

## 9

## Rhythms of Nature

## Chapter Notes:

## Changes Around Us

- Change is a natural part of life.
- We grow taller, learn new things, and our habits change over time.
- The environment also changes — trees grow, flowers bloom and wither, sky changes colour, etc.
- Some changes take **years** (example: height, growth of trees).
- Some happen **within days or months** (example: plants flowering, festivals, seasons).
- Some changes occur **within minutes or seconds** (example: sunrise to bright daylight, clouds covering the sun).

## Day and Night

- Earth experiences **day and night** due to its **rotation**.
- The Earth rotates on its own axis and completes one rotation in **24 hours**.
- Part of Earth facing the Sun has day; the part away from the Sun has **night**.
- The Sun **does not move across the sky** — it is Earth that rotates.

## Introduction to Seasons

- Nature changes slowly over the year.
- Weather becomes warm → hot → rainy → cool → cold → warm again.
- These repeating patterns form **seasons**.

## Seasons of India

- India has six seasons, based on natural changes:

Season (Sanskrit)	Meaning
1. Vasanta	- Spring
2. Grishma	- Summer
3. Varsha	- Monsoon
4. Sharad	- Autumn
5. Hemant	- Pre-winter
6. Shishir	- Winter

- **Each season affects:**
  - i. Plant life
  - ii. Animals and birds
  - iii. Heat, air and sunlight
  - iv. Water sources
  - v. Human lifestyle and activities

### Types of Fibres

### Seasons and Nature

- **Plants:** New leaves, flowers and fruits appear in different seasons.
- **Animals and Birds:** Birds migrate, insects appear, and animals change behaviour.
- **Sunlight and Air:** Sunlight, heat and wind patterns change during the year.
- **Water Bodies:** Rains fill ponds and lakes; summers dry them up.
- **Human Activities:** People wear different clothes, eat different foods, and celebrate different festivals depending on the season.

### Crops and Seasons

- Farmers grow crops according to the season.
- Some crops require **more heat** → **grown in summer**.
- Some crops require **cold climate** → **grown in winter**.
- Some crops need **a lot of water** → **grown during monsoon**.

### Festivals and Seasons

- Many festivals in India are linked to nature and seasons.
- Examples:
  - i. **Pongal, Makar Sankranti** → Winter harvest period
  - ii. **Holi** → Spring
  - iii. **Diwali** → Autumn (after harvest)
  - iv. **Baisakhi, Vishu, Rongali Bihu, Gudi Padwa** → New year and harvest celebrations in different states

### Importance of Seasons

- Seasons give rhythm to life.
- They influence:
  - i. The food we eat
  - ii. The clothes we wear
  - iii. The work we do
  - iv. Our festivals and celebrations
- Seasons teach us that change is natural and necessary.

## New Terms

Term	Meaning (Student-friendly)
• Rhythm of Nature	- The repeating patterns of change seen in nature, like day–night and seasons.
• Rotation	- The Earth spinning on its own axis, causing day and night.
• Globe	- A model of the Earth shaped like a ball.
• Axis	- An imaginary line on which the Earth rotates.
• Seasons	- Natural divisions of the year based on weather changes.
• Spring (Vasanta)	- Season when plants grow new leaves and flowers bloom.
• Summer (Grishma)	- Hot season with strong sunlight and high temperature.
• Monsoon (Varsha)	- Rainy season with heavy rainfall.
• Autumn (Sharad)	- Season after monsoon when weather becomes pleasant and crops are harvested.
• Pre-winter (Hemant)	- Cool season before winter.
• Winter (Shishir)	- Very cold season with low temperature.
• Migration	- Movement of birds or animals from one place to another due to weather changes.
• Harvest	- Collecting crops when they are fully grown.
• Natural Pattern	- A repeating cycle in nature (example: seasons happen every year).
• Journal	- A notebook used to record observations and experiences over time.

## Write

**Q. Try to remember the time you were in Grades 3 and 4. Think and write about the changes that you have noticed in yourself and your friends, in your school, and in your environment**

**Answer:**

	Grade 3	Grade 4	Grade 5
<b>Yourself and your friends</b>	We were shorter, played simple games, and were shy to talk in class.	We grew taller, became more confident, and started learning new hobbies.	We became responsible, speak more confidently, and have different interests and talents.
<b>School</b>	Fewer classrooms, fewer activities and events.	More classrooms and new teachers joined; more competitions were held.	Smart boards and new labs were added; more learning activities and projects.
<b>Surrounding area</b>	Small garden and fewer buildings around the school.	More plants and trees were planted; some new shops opened nearby.	Roads became wider, more vehicles, and more new buildings around our school.

## Write

**Q1. Can you think of something that takes a really long time to change, maybe over years?**

**Answer:** Growth of a tree takes a really long time to change. It takes many years for a small plant to become a big tree.

**Q2. What about something that changes within just a few years?**

**Answer:** Our height and the way we look change within a few years as we grow from one class to another.

**Q3. Are there changes that happen every year, again and again?**

**Answer:** Yes, seasons change every year again and again, such as summer, monsoon, winter, spring, autumn and pre-winter.

**Q4. Can you name something that changes in just a few minutes or even seconds?**

**Answer:** The colour of the sky and the movement of clouds change in just a few minutes or even seconds.

## Activity 1

Let one student be the 'Sun' and another the 'Earth' standing at a distance. The Sun stands at the centre.

Let the student playing 'Earth' stand in one place and slowly turn around (rotate). As long as the student sees the 'Sun', they keep saying—"day...day...day", looking straight ahead. When the student stops seeing the 'Sun' they keep saying "night...night...night".

Now, let us do this activity using a torch and a globe.

**Answer:** The Torch and Globe Activity

**Goal :-**To physically model the Earth's rotation and observe how it creates day and night.

**Materials**

- Globe: Represents the Earth.
- Torch (Flashlight): Represents the Sun.
- Dark Room (highly recommended for better visual effect).



### Procedure

- Set up the Sun: Place the torch on a stable surface. This torch will remain fixed in one position, acting as the Sun.
- Set up the Earth: Hold the globe a short distance from the torch.
- Identify Day and Night:
  1. Shine the torch onto the globe. The area of the globe illuminated by the torchlight is experiencing day.
  2. The area of the globe that is in the shadow and not receiving light is experiencing night.
- Simulate Rotation: Slowly rotate the globe on its axis (the tilted rod going through it) in a counter-clockwise direction (West to East). Do not move the globe around the torch yet.
- Observe the Cycle:
  1. As you rotate the globe, watch a specific point (like your city's location) on the globe.
  2. When the point moves into the light, it is sunrise, and it experiences day.
  3. As the point moves away from the light and into the shadow, it is sunset, and it experiences night.
  4. One complete rotation represents one day (approximately 24 hours).

**Conclusion :-** This model clearly shows that Day and Night are caused by the Earth spinning (rotating) on its axis. Only one half of the Earth faces the Sun at any time (Day), while the other half faces away (Night).

### Find out

**Q. Study the globe and write in the space given below, when it is day time in India, which countries will have night?**

**Answer:** When it is daytime in India, countries that are on the opposite side of the Earth (away from the Sun) have night.

Some of these countries are:

<ul style="list-style-type: none"> <li>• United States of America (USA)</li> <li>• Canada</li> </ul>	<ul style="list-style-type: none"> <li>• Brazil</li> <li>• Mexico</li> </ul>	<ul style="list-style-type: none"> <li>• Argentina</li> <li>• Chile</li> </ul>
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India is located in the eastern hemisphere.

Countries in the western hemisphere experience night when India is having day, because their side of Earth is turned away from the Sun.

### Classroom Activity— Seasons' Chart

The chart will have the following time periods: April–June, July–September, October–December, and January–March marked in columns. The themes: plant life, birds and animals, air, heat and light, water and water bodies, and human activities listed in rows.

**Answer:**

Chart Template

Theme / Time Period	April – June	July – September	October – December	January – March
• <b>Plant life</b>	- New leaves appear; flowers bloom; mango trees full of fruits	- Grass grows fast; plants look fresh and green; many flowering plants	- Leaves start drying and falling; fewer flowers	- Some trees shed all leaves; new buds appear on branches
• <b>Birds and animals</b>	- Birds build nests; butterflies seen; animals look active	- Frogs croak; insects increase; peacocks dance	- Birds migrate from colder places; animals grow thick fur	- Fewer insects; birds seen in groups searching for food
• <b>Air, heat and light</b>	- Hot air; very sunny days; strong heat	- Humid weather; cool breeze during rain	- Pleasant cool weather; less heat; mild sunlight	- Cold air; foggy mornings; weak sunlight
• <b>Water and water bodies</b>	- Ponds and rivers start drying; very less water	- Heavy rains fill ponds, lakes and rivers; puddles everywhere	- Clean water bodies after rains; water level normal	- Water level decreases again; some ponds dry
• <b>Human activities</b>	- People wear cotton clothes; eat cold drinks and ice cream; summer vacations	- People use umbrellas and raincoats; school reopens; farming activities increase	- Festivals like Diwali & Dussehra; pleasant outings; harvesting starts	- People wear woollen clothes; festivals like Lohri & Makar Sankranti; low outdoor activities

## Discovering Seasons

**Q1. What are the seasons called in your region?**

**Answer:** In my region, the seasons are called:

- Spring : Basant
- Summer : Garmi
- Monsoon : Barsaat
- Autumn : Patjhad
- Pre-winter : Hemant
- Winter : Jaada

**Q2. Do you know how many seasons we have in India?**

**Answer:** We experience six seasons based on how nature changes in every few months in India.

Season	Months of the Year (Answer)
• Vasanta (Spring)	- February – March
• Grishma (Summer)	- April – June
• Varsha (Monsoon)	- July – September
• Sharad (Autumn)	- October – November
• Hemant (Pre-winter)	- December
• Shishir (Winter)	- January

## Write

**Q. How do you feel when the season changes? Would you prefer one season to continue throughout the year? Give the reasons for your answer.**

**Answer:** I feel very excited when the season changes because everything around me looks different. The weather, clothes, food, and even nature keep changing, which makes life interesting.

I would not prefer one season to continue throughout the year because every season has its own beauty. In summer we enjoy ice creams, in monsoon we enjoy the rain, in winter we wear warm clothes, and in spring we see colourful flowers. Each season brings something special, so I enjoy changes in seasons.

## Discuss

**Winter in Kerala is different from winter in Kashmir valley. Monsoon in Assam is different from Rajasthan. Why do you think it is so?**

**Answer:** The climate of different places in India is not the same because they are located in different regions. Kashmir is close to the mountains, so winters are very cold and it even snows there, while Kerala is near the sea, so winters are mild and not very cold. Similarly, Assam receives heavy rainfall during monsoon because it is close to the mountains and rain-bearing clouds, while Rajasthan is a desert region and receives very little rainfall. So, the weather and seasons are different in different places because of their location, surroundings and climate.

## Celebrating Seasons

**Name the crops that grow in summer and winter in your region.**

**Answer:**

Summer Crops	Winter Crops
<ul style="list-style-type: none"> <li>• Rice</li> <li>• Sugarcane</li> <li>• Bajra (Pearl millet)</li> <li>• Maize</li> <li>• Watermelon</li> </ul>	<ul style="list-style-type: none"> <li>• Wheat</li> <li>• Mustard</li> <li>• Peas</li> <li>• Carrot</li> <li>• Cauliflower</li> </ul>

Many of our festivals are connected with seasons. See if you can match these festivals to the season they are celebrated in!

Answer:

S.No.	Festival	Season	Answer
1	Pongal, Makar Sankranti	(c) New year and harvest festival	1 → (c)
2	Holi	(a) Spring — when flowers bloom	2 → (a)
3	Diwali	(b) Autumn — after crops are harvested	3 → (b)
4	Baisakhi, Gudi Padwa, Vishu, Rongali Bihu	(d) Winter	4 → (d)

## Let us reflect

1. Narrate your experiences about the season changes.

**Answer:** I experience many changes when seasons change. In summer, the days are very hot, I wear cotton clothes and eat cold foods like fruits and juices. During monsoon, it rains a lot, roads get wet and frogs and insects come out. In autumn, leaves turn dry and fall from trees. When winter arrives, the weather becomes very cold, I wear woollen clothes and enjoy eating warm food. I feel happy in spring because flowers bloom and the weather becomes pleasant.

2. Ask your family members and write about seasons. Do you find any major differences? What could be the reason?

**Answer:** My family members also notice season changes every year. They say that earlier winters used to be longer and colder, but now they feel winters are shorter. They also say summers are getting hotter than before. Monsoon sometimes brings too much rain and sometimes very little rain. These differences may be happening because of global warming, pollution, deforestation and climate change.

3. Seasons have local names. Write the seasons in your local language.

Answer:

English Name	Local / Regional Name
(a) Spring	- Vasant / Basant
(b) Summer	- Grishma / Garmi
(c) Monsoon	- Varsha / Barsaat
(d) Autumn	- Sharad
(e) Pre-winter	- Hemant
(f) Winter	- Shishir / Sardi

4. Fill the table below based on your observations and experiences.

Answer:






Name of the Season	Food You Eat	Clothes You Wear	Festivals You Celebrate	Nature Around You
• <b>Spring</b>	Fresh fruits, leafy vegetables	Light and comfortable clothes	Holi	Flowers bloom, pleasant weather, butterflies
• <b>Summer</b>	Mangoes, curd, coconut water, cold drinks	Cotton clothes, caps	Baisakhi / Gudi Padwa / Rongali Bihu / Vishu	Very hot days, strong sunlight, less water in ponds
• <b>Monsoon</b>	Hot snacks, corn (bhutta), rice dishes	Raincoats, waterproof shoes	(Depends on region) — example: Teej / Raksha Bandhan	Frequent rain, frogs, green plants everywhere
• <b>Autumn</b>	Rice, wheat, vegetables	Normal comfortable clothes	Diwali	Leaves fall and dry up, clear sky
• <b>Pre-winter</b>	Groundnuts, sesame foods, warm soups	Light warm clothes	(No major festival, depends on region)	Weather becomes cool, mornings foggy
• <b>Winter</b>	Hot foods like soup, jaggery, ghee, carrot halwa	Woollen clothes, sweaters, mufflers	Pongal / Makar Sankranti / Lohri	Very cold, foggy mornings, short days

### 5. Share your experience of seasons' journaling.

**Answer:** My experience of seasons' journaling was very enjoyable and informative. Throughout the year, I observed changes in plants, animals, weather, water bodies and human activities. I learned how flowers bloom in spring, how summer becomes hot, how rains bring greenery during monsoon, and how winter becomes cold. By writing in the journal every month, I understood that seasons follow a repeating pattern every year. This activity helped me observe nature more closely and appreciate its beauty.

### 6. Make a comparative drawing of the three major seasons.

**Answer:**

Summer	Monsoon	Winter
 Sun shining bright	 Clouds with rain	 Fog / cold wind
A boy wearing cotton clothes	A child with umbrella and raincoat	A child wearing sweater and scarf
Dry ground and strong sunlight	Puddles, frogs, green trees	Bare trees or snow (depending on region)