

# Seasons



# The Changing Seasons

How do seasons change throughout the year?

**Spring!** The sun stays out a long time. The air gets warmer. What a nice change from the cold, dark winter. Plants start to bloom. Insects come out. So do animals that count on them for food.



In the **summer**, the weather gets hotter. There's still plenty of food. But little by little, the sun rises later and sets earlier.



The days are short and cold. **Winter** has come! Most plants and trees are bare. There's hardly any food to eat. Animals take shelter to keep warm. Others **hibernate**, or go into deep sleep. Maybe they're dreaming of spring!



In **autumn** the air gets cooler. Leaves change colors. They fall off trees. Some animals gather as much food as they can. Others travel to warmer places.



# Signs of the Season

Is it spring, summer, fall, or winter? Your calendar may tell you. But you can also find your own clues to the season.

## Materials

- ★ clipboard
- ★ pencil
- ★ "Signs of the Season" data sheet

1. Write the current season on your data sheet.  
(If you need to, ask your teacher for help.)
2. **Think:** What would you expect the weather to be like during this season? What would plants look like? What would animals be doing? What would people be wearing or doing? Write or draw your answers on your data sheet.
3. Take your list outside. Look for clues about each item on the list. Write or draw what you found on your data sheet.
4. Pick one other season. What do you think would be different if you looked for clues in that season?



Name: \_\_\_\_\_

# Signs of the Season



Current season: \_\_\_\_\_

	What I expect...	Clues I found...
Weather		
Plants		
Animals		
People		

Pick a different season. What do you think would be different if you looked for clues in that season? Write your answer on the back of this sheet.

## Around the Seasons

Keep track of how long or short the days are.

1. Turn your Season Tracker around until you can read "January." Keep turning the Tracker until you get back to January again. You just turned your Season Tracker one year.
2. Turn to the current month. What season is it? (**Hint:** Look to the right of the month.) Are the days getting longer or shorter? Turn the Season Tracker through a year of seasons. During which seasons are the days getting longer? During which seasons are the days getting shorter?
3. The length of a day is the time between sunrise and sunset. Work with your class to look up the times of today's sunrise and sunset. Write the times in the chart on your data sheet.
4. **Predict:** In one week, what will be the times for sunrise and sunset? Record your guesses.
5. Wait one week. Find the actual times for sunrise and sunset. Record your results.
6. Do Steps 4 and 5 again for the following week. Look at your chart. What do you notice?

### Materials

- ★ Season Tracker (from your teacher\*)
- ★ "Around the Seasons" data sheet



Name: \_\_\_\_\_

## Around the Seasons



1. What season is it? \_\_\_\_\_

2. Are the days getting longer or shorter?  
\_\_\_\_\_

3. During which seasons are the days getting longer?  
\_\_\_\_\_

4. During which seasons are the days getting shorter?  
\_\_\_\_\_

5. Record the times for sunrise and sunset in the chart below.

	Sunrise time	Sunset time
Today's date: _____		
Date (one week later): _____	I predict: _____ Actual time: _____	I predict: _____ Actual time: _____
Date (two weeks later): _____	I predict: _____ Actual time: _____	I predict: _____ Actual time: _____

# Season Turner

(Two trackers are provided below.)



January	<b>Winter</b> Days are getting longer.
February	
March	<b>Spring Equinox</b> Day and night are equal
April	<b>Spring</b> Days are getting longer.
May	
June	<b>Summer Solstice</b> Longest day and shortest night
July	<b>Summer</b> Days are getting shorter.
August	
September	<b>Fall Equinox</b> Day and night are equal
October	<b>Fall</b> Days are getting shorter.
November	
December	<b>Winter Solstice</b> Shortest day and longest night

Glue here.



January	<b>Winter</b> Days are getting longer.
February	
March	<b>Spring Equinox</b> Day and night are equal
April	<b>Spring</b> Days are getting longer.
May	
June	<b>Summer Solstice</b> Longest day and shortest night
July	<b>Summer</b> Days are getting shorter.
August	
September	<b>Fall Equinox</b> Day and night are equal
October	<b>Fall</b> Days are getting shorter.
November	
December	<b>Winter Solstice</b> Shortest day and longest night

Glue here.

## Background

The Earth is tilted about 23 degrees on its axis. As it revolves around the sun, half of the Earth leans toward the sun while the other half is tilted away. This is what gives us the four seasons. The Northern Hemisphere, where the United States is located, leans toward the sun from June to September. During these summer months, the days are long and the weather is warm. At the same time the Southern Hemisphere, where Australia is located, is tilted away from the sun. The days are short and the weather cold—winter. From December to March, the Southern Hemisphere is tilted toward the sun and thus enjoys summer, while the Northern Hemisphere experiences winter.

## Hands-On Hints

### Task Card 1: Signs of the Season

As an extension, you can make a season “clock” as a class project. Take a piece of poster board and use two crossed lines to divide it into four quadrants. Cut a large clock hand out of construction paper and use a brass fastener to attach it to the middle of the poster board. Label each of the four quadrants with a season, going in clockwise order. Have children draw and cut out “clues” to each season, then add them to the correct quadrant. This is a good opportunity to emphasize the seasons where you live. Feature local plants and sights. No need to add snowflakes or fall leaves if they don’t apply.

### Task Card 2: Around the Seasons

For simplicity’s sake, plan this activity for a two-week period when there will be no shift from or to Daylight Saving Time. Avoid the weeks around the winter and summer solstices as well.

Print copies of the “Seasons Tracker” (two trackers are provided on page 7) and help children put it together. The Season Tracker is designed to help children recognize seasonal patterns, such as the repeating order of the seasons and changes in the length of days. Steps 1 and 2 of this activity help familiarize children with the Season Tracker. Steps 3–6 span over two weeks and require the class to look up sunrise and sunset times for your location on a given day. These are often available from weather websites and apps, or from a direct search-engine query (for example, “sunrise Ames Iowa”).

Once you have found the sunrise and sunset times, children can use the Season Tracker to find out whether the days are getting longer or shorter and make a prediction about when sunrise and sunset will occur in one week. You may want to have a class discussion to cement children’s understanding that a lengthening day would mean the sunrise and sunset would be getting further apart. When you then look up that day’s times and add them to the chart, children can notice two things. First, the sunrise got earlier (or later, depending on the season) and the sunset got later (or earlier). Second, they can see how much change in minutes there was. These facts should help them make a more accurate prediction for the following week.

Sunrise and sunset times—and the changes you will see in them—are determined by four factors:

- your hemisphere (the Season Tracker applies to the Northern Hemisphere, where the United States is)
- the time of the year
- your latitude, or distance from the equator (the farther you are from the

## Next Generation Science Standards

- ESS1.A** The Universe and its Stars
- ESS1.B** Earth and the Solar System
- ESS2.D** Weather and Climate

equator, the larger the changes in the length of the day over the course of a year)

- your longitude, or distance east or west from the *prime meridian* (an imaginary line in England). This is the only factor that is human-made. Originally, noon was defined by when the sun was at its highest point in the sky. That was different for every longitude, because it depends on the Earth’s rotation. But once the world was divided into time zones, for most people, the official noon no longer matched the time when the sun was at its highest. This affects sunrise and sunset times as well.

If your students have a link to or interest in another place, you may want to have them track that place’s sunrises and sunsets at the same time. If it’s someplace at a different latitude, they will see that the days are longer or shorter. (The farther from the equinoxes, the larger the difference.) If it’s someplace in the Southern Hemisphere, they will notice that the days are lengthening while yours are shortening, or vice versa. If it’s someplace in your time zone, but in a different longitude, they will see that the sun rises earlier—or later—than at your location.



For optimal results, we suggest following these steps:

1. Introduce the topic by reading aloud the nonfiction article. The article helps build background knowledge and provides context for the hands-on activities. You can project it onto your interactive whiteboard as you read it aloud. There is also a printable version that you can distribute to students so they can read along.
2. Divide the class into small groups. Hand each group a Task Card, and give each student a Data Sheet. (We recommend starting with Task Card 1.) Together with the class, read aloud the steps of the activity to ensure everyone understands what to do. You may also want to have each group conduct an inventory of their materials to make sure they have everything they need.
3. Have students do the activity and record on their Data Sheets.
4. Make sure to leave enough time before the end of the period so you can have a class discussion about the activity. Invite groups to share their findings and results, including any challenges they may have faced.
5. Gather students' data sheets to assess for understanding.

If you plan to continue the unit in your next lesson with the second Task Card, you might want to review the article with the class. In some cases, Task Card 2 builds upon Task Card 1, so you may want to quickly go over the first activity as well.

At the end of a unit, consider asking students to evaluate the topic and activities. This can be as simple as a thumbs-up or thumbs-down. Engage them in a discussion about what they liked or did not like and why. You might find this feedback useful for future lessons.

The two Task Cards feature hands-on activities that incorporate the following eight science and engineering practices—identified by the NGSS as essential for all students to learn:

1. Asking questions and defining problems
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

**Subscribe to SuperScience magazine** for more engaging science articles, standards-aligned skills sheets, and fun hands-on experiments and design challenges. Visit [scholastic.com/buy-supersci](http://scholastic.com/buy-supersci).

Scholastic Inc. grants teachers permission to photocopy the data sheets from this set for classroom use. Purchase of this set entitles use by one teacher for one classroom only. No other part of this publication may be reproduced in whole or in part, or stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission of the publisher. For information regarding permission, write to Scholastic Inc., 557 Broadway, New York, NY 10012.

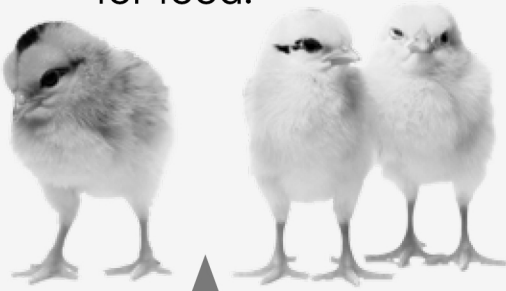
Written by Katherine Burkett and *SuperScience* staff  
Editor: Maria L. Chang  
Art Director: Tannaz Fassihi  
Design by Michelle H. Kim, Nilou Safavieh  
Illustrations by Marybeth Rivera

ISBN: 978-1-338-09900-3  
Copyright © 2017 by Scholastic Inc.  
All rights reserved.

# The Changing Seasons

How do seasons change throughout the year?

**Spring!** The sun stays out a long time. The air gets warmer. What a nice change from the cold, dark winter. Plants start to bloom. Insects come out. So do animals that count on them for food.



In the **summer**, the weather gets hotter. There's still plenty of food. But little by little, the sun rises later and sets earlier.



The days are short and cold. **Winter** has come! Most plants and trees are bare. There's hardly any food to eat. Animals take shelter to keep warm. Others **hibernate**, or go into deep sleep. Maybe they're dreaming of spring!



In **autumn** the air gets cooler. Leaves change colors. They fall off trees. Some animals gather as much food as they can. Others travel to warmer places.



# Signs of the Season

Is it spring, summer, fall, or winter? Your calendar may tell you. But you can also find your own clues to the season.

## Materials

- ★ clipboard
- ★ pencil
- ★ "Signs of the Season" data sheet

1. Write the current season on your data sheet.  
(If you need to, ask your teacher for help.)
2. **Think:** What would you expect the weather to be like during this season? What would plants look like? What would animals be doing? What would people be wearing or doing? Write or draw your answers on your data sheet.
3. Take your list outside. Look for clues about each item on the list. Write or draw what you found on your data sheet.
4. Pick one other season. What do you think would be different if you looked for clues in that season?



Name: \_\_\_\_\_

# Signs of the Season



Current season: \_\_\_\_\_

	What I expect...	Clues I found...
Weather		
Plants		
Animals		
People		

Pick a different season. What do you think would be different if you looked for clues in that season? Write your answer on the back of this sheet.

## Around the Seasons

Keep track of how long or short the days are.

1. Turn your Season Tracker around until you can read "January." Keep turning the Tracker until you get back to January again. You just turned your Season Tracker one year.
2. Turn to the current month. What season is it? (**Hint:** Look to the right of the month.) Are the days getting longer or shorter? Turn the Season Tracker through a year of seasons. During which seasons are the days getting longer? During which seasons are the days getting shorter?
3. The length of a day is the time between sunrise and sunset. Work with your class to look up the times of today's sunrise and sunset. Write the times in the chart on your data sheet.
4. **Predict:** In one week, what will be the times for sunrise and sunset? Record your guesses.
5. Wait one week. Find the actual times for sunrise and sunset. Record your results.
6. Do Steps 4 and 5 again for the following week. Look at your chart. What do you notice?

### Materials

- ★ Season Tracker (from your teacher\*)
- ★ "Around the Seasons" data sheet



Name: \_\_\_\_\_

# Around the Seasons



1. What season is it? \_\_\_\_\_

2. Are the days getting longer or shorter?  
\_\_\_\_\_

3. During which seasons are the days getting longer?  
\_\_\_\_\_

4. During which seasons are the days getting shorter?  
\_\_\_\_\_

5. Record the times for sunrise and sunset in the chart below.

	Sunrise time	Sunset time
<b>Today's date:</b> _____		
<b>Date (one week later):</b> _____	<b>I predict:</b> _____ <b>Actual time:</b> _____	<b>I predict:</b> _____ <b>Actual time:</b> _____
<b>Date (two weeks later):</b> _____	<b>I predict:</b> _____ <b>Actual time:</b> _____	<b>I predict:</b> _____ <b>Actual time:</b> _____

# Season Turner

(Two trackers are provided below.)



<b>January</b>	<b>Winter</b> Days are getting longer.
<b>February</b>	
<b>March</b>	<b>Spring Equinox</b> Day and night are equal
<b>April</b>	<b>Spring</b> Days are getting longer.
<b>May</b>	
<b>June</b>	<b>Summer Solstice</b> Longest day and shortest night
<b>July</b>	<b>Summer</b> Days are getting shorter.
<b>August</b>	
<b>September</b>	<b>Fall Equinox</b> Day and night are equal
<b>October</b>	<b>Fall</b> Days are getting shorter.
<b>November</b>	
<b>December</b>	<b>Winter Solstice</b> Shortest day and longest night

Glue here.



<b>January</b>	<b>Winter</b> Days are getting longer.
<b>February</b>	
<b>March</b>	<b>Spring Equinox</b> Day and night are equal
<b>April</b>	<b>Spring</b> Days are getting longer.
<b>May</b>	
<b>June</b>	<b>Summer Solstice</b> Longest day and shortest night
<b>July</b>	<b>Summer</b> Days are getting shorter.
<b>August</b>	
<b>September</b>	<b>Fall Equinox</b> Day and night are equal
<b>October</b>	<b>Fall</b> Days are getting shorter.
<b>November</b>	
<b>December</b>	<b>Winter Solstice</b> Shortest day and longest night

Glue here.