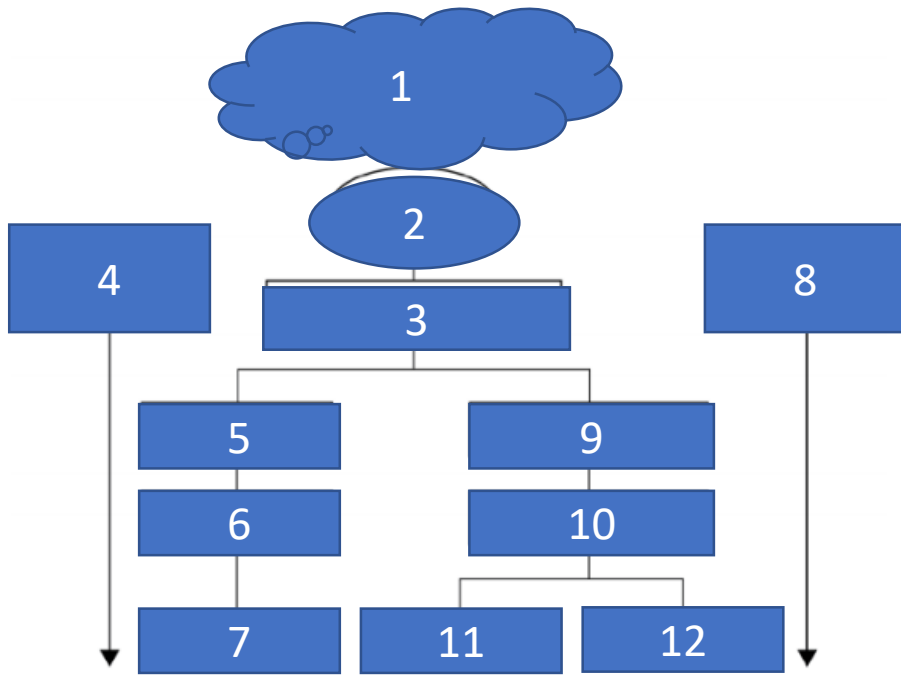


Physics topic 8: Space physics (TRIPLE ONLY)

| 1. Life cycle of a star | | | |
|-------------------------|--|-----|---|
| 1. | Cloud of gas (nebula): Begins to collapse due to gravity and heat up | | |
| 2. | Protostar: A star not yet hot enough for fusion to occur in its core | | |
| 3. | Main sequence star: Stable star when gravity is balanced by radiation. Hydrogen fuses into Helium | | |
| 4. | For Stars about the same size as the Sun: | 8. | For Stars much bigger than the Sun: |
| 5. | Red giant: fuses Helium into heavier elements | 9. | Red super giant: fuses Helium into heavier elements |
| 6. | White dwarf: Collapsed star becomes white hot | 10. | Supernova: Red super giant collapses causing a cataclysmic explosion forming the heaviest elements |
| 7. | Black dwarf: White dwarf that has cooled | 11. | Neutron star: Extremely dense core left from supernova |
| | | 12. | Black hole: If neutron star is massive enough it collapses so no light can escape |



| 2. Orbital motion | |
|-------------------|---|
| Satellite | A natural or man made object that orbits a planet |
| Orbit | Gravity continuously pulling an object around (object always falls) |
| Velocity | Continual changes even though speed does not |
| Stable orbit | If distance reduces speed must increase |

| 3. Red shift | |
|--------------|---|
| Definition | When an object moves away from an observer the light colour becomes redder. |
| Observation | The further the object is the greater its red shift |
| Conclusion | That the universe is expanding from a central point |
| The Big Bang | Theory used to explain the red shift evidence. The idea of the universe was created by a hot and dense singularity exploding outwards |