Learning and Teaching Resource Package Related to the Geography of China Topic 3 Agriculture and Food Supply (Junior Secondary Worksheet) Theme: Distribution of Agricultural Regions

Pre-lesson task

We will explore the distribution of agricultural regions in our country. By examining the following materials, we will gain a general understanding of the four main agricultural regions in our country: (1) the Northern Dryland Agricultural Region, (2) the Southern Paddy Agricultural Region, (3) the Northwestern Arid Agricultural Region and (4) the Qinghai-Tibet Plateau Agriculture Region. Read the Knowledge Box 3.1 and discuss the provided questions.

Knowledge Box 3.1

- Northern Dryland Agricultural Region: The Northern Dryland Agricultural Region boasts **expansive plains, fertile soil, and concentrated arable land**. With lower rainfall levels, most of the arable land in this area is dry land. The region primarily cultivates **wheat, corn, millet**, and other food crops, as well as cash crops like **sugar beets, cotton, and soybeans**. It holds significant importance as a dry farming area in our country. The North China Plain and Loess Plateau experience low precipitation, which is concentrated in the summer, leading to insufficient irrigation water and severe spring drought. To address the scarcity of freshwater resources, particularly in the Beijing-Tianjin region, the country has implemented cross-basin water diversion measures such as the South-to-North Water Diversion project. However, for long-term sustainability, the development of water-saving agriculture remains the only viable path for the region's agricultural growth.
- Southern Paddy Agricultural Region: The climate in the south is **hot and humid**, and the **water and heat conditions are excellent** for the development of agriculture. Most of the arableland is paddy fields, making it an important paddy field agricultural area in our country. In plain areas, the terrain is low and flat, with dense rivers and lakes, good irrigation conditions, and contiguous paddy fields; in mountainous areas, paddy fields are scattered in river valleys and gentle slopes. The main arable crop in the southern region is **rice**, but wheat, cotton, and oil crops are also grown. Additionally, this region is known for its **abundance of tea**, **bamboo**, **sugar cane**, **rubber**, **tropical and subtropical fruits such as citrus, bananas, and pineapples**.

- Northwestern Arid Agricultural Region: The Northwestern Arid Agricultural Region is characterised by extensive pastures, making it a vital hub for **pastoral farming**. The eastern part of the region, located east of Helan Mountain, receives more precipitation and boasts abundant surface water resources. Notably, it is home to large, **high-quality grasslands** such as the Hulunbuir Grassland and Xilingol Grassland. Conversely, the western part of the region experiences minimal precipitation and is predominantly covered by Gobi and deserts. However, the mountainous areas in this region receive more rainfall and feature scattered alpine pastures. The northwestern region faces challenges due to **limited precipitation**, making it difficult to meet the water requirements for crop growth. Agriculture can only be developed and irrigated in areas with access to rivers, groundwater, and other water sources. Despite these challenges, the region benefits from its high temperatures, intense sunlight, and **significant temperature fluctuations between day and night during the summer**. These conditions contribute to the production of high-quality agricultural products, with locally grown melons and fruits gaining recognition both domestically and internationally.
- Qinghai-Tibet Plateau Agricultural Region: The Qinghai-Tibet Plateau is a unique highland pastoral area in our country. Its high-cold conditions have led to the widespread distribution of cold-resistant alpine meadows in the region. Livestock, including yaks, Tibetan sheep, and Tibetan goats, have adapted to the special plateau environments characterised by high cold, hypoxia, and low air pressure. The Qinghai-Tibet region experiences lower temperatures and longer periods of sunshine. In certain areas with lower altitudes, such as the Brahmaputra Valley in the south and the Huangshui Valley in the east, conditions are more favourable for agricultural production. River valley agriculture is prevalent in these areas, benefiting from higher temperatures and fertile soil. This environment is suitable for the cultivation of crops like highland barley and wheat, which thrive in warm and cool temperatures.

Reference: Grade 8, Volume 2, Junior School Geography Textbook, People's Education Press

(a) Write the name of the four main agricultural regions at their correct locations on the map of China.



Figure 3.1 Four main agricultural regions in China

[Hints:]



(b) Match the pictures of farming activities with the four main agricultural regions and discuss the differences in the farming activities.



Picture	Agricultural region	
А		
В		
С		
D		

[Hints:

Picture	Agricultural region
А	The Southern Paddy Agricultural Region
В	The Qinghai-Tibet Plateau Agriculture Region
С	The Northern Dryland Agricultural Region
D	The Northwestern Arid Agricultural Region

The Southern Paddy Agricultural Region benefits from a hot and humid climate, providing ideal water and heat conditions for agricultural development. The majority of arable land in this region is dedicated to paddy fields, primarily used for rice cultivation. However, other crops such as wheat, cotton, and oil crops are also grown. The southern region is abundant in various resources, including tea, bamboo, sugar cane, and rubber. Additionally, it boasts a rich variety of tropical and subtropical fruits such as citrus fruits, bananas, and pineapples.

The Qinghai-Tibet Plateau Agriculture Region is characterised by its unique high-cold conditions. As a result, cold-resistant alpine meadows are extensively found throughout the region. Livestock, including yaks, Tibetan sheep, and Tibetan goats, thrive in these special plateau environments, adapting to challenges such as high cold, hypoxia, and low air pressure. In certain areas with lower altitudes, river valley agriculture is prevalent. These regions experience higher temperatures and possess fertile soil, making them suitable for the cultivation of crops like highland barley and wheat, which prefer warm and cool temperatures.

The Northern Dryland Agricultural Region receives limited rainfall, resulting in the majority of its arable land being dry land. This region primarily focuses on the cultivation of food crops such as wheat, corn, and millet. Additionally, it plays a significant role as a dry farming area in our country by growing cash crops like sugar beets, cotton, and soybeans.

The Northwestern Arid Agricultural Region holds significant importance as a pastoral farming base in our country. With its high temperatures, intense sunlight, and substantial temperature variations between day and night during the summer, the agricultural products produced in this region are known for their exceptional quality. Notably, the melons and fruits cultivated here have gained widespread recognition and fame both domestically and internationally.]

In-class learning and teaching

Learning objectives:

- To gain a comprehensive understanding of agriculture distribution across our country.
- To analyse the factors affecting the agriculture distribution in our country.

Development 1: Arable farming areas in our country

Watch Topic 3 Agriculture and Food Supply video (junior, 0:00-3:40), read Knowledge Box 3.2, and discuss the questions below.



Reference: Grade 8, Volume 1, Junior School Geography Textbook, People's Education Press

(a) Referring to Figure 3.1 "Four main agricultural regions in China", where is the dividing line between the Northern Dryland Agricultural Region and the Southern Paddy Agricultural Region?

[Hints: The boundary that separates the Northern Dryland Agricultural Region from the Southern Paddy Agricultural Region in our country is commonly referred to as Line A. This line is typically defined by the Qinling Mountains - Huai He Line, which stretches from the eastern region near the Huai He to the western area near the Qinling Mountains.]

(b) Referring to Figure 3.3, on which levels of our country's three-step ladder-like topography are the Northern Dryland Agricultural Region and the Southern Paddy Agricultural Region located?



Figure 3.3 The three-step ladder-like topography in China

[Hints: The two studied regions can be found in our country's third step.]

(c) Referring to Figure 3.4, which isohyet closely aligns with the dividing line between the Northern Dryland Agricultural Region and the Southern Paddy Agricultural Region (line A)?

[Hints: 800mm annual isohyet.]

Figure 3.4 China's three-step ladder-like topography lines, annual isohyet,



and January isotherm

(d) Referring to Figure 3.4, which January isotherm closely aligns with the dividing line between the Northern Dryland Agricultural Region and the Southern Paddy Agricultural Region (line A)?

[Hints:0 °C January isotherm.]

(e) What are the distinct characteristics of the Northern Dryland Agricultural Region and the Southern Paddy Agricultural Regions? Discuss and circle the correct answer in the following table.

	The Northern Dryland	The Southern Paddy
	Agricultural Region	Agricultural Region
The average temperature in January	Below 0°C / Above 0°C	Below 0°C / Above 0°C
Annual rainfall (mm)	Below 800mm / Above	Below 800mm / Above
	800mm	800mm
Rivers freeze in winter	Yes / No	Yes / No
Type of arableland(Dryland/Paddy land)	Dryland / Paddy land	Dryland / Paddy land
Cropping pattern	Annual single cropping and	Annual single cropping and
	three cropping in two years /	three cropping in two years /
	Annual double cropping, and	Annual double cropping, and
	annual triple cropping	annual triple cropping
Major grains (list at least		
three)		

Table 3.1 Characteristics of the Northern Dryland Agricultural Region and theSouthern Paddy Agricultural Region.

[Hints:

	The Northern Dryland	The Southern Paddy
	Agricultural Region	Agricultural Region
The average temperature in	Below 0°C	Above 0°C
January		
Annual rainfall (mm)	Below 800mm	Above 800mm
Rivers freeze in winter	Yes	No
Type of arable land	Dryland	Paddy land
(Dryland/Paddy land)		
Cropping pattern	Annual single cropping and	Annual double cropping, and
	three cropping in two years	annual triple cropping
Major grains	Wheat, corn, soybean, etc.	Rice, tea, sugar cane, etc.

Please note that the table provides a brief overview of the characteristics of these regions.]

Development 2: Pastoral farming areas in our country

Watch Topic 3 Agriculture and Food Supply video (junior, 3:41-7:00), read Knowledge Box 3.3, and discuss the questions below.

Knowledge Box 3.3

- Northwest China is situated far inland and experiences an arid climate, while the Qinghai-Tibet Plateau boasts high terrain and a cold climate, which poses limitations on agricultural development. However, the region is abundant in vast pasturelands, making it a crucial pastoral area in our country. Additionally, irrigated agriculture has been successfully established in the foothill plains, the Huang He Hetao area, and the Ningxia Plain, where water sources for irrigation are available in the northwest. These areas are known for their bountiful harvests of wheat, high-quality cotton, sugar beets, grapes, and cantaloupe. In the valley regions with lower altitudes on the Qinghai-Tibet Plateau, cold-tolerant crops such as highland barley and rapeseed plants can be cultivated. These crops thrive in the cooler temperatures of the plateau's valley areas.
- Taking a dialectical view of the climatic conditions in northwest China: while certain restrictions are imposed on agricultural production, there are also notable advantages. The region experiences an abundance of sunny days, lower water vapour in the air, excellent air quality, strong solar radiation, and long hours of sunshine. These conditions contribute to the production of an ample amount of nutrients by crops and pastures due to the high daytime temperatures and intense radiation. Moreover, the cool nighttime temperatures result in lower nutrient consumption by crops and pasture, facilitating nutrient accumulation. These favourable climatic conditions in the northwest region contribute to high crop yields and superior quality. Fruits grown in this area are known for their exceptional sweetness, while cotton fibers exhibit remarkable length.

Reference: Grade 7, Volume 2, Junior School Geography Textbook, Shanghai Education Edition

(a) Referring to Figure 3.1 "Four main agricultural regions in China" in the Pre-lesson task, where is the dividing line between the Northern Dryland Agricultural Region and the Northwestern Arid Agricultural Region?

[Hints: The boundary separating the Northern Dryland Agricultural Region from the Northwestern Arid Agricultural Region is referred to as Line B. The primary determining factor along this line is the presence or absence of the summer monsoon influence.]

(b) Referring to Figure 3.4 our country's three-step ladder-like topography line, annual isohyet, and January isotherm, which annual precipitation isoline closely aligns with the dividing line between the Northern Dryland Agricultural Region and the Northwestern Arid Agricultural Region (line B)?

[Hints: 400mm annual isohyet.]

(c) Referring to Figure 3.1 "Four main agricultural regions in China", where is the dividing line between the Southern Paddy Agricultural Region, the Northwestern Arid Agricultural Region, and the Qinghai-Tibet Plateau Agriculture Region?

[Hints: The dividing line between the Southern Paddy Agricultural Region, the Northwestern Arid Agricultural Region, and the Qinghai-Tibet Plateau Agricultural Region is commonly referred to as Line C. This line is located near the boundaries of the first and second steps in our country's topography. Hence, terrain and relief are the factors that affect the division of agricultural regions in the selected area.]

(d) What are the favourable and limiting factors of developing agriculture in the Northwestern Agricultural Region and the Qinghai-Tibet Plateau Region?





Figure 3.6 Agricultural Distribution in the Qinghai-Tibet Plateau Region



[Hints:

Limiting factors of Developing Agriculture in the Northwestern Agricultural Region:

Water scarcity: One of the most significant challenges facing agriculture in the northwestern region is water scarcity, as the area receives limited precipitation and relies heavily on irrigation from rivers and groundwater sources, leading to overexploitation and depletion of water resources.

Soil degradation and desertification: Unsustainable farming practices, coupled with wind and water erosion, contribute to soil degradation and desertification in the region, reducing land productivity and threatening agricultural sustainability.

Extreme climate conditions: The region experiences extreme temperature fluctuations, including hot summers and cold winters, posing challenges for crop growth and livestock management and requiring adaptation strategies to mitigate climate risks.

Favourable factors of developing agriculture in the Northwestern Agricultural Region:

Diverse agro-climatic conditions: Despite being arid, the region exhibits diverse agro-climatic conditions, allowing for the cultivation of a variety of crops, including drought-resistant grains and fruits.

Strategic importance: The region's proximity to Central Asia and its strategic location along major transportation routes, such as the Silk Road Economic Belt, present opportunities for

agricultural trade and economic development, especially in the context of our country's Belt and Road Initiative.

Limiting factors of developing agriculture in the Qinghai-Tibet Plateau Region:

Harsh climate conditions: The plateau region experiences harsh climate conditions, including low temperatures, short growing seasons, and high-altitude environments, limiting the types of crops and livestock that can be successfully cultivated and raising challenges for agricultural production and livelihoods.

Fragile ecosystems: The fragile ecosystems of the Qinghai-Tibet Plateau are susceptible to degradation from overgrazing, land conversion, and climate change impacts, posing threats to biodiversity, soil fertility, and ecosystem resilience.

Limited infrastructure: The remote and rugged terrain of the plateau region presents challenges for agricultural development, including limited access to markets, inadequate transportation infrastructure, and difficulty in implementing agricultural technologies and extension services.

Favourable factors of developing agriculture in the Qinghai-Tibet Plateau Region:

Rich biodiversity: The Qinghai-Tibet Plateau region harbours rich biodiversity and unique ecosystems, providing opportunities for biodiversity conservation and sustainable agriculture practices, including traditional farming systems and agroforestry.

High-quality products: The natural environment and organic farming practices in the plateau region contribute to the production of high-quality agricultural products, including Tibetan barley, yak meat, and medicinal herbs, which have cultural significance and market demand.

Therefore, agricultural development should follow the concept of local convenience.]

Post-lesson task

Read Knowledge Box 3.4 and discuss the questions below:

Knowledge Box 3.4

- The agricultural output of our country's provinces is not directly proportional to their land area (Figure 3.7). Due to differences in geographic and climatic conditions, there are significant variations in agricultural output across provinces. For example, **Xinjiang** and **Xizang** have vast land areas but relatively low agricultural production due to arid and cold climates. Although **Xinjiang** has abundant sunshine and large areas of land, water resources are scarce, and agricultural production is mainly concentrated in oasis zones, with cotton and speciality fruits as the main products. **Xizang**, with its high altitude and cold climate, has limited land suitable for farming and is dominated by highland barley.
- On the other hand, **Heilongjiang**, **Henan**, and **Shandong** are major grain production bases in our country. These provinces have flat relief, fertile soil, and favourable climates suitable for large-scale grain cultivation. **Heilongjiang** is the largest producer of corn and soybeans in the country, boasting fertile black soil. In 2023, **Heilongjiang** achieved its 20th consecutive year of increased grain production, with a total output of 155.764 billion jin (the second highest in history), accounting for 11.2% of the national total and ranking first in the country for 14 consecutive years. **Henan** is the largest summer grain-producing province in our country, primarily growing wheat and corn. **Shandong** is also a significant grain-producing region, with wheat and corn yields among the highest in our country. The high output in these areas is not only due to favorable natural conditions but also advanced agricultural technology and well-developed infrastructure.
- Note: Summer grain refers to grain harvested in summer, mainly including wheat and early rice. Among them, the main summer grain in Henan Province is wheat.



Figure 3.7: Comparison between the proportion of provincial area and proportion of food production in provincial administrative regions in 2022

Source: China Statistical Yearbook, 2023

- (a) Which of the four agricultural regions is Heilongjiang located in? Which of the four agricultural regions is Xinjiang located in?
- A. Northern Dryland Agricultural Region; Qinghai-Tibet Plateau Agricultural Region
- B. Northern Dryland Agricultural Region; Northwestern Arid Agricultural Region
- C. Southern Paddy Agricultural Region; Qinghai-Tibet Plateau Agricultural Region
- D. Southern Paddy Agricultural Region; Northwestern Arid Agricultural Region

[Hint: B]

(b) Read Knowledge Box 3.4 and Figure 3.7. Is the agricultural output of each province in our country proportional to its land area? Why?

[Hint: The agricultural output of each province in our country is not necessarily proportional to its land area. Although some provinces, such as Xinjiang, have vast land areas, agricultural production in these areas is relatively low due to geographical conditions, soil quality and climatic factors.]

(c) Henan is our country's largest summer grain-producing province, with wheat as its primary crop. Wheat is widely cultivated, mainly concentrated in the Huang He basin and plain areas. Every summer, the sight of sprawling fields brimming with golden wheat is nothing short of breathtaking. For a comprehensive understanding of Henan's agricultural prowess, search online for what other major crops are produced in Henan Province to learn more about its agricultural production. This can help us to reveal the variety of major crops produced in this region, further illuminating the richness of Henan's agricultural landscape. Write a brief summary of the information that you collected.

[Hint: Corn is another major grain crop in Henan Province, primarily grown in the eastern and northern parts of Henan province. It is usually planted after the summer wheat harvest and matures in the fall. Every autumn, you can see vast green cornfields, with tall and sturdy corn plants, and ears of corn hanging heavily from the stalks. Peanuts are an important economic crop in Henan, mainly cultivated in the central and eastern parts of Henan province. Henan's peanut planting area and production rank among the top in the country. During the harvest season, farmers can be seen uprooting the peanut plants, drying them, and threshing the peanuts, creating a bustling scene in the fields.

Henan Province has a wide variety of vegetables and a large planting area, making it an important vegetable production base in our country. In many parts of Henan, you can see large vegetable greenhouses that supply the market year-round.

Henan Province also has a rich variety of fruits, including apples, pears, grapes, and more. Luanchuan apples and Xinyang pears are particularly well-known. In the fruit orchards, you can see apple trees, pear trees, and grapevines, with fruits hanging abundantly from the branches, creating an enticing scene.]