

**Dawood Public School**  
**Course Outline 2020-21**  
**Cambridge O Level Pakistan Studies – Geography 2059**  
**Grade VIII**

**Books:**

- Sethi, Huma Naz (2015) *The Environment of Pakistan, Pakistan Studies*, Peak Publications, Pakistan.
- Crawford, D (2013) *Geography Today Pupil Book 2* Revised Edition, Peak Publishing Ltd, UK

**Reference books:**

- (2001) *New Secondary Geography*, FEP International (Private) LTD, Rawalpindi.
- Khan, F. K (2015) *Pakistan Geography, Economy and People*, Oxford University Press, Pakistan.
- Fazle Karim (2015) *Pakistan Geography, Economy and People* Oxford University Press, Pakistan.
- Reference Book: Khalid, Prof. Nazir Ahmed (2003) *Career's Geography of Pakistan*, Career Books Publisher, Lahore.

Monthly Course Distribution		
Month	Contents	Book
August	More about industry	Geography Today Book 2 Doreen Crawford
September	Fishing industry	The Environment of Pakistan Huma Naz Sehti
October	Forests of Pakistan	The Environment of Pakistan Huma Naz Sehti
November	<b>Revision for Mid-Year Examination</b>	
December	<b>Mid-Year Examination</b>	
January & February	Minerals	The Environment of Pakistan Huma Naz Sehti
February & March	Water- its cycle, Movement, Work and Uses	Geography Today Book 2 Doreen Crawford
April	<b>Revision for Final Examination</b>	
May	<b>Final Examination</b>	

Syllabus Content

August

Chapter: More about Industry

Pages no: 66 - 109

Content	Learning Objectives
<p><b>Primary, Secondary and Tertiary Industries (Introduction)</b></p> <p>Industry is an organized economic activity concerned with manufacture, extraction and processing of raw materials, or construction. Industry work as a system. All industries have input, processes and outputs. This industrial system varies in different industries. The output of an industry is a specified product or service. Industries can be classified on the basis of the type of work, products, number of employees etc.</p> <p>Primary Industry can be called as extractive industry, while secondary industry is a manufacturing industry. Tertiary Industry provides services.</p> <p>Production is a system which involves different steps for e.g. creation of furniture while manufacturing is a step which converts raw material or scrap into desired product for e.g. sports good, medical equipment's.</p> <p>Primary industries are those which provide raw material for conversion into commodities and products.</p> <p>Secondary industries are those which convert the raw material into commodities and products.</p> <p>GDP is the value of all the final goods and services produced with in a country.</p> <p>Industrialization plays a vital role in the economic development of any country. The quality and quantity of good manufactured in any industry makes a larger contribution to the GDP of the country. With a stronger GDP, firms hire more workers, can afford to pay higher salaries which leads to spending more by the consumers on goods and services.</p>	<ul style="list-style-type: none"><li>• Define the following with examples:<ul style="list-style-type: none"><li>➤ Primary Industry</li><li>➤ Secondary Industry</li><li>➤ Tertiary industry</li></ul></li><li>• State what is meant by GDP.</li><li>• Describe the role of each of the following in the contribution towards GDP<ul style="list-style-type: none"><li>➤ Primary Industry</li><li>➤ Secondary Industry</li><li>➤ Tertiary industry</li></ul></li><li>• Explain how industries contribute to increase in the GDP.</li><li>• Differentiate between 'produce' and 'product'.</li><li>• Differentiate between 'production' and 'manufacturing'.</li><li>• Differentiate between 'large-scale' and 'small-scale' industries.</li><li>• Develop awareness for the various industries in Pakistan.</li></ul>
<p><b>Factors that may Influence the development of Industry</b></p> <p>Development of an industry can be influenced by natural factors such as:</p> <ul style="list-style-type: none"><li>• site requirement</li><li>• natural routes</li></ul> <p>Development can also be affected by human factors such as:</p> <ul style="list-style-type: none"><li>• capital</li><li>• power supply</li><li>• transport</li><li>• skilled labor</li><li>• industrial linkage</li></ul>	<ul style="list-style-type: none"><li>• List the natural factors which influence the development of industry.</li><li>• Describe what factors should be included when considering the following:<ul style="list-style-type: none"><li>➤ site requirements</li><li>➤ natural routes</li></ul></li><li>• Describe the following factors for the development of industries:<ul style="list-style-type: none"><li>➤ human factors</li><li>➤ physical factors</li></ul></li></ul>
<p><b>Formal and Informal Industries</b></p> <p>Industries can be classified as part of a formal sector if it is legal and registered, employs people on fixed wages with regular working hours and</p>	<ul style="list-style-type: none"><li>• Differentiate between formal and informal industries.</li><li>• Identify provided images as examples of formal</li></ul>

<p>provides good working conditions like cotton, cement and sugar.</p> <p>Informal sectors comprise of employees who are self employed, not on payroll and not taxed like hawkers, marketers and vendors.</p> <p>Formal sector is an organized sector that contributes to the country’s economy. It is taxed and monitored by the Government.</p>	<p>or informal industries.</p> <ul style="list-style-type: none"><li>• List some formal industries in Pakistan.</li><li>• List some informal industries in Pakistan.</li><li>• Develop awareness for contribution of formal and informal industries to GDP.</li></ul>
<p><b>Primary Industries</b></p> <p>Fishing, Forestry, Farming and Mining are some of the primary industries of Pakistan.</p> <p><b>Natural Gas Extraction</b></p> <p>Natural gas is a non-renewable resource because it cannot be readily replaced.</p> <p>Pakistan’s reserves of Gas are being rapidly reduced.</p> <p>Gas is almost 50% of our primary energy mix.</p> <p>Natural gas is environment friendly as compared to fossil fuels; it is safer and easier to store.</p> <p>Natural gas extraction requires proper geologic study of an area to locate gas reserves and extract gas by boring wells with the help of skilled labor and high tech machineries.</p> <p>The biggest natural gas field of Pakistan is Sui in Baluchistan, some other natural gas fields are Miano gas field, Mizra gas field and Sawan gas field.</p>	<ul style="list-style-type: none"><li>• List some examples of primary industries.</li><li>• Develop awareness for the benefits of natural gas.</li><li>• Describe the formation of natural gas.</li><li>• Describe the extraction process of natural gas.</li><li>• Explain the distribution process of natural gas.</li><li>• Develop awareness for places in Pakistan which have indicated reserves of natural gas.</li><li>• State the market for natural gas.</li><li>• Explain the sustainability of natural gas production in Pakistan.</li></ul>
<p><b>Importance of Power Supplies</b></p> <p><b>(Nuclear Power Plant)</b></p> <p>Nuclear energy will play an important role in reducing greenhouse gas emissions. This is particularly important to OECD countries, where nuclear power is the largest source of low-carbon electricity, providing 18% of their total electricity.</p> <p><b>Karachi Nuclear Power Plant</b></p> <p>Nuclear energy will play an important role in reducing greenhouse gas emissions as it emits very low amount of Co<sub>2</sub>. But nuclear power plants emit radioactive materials and safe disposal is very expensive.</p> <p>Nuclear power plant heat source is used from nuclear reaction to produce electricity.</p> <p>Currently five nuclear power plants are present in Pakistan. Chashma nuclear power plant in Punjab consists of four operating units operated by Pakistan Atomic Energy Commission (PAEC) with the support of China.</p>	<ul style="list-style-type: none"><li>• Develop awareness that the Organisation for Economic Cooperation and Development is an international forum where democracies with market economies work together.</li><li>• State some of the OECD countries.</li><li>• State the names of various power supplies.</li><li>• Explain the importance of power supplies.</li><li>• Describe the formation of nuclear energy.</li><li>• State the name of nuclear power plants in Pakistan.</li><li>• Describe the advantages and disadvantages of using nuclear power supply.</li><li>• Develop awareness that the Russia was the first country to connect a nuclear power station to contribute to the national electrical grid.</li><li>• Explain the importance of power supplies.</li><li>• Describe the formation of nuclear energy.</li><li>• State the name of nuclear power plant in Pakistan.</li><li>• Describe the advantages and disadvantages of using nuclear power supply.</li></ul>
<p><b>Hydroelectric Power and Thermal Power:</b></p> <p>A thermal power station is a power station in which heat energy is converted to electric power. In most of the places in the world the turbine is steam-driven. Water is heated, turns into steam and spins a steam turbine which drives an</p>	<ul style="list-style-type: none"><li>• Explain how fossil fuels are used to make thermal electricity.</li><li>• Describe the process of a hydro-electric power plant.</li></ul>

<p>electrical generator.</p> <ul style="list-style-type: none"><li>• Habibullah coastal power plant (Quetta)</li><li>• WAPDA thermal power station (Quetta)</li><li>• Liberty power project (Sindh)</li></ul> <p>Hydropower is fueled by water, and will not pollute the air like power plants that burn fossil fuels, such as coal or natural gas. Hydroelectric power is a domestic source of energy, allowing each state to produce their own energy without being reliant on international fuel sources.</p> <ul style="list-style-type: none"><li>• Ghazi-Barotha project (Attock)</li><li>• Mangla Dam (Azad Kashmir)</li><li>• Warsak Dam (Peshawar)</li></ul>	<ul style="list-style-type: none"><li>• Label the diagram of thermal and hydro electric power plant.</li><li>• Describe how HEP stations may be affected by;<ul style="list-style-type: none"><li>➤ physical factors</li><li>➤ human factors</li></ul></li><li>• List where the Hydro and Thermal power plants are situated in Pakistan.</li><li>• Differentiate between a hydro power plant and a thermal power plant.</li><li>• Compare the advantages and disadvantages of hydro and thermal power plants.</li></ul>
<p><b>Secondary Industries:</b></p> <p>Industries may be classified into small-scale, medium-scale or large scale, distinguished Industries can be distinguished into three categories on the basis of:</p> <ul style="list-style-type: none"><li>• capital invested</li><li>• number of employees</li><li>• quantity of production</li></ul> <p>Small scale engineering industries like surgical, cottage and cutlery industries are labor intensive and provide employment to 80% of the industrial labor force. After independence most of the skill full labors migrated to Punjab in Pakistan. That is why most of the skill full labor is present in Punjab and the Government supports them by giving them different incentives and loans for their businesses, giving a great boost to the industrial sector of Punjab.</p>	<ul style="list-style-type: none"><li>• Describe with the help of the case study given in the book how small scale engineering industries work in Punjab.</li><li>• Identify the following aspects involved in secondary industries:<ul style="list-style-type: none"><li>➤ input</li><li>➤ process</li><li>➤ output</li></ul></li><li>• Provide examples of secondary industry in Pakistan</li><li>• Describe the factors which make up small scale manufacturing and household industries.</li><li>• Identify provided images as small scale manufacturing or household industries.</li><li>• List some engineering industries in Punjab.</li><li>• Describe how the engineering industries of Punjab contribute to the development of the Pakistan.</li></ul>
<p><b>Secondary Industries:</b></p> <p><b>Large scale manufacturing Industry</b></p> <p><b>Pakistan steel mills</b></p> <p>Pakistan Steel Mills is an example of large scale industry while cottage industries are small scale industries.</p> <p>Due to corruption, privatization and over staffing, the main working furnaces of Pakistan Steel Mills have been shut down. Still the semi produced products such as billet and galvanized sheets are sent to different domestic steel industries, cutlery and electrical appliance industries.</p> <p>Due to favorable conditions like well developed railway and road networks, Pakistan Steel Mill was located near Port Qasim (Pipri) because the transportation of heavy metals like manganese and iron were increasing transportation cost. The conveyer belt is between Port Qasim and Steel Mills which reduces the transportation cost.</p> <p>The main reason of building Port Qasim was to support Pakistan Steel Mills.</p> <p>Blast Furnace is a type of metallurgical furnace</p>	<ul style="list-style-type: none"><li>• Define and explain what a large scale industry is with the help of some examples.</li><li>• Label the industries on the map of Karachi.</li><li>• List some of the large scale manufacturing industries of Pakistan.</li><li>• Develop awareness that the Pak-China corridor holds potential for industrial development.</li><li>• Explain the uses of iron and steel for people and in industries.</li><li>• Explain the process of a blast furnace</li><li>• Label the diagram of a blast furnace.</li><li>• State the formation of steel from iron.</li><li>• State the names of some iron and steel industries in Pakistan.</li><li>• Explain why Pakistan Steel Mill is located in Pipri near Karachi.</li><li>• State some international producers of iron and steel.</li><li>• Develop awareness that the iron and steel industries are the primary providers for construction services.</li></ul>

used for smelting to produce industrial metals, generally pig iron, but also others such as lead or copper. Blast refers to the combustion air being "forced" or supplied above atmospheric pressure.	
<p><b>Tertiary Industry</b></p> <p>Tertiary industries generally offer services. These can be of many types, such as Tourism, Doctors, Teachers, Trade and Transports and in the Banking Sector.</p> <p><b>Banks</b></p> <p>Banks provide variety of services to assist individuals, like managing finances, saving accounts, debit or credit card facilities.</p> <p><b>Trade and Transport Sector</b></p> <p>This sector provides services by moving goods or people via air, road or water.</p> <p><b>Tourism</b></p> <p>Tourism industry boosts the economy of a country and provides benefit to local people.</p> <p>This attracts foreign people for tourism in Pakistan who after visiting Pakistan get inspired by the hospitality and variation in cultures of the local people which helps in making positive opinion about Pakistan in other countries.</p>	<ul style="list-style-type: none"><li>• Define and explain what tertiary industries are with the help of examples.</li><li>• List some of the services provided by the tertiary industries:<ul style="list-style-type: none"><li>➤ in Pakistan</li><li>➤ in the world</li></ul></li><li>• Explain the importance of the tourism industry of Pakistan and how it benefits the people and the economy.</li><li>• Compare the tourism industry of Pakistan with that of Singapore.</li><li>• Develop awareness that tourism influences world opinion for any country.</li><li>• Explain the factors that may influence the development of the tourist industry in the Northern Mountains of Pakistan.</li></ul>
<p><b>Effects of Industrial Pollution on the Environment</b></p> <p>Industries can boost economy but also pose a great threat to environment. Agriculture activities can cause eutrophication in natural water bodies; waste from chemical industries can cause high levels of heavy metals and other contaminants. Tourists coming to visit natural landscapes can degrade the beauty of that area.</p>	<ul style="list-style-type: none"><li>• Describe the possible sources of ‘industrial pollution’.</li><li>• Describe the possible pollutants which are caused by different types of industries on the environment</li><li>• State the ways in which industries contribute to:<ul style="list-style-type: none"><li>➤ air pollution</li><li>➤ water pollution</li><li>➤ noise pollution</li></ul></li><li>• Identify provided images to describe the effects of the following on the environment:<ul style="list-style-type: none"><li>➤ primary industry</li><li>➤ secondary industry</li><li>➤ tertiary industry</li></ul></li></ul>
<p><b>Key Words:</b></p> <p>extractive industry, manufacturing, processing, assembling, raw material, capital, capital goods, value added product, GDP, trade, power supply, HEP, EPB, EPZ, green revolution, industrialization, infrastructure, syncline, iron ore.</p> <p><b>Practice Questions:</b></p> <ol style="list-style-type: none"><li>1. How do industries contribute to increase in the GDP?</li><li>2. Differentiate between formal and informal industry.</li><li>3. How do the factors shown in the figure affect industrial production?</li></ol>	

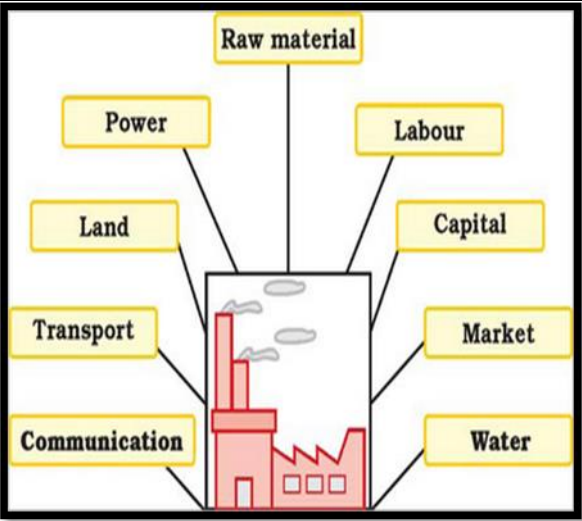


Figure 1

4. Describe the ways in which industries contribute to land, air and noise pollution.

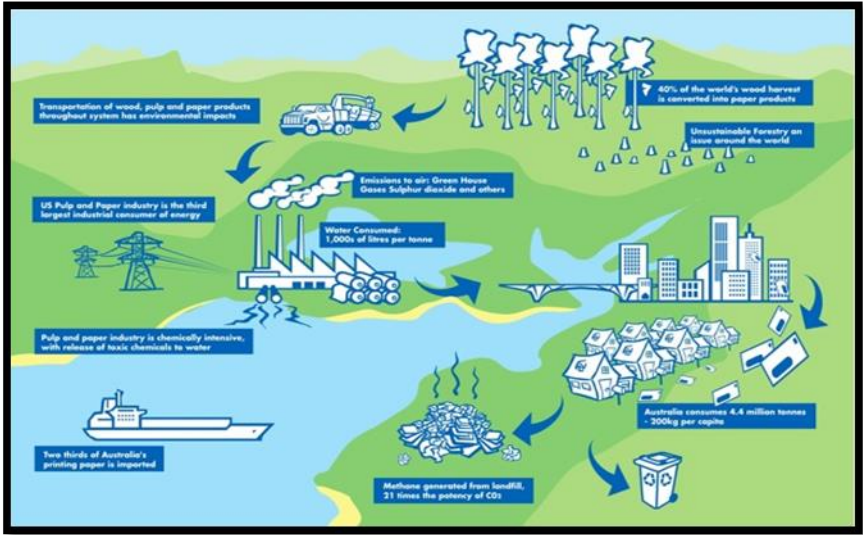


Figure 2

**Projects, Assignments and Activity:**

- Students will be given a research assignment on:
  - “Pakistan’s Energy Crisis and alternative sources of energy”
  - “Industrial revolution”
- Student will make Lap book to show the cycle of Primary Product to Manufacturing Product”

**Surf I.T:**

- <http://www.learningall.com/importance-of-industrial-sector-in-economic-development/>
- [http://en.wikipedia.org/wiki/Industry\\_of\\_Pakistan\](http://en.wikipedia.org/wiki/Industry_of_Pakistan)
- <http://conservationpk.wordpress.com/2008/12/17/pollution-problems-in-pakistan/>

September

Chapter: Fishing

Pages no: 97 - 105

Topic	Learning Objectives
<p><b>Introduction of fishing industry and the uses of the fish.</b></p> <p>The Fishing industry provides a Sustainable Resource. It is based on harvesting fish from natural resources such as oceans (Marine Fishing) or rivers and lakes (Inland Fishing).</p> <p>Fish is an important diet source. It provides protein and low cholesterol white meat. Fish waste is used to make fertilizers and poultry feed, whereas fish oil has medicinal value. People engaged in fishing rely on fish catch for their livelihoods.</p>	<ul style="list-style-type: none"><li>• Describe the concept of ‘sustainable’.</li><li>• Suggest why fish is a sustainable resource.</li><li>• State the share of fishing industry in the GDP of Pakistan.</li><li>• List the uses of fish.</li><li>• Describe the importance of fishing industry with reference to:<ul style="list-style-type: none"><li>➤ processing industry</li><li>➤ linkages industry</li><li>➤ employment</li></ul></li></ul>

<p>The processed products of fish are exported which increases the GDP of the country.</p> <p>Fishermen have been given interest free loans by the Government, modern facilities like ice factories and training on modern fishing techniques have been introduced to uplift social and economic life.</p>	<ul style="list-style-type: none"><li>➤ trade and foreign exchange</li><li>➤ uplifting the social and economic life of the fishermen and the farmers</li></ul>
<p><b>Fishing areas and methods</b></p> <p>Makran Coast forms 70% of the coast line while Sindh forms 30% of the coast line. The amount of fish catch obtained from Sindh coast is 70%. The catch is always dependent on natural features:</p> <ul style="list-style-type: none"><li>• wide continental shelf</li><li>• mangroves</li><li>• river discharge</li><li>• creeks</li></ul> <p>Efficient fishing techniques and facilities are available at Sindh Coast. Baluchistan has a rough topography, less facilities, no water resources, which affects the fishing industry of Baluchistan.</p>	<ul style="list-style-type: none"><li>• Describe the marine fishing methods with examples.</li><li>• List the types of marine fishing.</li><li>• Differentiate between subsistence fishing and commercial fishing.</li><li>• Labels the fishing ports in the given map.</li><li>• Differentiate between the fishing potentials of Sindh Coast and Makran Coast.</li><li>• List the factors which have aided commercial fishing in the Sindh Coast.</li><li>• Explain how the infrastructure of Baluchistan makes development of the fishing industry difficult.</li><li>• Develop awareness for the infrastructural facilities provided at Gwadar, Ormara and Pasni for the development of the sector.</li></ul>
<p><b>Inland fishing</b></p> <p>Inland fishing is getting much popularity. In involves fishing in small rivers, dams (Tarbela, Mangla and Chashma), lakes (Haleji, Keenjhar and Manchhar), barrages, reservoirs, ponds and canals. Inland fishing has conventional methods and can employ more people whereas marine fishing is conducted commercially.</p> <p>Fish farms are present in Punjab because of available water resources while due to roughed topography, seasonal rivers and no water resources there are no fish farms in Baluchistan. Construction of barrages at Sindh has limited the catchment of palla fish in Sindh because the specie cannot further go upward towards Punjab as different types of species requires different environment. Salt water species are different as compare to fresh water species. Trout fish is usually reared in KPK because it is a cold water fish which can be reared at a temperature of 10-16°C.</p>	<ul style="list-style-type: none"><li>• List the dams in Pakistan.</li><li>• List some of the lakes in Pakistan.</li><li>• Suggest why more people can be employed in inland fisheries than marine fishing.</li><li>• Describe why number of fish farm varies from KPK to Sindh.</li><li>• List some types of marine fish.</li><li>• List some types of fresh water fish.</li><li>• Describe a fish farm.</li><li>• Suggest why catchment of Palla fish is limited to Sindh.</li><li>• Develop awareness that different species requires different environment to survive.</li></ul>
<p><b>Fish farming</b></p> <p>Subsistence fishing methods are adopted by people living along the coast. Fishing runs in the family. Commercial fishing employs large scale fishing operations and produce high fish catch. Fish species vary with the amount of salinity and temperature of water. Similarly, fish reared in farms are influenced by the temperature of an area. For example, Palla can be farmed in Sindh while trout can be reared in KPK.</p> <p>Fish farming or aquaculture is the cultivation of aquatic species in a human controlled environment. This could reduce the burden on natural fish resources. The joint fish farming (fish</p>	<ul style="list-style-type: none"><li>• Differentiate between subsistence fishing and commercial fishing.</li><li>• Describe the methods of fish farming.</li><li>• List the factors which affect fish species.</li><li>• State what is meant by ‘aquaculture’.</li><li>• Suggest the importance of fish farming for the industry and economy.</li><li>• Describe a ‘joint fish farming operation’.</li><li>• List the benefits to be derived from joint fish farming operation.</li><li>• List some of the main fishing centers in Pakistan.</li></ul>

and poultry/cattle farming) operations require little space, low capital investments, and gives quick returns like poultry excreta can be used as fertilizers for fish farm.	<ul style="list-style-type: none"><li>• Develop awareness for the development projects underway for the development of fish farms.</li><li>• Develop awareness that KPK trout farms are a positive influence for the tourism industry.</li></ul>
<b>Problems of the fishing Industry</b> Fishing Industry of Pakistan is facing problems due to water pollution, overfishing and destruction of breeding grounds and nurseries of fishes, and lower silt and water discharge in delta.	<ul style="list-style-type: none"><li>• List some of the problems faced by the fishing industry.</li><li>• Describe the effects of the following factors on fishing industry:<ul style="list-style-type: none"><li>➤ water pollution</li><li>➤ over-fishing</li><li>➤ threat to mangroves</li><li>➤ lack of financial resources</li></ul></li></ul>
<b>Government's efforts to develop fisheries</b> To increase GDP contribution from Fisheries Department, government is taking number of steps. These include development of ports, processing and storage facilities, monitoring of deep sea fishing vessels, strengthening of Quality Control labs and improvements in Marine Fisheries Department.	<ul style="list-style-type: none"><li>• List some of the measures taken by the government to develop the fishing industry of Pakistan.</li><li>• Describe the concept of 'value-added' with respect to the Fishing Industry.</li><li>• List the socio-economic benefits of developing fish farming in Pakistan.</li><li>• List some of the products which can be exported from the Fishing Industry.</li></ul>
<b>Fish farming and the environment</b> Fish farms affect environment. They cause changes in ecosystem, lower the water table, cause salinization and chemical pollution. On the other hand, fish farms have a positive impact too. Joint farming operations can recycle waste and help to protect natural fish resource.	<ul style="list-style-type: none"><li>• Develop awareness that there is a correlation between all industry of natural produce and the environment.</li><li>• List the effects of fish farming on the ecosystem.</li><li>• List some ecological changes which have been caused as a result of land based fish farms.</li><li>• Suggest why coastal wetlands are considered 'productive areas'.</li><li>• State what impact coastal wetlands have had on the marine ecosystem.</li></ul>
<b>Sustainable fisheries</b> To attain sustainability, several strategies need to be implemented: <ul style="list-style-type: none"><li>• Ban on catching baby fish</li><li>• Use of small mesh size nets</li><li>• Protection of breeding grounds</li><li>• Control water pollution</li></ul>	<ul style="list-style-type: none"><li>• List some improvement in fishing methods which are employed in Pakistan.</li><li>• List some enhanced processing techniques employed in the Fishing Industry of Pakistan.</li></ul>



**Key Words:**

subsistence fishing, commercial fishing, fish farming, aquaculture, continental shelf, creeks, bays, trawling, mechanized boats, endangered species, joint farming, phytoplankton, food chain, docking, harbor, water table

**Practice Questions:**

1. Differentiate between Marine and Inland Fishing.
2. With the help of Figure 1, determine why are fish so plentiful in the mangroves of the Indus Delta Coast?



Figure 1

3. Study the following photograph which shows a fish farm.
  - a. How has the physical topography of the area made it easy to construct the ponds?



- b. Discuss the impact of this human activity on the environment and people.

**Projects, Assignments and Activity:**

- Work Sheet and handouts will be provided.
- Students will be given an assignment on:
  - Endangered Indus river dolphins
  - The life cycle of Anadromous fishes and their adaptations according to different conditions of habitat.

**Surf I.T:**

- <http://www.scribd.com/doc/15943558/Fishing-in-Pakistan>
- <http://www.pakissan.com/english/agri.overview/fisheries.sector.in.pakistan.shtml>

Topic	Learning Objectives
<p><b>Main Types of Forests</b></p> <p>Forests are extensive, continuous areas of land dominated by trees. There are two main types of forests in Pakistan:</p> <ul style="list-style-type: none"><li>Productive Forest</li><li>Protection Forest</li></ul> <p>Protection forests are man-made forests which provide wood for industries and aid tourism. Production forests are natural, small scale forests, usually found along road sides, railways or parks.</p>	<ul style="list-style-type: none"><li>Define the term ‘forest’.</li><li>Differentiate between production and protection forests.</li><li>Describe the concept of ‘commercial value’ with regard to forests.</li><li>List the characteristics of production forest</li><li>Describe a protection forest.</li><li>Develop awareness for some well known forests around the world.</li></ul>
<p><b>Environmental, Social and Economic Importance of Forest</b></p> <p>Forest plays a vital role in balancing atmosphere, ecosystem and habitats. Forest provides ecological, social and economic benefits. They are the source of variety of products and promote tourism. They increase evaporation which gives rise to rainfall. Forests also provide shelter and natural habitat to wildlife.</p>	<ul style="list-style-type: none"><li>Describe how forests are important from an ‘ecological’ perspective.</li><li>List how forests help to create a balance in the environment.</li><li>Suggest some economic benefits of forests.</li><li>List some raw materials provided by forests to industries.</li><li>List some of the wildlife which is found in the forests of Pakistan.</li><li>Describe how forests can play a role in the economy with regard to the following:<ul style="list-style-type: none"><li>employment opportunities</li><li>contribution to GDP</li></ul></li></ul>
<p><b>Types and distribution of Forest</b></p> <p>In Pakistan a variety of forests are found because of the diverse geographical location, climate and expanse of country from coast line to mountains. Pakistan is blessed with about six types of forest vegetation:</p> <ul style="list-style-type: none"><li>Alpine Forests</li><li>Coniferous Forests</li><li>Tropical Thorn (Rakh) Forests</li><li>Sub Tropical Scrub Forests</li><li>Riverain (Bela)Forests</li><li>Mangroves</li></ul>	<ul style="list-style-type: none"><li>Locate the different types of forests on a map.</li><li>Describe the physical factors that control the distribution of the different types of forests.</li><li>State the human factors which have reduced forests.</li></ul>
<p><b>Determinants of coniferous Forest</b></p> <p>Forest types are influenced by temperature, amount of precipitation, altitude, and type of soil. These factors determine density and type of vegetation growth in an area such as growth of coniferous in northern areas of Pakistan. Coniferous forest adapts to the cold climate and it is conical in shape. Sloping branches which prevent snow accumulation.</p>	<ul style="list-style-type: none"><li>State where coniferous forests are found in Pakistan.</li><li>List the factors that determine the growth of coniferous forests in Pakistan</li><li>Describe how coniferous trees adapt to the climate.</li></ul>
<p><b>Determinants of Mangroves Forest</b></p> <p>The growth of mangrove trees is limited to Hub and Indus delta because of alluvial soil and presence of continental shelf. Mangroves roots spread into the sea water and survive in salty water.</p> <p>Mangroves adapt with broad leaves and a leathery texture to minimize transpiration and different</p>	<ul style="list-style-type: none"><li>Define the following:<ul style="list-style-type: none"><li>alluvial soil</li><li>continental shelf</li><li>estuary</li></ul></li><li>State where mangroves are found in Pakistan.</li><li>List the factors that determine the growth of mangrove forests.</li></ul>

types of root to survive in soil which is less in oxygen.	<ul style="list-style-type: none"><li>• Describe the adaptation of mangroves to their environment.</li><li>• Develop awareness that Pakistan has the fifth largest mangrove system in the world.</li></ul>
<p><b>Importance and threats to Mangroves</b></p> <p>The construction of dams and barrages has caused a threat to the very important mangroves in the coastal regions of Pakistan.</p> <p>Mangroves are important:</p> <ul style="list-style-type: none"><li>• For a supply of firewood.</li><li>• As a breeding ground of fish and shrimps.</li><li>• To protect the coastline from erosion, storm damage and wave action.</li></ul> <p>The threats to these mangroves will affect the coastal ecosystem:</p> <ul style="list-style-type: none"><li>• Coastal areas are being used for constructing buildings.</li><li>• Excessive cutting for fodder and fire wood.</li><li>• Removal of sand from coast for construction.</li></ul>	<ul style="list-style-type: none"><li>• State the importance of mangroves forest.</li><li>• Describe the following:<ul style="list-style-type: none"><li>➤ coastal ecosystem</li><li>➤ tropical cyclone</li></ul></li><li>• List the human activities which are a threat to the mangroves.</li></ul>
<p><b>Deforestation: causes, problems and solutions</b></p> <p>Deforestation is a threat to forest resources across the world. In Pakistan too, deforestation has led to many concerns:</p> <ul style="list-style-type: none"><li>• climate change and global warming</li><li>• more run off and floods</li><li>• siltation in dams</li><li>• conversion of fertile lands into deserts</li></ul> <p>The possible solution for deforestation can be afforestation projects, re-afforestation projects, selective cutting methods and supply of natural gas in the areas where wood is used as fuel.</p>	<ul style="list-style-type: none"><li>• Define the term ‘deforestation’.</li><li>• Differentiate between re-afforestation and deforestation.</li><li>• Differentiate between re-afforestation and afforestation.</li><li>• List the causes of deforestation.</li><li>• List some of the afforestation projects in Pakistan.</li><li>• Develop awareness for government ventures to increase the greenery in Pakistan.</li><li>• Describe the following effects of deforestation:<ul style="list-style-type: none"><li>➤ environmental</li><li>➤ social</li><li>➤ economic</li></ul></li></ul>
<p><b>Sustainable forestry</b></p> <p>Sustainable forestry refers to development and strategies to make forest resources benefit present and future generations.</p> <p>Pakistan’s forests are shrinking at the rate of 1% per annum because of different reasons:</p> <ul style="list-style-type: none"><li>• Industrialization</li><li>• Urbanization</li><li>• Mining activity</li><li>• Export of wood based products</li></ul> <p>This can be prevented by the following measures:</p> <ul style="list-style-type: none"><li>• Adaptation of afforestation</li><li>• Forest regeneration programs</li><li>• Urban and rural forestry</li><li>• Selective cutting</li><li>• Soil conservation techniques</li></ul>	<ul style="list-style-type: none"><li>• Explain the reasons for the development of plantations in the Indus Plain.</li><li>• List the steps which can make forests a sustainable resource.</li><li>• Evaluate the value of forests as a resource for development and the importance of their sustainability.</li></ul>
<p><b>Key Words:</b></p> <p>productive forest, protection forest, linear plantation, biodiversity, soil erosion, runoff, interception, siltation, stilt roots, breathing roots, relief rainfall, water logging, tourism, western depression, selective cutting, deforestation, global warming, lumbering</p>	

Practice Questions:

- 1. State the meaning of the terms “afforestation” and “reafforestation”.
- 2. Explain the importance of forests to the people of Pakistan.
- 3. Study the following photograph which shows a coniferous tree.



Figure 1

- a. Describe the adaptive features of the vegetation shown in figure.1
- b. State the factors for the growth of such vegetation in northern Pakistan

Projects, Assignments and Activity:

- Work Sheet and handouts will be provided.
- Students will be given research work on:
  - Effects of invasive plants on environment.
  - Process of sericulture practiced in China.

Surf I.T:

- <http://pakistangeographic.com/forests.html>
- [http://www.conservation.org/what/pages/forests.aspx?gclid=COSs\\_NSmr8CFSflwgodlh0ALw](http://www.conservation.org/what/pages/forests.aspx?gclid=COSs_NSmr8CFSflwgodlh0ALw)

November

Revision for Mid Year Examination
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December

Mid Year Examination
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January & February

Chapter: Minerals

Pages no: 84 - 95

Content	Learning Objectives
<p><b>Introduction: Mineral</b> A mineral is an element or chemical compound that is normally crystalline and that has been formed as a result of geological processes.</p> <p><b>Uses and its importance</b> Like iron (as steel) in the framework of large buildings, clay in bricks and roofing tiles, slate for roofing tiles, limestone, shale and gypsum in cement, gypsum in plaster, silica sand in window glass are all examples of minerals in everyday products.</p> <p><b>Importance of minerals for the economy of a country</b> Minerals provide the base for industrial raw material. They give the initial boost to raise production in all sectors. They enable the</p>	<ul style="list-style-type: none"><li>• Define ‘mineral’.</li><li>• Describe the following processes:<ul style="list-style-type: none"><li>➤ mineral exploration</li><li>➤ mineral exploitation</li><li>➤ mineral extraction</li></ul></li><li>• List the various uses of minerals in construction work.</li><li>• State the importance of minerals for the economy of a country.</li><li>• Describe how minerals may help in the growth of:<ul style="list-style-type: none"><li>➤ industrial sector</li><li>➤ transportation sector</li><li>➤ agricultural sector</li></ul></li></ul>

<p>development of industrial, agricultural and transportation sector.</p> <p>Mineral exploration is to assess the mineral potential of a given area.</p> <p>Mineral extraction is crushing and separating ore into valuable substance.</p> <p>Mineral exploitation is the misuse of mineral or conversion of productive land into mining or industrial area.</p>	
<p><b>Formation of minerals</b></p> <p>Minerals are formed under a variety of conditions, when molten materials cool, when liquids evaporate or cool and under high temperatures and pressures. Minerals are found in the earth's crust and mantle, and many were created when feldspar and quartz reacted with other materials during the formation of the Earth.</p> <p>Minerals have unique set of physical properties like color, streak, hardness and structure.</p>	<ul style="list-style-type: none"><li>• State in which part of the Earth are minerals usually found.</li><li>• Describe the ‘geological process’ which lead to the formation of minerals.</li><li>• Describe how a mineral may become a gemstone.</li><li>• List the properties of the following types of minerals:<ul style="list-style-type: none"><li>➤ sedimentary</li><li>➤ igneous</li><li>➤ metamorphic</li></ul></li></ul>
<p><b>Mining Methods</b></p> <p>Mining is the most common method for extracting minerals. Open cast mining finds minerals near the surface whereas underground mining explores till the core.</p> <p>Others mining processes include crushing, grinding and sizing, leaching and adsorption, water treatment, tailings, disposal etc.</p> <p>Mining brings benefits for industries, agriculture sector and increases GDP and employment. Mining can also cause a negative effect on environment by creating noise or air pollution and may destroy productive land. The life of miners can be in danger too as they have limited resources and very few facilities.</p>	<ul style="list-style-type: none"><li>• Differentiate between open cast mining and underground mining.</li><li>• List the different types of underground mining methods.</li><li>• Describe the processes involved in:<ul style="list-style-type: none"><li>➤ adit mining</li><li>➤ shaft mining</li><li>➤ quarrying</li></ul></li><li>• Describe the benefits mining to the following aspects of a country’s economy:<ul style="list-style-type: none"><li>➤ employment</li><li>➤ trade</li><li>➤ agriculture</li><li>➤ industry</li></ul></li><li>• Describe the negative impacts of mining on the environment.</li><li>• Describe some of the dangers faced by miners.</li><li>• Describe the conditions of the mining industry in Pakistan.</li></ul>
<p><b>Minerals: Metallic and Non-Metallic</b></p> <p>When a mineral contains metallic elements it is called a metallic mineral and when it doesn’t contain metallic elements it is called a non-metallic mineral.</p> <p>Some metallic minerals found in Pakistan are aluminum, iron ore and copper. Non-metallic minerals are coal, brine and rock salt.</p> <p>Large deposits of marble, chromite, limestone, coal and magnesite are also present in Pakistan.</p>	<ul style="list-style-type: none"><li>• Differentiate between metallic and non metallic minerals.</li><li>• List some examples for:<ul style="list-style-type: none"><li>➤ metallic minerals</li><li>➤ non metallic minerals</li></ul></li><li>• Identify the main location for the extraction of the following minerals on a given map of Pakistan:<ul style="list-style-type: none"><li>➤ limestone</li><li>➤ gypsum</li><li>➤ rock salt</li></ul></li><li>• List the uses of:<ul style="list-style-type: none"><li>➤ limestone</li><li>➤ gypsum</li></ul></li></ul>

	<ul style="list-style-type: none"> <li>➤ rock salt</li> <li>• Identify the main metallic and non-metallic mineral resources of Pakistan.</li> <li>• State the quantities in which metallic and non-metallic minerals are extracted in Pakistan.</li> </ul>
<p><b>The Mining Industry in Pakistan</b></p> <p>Mining is an important industry in Pakistan. With deposits of several minerals including coal, copper, gold, chromite, mineral salt, bauxite and several other minerals, it offers much potential to aid in economic development.</p> <p>Pakistan also has a variety of precious and semi-precious minerals that are mined. These include peridot, aquamarine, topaz, ruby, emerald, and rare-earth minerals such as bastnaesite, xenotime, sphene, tourmaline, and many varieties and types of quartz.</p> <p>The Pakistan Mineral Development Corporation is the responsible authority for the support and development of the mining industry.</p>	<ul style="list-style-type: none"> <li>• List some of the precious minerals found in Pakistan.</li> <li>• List some of the semi precious minerals found in Pakistan.</li> <li>• Develop awareness for the value of precious minerals in the world.</li> <li>• Describe how the mining sector can help in the economic development of Pakistan.</li> <li>• Suggest how the mining industry can be better supported by the government.</li> </ul>
<p><b>Problems of the Mining Industry</b></p> <p>The mining industry in Pakistan faces certain problems:</p> <ul style="list-style-type: none"> <li>• Lack of financial resources</li> <li>• Lack of technical experts</li> <li>• Inaccessible mineral deposits</li> <li>• Security of mining companies</li> <li>• Low priority to mineral deposits</li> <li>• Institutional mismanagement</li> </ul>	<ul style="list-style-type: none"> <li>• List the problems faced by the mining industry in Pakistan.</li> <li>• List the names of the institutions which help to develop mineral resources in Pakistan</li> </ul>
<p><b>Effects of Mining on the Environment</b></p> <p>Before mining can begin, the land is cleared. The first issue is deforestation. Deforestation immediately destroys wildlife habitats. As the land is cleared and low bushes and vegetation burned and destroyed, wildlife either moves on or dies. Mining re-configures the land and its contours. Rain and subsequent ground water is diverted. As equipment is sunk and the ground hollowed out, chemicals such as cyanide, mercury, methyl-mercury and arsenic are forced through pipes (tailings). The water that runs off goes into streams, creeks, rivers, and lakes.</p>	<ul style="list-style-type: none"> <li>• Develop awareness that mining is a potential environmental hazard.</li> <li>• Describe ‘unplanned mining’.</li> <li>• List some of the human activities which are needed for mining, but are a threat to the environment.</li> <li>• Describe the environmental effects of the following human activities: <ul style="list-style-type: none"> <li>➤ clearing of land around identified site</li> <li>➤ diversion of any water away from the site</li> <li>➤ uses of chemicals</li> </ul> </li> <li>• Develop awareness for the benefits of a possible link between recycling and minerals.</li> </ul>
<p><b>Sustainable Development and Mining</b></p> <p>Minerals are essential for modern living, and mining is still the primary method of their extraction. To date, it appears that the main constraints to sustainability in the mining sector derive from the ever-increasing demand for mined resources; the consumption of resources (mostly energy and water) needed to extract and process metals, and the increasing pollution generated by the extraction process. This holds true for both large-scale, often multinational corporate, operations as well as for small-scale or artisanal ventures.</p>	<ul style="list-style-type: none"> <li>• Describe ‘sustainable development’ in terms of mining.</li> <li>• Suggest some lifestyle changes which may minimize the demand on mining.</li> <li>• Differentiate between ‘large scale mining operations’ and ‘artisanal ventures’.</li> <li>• Describe how energy is consumed to extract and process metals.</li> <li>• Describe how water resource is depleted in the extraction process of minerals.</li> </ul>

**Key Words:**

inorganic natural substances, adit mining, shaft mining, metallic minerals, non- metallic minerals, quarrying, extraction, environmental losses, exploration, exploitation

**Practice Questions:**

- 1. How would you differentiate between metallic and non-metallic minerals?
- 2. Study Fig. 1, which shows the places of limestone and rock salt extraction.
  - (i) Describe the distribution of limestone extraction in Pakistan.

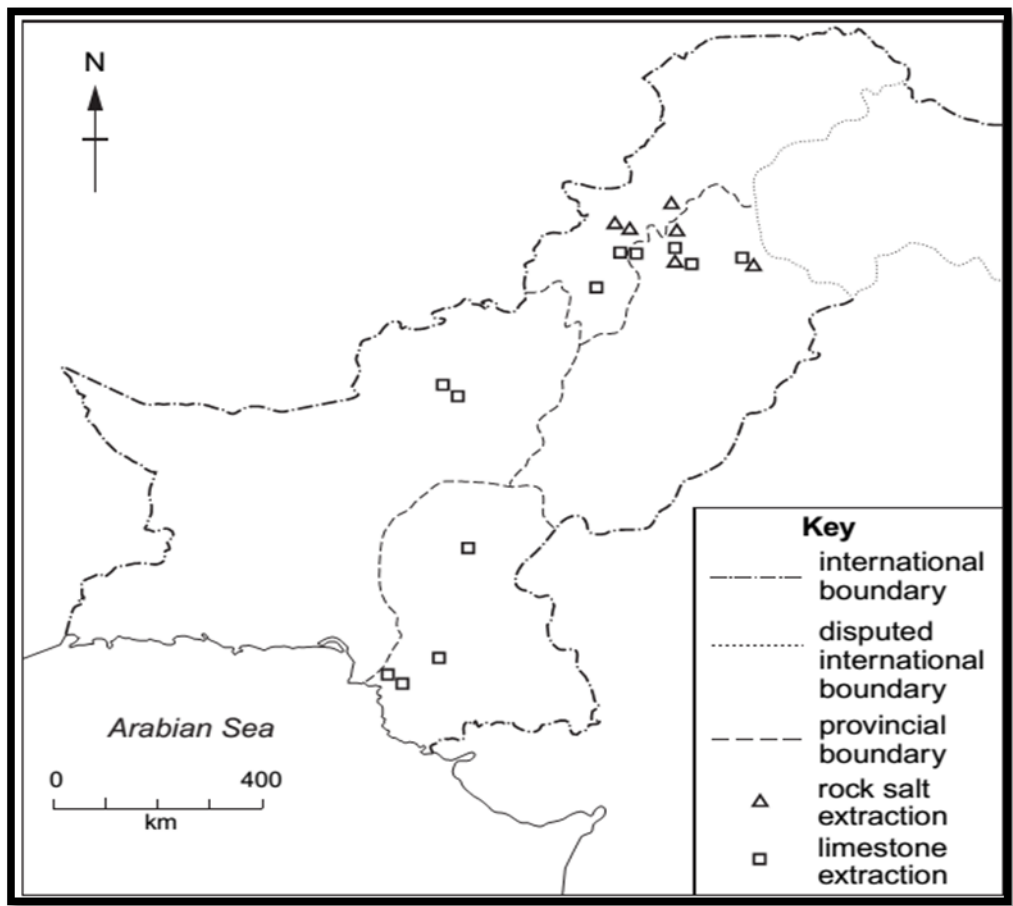


Figure 1

**Projects, Assignments and Activity:**

- Work Sheet and handouts will be provided.
- Students will complete a research assignment on:
  - Rekodiq cold mine in Pakistan
  - Hope Diamond. Cursed gem of the world.
  - Extraction of uranium and its hazardous effects.
- Students will observe samples of metallic and non-metallic minerals.

**Surf I.T:**

- [www.slideshare.net/junaidhassansheiks/mineral-resources-of-pakistan](http://www.slideshare.net/junaidhassansheiks/mineral-resources-of-pakistan)
- <http://pakistan360degrees.com/minerals-of-pakistan/>
- [http://greenliving.lovetoknow.com/How\\_Does\\_Mining\\_Affect\\_the\\_Environment](http://greenliving.lovetoknow.com/How_Does_Mining_Affect_the_Environment)

**February & March**

**Chapter: Water-its cycle and movement**


**Pages no: 40 - 65**

Topic	Learning Objectives
<b>Hydrological Cycle</b> The Hydrological Cycle is the continuous movement of water, above and below the surface of the Earth. It includes different processes of state change and movements.	<ul style="list-style-type: none"><li>• Define the Hydrological Cycle.</li><li>• Describe the water cycle as it is represented in diagrammatic form.</li><li>• Describe the following processes:<ul style="list-style-type: none"><li>➤ evaporation</li><li>➤ transpiration</li><li>➤ precipitation</li></ul></li></ul>



	<ul style="list-style-type: none"><li>➤ condensation</li><li>➤ runoff</li><li>➤ infiltration</li></ul>
<p><b>The Movement of Water</b></p> <p>The movement of water can be classified into two categories, depending upon whether it is on oceans or on land.</p> <p>The movement of water in ocean (ocean currents) is influenced by temperature, salinity, earth’s rotation etc. while the movement on land is influenced by gravity.</p> <p>As a general rule, water flows from high land to lowland.</p>	<ul style="list-style-type: none"><li>• Describe how water moves in oceans and seas.</li><li>• Describe the formation of cold and warm currents in ocean.</li><li>• List the factors which influence movement of water in oceans and seas.</li><li>• State the factor which influences the movement of water on land.</li><li>• Describe how the natural flow of water forms the river bed and river bank.</li><li>• Describe the features of river basin.</li><li>• Describe the following features caused by the flow of water in a natural channel</li></ul>
<p><b>The Work of a River (Upper Course)</b></p> <p>As the river moves through the upper course it cuts downwards. The gradient here is steep and the river channel is narrow. Vertical erosion in this highland part of the river helps to create steep sided V-shaped valleys, interlocking spurs, rapids, waterfalls and gorges.</p>	<ul style="list-style-type: none"><li>• List the characteristics of the upper course of a river.</li><li>• Describe the formation of the following features of the upper course of a river:<ul style="list-style-type: none"><li>➤ inter locking spurs</li><li>➤ steep sided V-shaped valleys</li><li>➤ rapids</li><li>➤ waterfalls</li><li>➤ gorges</li></ul></li><li>• Identify the features formed in the upper course of a river from given sets of images.</li><li>• Define and describe the process of erosion.</li><li>• Draw the stages in the formation of a waterfall.</li><li>• Differentiate between ‘velocity’ and ‘volume’ with respect to a river.</li><li>• Differentiate between ‘corrosion’ and ‘corrasion’.</li></ul>
<p><b>The Work of a River (Middle Course)</b></p> <p>Meanders are typical landforms found in this stage of the river. A meander is a winding curve or series of bends in a river. Meanders are typical of the middle and lower course of a river. This is because vertical erosion is replaced by a sideways form of erosion called lateral erosion, plus deposition within the floodplain.</p>	<ul style="list-style-type: none"><li>• Define the term ‘meanders’.</li><li>• Describe the characteristics of the middle course of a river.</li><li>• List the features of the middle course of a river.</li><li>• Identify the images of features formed in the middle course of a river.</li><li>• Describe the process of transportation.</li><li>• Differentiate between ‘vertical erosion’ and ‘lateral erosion’.</li><li>• Draw the cross section of a flood plain and meanders.</li></ul>
<p><b>The Work of a River (Lower Course)</b></p> <p>The volume of water in a river is at its greatest in the lower course. The river channel is deep and wide and the land around the river is flat. Energy in the river is at its lowest and deposition occurs. Deltas are often found at the mouth of large rivers.</p>	<ul style="list-style-type: none"><li>• Describe the characteristics of the lower course of a river.</li><li>• List the features of the lower course of a river.</li><li>• Identify the images of features formed in the lower course of a river.</li><li>• Describe the process of deposition.</li><li>• Describe the formation of a delta.</li><li>• Draw a delta as it appears in the lower course of a river.</li></ul>



	<ul style="list-style-type: none"> <li>Describe how a river forms a delta.</li> <li>Suggest why the lower course often has the largest volume of water.</li> </ul>
<b>The Uses of Rivers</b> Rivers are the source of drinking, domestic, irrigation, and industrial water. Rivers are also used for transportation, and generation of Hydro Electric Power.	<ul style="list-style-type: none"> <li>List the uses of water in rivers.</li> <li>Describe how rivers may be useful for: <ul style="list-style-type: none"> <li>➤ transportation</li> <li>➤ industry</li> <li>➤ domestic purposes</li> </ul> </li> </ul>
<b>Irrigation in the Indus River</b> Irrigation water used across Pakistan is mainly from Indus and its tributaries. For proper management of Indus water, dams, barrages and canals are constructed as there is high fluctuation in the amount of water flow during each year.	<ul style="list-style-type: none"> <li>Define ‘irrigation’.</li> <li>Describe the process of irrigation in the Indus River.</li> <li>Suggest why irrigation is necessary.</li> <li>Describe how most of the water gets into the Indus River System.</li> <li>Describe why the amount of water in the rivers varies from year to year.</li> <li>Suggest why the variation in the flow of water in Indus during each year is a problem.</li> <li>Describe what is done to try and overcome the problems of variation of water. .</li> </ul>
<b>Key Words:</b> evaporation, runoff, siltation, infiltration, erosion, transportation, deposition, corrosion, traction saltation, suspension, V-Shaped valley, wider v-shaped valley, waterfall, floodplain, delta, dam, HEP, perennial canals, inundation canals	
<b>Practice Questions:</b> <ol style="list-style-type: none"> <li>Describe the formation of waterfalls in the upper course of a river.</li> <li>Write at least four points in favor and against the building of dams in the area shown in the photograph 1.</li> </ol>	
	
Photograph 1	
<b>Projects, Assignments and Activity:</b> <ul style="list-style-type: none"> <li>Work Sheet and handouts will be provided.</li> <li>Students will be given assignment on: <ul style="list-style-type: none"> <li>➤ Mysterious and haunting rivers in the world.</li> <li>➤ Hidden rivers of the world.</li> <li>➤ “The Devils kettle waterfall”.</li> </ul> </li> </ul>	
<b>Surf I.T:</b> <ul style="list-style-type: none"> <li><a href="http://www.slideshare.net/whiskeyhj/river-changes-and-landforms">http://www.slideshare.net/whiskeyhj/river-changes-and-landforms</a></li> <li><a href="http://www.tvakids.com/electricity/hydro.htm">http://www.tvakids.com/electricity/hydro.htm</a></li> <li><a href="http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/how-hydroelectric-energy.html">http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/how-hydroelectric-energy.html</a></li> </ul>	

April

Revision for Final Examination
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May

Final Examination
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