page 10*. Before pupils fill in the workbook page, talk about which of the pictured fruits grow on trees (plums, cherries, apples, and oranges) and take the opportunity to teach this if pupils don’t already know. Then pupils can complete *Workbook 1C page 10*. Answers are provided on the next slide.
* **Write:** As an extension, pupils can add names and pictures of any other fruits they know that grow on trees (e.g. pears).
* **Investigation:**Use the teaching slide to lead into the tasting part of the session. Then use your pre-prepared fruit and vegetables for the tasting. Pupils will only need a small bite of each one (ensure to check for allergies before you start). Show pupils the whole fruit or vegetable, then ask them to taste their piece. Pupils should record the names of the fruits and vegetables they tried on *Workbook 1C page 11*. Answers are provided on the next slide.
* **Write:** As a challenge, pupils can draw their favourite fruit or vegetable and write a sentence explaining why they like it.

**Exit questions:** Ask pupils to answer the multiple-choice exit questions by holding up one, two, or three fingers. The exit questions can be found on the final teaching slides for this lesson. |
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| **Lesson question** | **Key knowledge** | **Learning resources** | **Key vocabulary** |
| **Lesson 6:*****How do the changing seasons affect humans?*** | * Humans do different activities during different seasons.
* The weather in each season affects the activities that humans do.
* Different festivals and celebrations take place in different seasons.
 | Pupil workbookKnowledge organiserTeaching slidesSubject knowledge guidance Weather station and display set up in classroom | * activities
* affect
* **celebrations**
* festivals
* hobbies
 |
| **Outcomes/Assessment** | **Disciplinary and substantive concept/s** | **Key term** | **Key takeaway** |
| Pupil workbook Knowledge quiz 4.5Knowledge quiz 4.6 | **DC5:** Record findings using simple scientific language, drawings, and labelled diagrams.**DC7:** Use results to draw simple conclusions and make predictions.**SC:** Different types of weather are associated with different seasons. | celebrations | A **celebration** is a special event. |
| **Teaching notes*** **Knowledge quiz:** Begin the lesson with the Knowledge quiz. Pupils complete the quiz to assess knowledge retention from Lesson 5. Printable copies of the quiz can be found on Oxford Owl. Answers are included in the teaching slides.
* **Introduction:** Share the Learning journey through the unit, the lesson question, and the Key knowledge and vocabulary (see the teaching slides).
* **Talk task:** Talk about some of the activities that pupils do (or would like to do) at different times of the year.
* **Read:** Read and discuss the information on seasonal activities prior to completing the Talk task activities with pupils.
* **Talk task:** Work with pupils to identify and discuss the activities on the teaching slides. For each seasonal slide, there are two activities that could be done in the given season in the UK, and one that would be less likely to be done. Not all of the activities can be done only in one season or throughout all of the UK, however. For example, make sure that children realise that skiing isn’t something that can be done all over the UK in winter. However, in some places such as the north of Scotland, there is often enough snow to go skiing.
* **Retrieval:** Using *Workbook 1C page 12*, pupils label the pictures of the activities with the correct season name. As a challenge, you could encourage pupils to choose a picture and write a sentence about the activity. Answers are provided on subsequent slides.
* **Read:** Read and discuss the information on seasonal celebrations. Have pupils taken part in any of these? Are there any other seasonal celebrations that they know?
* **Talk task:** In talk partners, pupils discuss seasonal celebrations that they have taken part in, or that they would like to take part in.
* **Group task:** Use the teaching slide to structure a group conversation about favourite seasons. Encourage pupils to think about the points on the slide when deciding which season they like best, and explain their reasons. Does everyone in the group have the same favourite season?
* **Write:** Using *Workbook 1C page 13*, pupils draw and write about their favourite season. You could support pupils by providing a word box for spellings, and/or providing pictures to cut out to make a seasonal collage. As an extension, pupils could make a model or draw a labelled diagram of a plant or animal associated with their favourite season.

**Knowledge quiz:** Pupils complete Knowledge quiz 2.6 to assess knowledge retention from this lesson. Printable copies of the quiz can be found on Oxford Owl. Answers are included in the teaching slides.  |