Chapter 9: Rhythms of Nature

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Exercise 9.1 — Write — Changes since Grades 3 and 4

Q1 Think about when you were in Grades 3 and 4. Write about the changes you have noticed in yourself and your friends, in your school, and in your environment.

SOLUTION

Guidance: Fill in the table by recalling memories from Grades 3 and 4 and comparing them with now.

Yourself and your friends: You may have grown taller, changed your hairstyle, learnt new skills (like a musical instrument or a sport), made new friends, or changed your interests.

School: New classrooms or buildings may have been added, new trees or plants may have been planted, new teachers may have joined, or the library may have new books.

Surrounding area: A new shop, park, or road may have come up near your school or home; a tree may have grown bigger; or a pond or field may have changed.

Answer: Answers will vary. Sample: I have grown taller and my hair is longer. Our school got a new garden near the gate. A new building came up on our street. (Students should fill the table with their own observations from Grades 3 to 5.)

Exercise 9.2 — Write — Types of change

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

SOLUTION

Some things change very slowly, over many years.
Examples: A small sapling growing into a large tree, a mountain being shaped by wind and rain, a child growing into an adult, a river slowly changing its course, or a rock breaking down into soil over centuries.

Answer: A sapling growing into a tall tree, a mountain being worn down by wind and rain, or a child growing up — these are changes that take many years.

Q2 Can you think of something that changes within just a few years?

SOLUTION

Some changes take a few years but are noticeable over time.
Examples: A puppy growing into a full-grown dog, a student moving from one grade to the next and learning new things, a small plant becoming a fruit-bearing tree, or a new building being constructed in the neighbourhood.

Answer: A puppy growing into a dog, a child gaining new skills over school years, or a new building coming up in the neighbourhood — these changes happen within a few years.

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

SOLUTION

Yes, some changes follow a repeating cycle every year. These are called seasonal changes or natural rhythms.
Examples: Leaves falling off trees in autumn and growing back in spring, flowers blooming in spring, the arrival of rain during monsoon every year, migratory birds coming to India in winter and leaving in summer, farmers planting and harvesting crops each season.

Answer: Yes — leaves falling and growing back, flowers blooming, the arrival of monsoon rains, and birds migrating are changes that repeat every year. These repeating patterns are called seasons.

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

SOLUTION

Some changes are very fast, happening in minutes or seconds.
Examples: The colour of the sky during sunrise or sunset, a piece of paper burning, ice melting when placed in warm water, a candle flame flickering, lightning flashing across the sky.

Answer: The colour of the sky during sunrise or sunset changes in minutes. Ice melting in warm water, paper catching fire, or lightning flashing are changes that happen in seconds.

Exercise 9.3 — Find out — Day and night on the globe

Q1 Study the globe. When it is daytime in India, which countries will have night?

SOLUTION

The Earth rotates from west to east. When the Sun shines on India (daytime), the opposite side of the globe faces away from the Sun and has night.

Countries roughly opposite India on the globe (across the Pacific Ocean) include parts of the Americas — for example, the United States, Canada, Mexico, and countries in South America like Peru and Chile.

Note: The exact countries depend on which part of India you mark on the globe. A globe is needed to identify them precisely.

Answer: When it is daytime in India, countries on the opposite side of the Earth — such as the United States, Canada, Mexico, and parts of South America — will have night. (Use the globe to check and write the names of specific countries.)

Exercise 9.4 — Classroom Activity — Seasons Chart

Q1 Classroom Activity: Prepare a Seasons Chart showing observations on plant life, birds and animals, air/heat/light, water bodies, and human activities across four time periods: April-June, July-September, October-December, January-March.

SOLUTION

Guidance: This is a group activity. Make a large wall chart with four columns (time periods) and five rows (themes). Fill each cell with observations from your journal.

Sample observations for each time period:

April-June (Summer): Plants — many trees shed leaves or bear fruit; hot dry conditions. Birds and animals — many birds nest; some animals rest in shade. Air — hot and dry, dusty winds. Water bodies — ponds and rivers shrink. Human activities — schools close for summer holidays; people wear light cotton clothes, drink cold drinks.

July-September (Monsoon): Plants — new green leaves and growth; paddy is planted. Birds and animals — frogs croak, snakes come out of burrows. Air — humid, rainy, cool winds. Water bodies — rivers and lakes fill up; puddles form. Human activities — farmers sow seeds; people carry umbrellas; festivals like Nag Panchami.

October-December (Autumn/Pre-winter): Plants — flowers bloom; some trees shed leaves. Birds and animals — migratory birds arrive; animals grow thick fur. Air — cooler and pleasant. Water bodies — begin to shrink after monsoon. Human activities — harvest festivals (Diwali, Dussehra); warm clothes come out.

January-March (Winter/Spring): Plants — flowers bloom in spring; some crops ripen. Birds and animals — migratory birds present; bees and butterflies appear. Air — cold in January, warming in March. Water bodies — cool and clear. Human activities — harvest festivals (Pongal, Makar Sankranti, Holi); warm clothes in January, lighter clothes in March.

Answer: Guidance: Fill the chart using your own journal observations. The sample above shows typical seasonal patterns across India. (Actual answers will vary by region.)

Exercise 9.5 — Discuss — Seasonal differences across India

Q1 Winter in Kerala is different from winter in Kashmir valley. Monsoon in Assam is different from Rajasthan. Why do you think it is so?

SOLUTION

India is a large country with many different landforms and locations.

Kashmir is in the far north and has high mountains (the Himalayas). Cold winds from the mountains and snowfall make its winter very cold. Kerala is in the south, closer to the equator and the sea, so its winter is mild and pleasant.

Assam is in north-east India near the Bay of Bengal and receives very heavy monsoon rainfall. Rajasthan is in the west, far from the sea, and is mostly desert — so the monsoon brings very little rain there.

The reason for these differences is the location, distance from the sea, height of the land, and direction of winds.

Answer: India is a large country. Different regions have different distances from the sea, different heights (mountains vs. plains vs. deserts), and different wind patterns. That is why winter in the mountainous north (Kashmir) is very cold and snowy, while in the coastal south (Kerala) it is mild. Similarly, north-east India (Assam) gets heavy monsoon rain, but Rajasthan's desert gets very little.

Exercise 9.6 — Write — Winter and Summer crops

Q1 With the help of your teacher and elders, name the crops that grow in summer and winter in your region.

SOLUTION

Guidance: Ask your teacher, parents, or grandparents about crops grown in your area. Fill the two columns accordingly.

Commonly known examples (answers will vary by region):

Winter crops (Rabi): Wheat, mustard, gram (chickpea), peas, potato, barley.

Summer crops (Kharif or Zaid): Paddy (rice), maize, cotton, sugarcane, groundnut, millet (jowar, bajra); in summer/Zaid — watermelon, cucumber, musk melon.

Answer: Answers will vary by region. Common winter crops: wheat, mustard, gram, peas. Common summer crops: rice, maize, groundnut, watermelon. (Ask your teacher or elders to confirm what grows in your region.)

Exercise 9.7 — Match — Festivals to seasons

Q1 Match the festivals to the season they are celebrated in:

1. Pongal, Makar Sankranti
2. Holi
3. Diwali
4. Baisakhi, Gudi Padwa, Vishu, Rongali Bihu

(a) Spring — when flowers bloom
(b) Autumn — after crops are harvested
(c) New year and harvest festival
(d) Winter

SOLUTION

1. Pongal, Makar Sankranti — (d) Winter: celebrated in January to mark the end of the winter solstice and the beginning of the harvest season in winter.
2. Holi — (a) Spring: celebrated when flowers bloom and trees are bright with colours, marking the end of winter and arrival of spring.
3. Diwali — (b) Autumn: celebrated after the autumn harvest (October-November), when crops have been collected.
4. Baisakhi, Gudi Padwa, Vishu, Rongali Bihu — (c) New year and harvest festival: these are regional new year and harvest festivals celebrated in spring (around April).

Answer: 1 - (d), 2 - (a), 3 - (b), 4 - (c)

Exercise 9.8 — Let us reflect

Q1 Narrate your experiences about the season changes.

SOLUTION

Seasons bring visible changes in nature and in our lives.

Sample answer: In summer, it gets very hot. We eat mangoes and wear light cotton clothes. During the monsoon, it rains and everything turns green; we hear frogs and get wet going to school. In winter, mornings are cold and foggy; we wear sweaters and drink hot tea. Each season feels different and special.

Answer: Answers will vary. Sample: In summer the heat is intense and we eat cooling fruits. Monsoon brings rain, greenery, and the sound of frogs. Winter mornings are cold and foggy and we wear warm clothes. Each season has its own mood, food, and festivals.

Q2 Ask your family members and write about seasons. Do you find any major differences in the patterns of changing seasons? What could be possible reasons for these differences?

SOLUTION

Guidance: Talk to parents, grandparents, or other elders about how seasons were in their childhood or in their home region.

You may find differences such as: elders saying winters used to be colder and longer, or that monsoon used to bring more rain. This could be because of climate change — more pollution and cutting of trees have made temperatures rise and rainfall patterns shift.

Regional differences: A family member from a hilly region may describe much colder winters with snow, while someone from a coastal region may say it is warm even in winter.

Answer: Answers will vary. Possible reasons for differences: (1) Climate change — temperatures have risen and monsoon patterns have shifted over decades. (2) Location — families from hills, coasts, or deserts experience very different seasons. (3) Deforestation — fewer trees affect local rainfall and temperature.

Q3 Seasons have local names. Find out and write what the following seasons are called in your region and local language: (a) Spring, (b) Summer, (c) Monsoon, (d) Autumn, (e) Pre-winter, (f) Winter.

SOLUTION

India's six traditional seasons (Shadritu) have Sanskrit names and many regional names.

Sanskrit names: (a) Spring = Vasanta, (b) Summer = Grishma, (c) Monsoon = Varsha, (d) Autumn = Sharad, (e) Pre-winter = Hemant, (f) Winter = Shishir.

Examples of regional names: In Hindi regions — Basant, Garmi, Barsat, Sharad, Hemant, Sheet/Sardi. In Tamil — Ilavenil, Muthuvenil, Kaar, Koothir, Munpani, Pinpani. In Bengali — Basanta, Grishma, Varsha, Sharat, Hemanta, Sheet.

Answer: (a) Spring: Vasanta (Sanskrit). (b) Summer: Grishma. (c) Monsoon: Varsha. (d) Autumn: Sharad. (e) Pre-winter: Hemant. (f) Winter: Shishir. (Students should also write the names in their own local language — answers will vary by region.)

Q4 Fill the table based on your observations: for each season (Spring, Summer, Monsoon, Autumn, Pre-winter, Winter) write the food you eat, clothes you wear, festivals you celebrate, and nature around you.

SOLUTION

Guidance: Fill the table from your own experience and observations. The sample below shows typical answers for North India.

Spring: Food — fresh fruits and vegetables; Clothes — light cotton; Festivals — Holi, Basant Panchami; Nature — flowers bloom, birds chirp, pleasant weather.

Summer: Food — mangoes, watermelon, cold drinks, lassi; Clothes — light cotton, loose clothing; Festivals — summer holidays; Nature — hot, dry, trees may shed leaves.

Monsoon: Food — pakoras, corn, hot soup; Clothes — raincoats, umbrellas, rubber slippers; Festivals — Teej, Nag Panchami, Independence Day; Nature — rain, green plants, frogs, rainbows.

Autumn: Food — seasonal vegetables, harvest produce; Clothes — light woollens; Festivals — Navratri, Dussehra, Diwali; Nature — cooler weather, falling leaves.

Pre-winter: Food — warm soups, bajra/jowar rotis; Clothes — light sweaters; Festivals — Chhath Puja; Nature — mornings are cool, fog begins.

Winter: Food — gajar ka halwa, sarson ka saag, til ke laddu, hot tea; Clothes — sweaters, jackets, woolens, mufflers; Festivals — Pongal, Makar Sankranti, Lohri; Nature — cold mornings, fog, dew on grass.

Answer: Answers will vary by region. Sample (North India): Summer — mangoes, light cotton clothes, Nature is hot and dry. Monsoon — corn and pakoras, raincoat, green plants and rain. Winter — warm foods like gajar halwa, woollens, fog and cold mornings. (Fill in your own observations.)

Q5 Share your experience of seasons' journaling.

SOLUTION

Guidance: Reflect on what you observed and recorded in your journal throughout the year.

Sample: Over the year, I noticed that the neem tree outside my classroom shed its leaves in summer and grew fresh green leaves during the monsoon. In winter, the mornings were foggy and I could see dew on the grass. I also noted that the pond near my school was dry in summer but full during the rains. Writing in my journal helped me notice things I had not paid attention to before.

Answer: Answers will vary. Sample: Journaling helped me notice that the same tree looks completely different in each season. I saw dew on grass in winter, new leaves in spring, and fruit in summer. Journaling made me a more careful observer of nature.

Q6 Make a comparative drawing of the three major seasons: Summer, Monsoon, and Winter.

SOLUTION

Guidance: Draw three pictures side by side, one for each season.
Summer: Draw a bright sun with heat waves, a dry tree with few leaves, children in light cotton clothes, and a dry riverbed.
Monsoon: Draw dark clouds with rain falling, a lush green tree, children with umbrellas, frogs on the ground, and a full pond.
Winter: Draw a pale sun, a tree with fruits or bare branches, children in sweaters and jackets, fog in the background, and dew drops on grass.

Answer: Guidance: Draw three labelled pictures. Summer — bright sun, dry land, light clothes. Monsoon — rain, dark clouds, green trees, umbrella. Winter — fog, bare or fruit-bearing trees, warm clothes. Add any seasonal features you have observed yourself.