

UNIVERSAL *Curriculum.com*
Content & eLearning Technologies for K-12 Education

Science

Lower Primary level

Table of Contents



Young Digital Poland
EDUCATION TECHNOLOGIES

Science

Lower Primary level

Chapter One

Life processes

- 1.1. Animal life processes
Nutrition, movement, growth and reproduction
- 1.2. Plant life processes
Growth, nutrition and reproduction
- 1.3. Life processes and environments
Links between life processes in familiar animals and plants and the environments in which they are found

Chapter Two

Humans and other animals

- 2.1 Functions of teeth
The functions of teeth in humans and animals
- 2.2 Tooth care
How teeth are cared for
- 2.3 Nutrition
The need for food for activity and growth
- 2.4 Human diet
The importance of an adequate and varied diet
- 2.5 Circulation
How the heart acts as a pump to circulate the blood through vessels around the body, including through the lungs
- 2.6 Exercise and pulse
The effect of exercise and rest on pulse rate
- 2.7 The skeleton and muscles
Humans and some other animals have skeletons and muscles to support and protect their bodies
- 2.8 Movement
Skeletons and muscles help animals to move
- 2.9 Growth and reproduction
The main stages of the human life cycle
- 2.10 The effect of drugs
The effects on the human body of tobacco, alcohol and other drugs
- 2.11 Drugs and health
How drugs such as tobacco and alcohol affect health
- 2.12 Exercise and health
The importance of exercise for good health

Chapter Three

Green Plants

- 3.1. Light and growth
The effect of light on plant growth
- 3.2. Air and growth
The effect of air on plant growth
- 3.3. Water and growth
The effect of water on plant growth
- 3.4. Temperature and growth
The effect of temperature on plant growth
- 3.5. Plant leaves
The role of the leaf in producing new material for growth
- 3.6. Plant roots
The root anchors the plant
Water and minerals are taken in through the root
Water transported through the stem to other parts of the plant
- 3.7. Flowers and reproduction
The parts of the flower and their role in the life cycle of a flowering plant
- 3.8. Pollination
How pollination occurs in flowering plants
- 3.9. Seed formation
How seed formation occurs in flowering plants
- 3.10. Seed dispersal
How seed dispersal occurs in flowering plants
- 3.11. Germination
How germination occurs in flowering plants

Chapter Four

Variation and Classification

- 4.1. Keys
Making and using keys for identification
- 4.2. Identifying and grouping animals
How locally occurring animals can be identified and assigned to groups
- 4.3. Identifying and grouping plants
How locally occurring plants can be identified and assigned to groups
- 4.4. The variety of animals and plants
The variety of plants and animals makes it important to identify them and assign them to groups

Chapter Five

Living things in their environment

- 5.1. Protecting living things
Ways in which living things need protection
- 5.2. Protecting the environment
Ways in which the environment needs protection
- 5.3. Plant habitats

- The different plants found in different habitats
- 5.4. **Animal habitats**
The different animals found in different habitats
- 5.5. **Plant adaptation**
How plants in two different habitats are suited to their environment
- 5.6. **Animal adaptation**
How animals in two different habitats are suited to their environment
- 5.7. **Food chains**
Using food chains to show feeding relationships in a habitat
- 5.8. **Producers**
How nearly all food chains start with a green plant
- 5.9. **Micro-organisms**
Micro-organisms are living organisms that are often too small to be seen
- 5.10. **The effects of micro-organisms**
That micro-organisms may be beneficial [for example, in the breakdown of waste, in making bread] or harmful [for example, in causing disease, in causing food to go mouldy]

Chapter Six

Grouping and classifying materials

- 6.1. **Properties of materials**
Compare everyday materials on the basis of hardness, strength and flexibility
- 6.2. **Magnetism**
Compare everyday materials on the basis of magnetic behaviour
- 6.3. **Using materials**
Relate the properties of materials to their everyday uses
- 6.4. **Thermal insulators**
Some materials are better thermal insulators than others
- 6.5. **Electrical conductors**
Some materials are better electrical conductors than others
- 6.6. **Rocks**
Describe and group rocks on the basis of their characteristics, including appearance, texture and permeability
- 6.7. **Soils**
Describe and group soils on the basis of their characteristics, including appearance, texture and permeability
- 6.8. **Solids, liquids and gases 1**
To recognise differences between solids, liquids and gases in terms of ease of flow
- 6.9. **Solids, liquids and gases 2**
To recognise differences between solids, liquids and gases in terms of maintenance of shape
- 6.10. **Solids, liquids and gases 3**

To recognise differences between solids, liquids and gases in terms of maintenance of volume

Chapter Seven

Changing Materials

- 7.1. **Mixing materials**
Changes occurring when materials are mixed
- 7.2. **Heating materials**
Changes occurring when materials are heated
- 7.3. **Cooling materials**
Changes occurring when materials are cooled
- 7.4. **Temperature**
Temperature is a measure of how hot or cold things are
- 7.5. **Reversible changes: dissolving**
About dissolving and how it can be reversed
- 7.6. **Reversible changes: melting**
About melting and how it can be reversed
- 7.7. **Reversible changes: boiling**
About boiling and how it can be reversed
- 7.8. **Reversible changes: condensing**
About condensing and how it can be reversed
- 7.9. **Reversible changes: freezing**
About freezing and how it can be reversed
- 7.10. **Reversible changes: evaporating**
About evaporating and how it can be reversed
- 7.11. **The water cycle**
The part played by evaporation and condensation in the water cycle
- 7.12. **Non-reversible changes**
That non-reversible changes [for example, vinegar reacting with bicarbonate of soda, plaster of Paris with water] result in the formation of new materials that may be useful
- 7.13. **Burning**
That burning materials [for example, wood, wax, natural gas] results in the formation of new materials and that this change is not usually reversible.

Chapter Eight

Separating mixtures of materials

- 8.1. **Sieving**
How to separate solid particles of different sizes by sieving [for example, those in soil]
- 8.2. **Solutions**
Some solids [for example, salt, sugar] dissolve in water to give solutions but some [for example, sand, chalk] do not
- 8.3. **Filtering**
How to separate insoluble solids from liquids by filtering
- 8.4. **Recovering dissolved solids**

How to recover dissolved solids by evaporating the liquid from the solution

8.5. Separating materials

To use knowledge of solids, liquids and gases to decide how mixtures might be separated

Chapter Nine

Electricity

9.1. Circuits with bulbs and buzzers

Construct circuits, incorporating a battery or power supply and a range of switches, to make bulbs and buzzers work

9.2. Circuits with motors

To construct circuits, incorporating a battery or power supply and a range of switches, to make motors work

9.3. Changing batteries

How changing the batteries in a series circuit can make bulbs brighter or dimmer

9.4. Changing bulbs

How changing the bulbs in a series circuit can make bulbs brighter or dimmer

9.5. Changing wires

How changing the wires in a series circuit can make bulbs brighter or dimmer

9.6. Circuit symbols

How to represent series circuits by drawings and conventional symbols

9.7. Series circuits

How to construct series circuits on the basis of drawings and diagrams using conventional symbols

Chapter Ten

Forces and motion

10.1. Magnetic forces

The forces of attraction and repulsion between magnets

10.2. Magnetic forces 2

About the forces of attraction between magnets and magnetic materials

10.3. Gravity

Objects are pulled downwards because of the gravitational attraction between them and the Earth

10.4. Friction

Friction as a force that slows moving objects and may prevent objects from starting to move

10.5. Air resistance

Air resistance as a force, which slows down objects

10.6. Pushes and pulls

When objects [for example, a spring, a table] are pushed or pulled, an opposing pull or push can be felt

10.7. Measuring forces

How to measure forces

10.8. The direction of forces

Identify the direction in which forces act

Chapter Eleven

Light and Sound

11.1. Light sources

Light travels from a source

11.2. Shadows

Light cannot pass through some materials, and how this leads to the formation of shadows

11.3. Reflection

Light is reflected from surfaces [for example, mirrors, polished metals]

11.4. Seeing

We see things only when light from them enters our eyes

11.5. Sound and vibration

That sounds are made when objects [for example, strings on musical instruments] vibrate but that vibrations are not always directly visible

11.6. Changing loudness

How to change loudness of sounds produced by some vibrating objects

11.7. Changing pitch

How to change the pitch of sounds produced by some vibrating objects [for example, a drum skin, a plucked string]

11.8. How vibrations travel

Vibrations from sound sources require a medium [for example, metal, wood, glass, air] through which to travel to the ear

Chapter Twelve

The Earth and beyond

12.1. The Sun, Earth and Moon

The Sun, Earth and Moon are approximately spherical

12.2. The position of the Sun

How the position of the Sun appears to change during the day

12.3. Changing shadows

How shadows change as the earth rotates

12.4. Day and night

How day and night are related to the spin of the Earth on its own axis

12.5. The Earth's orbit

The Earth orbits the Sun once each year

12.6. The Moon's orbit

The Moon takes approximately 28 days to orbit the Earth