Dongguan and Huidong Field Study (2 days) (Industry and Farming) Learning and Teaching Materials

(for Junior Secondary School Geography Students)

Guangdong-Hong Kong-Macao Greater Bay Area

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I. Objectives

The primary objective of this field study is to gain a holistic understanding of South China's industrial and farming development, with a specific emphasis on Dongguan and Huidong. The following objectives will guide our investigation:

1. **Discovering the industrial changes in Dongguan:**
- Explore the industries in Dongguan, from making things to tech work.
- Analyse how being part of the global market is both good and tough for Dongguan.

2. **Appreciating Dongguan's Growth and Changes:**
- Investigate how fast growth changes jobs and life in Dongguan.
- Assess how new buildings, roads, and better life come with quick growth.

3. **Analysing a revitalised old factory sites in Dongguan:**
- Examine how Dongguan revitalises historic factories while preserves their history.
- Understand how these old spots make Dongguan unique and attract visitors.

4. **Understanding About Farming in Huidong; Trying New Farming Methods:**
- Investigate how Huidong farms change from traditional to new ways.
- Assess the productivity and environmental impact of hydroponic farming, a soil-free method.

I. Proposed itinerary

Itinerary & Schedule			
Date	**Time**	**Activity**	**Theme**
Day 1	7:45 – 9:00	1. Hong Kong West Kowloon High-Speed Rail Station TO Dongguan High-Speed Rail Station	● To examine the agglomeration of electronic industry in Dongguan and its locational factors; ● To learn the urban development and planning of Dongguan; ● To understand how rehabilitation can be carried out in some old industrial sites.
	9:00 – 12:30	2. Dongguan High-Speed Rail Station TO Dongguan Industrial Park Visit **Dongguan Yueyang Wire & Cable Company Limited**	
	12:30 – 2:00	3. Lunch Time	
	2:00 – 4:00	4. Visit **Dongguan Planning Exhibition Hall**	
	4:00 – 5:30	5. Visit **Jianyu Zhou Culture and Innovation Industrial Park**	
	5:30 – 7:30	6. Dinner & Debriefing	
Day 2	08:00 –10:30	1. To Huidong County (about 2.5-hour)	● To learn eco-agricultural development in Huidong ● To explore the development of petrochemical industry in Daya Bay
	10:30 –12:30	2. Visit **Aqua Green Holdings Limited**	
	12:30 –2:00	3. Lunch Time	
	2:00 –3:10	4. To Daya Bay (about 1-hour)	
	3:10–3:40	5. To Daya Bay petrochemical Industrial Zone	
	3:40–3:50	6. To **1st Complex of CNOOC and Shell Petrochemicals Company Limited (CSPC)**	
	3:50–5:30	**7.** Visit **Exhibition Hall of CSPC (1st Complex)**	
	5:30 –7:30	8. Coach trip from Huiyang via Liantang Port Station to Kowloon Tong MTR station	

II. Introduction to the sites of visit

1. Dongguan Yueyang Wire & Cable Company Limited

Dongguan Yueyang Wire & Cable Co. Ltd. is a privately owned enterprise that specialises in wire drawing and plug manufacturing. The company was established in February 2002 and currently occupies a 20,000 square meter area. In 2003, the Transocean Electronic Plug Factory was established as an extension of the company's operations.

To gain a competitive edge in the market, the company gradually introduced various automated equipment to improve production efficiency and ensure quality. This included an automatic soldering machine, a USB automatic riveting machine, and a single and double cable winder, among others.

2. Dongguan Planning Exhibition Hall

Dongguan Planning Exhibition Hall is spread across an area of 3.46 hectares and has two floors. The first floor is the main exhibition area, which is further divided into five thematic exhibition areas, including the Preface Hall, Imprint, Wisdom, Home, and Future. The second floor is a panoramic model area.

It is the first underwater planning museum in China, with the theme of "Planning makes the city better". It concentrates the key areas of the city and the characteristics of its people, adopting differentiated concepts, new narrative methods, detailed contents, and advanced display techniques to create a public welfare exhibition space for urban planning. The exhibition offers a unique perspective, aiming to showcase the attitude and warmth of Dongguan.

3. **Jianyu Zhou Culture and Innovation Industrial Park**

Jianyu Zhou is located on the east side of Dongjiang Avenue and the west side of Houjie Waterway in Dongguan. Historically, it used to be a hub for grain and oil companies, as well as foreign trade enterprises, and played a significant role in Dongguan's pioneering efforts towards rural industrialisation during the early stages of China's reform and opening-up. However, this site gradually faded away after urbanisation took place.

In recent years, this site has been revitalised and transformed into a culture and innovation industrial park. Today, it boasts more than 20 stalls and has become a popular destination for young people to hang out, chat, and enjoy coffee. Nowadays, it has become an internet-famous attraction in Dongguan.

4. **Aqua Green Holdings Limited**

Within 20 miles of the planting base, there are no factories that could potentially jeopardise the quality of the air. The salad seeds provided are irrigated with the help of natural resources such as abundant sunlight and sustainable water sources. The entire farming process, including sowing, harvesting, and processing, is carried out without the use of genetically modified seeds, chemical pesticides, or fertilisers that contain heavy metals. This is why the farm has received a "HACCP" certification and an "ISO 22000" international food safety certification.

Aqua Green Holdings Ltd. was established in 2012 by Ms. Tracy Lam and Ricky Lau. In 2014, they acquired a 50-year lease on a 2,000-mu agricultural land in Huidong County, Huizhou, Guangdong Province. With a focus on sustainability, they chose to plant the first-generation Salanova seed and nutritional formula from the Netherlands and implemented hydroponics technology from Australia, using relevant patented technologies for support. These efforts resulted in the successful creation of a new and healthy platform for agricultural products.

5. Exhibition Hall of CSPC (1st Complex)

CSPC is a leading producer of olefin and derivative products. Their products serve as raw materials for the domestic market and are used in various industries such as agriculture, manufacturing, construction, medicine, automobiles, household items, electronics, cosmetics, and other consumer goods. As one of the largest single-site ethylene plants in China, CSPC's complex consists of two phases of projects with an ethylene capacity of 2,200 ktpa. They supply over 6 million metric tonnes of high-quality products to the market every year.

CNOOC and Shell Petrochemicals Company Limited (CSPC) was established in 2000 and is located in Daya Bay Petrochemical Park, Huizhou, Guangdong Province. It is one of the largest petrochemical joint ventures in China, with CNOOC Petrochemicals Company Limited, the Chinese shareholder, holding 50% of the shares, and Shell Nanhai B.V. CSPC, the foreign shareholder, holding the remaining 50% of the shares.

Fieldwork Information Sheet 1

IT industry development in Dongguan, China

The IT industry in Dongguan, a city in the Guangdong Province of China, represents a significant part of the city's economic transformation and growth. Historically known as a manufacturing hub within the Zhujiang (Pearl River) Delta, Dongguan has strategically pivoted towards high-tech industries, including information technology, as part of its broader industrial upgrading and economic development strategy. Here are some key points regarding the IT industry's agglomeration in Dongguan:

Strategic Shift

From Manufacturing to High-Tech: Dongguan has transitioned from being predominantly focused on manufacturing, particularly in textiles and electronics assembly, to emphasising the development of high-tech industries, including IT and related services.

Government Policies

Support and Incentives: The local government has implemented various policies to attract IT businesses and investments. These include tax incentives, financial subsidies for research and development (R&D), and the establishment of high-tech zones and IT parks.

Infrastructure Development

Tech Parks and Zones: Dongguan possesses several technology parks and industrial zones specifically designed to cater to the needs of IT and high-tech companies. These zones offer state-of-the-art infrastructure, business services, and networking opportunities for companies.

Talent and Education

Skilled Workforce: The city has focused on education and vocational training to develop a skilled workforce capable of supporting the IT industry. This includes partnerships with universities and institutions to tailor programs to the industry's needs.

Location Advantage

Proximity to Major Economic Centers: Dongguan's strategic location in the Zhujiamg (Pearl River) Delta, near major economic and technological centers like Shenzhen and Hong Kong, provides easy access to markets, talent, and technological innovations.

Challenges and Adaptation

Evolving Industry: While transitioning, Dongguan faces challenges such as competition from other tech hubs, environmental concerns, and the need for continuous innovation. The city has shown adaptability by focusing on sectors with growth potential, such as software development, cloud computing, and artificial intelligence (AI).

Impact

Economic Growth and Diversification: The growth of the IT industry in Dongguan has contributed to the city's economic diversification, moving away from low-end manufacturing to more knowledge-intensive sectors. This shift has implications for the city's overall economic stability, sustainability, and global competitiveness.

Dongguan's approach to agglomeration of IT industry illustrates the city's commitment to remaining a significant player in China's evolving economic landscape, adapting to global trends, and pursuing sustainable development.

Fieldwork Worksheets 1

Student Name: _____

Date and time of Visit: _____

Location: _____

Fieldwork site 1: Dongguan Yueyang Wire & Cable Company Limited

Data collection methods: Observation, note-taking, photo-taking

1. **During your visit to Dongguan Yueyang Wire & Cable Company Limited, listen to the introduction given by the speaker and carefully observe the setting of the factory.**

a. How does the location contribute to the factory's operation?

i) What means of transportation are available near the factory?

_____

_____

_____

ii) Which big cities are near to the factory?

_____
_____
_____

iii) What are the advantages of being near to big cities?

_____
_____
_____
_____

b. Observe and record the size and design of the factory building. Tick the boxes next to the items you can identify.

Factory Size

☐ Large-scale (covers a very large area, possibly multiple buildings)
☐ Medium-sized (covers a big area, but contained within a single building)
☐ Small-scale (small in area, limited to a small area or unit)

Building Structure

☐ Single-story
☐ Multi-story
☐ High-rise

Architectural Style

☐ Modern (sleek, contemporary design)
☐ Industrial (functional, utilitarian design)
☐ Traditional (incorporates elements of traditional architecture)
☐ Custom-built (unique design tailored for its specific use)

Environmental Characteristic

☐ Solar panels (for energy efficiency)
☐ Green roof (covered with vegetation)
☐ Rainwater harvesting system
☐ Energy-efficient windows and lighting

Exterior Design Elements

☐ Glass facade (large glass panels as part of the exterior)
☐ Steel structure (visible steel elements)
☐ Brick or concrete (traditional building materials)
☐ Landscaped areas (gardens or green spaces around the factory)

Accessibility

☐ Wheelchair accessible entrances
☐ Bicycle parking facilities

☐ Public transportation access (nearby bus or train stations)
☐ Parking lot for cars and motorcycles

Signage and Branding
☐ Factory name and logo prominently displayed
☐ Directional signs (for various sections or departments within the factory)
☐ Informational signs (about safety, operations, or products)

Surrounding Area
☐ Located in an industrial park
☐ Adjacent to natural landscapes (rivers, hills)
☐ Proximity to residential areas
☐ Isolated with surrounding developments

c. While touring the inside of the IT factory, observe the following characteristic. Tick the boxes next to the items you can identify.

Production Line Features
☐ Conveyor belts
☐ Automated assembly machines
☐ Manual assembly stations
☐ Quality control checkpoints
☐ Packaging area
☐ IT Products Being Manufactured
☐ Other electronics (specify): _____

Safety Measures
☐ Fire extinguishers and safety signs
☐ Emergency exits clearly marked
☐ Workers wearing protective gear (helmets, gloves, goggles)
☐ First aid stations

Environmental Controls
☐ Temperature control systems
☐ Air filtration and ventilation systems
☐ Noise reduction measures
☐ Energy-saving lighting
☐ Monitoring machine performance
☐ Using computers for quality control

Workspace Layout
☐ Open-plan production areas
☐ Segregated sections for different production stages
☐ Adequate lighting and space between machines
☐ Clean and organized workstations

Technology and Innovation

- ☐ Use of robotics and automation
- ☐ Advanced manufacturing technologies <3D printing, CNC(computer numerical control) machines
- ☐ Research and development lab
- ☐ Display or information about recent innovations

Fieldwork site 2: Jianyu Zhou Culture and Innovation Industrial Park

Data collection methods: Observation, survey, photo-taking

Revitalisation of Old Industrial Areas - Jianyu Zhou Culture and Innovation Industrial Park

Jianyu Zhou is located on the east side of Dongjiang Avenue and the west side of Houjie Waterway in Dongguan. Historically, it was a hub for grain and oil companies and foreign trade enterprises. It played a significant role in Dongguan's pioneering efforts towards rural industrialisation during the early stages of China's reform and opening-up. However, this site gradually faded away after urbanisation took place. In recent years, this site has been reconstructed and transformed into a culture and innovation industrial park. Today, there are more than 20 stalls and have become a popular destination for young people to hang out, chat, and enjoy coffee. Nowadays, it has become a famous attraction in Dongguan.

Field Study Observation form and checklist

Student Name: _____

Date and time of the visit: _____

Weather conditions

Temperature:_____ **Precipitation:**_____

Park Name: _____

Location: _____

Part 1: First Impressions

- ☐ Welcoming atmosphere
- ☐ Modern design elements
- ☐ Traditional design elements
- ☐ Interactive digital displays

Part 2: Cultural Aspects

- ☐ Statues or sculptures
- ☐ Historical markers or plaques
- ☐ Cultural exhibits (e.g., art, textiles)
- ☐ Live performances (music, dance, theatre)
- ☐ Workshops or demonstrations (crafts, traditional arts)

Part 3: Innovation and Technology

☐ Eco-friendly features (solar panels, green roofs)
☐ Interactive technology installations
☐ Educational exhibits on innovation
☐ Displays on sustainability practices
☐ Innovative use of space or architecture

Part 4: Interaction between Culture and Innovation

☐ Exhibits combining technology and cultural themes
☐ Community projects showcasing local innovation
☐ Spaces designed for collaborative creativity
☐ Programs or events promoting cultural tech start-ups

Part 5: Personal Reflection (Tick the aspects you found most impactful)

☐ Learned something new about culture
☐ Inspired by innovative technology
☐ Enjoyed the integration of culture and innovation
☐ Found a favourite spot or exhibit in the park

Part 6: Environmental Quality of the Park

1. **How would you rate the air quality in the surveyed area?**

☐ Excellent ☐Good ☐Fair ☐ Poor ☐ Very Poor

2. **How would you rate its appearance of the water body (river, lake, pond) nearby?**

☐ Clear ☐ Slightly Cloudy ☐ Murky ☐ Contaminated with litter/trash

3. **How would you describe the noise level in the area?**

☐ Excellent ☐ Good ☐ Fair ☐ Poor ☐ Very Poor

4. **What is the primary source of noise?**

☐ Traffic ☐ Industrial Activities ☐ Construction ☐ Nature (e.g. bird, water)

☐ Other: _____

5. **Are there green spaces (parks, gardens, street trees) in the area?**

☐ Yes ☐ No

6. How would you rate the maintenance of these green spaces?

☐ Well-maintained ☐ Moderately maintained ☐ Poorly maintained

☐ Not applicable

7. Have you noticed a variety of wildlife (birds, insects, small mammals) in the area?

☐ High Variety ☐ Moderate Variety ☐ Low Variety ☐ No Wildlife Observed

8. Do you agree the cultural heritages in the park have been well preserved?

☐ Strongly disagree ☐ Disagree ☐ Fair ☐ Agree

☐ Strongly Agree

Reasons with evidence:

9. On a scale 1 to 10, how would you rate the success of this revitalisation project.

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10

Reasons with evidence:

10. As a park visitor, how would you assess the park's attractiveness?

☐ Not very attractive ☐ Not Attractive ☐ Fair ☐ Attractive ☐Strongly Attractive

Reasons with evidence:

11. Give suggestions for the park's improvement

Fieldwork Information Sheet 2

Farming Systems in South China

A. Introduction

South China's farming system is a testament to the harmony between human endeavor and the natural world. From the terraced rice paddies of Guangdong and Guangxi to the coastal aquaculture and fruit orchards, each element of this agricultural mosaic reflects the region's geographical and cultural heritage. This exploration not only highlights the physical and human factors influencing agricultural development but also underscores the importance of sustainable practices in ensuring the resilience of South China's farming traditions in the face of modern challenges.

1. Physical factors for agricultural development in South China

Climate

The subtropical climate of Guangdong and Guangxi is a fundamental driver of agricultural diversity. Characterised by moderate temperatures and consistent rainfall, this climate zone offers a conducive environment for the year-round cultivation of a wide array of crops. This climatic advantage facilitates the production of both seasonal and year-round crops, ensuring food security and agricultural sustainability for the region.

Topography

The diverse topography of these provinces, ranging from flat plains to undulating hills and steep mountains, presents unique opportunities for agricultural practices. Terraced agriculture, a method adapted to sloping terrains, not only maximises land utilisation but also embodies an ancient wisdom in water conservation and soil retention. This ingenious adaptation of farming practices to the local geography has sculpted the landscape over centuries, creating a distinctive cultural and environmental heritage.

Soil Quality

The fertility of the soil in Guangdong and Guangxi plays a critical role in supporting diverse agricultural activities. The alluvial soils found along riverbanks are particularly rich in nutrients and good for intensive farming. In contrast, hillier areas are managed through soil conservation practices like terracing, which helps prevent erosion and maintain soil health, thereby supporting sustainable agricultural practices across different terrains.

Biodiversity

The rich biodiversity within these subtropical regions underpins the resilience of agricultural systems. A wide variety of plant and animal species contributes to a balanced ecosystem, which is crucial for natural pest control, pollination, and maintaining soil fertility. This biodiversity not only enhances the sustainability of agricultural practices but also supports the cultivation of a broad spectrum of crops, enriching both the diet and economy of the region.

Water Resources
The abundance of water resources, including rivers, lakes, and reservoirs, is vital for irrigation and crop cultivation in Guangdong and Guangxi. The strategic use of these water bodies for irrigation underpins the productivity of agriculture in the region, enabling farmers to manage water supply efficiently and sustain crop growth even during drier periods.

Land Availability
The availability of arable land is a significant asset for Guangdong and Guangxi, allowing for the expansion and diversification of agricultural activities. The extensive land resources support a multitude of farming operations, from rice paddies to orchards and vegetable gardens, facilitating a multifaceted agricultural sector that is both robust and adaptable.

2. Human Influences on Agriculture in South China

Government Policies
Government land management and economic policies have historically influenced the agricultural landscape of South China. From land tenure systems to economic incentives, these policies have shaped land use patterns, farming practices, and the mechanisation of agriculture, reflecting the government's role in fostering agricultural development and sustainability.

Technological Adoption
The adoption of modern agricultural technologies, including machinery and advanced irrigation techniques, has significantly enhanced the efficiency and productivity of farming in South China. This technological integration has allowed for more precise farming operations, reducing labour requirements and improving crop yields.

Labour
Labour including the availability of a workforce and migration trends, significantly impact agricultural practices. The shift from traditional, labour-intensive farming to more mechanised approaches reflects broader social and economic trends, influencing the region's sustainability and evolution of agriculture.

Market Forces
Market access and information about crop demand are crucial for commercialising agriculture in South China. Farmers' ability to respond to market signals and adapt crop choices accordingly drives the economic viability of agricultural practices, linking local production with global food systems.

Financial Resources
Investments in agricultural technology and research are pivotal for the advancement of sustainable farming methods in South China. Financial resources enable the development and dissemination of innovative practices, ensuring the long-term sustainability of the agricultural sector.

Education and Knowledge
Education and access to agricultural knowledge are key factors enabling farmers to adopt innovative practices and technologies. Extension services and farmer education programs play

vital roles in disseminating information and best practices, enhancing agriculture's overall productivity and sustainability in the region.

B. Hydroponic

1. What is meant by hydroponic?

Hydroponics is a way to grow plants using water mixed with minerals instead of soil. This method lets us carefully control the plant's environment, such as how much food and water they get. It's great for growing plants indoors, in places without good soil, and for saving water.

2. Types of hydroponic

Nutrient Film Technique (NFT): In NFT systems, plants are grown in channels or gullies with a thin film of nutrient solution flowing along the bottom. The plant roots are suspended in the solution, allowing them to absorb nutrients directly. This system is highly efficient in water and nutrient usage and is commonly used for growing leafy greens and herbs.

Deep Water Culture (DWC): DWC systems, also known as the "raft" or "pond" method, involve suspending plant roots in a nutrient solution contained in a deep reservoir. Plants are typically supported by floating platforms or rafts. This system is straightforward to set up and is suitable for growing a wide range of plants, including lettuce, herbs, and small fruiting crops like strawberries.

Ebb and Flow (Flood and Drain): Ebb and flow systems utilise a flood and drain approach, where plant roots are periodically submerged in a nutrient solution before being drained away. This cyclic flooding ensures adequate oxygenation of the roots while delivering nutrients. Ebb and flow systems are versatile and can accommodate various plant types, making them popular among hydroponic enthusiasts.

Drip System: Drip systems deliver a nutrient solution directly to the base of each plant through a network of tubes and emitters. This method allows for precise control over nutrient delivery and can be automated for efficiency. Drip systems are commonly used in commercial hydroponics to grow larger plants like tomatoes, cucumbers, and peppers.

Aeroponics: Aeroponic systems suspend plant roots in the air, misting them with a nutrient-rich solution at regular intervals. This method promotes rapid growth and efficient nutrient absorption while conserving water. Aeroponic systems are ideal for growing plants with delicate roots, such as strawberries and orchids, and are popular in research settings for studying plant physiology.

3. Advantages and Disadvantages of Hydroponics

i. Advantages

Faster Plant Growth: The direct delivery of nutrients to plant roots in a hydroponic system

accelerates growth rates. This efficiency arises because plants don't have to expend energy searching for nutrients in soil, allowing for quicker development and shorter harvest cycles.

Increased Yield: Hydroponic farming can significantly boost productivity per unit of space. The precise control over nutrients and environmental conditions, along with the potential for vertical farming, means more plants can be grown in smaller areas compared to traditional farming methods.

Water Conservation: One of the most eco-friendly aspects of hydroponics is its water efficiency. Systems recirculate water, dramatically reducing consumption. This is particularly beneficial in areas with water scarcity, as it makes agricultural production more sustainable.

Optimised Nutrient Delivery: Hydroponics allows for the meticulous adjustment of nutrient concentrations, ensuring plants receive exactly what they need for optimal growth. This precision minimises nutrient waste and can lead to healthier, more robust plants.

Space-Saving: The ability to stack hydroponic systems vertically makes it an ideal choice for urban settings or places where arable land is scarce. This space efficiency opens up new possibilities for food production in densely populated areas.

Year-Round Production: Hydroponics enables the continuous cultivation of crops throughout the year, ensuring a steady supply of fresh produce.

Lower Pesticide Use: The soil-free nature of hydroponics reduces the prevalence of soil-borne pests and diseases, leading to a reduced need for chemical pesticides. This contributes to healthier plants and reduces the environmental impact of crop production.

Controlled Environment: Indoor hydroponic systems offer unparalleled control over the growing environment, including temperature, light, and humidity. This control can improve growth conditions and protect crops from adverse weather, pests, and diseases.

ii. Disadvantages

Initial Setup Cost: The upfront cost of establishing a hydroponic system can be high. Equipment such as pumps, grow lights, and nutrient delivery systems represent significant investments, which may be prohibitive for small-scale growers.

Technical Knowledge Requirement: Successful hydroponic farming demands a good grasp of the system's mechanics, including nutrient balance, pH levels, and environmental controls. It may be difficult for newcomers to learn hydroponics.

Complex Maintenance: Keeping a hydroponic system running smoothly requires regular monitoring and maintenance. System components like pumps and filters must be kept in working order, and nutrient solutions need frequent testing and adjustment.

Energy Dependence: Particularly for indoor setups, hydroponics relies heavily on artificial

lighting and other electrical systems. This dependence can lead to higher energy bills and raises concerns about sustainability and carbon footprint.

Vulnerability to System Failures: Hydroponic systems, with their reliance on technology, are susceptible to equipment failures. A malfunctioning pump or power outage can quickly lead to plant death, highlighting the importance of backup systems and constant vigilance.

Risk of Disease Spread: While hydroponics can reduce the incidence of certain pests and diseases, the closed, water-based environment can facilitate the rapid spread of waterborne pathogens if contamination occurs. This necessitates strict hygiene and water management practices.

Nutrient Solution Management: Balancing the nutrient solution in hydroponics is critical and can be complex. Incorrect nutrient levels can lead to nutrient deficiencies or toxicities, adversely affecting plant health.

Crop Limitations: Not all crops are well-suited to hydroponic cultivation. Some, especially those requiring large amounts of space or specific soil conditions, may not thrive in a hydroponic environment, limiting the variety of crops that can be grown effectively.

Fieldwork Worksheets 2

Fieldwork site 1: Aqua Green Holding Limited

Data collection methods: Observation, note-taking, photo-taking

Part 1:

1. **What is Hydroponics?**

2. **Types of hydroponic Systems Observed:**

☐ Deep Water Culture (DWC)
☐ Nutrient Film Technique (NFT)
☐ Ebb and Flow (Flood and Drain)
☐ Aeroponics
☐ Drip System

Part 2. Hydroponic Farm Operation

1. **Crops Grown: List the types of crops you observe being grown on the hydroponic farm.**

2. **Growth Stages: Describe any different stages of plant growth you can observe (e.g. seeding, vegetative, flowering).**

3. **Nutrient Solution: Note any observations on how nutrients are delivered to the plants in the hydroponic systems.**

4. **Lighting:**

☐ Natural sunlight ☐ Artificial lighting

Part 3: Environmental and Sustainability Practices

1. **Water Conservation Techniques: Describe any methods or systems you observe that are used for conserving water.**

2. **Pest Management: Note any pest management practices used in the hydroponic farm (e.g. biological control, integrated pest management).**

3. **Energy Efficiency: Observe and note any energy-efficient practices or technologies used on the farm (e.g., solar panels, LED grow lights).**

Part 4: Benefits and Challenges of Hydroponic Farming

1. **Benefits Observed: Based on your observations, list some benefits of hydroponic farming, both for the environment and for food production.**

2. **Challenges Noted: Identify any challenges or difficulties that the farm might face in operating hydroponic systems.**

Part 5: Personal Reflections

1. **What are your personal impressions of hydroponic farming based on your visit? What aspect fascinated you the most?**

2. **What have you learned about hydroponic farming from this field trip? How do you think it impacts agriculture and food sustainability?**

3. **Please suggest any improvements for the hydroponic farm based on your observations.**

Field Study Revision Exercises

Dongguan IT Industry

a) Multiple Choice Questions

1. What factor contributes significantly to the agglomeration of the IT industry in Dongguan?
a) Abundant natural resources
b) Favourable government policies
c) Remote location
d) Limited access to skilled labour

2. What marks Dongguan's strategic shift in its industrial focus?
a) Expansion of textile manufacturing
b) Emphasis on low-end manufacturing
c) Transition towards high-tech industries, including IT
d) Reduction in electronics assembly operations

3. Which of the following is a key feature of the IT industry cluster in Dongguan?
a) Large amount of talents
b) Lack of connectivity with other regions
c) Concentration of technology companies
d) Limited investment opportunities

4. What type of companies are predominantly found in Dongguan's IT industry cluster?
a) Manufacturing
b) Agriculture
c) Technology
d) Retail

5. Which factor contributes to the attractiveness of Dongguan for IT companies?
a) Strict government regulations
b) High crime rates
c) Proximity to major markets
d) Limited access to transportation networks

6. What challenge is Dongguan facing while transitioning towards a high-tech industry hub?
a) An oversupply of skilled labour
b) Lack of competition from other tech hubs
c) Environmental concerns and the need for continuous innovation
d) Decreased need for economic diversification

7. What factor is crucial for the sustained success of Dongguan's IT industry agglomeration?
a) High cost of living
b) Resistance to change
c) Continuous adaptation
d) Overdependence on government support

MCQ Answers:
1. b) Favourable government policies
2. c) Transition towards high-tech industries, including IT
3. c) Concentration of technology companies
4. c) Technology
5. c) Proximity to major markets
6. c) Environmental concerns and the need for continuous innovation
7. c) Continuous adaptation

b) Short Questions

1. What significant advantage does Dongguan offer to IT and high-tech companies due to its geographical location?

_____
_____
_____
_____
_____

Answer: Dongguan's strategic location in the Pearl River Delta, near major economic and technological centers like Shenzhen and Hong Kong, provides easy access to markets, talent, and technological innovations, enhancing the city's attractiveness to IT companies.

2. How does Dongguan's infrastructure contribute to the efficiency of IT factories?

_____
_____
_____
_____
_____
_____
_____

Answer: Dongguan possesses several technology parks and industrial zones specifically designed to cater to the needs of IT and high-tech companies. These zones offer state-of-the-art infrastructure, business services, and networking opportunities for companies.

3. Why is the availability of a skilled labour force important for IT factories in Dongguan?

_____
_____

Answer: The city focuses on education and vocational training to create a skilled workforce that can support the information technology industry as it provides the required expertise in manufacturing and technology-related fields that contribute to the success of various production processes.

4. **What challenges does the IT industry in Dongguan face, and how are they being addressed?**

Answer: Dongguan faces challenges such as competition from other tech hubs, environmental concerns, and the need for continuous innovation. The city has shown adaptability by focusing on sectors with growth potential, such as software development, cloud computing, and artificial intelligence (AI).

5. **How does the clustering of IT firms in Dongguan benefit the industry and local economy?**

Answer: The growth of the IT industry in Dongguan has contributed to the city's economic diversification, moving away from low-end manufacturing to more knowledge-intensive sectors. This shift has implications for the city's overall economic stability, sustainability, and global competitiveness.

Field Study Revision Exercises

Farming System in South China (Huidong)

a) Multiple-choice Questions

1. What is the dominant type of agriculture in the terraced landscapes of Guangdong and Guangxi?
a. Aquaculture
b. Orchards
c. Rice cultivation
d. Livestock farming

2. What role do river systems, such as the Zhujiang (Pearl River), play in South China's agriculture?
a. Transportation only
b. Irrigation and transportation
c. Soil conservation
d. Livestock farming

3. Which physical factor supports the cultivation of a wide variety of crops throughout the year in South China?
a. Arable land
b. Adequate rainfall
c. Fertile soils
d. Diverse ecosystems

4. Which human factor influences farmers' decisions about crop selection and cultivation methods in South China?
a. Climate
b. Government policies
c. Biodiversity
d. Water resources

5. What type of farming involves growing plants without soil, using nutrient-rich water as the growing medium?
a. Aquaculture
b. Hydroponics
c. Terraced farming
d. Traditional farming

6. What climate feature significantly contributes to agricultural diversity in South China?
a. Frequent droughts
b. Moderate temperatures and consistent rainfall

c. Extreme cold temperatures
d. High winds

7. Which of the following is a significant advantage of hydroponic farming over traditional soil-based agriculture?
a. Low costs
b. Water efficiency and faster growth rates
c. The technology required is simple
d. Use less energy

Answer:
1. c. Rice cultivation
2. b. Irrigation and transportation
3. b. Adequate rainfall
4. b. Government policies
5. b. Hydroponics
6. b. Moderate temperatures and consistent rainfall
7. b. Water efficiency and faster growth rates

b) Short Questions

1. What are the primary advantages of hydroponic farming over traditional soil-based farming methods?

Answer: Hydroponic farming offers advantages such as water efficiency, faster growth rates, higher yields in smaller spaces, and the ability to control nutrient levels precisely, leading to healthier plants and reduced reliance on pesticides.

2. How does the climate of South China impact traditional farming practices?

Answer: South China's subtropical climate with abundant rainfall and high humidity supports a diverse range of crops, enabling multiple growing seasons and year-round cultivation. However, extreme weather events like typhoons and floods can pose challenges to traditional farming practices.

3. **What sustainable practices in South China's agriculture help maintain soil health and prevent erosion??**

Answer: Terracing and soil conservation practices like contour plowing are vital in maintaining soil health and preventing erosion, especially in the hilly terrains of South China.

4. **How is traditional farming in South China affected by soil quality, and what measures are taken to mitigate soil-related challenges?**

Answer: Soil quality varies across South China, with alluvial soils along riverbanks being fertile for agriculture. Terracing and contour plowing are common practices used to prevent soil erosion on hilly terrain.

5. **How does hydroponic farming address water scarcity issues in agriculture?**

Answer: Hydroponic systems recirculate water, significantly reducing consumption and making agricultural production more sustainable, especially in areas with water scarcity.

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