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**CURRICULUM CONTENT****Theme I: Thermal effects (1<sup>st</sup> Quarter)****Lessons:**

- Moving Particles
- Temperature 1
- Temperature 2
- Expanding solid and liquids
- Heating gases
- Thermal conduction
- Convection
- Thermal radiation
- Liquids and vapors
- Specific heat capacity
- Latent heat

**Theme II: Waves and Sounds (2<sup>nd</sup> Quarter)****Lessons:**

- Transverse and longitudinal waves
- Wave effects
- Sound waves
- Speed of sound and echoes
- Characteristics of sound waves
- Ultrasound

**Theme III: Rays and waves (2<sup>nd</sup> Quarter)**

- Light rays and waves
- Reflection in plane mirrors 1
- Reflection in plane mirrors 2
- Refraction of light
- Total internal reflection
- Refraction calculations
- Lenses 1
- Lenses 2
- Camera, projector and enlarger

- The human eye
- Electromagnetic waves 1
- Electromagnetic waves 2

### **Theme IV: Electricity (3<sup>rd</sup> Quarter)**

#### **Lessons:**

- Electric charge 1
- Electric charge 2
- Electric fields
- Current in a simple circuit
- Potential difference
- Resistance 1
- Resistance 2
- More about resistance factors
- Series and parallel circuits 1
- Series and parallel circuits 2
- Electric power
- Mains electricity 1
- Mains electricity 2
- Electrical energy calculations

### **Theme V: Magnets and currents (4<sup>th</sup> Quarter)**

#### **Lessons:**

- Magnets
- Magnetic fields
- Magnetic effect of a current
- Electromagnets
- Magnetic force on a current
- Electric motors
- Electromagnetic induction
- More about induced currents
- Generators
- Coils and transformers 1
- Coils and transformers 2
- Power across the country

