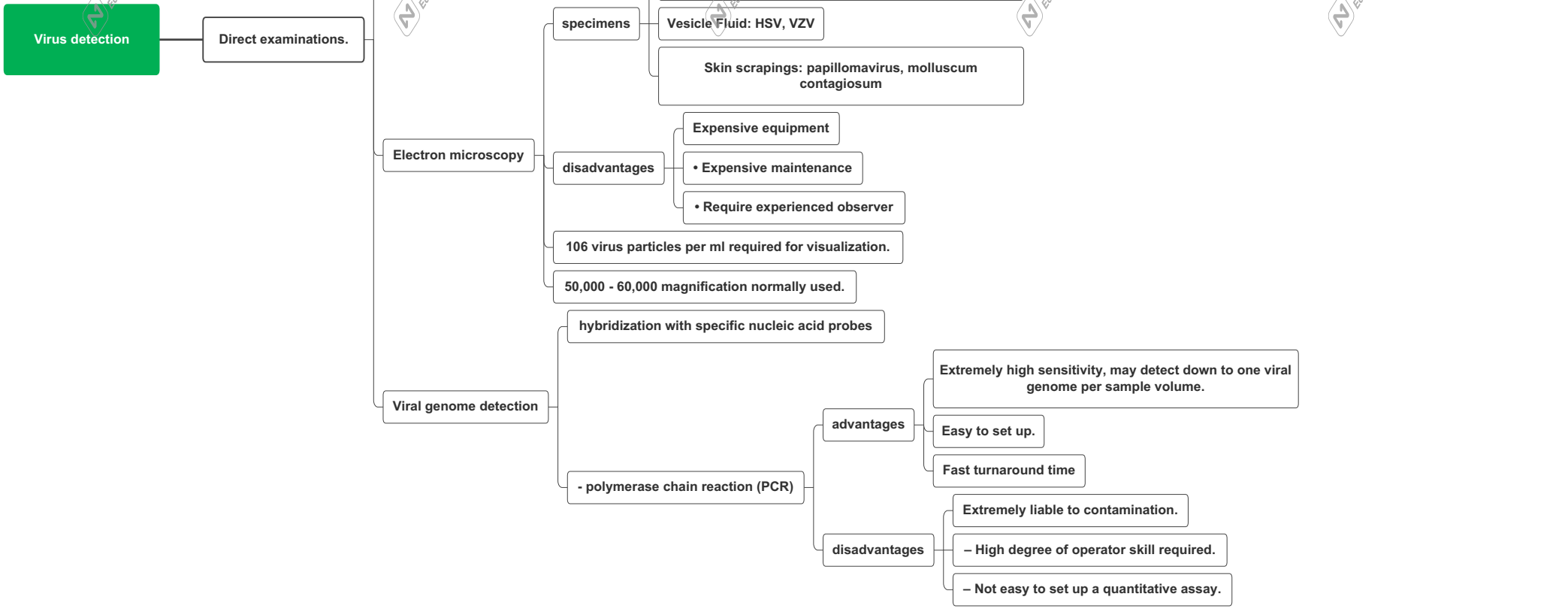
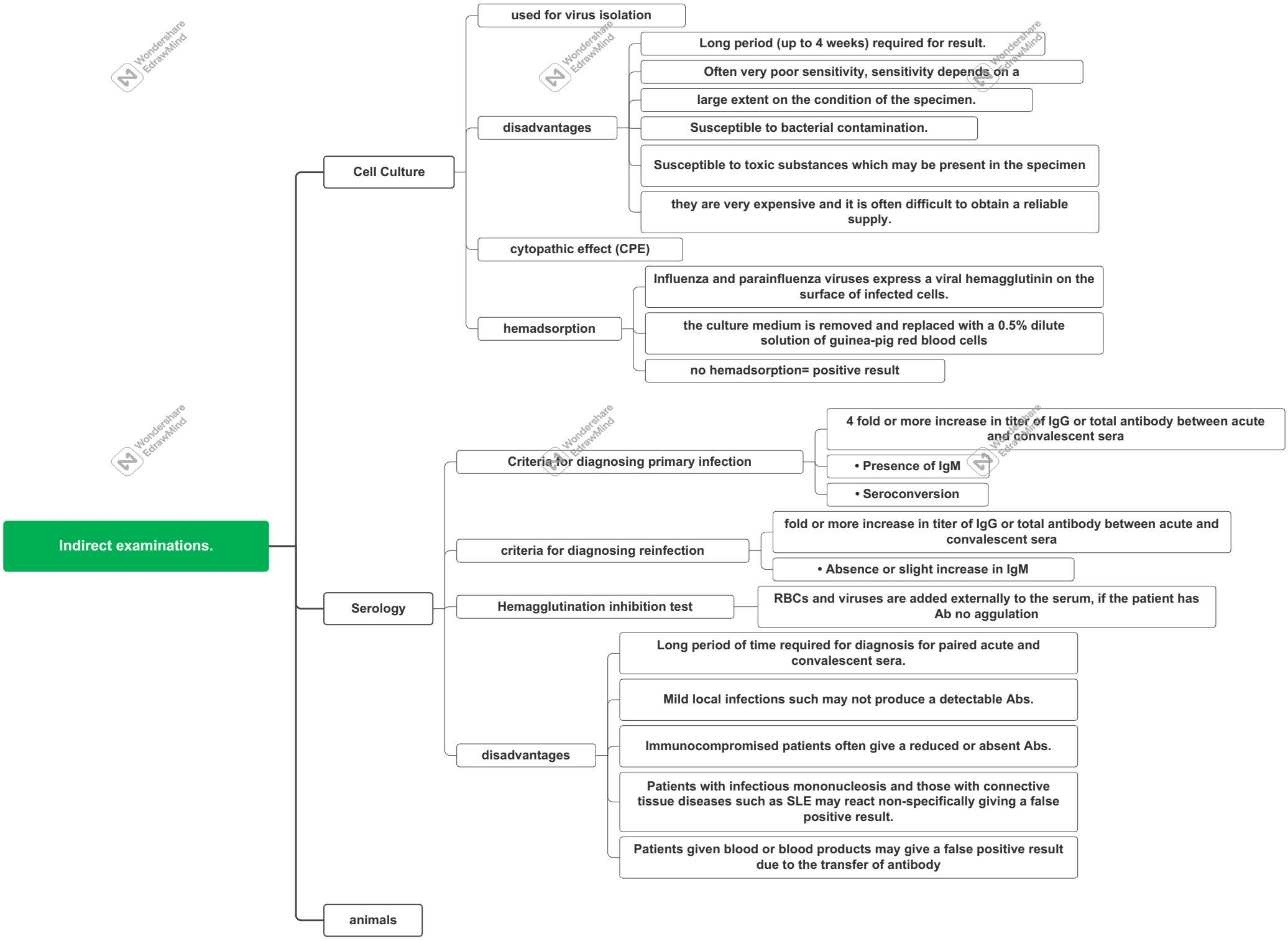

Virus detection
Direct examinations.
Antigen detection
classical techniques
Complement fixation tests (CFT)
Ab , complement, and sRBCs are externally added
if positive no hemolysis
Immunofluorescence techniques (IF)
Ab that has fluorophore binds Ag from patient's serum
Neutralization tests
newer techniques
Radioimmunoassay (RIA).
Sandwich Enzyme linked immunosorbent assay (ELISA).
direct
serum Ag coated well is washed then enzyme conjucated Ab is added with substrate and then the color is measured
indirect ELISA
Ag coated well is washed then Ab from patient's serum is added then enzyme conjucated secondary Ab and substrate are added to measure color
Particle agglutination.
Western Blot (WB).
Electron microscopy
specimens
Faeces: Rotavirus, Adenovirus, Norwalk like viruses, Astrovirus, Calicivirus
Vesicle Fluid: HSV, VZV
Skin scrapings: papillomavirus, molluscum contagiosum
disadvantages
Expensive equipment
• Expensive maintenance
• Require experienced observer
106 virus particles per ml required for visualization.
50,000 - 60,000 magnification normally used.
Viral genome detection
hybridization with specific nucleic acid probes
- polymerase chain reaction (PCR)
advantages
Extremely high sensitivity, may detect down to one viral genome per sample volume.
Easy to set up.
Fast turnaround time
disadvantages
Extremely liable to contamination.
– High degree of operator skill required.
– Not easy to set up a quantitative assay.


Indirect examinations.
Cell Culture
used for virus isolation
disadvantages
Long period (up to 4 weeks) required for result.
Often very poor sensitivity, sensitivity depends on a
large extent on the condition of the specimen.
Susceptible to bacterial contamination.
Susceptible to toxic substances which may be present in the specimen
they are very expensive and it is often difficult to obtain a reliable supply.
cytopathic effect (CPE)
hemadsorption
Influenza and parainfluenza viruses express a viral hemagglutinin on the surface of infected cells.
the culture medium is removed and replaced with a 0.5% dilute solution of guinea-pig red blood cells
no hemadsorption= positive result
Serology
Criteria for diagnosing primary infection
4 fold or more increase in titer of IgG or total antibody between acute and convalescent sera
• Presence of IgM
• Seroconversion
criteria for diagnosing reinfection
fold or more increase in titer of IgG or total antibody between acute and convalescent sera
• Absence or slight increase in IgM
Hemagglutination inhibition test
RBCs and viruses are added externally to the serum, if the patient has Ab no aggulation
disadvantages
Long period of time required for diagnosis for paired acute and convalescent sera.
Mild local infections such may not produce a detectable Abs.
Immunocompromised patients often give a reduced or absent Abs.
Patients with infectious mononucleosis and those with connective tissue diseases such as SLE may react non-specifically giving a false positive result.
Patients given blood or blood products may give a false positive result due to the transfer of antibody
animals