

Science standards for sixth grade

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A. Skills

A1.General Skills:

A1.1.Ability to explain system with depth and accuracy

A1.2.Use of appropriate scientific language

A1.3.Demonstrate understanding of science process skills and procedures

A1.4.Follow safety procedures in classroom and lab

A1.5.Using tools and equipment safely and accurately

i.e.: meter ruler/ spring scale/ balance/ graduated cylinder/ thermometer)

A1.6.Using appropriate units for measured and calculated values

A1.7.Recognize and analyze patterns and trends

A1.8.Sequence Events

A1.9.Identify cause and effect relationships

A1.10.Develop and use Dichotomous Keys (taxonomy/ classifying objects)

A2.Living Environment Skills:

A2.1. Manipulate compound microscope to view microscopic objects

A2.2. Determine the size of a microscopic object using compound microscope

A2.3. Identify structure and function in organisms

A2.4. Use Dichotomous Keys and develop student-generated taxonomy

A3.Physical Setting Skills:

A3.1. Indicate position on map if latitude and longitude are given

A3.2. Determine latitude and longitude if location is given (on a map)

A3.3. Generate and interpret field maps, including topographic and weather maps

A3.4. Predict characteristic of air mass depending on origin of air mass

A3.5. Measure weather variables

(wind speed and direction | barometric pressure | relative humidity ... etc.

A3.6. Determine density of | liquids | regular shaped solids | irregular shaped solids

A3.7. Use magnetic compass to find cardinal directions

A3.8. Measure angular elevation of an object using appropriate instruments

B. Content

B1. Key concepts

Transformation of Energy

Physical and Living Systems

Exchange of materials and energy between systems

B2.Simple and Complex machines

B2.1.Potential and Kinetic energy

B2.2.Mechanical energy

B2.3.Transformation of Energy

B2.4.Principle of conservation of energy

B2.5.Force: energy that makes 'work' happen

B2.6.How machines create 'force' to do 'work'

B2.7.Simple machines: Lever | Pulley | Wheel &Axel | Incline plane

B2.8.Complex Machines

B.2.9.Transformation of energy within machines

B.2.10.Friction

B3.Weather

B3.1.How matter and energy interact to produce weather patterns

B3.2.Properties of matter

B3.3.Heating and cooling events

B3.4.Matter' takes space/ has mass

B3.5.Solids | Liquids | Gases

B3.6.Density

B3.7.Phases of matter

B3.8.Particle motion

B3.9.Principle of conservation of energy

B3.10Transfer of heat: radiation | convection | conduction

B3.11.Heat and its relationship to phase changes

B3.12.Expansion and contraction

B3.13Light energy vs heat energy

B.3.14I.nteracting systems: hydrosphere + atmosphere = water cycle/ precipitation

B.3.15.Weather factors: unequal heating of earth's surface

B.3.16.Weather factors: pressure | relative humidity | temperature | wind

B3.17.Air masses and fronts

B3.18.Extreme weather: hurricanes | tornado | blizzards | drought

B3.Diversity of Life

B3.1.Transfer of matter and energy through biological communities

B3.2.How does the above transfer support diversity of living things

B3.3.What are the Kingdoms of Life

B3.4.What are food chains and food webs

B3.5.What makes something alive?

B3.6.The Cell (The basic living structure and function)

B3.7. Unicellular and multi-cellular organisms

B3.8. Biological classification systems

B3.9. Principle of conservation of energy

B3.10 Flow of energy and matter via Food chains and food webs

B3.11 Methods for obtaining nutrients

B3.12 Role of producers

B3.13 Role of consumers

B3.14 Role of decomposers

B3.15 Food chain components: herbivores | carnivores | omnivores

B3.16 Recycling

B4. Interdependence

B4.1 How is interdependence essential for maintaining life on Earth?

B4.2. Climates and Biomes

B4.3. Ecosystems vs Interdependence

B4.4. Climatic regions

B4.5. Biomes: tundra | tropical | rainforest | temperate forests | grasslands | desert

B4.6. Seasonal variation

B4.7. Effect of elevation

B4.8. Global warming (natural cycles vs human impact)

B4.9 Population

B4.10 Definition of Species

B4.11 Communities

B4.12 Ecosystems (including abiotic factors like water, nitrogen, CO₂ & oxygen)

B4.13 Predator/prey relationships: factors affecting population growth

B4.14 Relationships between organisms: beneficial | non-beneficial

B4.15 Effect of environment on human and other populations

B4.16 Adaptation for survival: thermo-regulation in plants and animals | locomotion