Prospecting

Mining activities include prospecting and exploration of a mineral deposit through finding, proving, developing, extracting and processing the ore. That is why it is possible to divide the mining activity into three phases:
1) *before mining* which involves prospecting and exploration required to locate, characterize and prove a potential ore body;
2) *mining* which refers to actual coal or ore extraction. Extraction processes include underground or surface mining and dredging;
3) *after mining* which involves processing and preparing the raw ore for the end product.
Before a mineral deposit can be worked, that is, before it can be extracted from the Earth for use by man, it must first be found. The search for economically useful mineral deposits is called *prospecting.* To establish the quality and quantity of a mineral deposit, the type of country rock, etc. means to prove it and this process is called *proving.* Prospecting and proving are only two different stages of mining geological exploration; the latter includes drilling and driving of openings.
Last century prospectors looked for visible evidence of mineralization on the surface of the Earth. To recognize valuable minerals it was necessary to know their various distinctive physical properties. For example, gold occurs in nature as a heavy malleable yellow metal. Galena, the most important mineral containing lead, is dark grey, heavy and lustrous. The first ores of iron to be mined were deposits of magnetite, a black heavy mineral capable of attracting a piece of iron.
As the deposits of mineral that cropped out at the surface were mined, the search for additional supplies of minerals took place. The science of geology was used to explain the occurrence of ore deposits. The aim of geological prospecting is to provide information on a preliminary estimation of the deposit and the costs of the geological investigations to be made. It also indicates whether it is available to continue the exploration or not.
Prospecting work includes three stages:
1) finding signs of the mineral;
2) finding the deposit;
3) exploring the deposit.
General indications of the possibility of exposing this or that mineral in a locality can be obtained by studying its general topographical relief, the type of ground and its general natural conditions. Thus, in mountainous regions where fissures were formed during the process of mountain formation, ore minerals could be expected in the fissure fillings.
Certain deposits are found only in a particular type of ground. Coal seams, for example, are found in sedimentary formations mainly consisting of sandstones and shales. Veins, on the other hand, are found in crystalline (igneous) rocks, and the type of country rock usually determines the type of minerals.
At present, prospecting methods to be used are as follows:
1) Surface geological and mineralogical prospecting such as panning.

2) Geophysical, geochemical, geo-botanical prospecting.
3) Aerial photography with geological interpretation of the data to be obtained is highly effective from aircraft or helicopter. Besides, successful development of space research has made it possible to explore the Earth's resources from space by satellites. In modem prospecting the methods mentioned above are used together with the study of geological maps.

1. Read and translate the text.
2. Answer the questions:
1. What is prospecting?
2. What is proving?
3. How did prospectors find mineral deposits in the last century?
4. What does prospecting work provide?
5. What are the three main stages of prospecting?
6. What methods of prospecting do you know?
7. What are the most effective aerial methods of prospecting now?
3. Fill in the gaps with the proper words: *deposit, extracting, end, include, ore, processes, possible, into*

Mining activities____ prospecting and exploration for a mineral____ through finding, proving, developing, ____and processing the ore. That is why it is____ to divide the mining activity____ three phases: 1) *before mining* which involves prospecting and exploration required to locate, characterize and prove a potential____ body; 2) *mining* which refers to actual coal or ore extraction. Extraction include____ underground or surface mining and edging; 3) *after mining* which involves processing and preparing the raw ore for the____ product.