VI. SEED DORMANCY – the state of suspended activity/ growth of the embryo

A. Functions:

1. allows the seed time to develop (embryonic rest)

2. allows the seed to survive adverse conditions such as drought or cold weather

3. provides time for greater range of dispersion

B. Types of Dormancy:

1. **Seed coat dormancy** – seed coat prevents water / oxygen from entering the seed, thus keeping the embryo dormant

2. **Embryo dormancy** – the embryo itself produces growth inhibitors to prevent germination

C. Breaking Dormancy:

1. **Scarification** – involves breaking, scratching, or softening the seed coat

   - stomach acids
   - chewing by rodents
   - fire
   - abrasion by rocks

2. **Stratification** – seeds are briefly soaked in water and are then subjected to a period of moist chilling

3. **Leaching** – seeds are soaked in water to remove chemical inhibitors that prevent germination

VII. GERMINATION – the development of a seed into a mature plant

A. Requirements for Germination:

1. **Oxygen** – required for metabolism (aerobic respiration) by the seedling

2. **Water** – causes the dry seed to swell & begin growth

3. **Temperature** – affects metabolic & growth rates

4. **Light** – some seeds won't germinate unless there is enough light for seedling

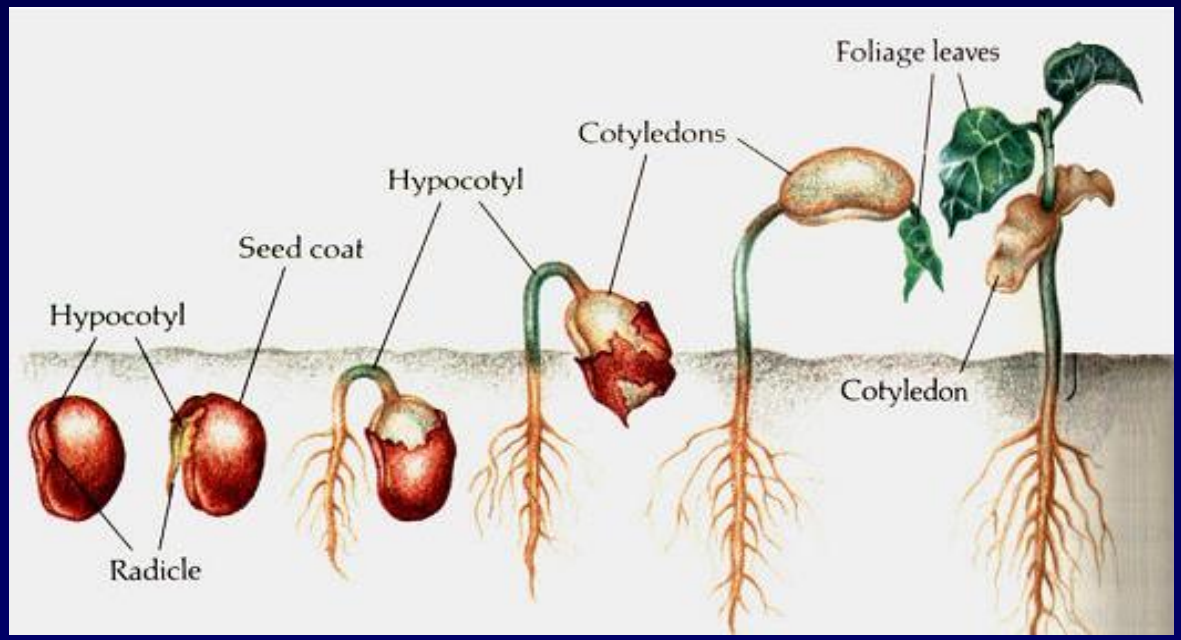
5. **Fire** – some seeds (pines) need fire to stimulate germination

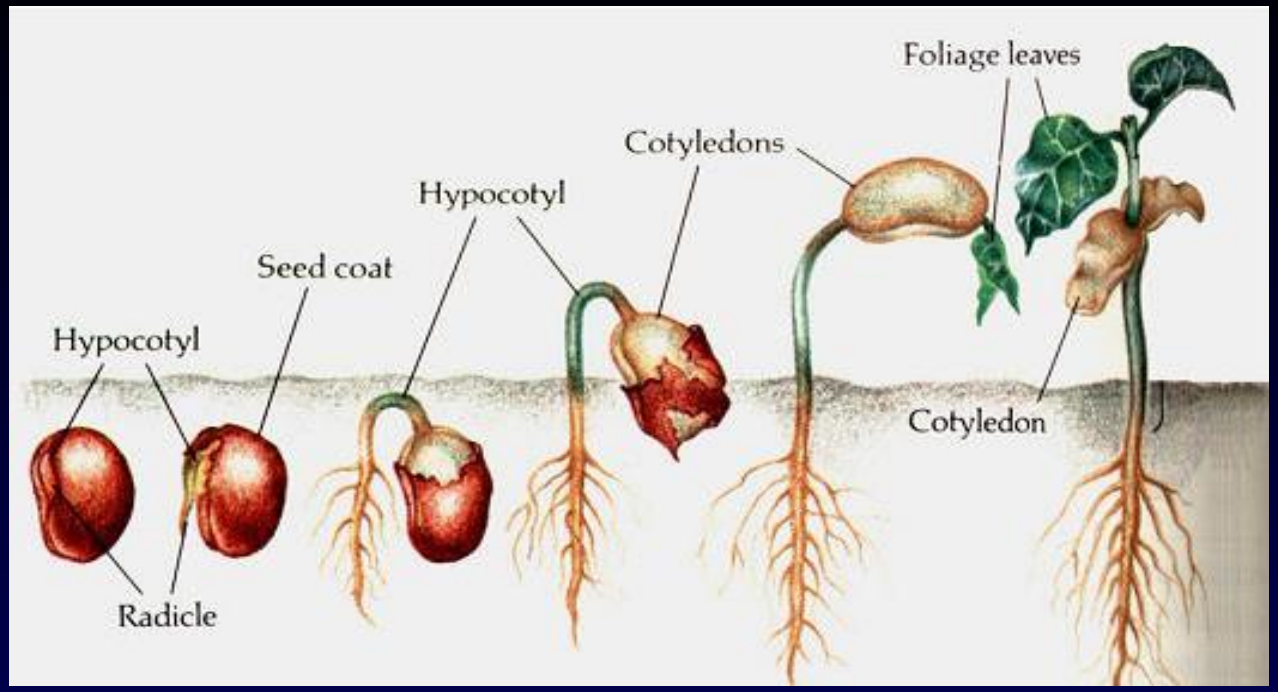
B. Steps of Germination:

1. The seed absorbs water, swells, & the testa ruptures

2. The radicle becomes active and pushes through the seed coat into the soil

3. Primary roots develop from the radicle while the hypocotyl forms a hook & elongates





4. The hypocotyl straightens to pull the cotyledons above ground

5. The primary leaves develop from the epicotyl and emerge to begin photosynthesis

6. The cotyledons shrivel and fall off