SNC 1DI Date: _____

Assessing Soil Quality

What is soil?

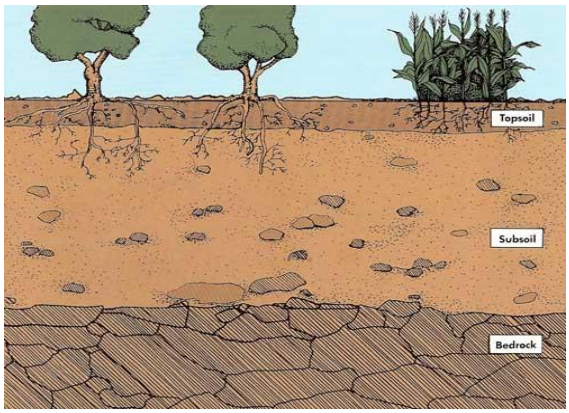
- **Soil** is _____
  _____

Three things need to be considered when assessing soil quality:

- _____
- _____
- _____

Soil is made up of three distinct layers:

- _____ – composed of decaying organic matter (humus), rock particles and living organisms
- _____ – very compact, mostly rock and little to no organic matter
- _____ – impermeable solid rock



There are three main types of soil:

- _____
  - different sized rock particles resulting in many pockets of air and water, which keeps soil loose
  - Contains a lot of humus and drains well without drying out
- _____
  - Extremely small particles tightly packed together preventing plant root growth
  - Does not drain well, trapping water and making soil excessively wet
- _____
  - Contains sand particles that create large spaces for air pockets and root growth
  - Quick drainage of water causes nutrients to be washed away from roots

What is acidity?

- **Acidity** is _____

Soils vary in acidity:

- _____ – acidic, only some plants will tolerate this type (eg. Tomatoes)
- _____ – neither acidic or basic, most plants prefer this pH
- _____ – basic (alkaline), only some plants will tolerate this type (eg. Hen-and-chicks)

How do humans impact soil?

- Humans can negatively impact soil in the following ways:
  - _____
    - When topsoil blows/washes away because of ploughing, overgrazing of livestock
  - _____
    - If the same type of crop is grown every year all the nutrients in the soil get used up

Assessing Water Quality

- Many different aspects of water are used to assess its quality, including:

1. _____

    - High levels of certain microorganisms in water can indicate water is unsafe (eg. *E.Coli*)
    - The presence or absence of some organisms can indicate water is polluted

2. _____

    - Low dissolved oxygen levels cause many aquatic organisms to die
    - If **Biological Oxygen Demand (BOD)** levels are measured higher than normal there are too many micro-organisms in the water (using all the oxygen)

3. _____

    - Most aquatic organisms prefer to live in a neutral pH (most fish will die if the pH drops below 4.5)

4. _____

    - Fertilizers rich in these nutrients cause ponds/lakes to grow large amounts of algae
    - When the algae dies and decomposes, oxygen is depleted

5. _____

    - Metal pollution accumulates in the bodies of aquatic organisms and is passed up the food web in a process called _____

6. _____

    - Some pesticides last a long time in the environment
    - Pesticides accumulate in the bodies of organisms (_____) and **biomagnify** just like heavy metals