Important Terms of Underground Mining
Some Examples for Underground Mining

Important Terms of Surface Mining
Some Examples for Surface Mining

Mining Terms
Types of Mining
Types of Mining

Surface Mining:

Open Pit Mining: Massive stock-work deposits – gold, copper
Strip Mining: Bedded deposits – coal, phosphates
Quarry Mining: aggregates, marble, granite
Placer Mining: minerals in alluvium – Gold, Titanium
Solution Mining For any mineral that is in or may be transported in a liquid state – oil, copper, sulphur, uranium, salt

Underground Mining

Conventional Mining: Large veins or massive deposits
Continuous Mining: Vein & Bedded Deposits
Some Examples for Surface Mining

Open Cast Mining
Open Pit Mining
Strip Mining

- Re-graded & reclaimed
- Haul Road
- High Wall
- Crest
- "Toe"
- Spoil Piles
- Coal Seam
- Haul Road
Quarry Mining

Placer Mining
Solution Mining

Diagram showing the process of solution mining with various stages and equipment.
Some Examples for Underground Mining

Conventional Mining

Mining Cycle:
1. Roof bolting
2. Undercutting
3. Drilling
4. Blasting
5. Loading
Important Terms for Surface Mining

Open Pit Mine (metals)
**Bench:** is a ledge which forms a single level of operation where ore and waste are excavated.

**Berm:** is a horizontal shelf or ledge built into a sloping wall of an open pit or quarry for protection under level.

**High Wall:** is an unexcavated face or slope of rock between benches.

**Overburden:** is non-valuable minerals above ore which must be removed to extract the ore.

**Pit Limit:** is the maximum vertical and lateral extent which may be excavated economically in an open pit mine.

**Pit Slope:** is the angle from the horizontal which the wall of a open pit stands as measured from crest to toe.

**Spoil:** is the overburden or non-ore material removed in gaining access to the ore.

**Stripping:** is the removal of overburden.

**Stripping Ratio:** is the ratio of a unit of waste material removed per similar unit of ore material removed.

**Toe:** is the base of a bank bench or a slope.

**Waste Dump:** is a place where waste materials are piled.
Important Terms for Underground Mining
Types of Underground Coal Mining by Access

- **Slope Mine**
- **Drift Mine**
- **Shaft Mine**
Adit: A horizontal or nearly horizontal passage driven into a hill or mountain. It does not go completely through the hill or mountain.

Apex: The upper most terminal edge of the vein on the surface or its nearest point to the surface.

Collar: The support devices around the opening or top of a shaft.

Country Rock: Rock in which the ore deposit is enclosed.

Crosscut: A horizontal opening driven across the course of a vein structure.

Decline: A slightly inclined opening which usually starts at the surface. It may be traveled by foot or rubber wheeled vehicle.

Draw Point: A rock loading station which is at the bottom of a vertical or sub-vertical opening.

Drift: A horizontal opening which starts from another horizontal opening such as a adit or tunnel.

Dump: A pile of waste rock from a mine.

Entry: A horizontal opening in a bedded mineral deposit (ex. coal).

Face: The rock surface which excavation techniques are being preformed upon to advance a horizontal opening.

Float: Loose pieces of ore which have weathered and moved from an outcrop.

Foot Wall: The wall rock under a vein or bedded deposit. This applies to a non-vertical vein.

Gangue: Non-valuable minerals which are associated with the valuable minerals. The ore is made up of both of these.

Hanging Wall: The wall rock on the upper side of an inclined vein or bedded deposit.

Head frame: A structure above a shaft used to house cable guiding systems and rock transferring systems.
Level: All of the horizontal openings which connect to a shaft at a specific point.

Outcrop: The part of a mineral deposit which intercepts the surface.

Pillar: A mass of ore or waste not excavated for the purpose of ground support.

Portal: The supporting structures at the entry point of a tunnel, adit or decline.

Raise: A vertical or inclined opening driven upward from a level or other horizontal openings.

Ramp: An inclined rubber wheeled access opening between horizontal openings at different elevations.

Shaft: A vertical or steeply inclined excavation extending downward from the surface.

Shoot: A device for loading ore and waste rock into a haulage device from a vertical opening.

Stope: An underground opening from which ore has been excavated.

Sub-Level: A set of horizontal openings immediately above the main horizontal access openings.

Sump: An excavation for the purpose of collecting water so that it may be transferred to a pump. This often is the bottom most portion of a shaft.

Tailings: Any material that has been through a mineral processing plant and has been rejected as waste.

Tunnel: A horizontal or nearly horizontal opening which intercepts the surface at two points.

Vein: A mineralized zone having a tabular form. Its depth and length are much greater than its width. Often the zone is steeply dipping.

Waste: The barren rock in a mine which is too low grade to be of economic value.

Winze: A vertical or sub-vertical opening that is driven downward from a horizontal opening.