

UNIT 1 - FOOD AND DIGESTION

Content

- To create a concept diagram exploring digestion
- Listing know food groups
- To create a food pyramid and apply to own common diet
- To learn required food pyramid for balanced diet
- Exploration of laboratory experiments for testing food stuffs (e.g. starch and iodine)
- Understanding main digestive organs
- Understanding digestive process

Resources & ICT

- Food pyramids
- Digestive system diagrams
- Food stuff laboratory testing equipment
- iPad app
- Organ model

Students to Know

- Recommended food stuffs for balanced diet
- Main digestive organs
- Main food groups

Students to Understand

- How the digestive system works

Students to be able to Do

- Carry out food stuff testing safely in the laboratory
- Recall important elements and minerals for healthy living

Cross curricular links

- Geography and History; food across cultures, using different nationalities in the classroom

Types of assessment

- Formative: questions and answers, discussions, quick quizzes
- Summative: end of unit test

Differentiation incl. EAL

- Vocabulary lists
- Recall extensive lists of elements, minerals, functions and deficiencies

Learning styles activities

- Kinesthetic learning styles encouraged through science experiments
- Hands-on exploration of organ model
- Visual learners: food pyramid



Global citizenship, internationalism, local environment

- Exploration of food from around the world

UNIT 2 - ROCKS AND WEATHERING

Content

- Sedimentary, Igneous and Metamorphic rock types
- Examination in the laboratory
- Testing for hardness, mineral content
- Chemical and mechanical weathering
- Mohs scale

Resources & ICT

- Rock kits
- Dilute acids
- Microscopes

Students to Know

- The difference between sedimentary, igneous and metamorphic rocks
- The Mohs scale

Students to Understand

- Processes for rock formation

Students to be able to Do

- Testing rocks using acids in the laboratory

Cross curricular links

- Geography; natural and man-assisted weathering (e.g. acid rain)

Types of assessment

- Formative: questions and answers, discussions, quick quizzes
- Summative: end of unit test, Mohs scale, testing rocks in the laboratory

Differentiation incl. EAL

- Vocabulary lists
- Extension: learn crystal systems of seven mineral groups

Learning styles activities

- Kinesthetic: hands-on examination of rocks and minerals in the laboratory
- Visual: identification of rock types by macro characteristics



Lower Antelope Canyon, Arizona, USA

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Global citizenship, internationalism, local environment

- Citizenship: weathering and care of the environment



UNIT 3 - ATOMS AND ELEMENTS

Content

- Basic structure of an atom
- Fundamental particles
- Basic divisions in the periodic table
- Research on one element in detail
- Properties of metals, non-metals and gases
- Flame test for elements

Resources & ICT

- Basic periodic table
- Elements set in laboratory
- Periodic table iPad app

Types of assessment

- Formative: questions and answers, discussions, quick quizzes
- Summative: end of unit test, Mohs scale, testing rocks in the laboratory, rubric-based presentation on one element

Students to Know

- The basic divisions in the periodic table (metals, non-metal, gases)
- Basic fundamental particles in an atom
- One element properties and uses in detail

Students to Understand

- Elements have different properties

Students to be able to Do

- Carry out flame test in the laboratory

Cross curricular links

- History; the discovery of elements by scientists, the creation of the periodic table

Differentiation incl. EAL

- Vocabulary lists, lists of elements in different languages
- Extension: use of different periodic tables

Learning styles activities

- Visual/special: periodic table
- Kinesthetic: hands-on in laboratory, flame test



Periodic table display, Visionarium in Santa Maria da Feira, Portugal

José Gonçalves / CC BY-SA 3.0

Global citizenship, internationalism, local environment

- Internationalism: scientists' discoveries around the world



UNIT 4 - CHEMICAL REACTIONS

Content

- Physical and chemical changes
- Reactants and products
- Using equations
- Kinds of reactions: combination, combustion, decomposition

Resources & ICT

- iPad app: chemical reactions

Students to Know

- The different states of matter and how one changes into the other
- Examples of reactants and resulting products

Students to Understand

- How to write chemical reactions as an equation
- The difference between combination, combustion and decomposition reactions

Students to be able to Do

- Carry out reaction experiments in the laboratory

Cross curricular links

- Geography; examples of weathering from oxidation or acid rain (oxidation = combination)

Types of assessment

- Formative: questions and answers, discussions, quick quizzes
- Summative: end of unit test, practical lab session assessed using rubric

Differentiation incl. EAL

- Support given to students for understanding the use of equations
- Extension: students use equations to create salts (e.g. $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$)

Learning styles activities

- Kinesthetic: hands-on laboratory experiments
- Mathematical: use of formulae



Global citizenship, internationalism, local environment

- Local environment: the impact of rust, acid rain

UNIT 5 - ENERGY TRANSFORMATIONS

Content

- Energy sources, different kinds of energy
- Energy transfer diagrams
- $Work = force \times distance$
- Kinetic energy and potential energy
- Newtons
- Alternative forms of energy production

Resources & ICT

- iPad app: forces
- Newton meters
- Weight sets, forces kits

Students to Know

- A variety of sources of energy
- That energy can be transferred from one kind to another
- A range of alternative energy resources

Students to Understand

- How to use energy transfer diagrams

Students to be able to Do

- Use a newton meter
- Carry out experiments which demonstrate forces, e.g. weights on a spring

Cross curricular links

- History; origins of the newton meter; scientists associated with forces (Newton)

Types of assessment

- Formative: questions and answers, discussions, quick quizzes
- Summative: end of unit test, practical lab session assessed using rubric

Differentiation incl. EAL

- Vocabulary lists
- Extension: research into important scientists associated with forces.

Learning styles activities

- Kinesthetic: hands-on in the laboratory, use of force kits



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Global citizenship, internationalism, local environment

- Local environment: field trips to see solar power plant, wind turbines, hydroelectric plant

UNIT 6 - FLOWERING PLANTS

Content

- Plants that flower and examples of those that do not flower
- Parts of a flower
- Functions of the parts of a flower
- Laboratory sessions dissecting a flower
- Microscope work

Resources & ICT

- Slide sets
- Microscopes
- Examples of flowers from the BM gardens
- Hand lenses

Students to Know

- All of the major parts of a flower
- Functions of these parts

Students to Understand

- Pollination
- Fertilisation
- Pollinators (wind, insect, animal)

Students to be able to Do

- Be able to dissect a flower and separate parts
- Identify using a hand lens and microscope the parts of a flower

Cross curricular links

- Languages; translation of flower parts

Types of assessment

- Formative: questions and answers, discussions, quick quizzes, creation of a labelled diagram of parts of the flower
- Summative: end of unit test

Differentiation incl. EAL

- Vocabulary lists: translations into different languages
- Extension: researching prehistoric or ancient plants and the origins of flowers

Learning styles activities

- Kinesthetic: hands-on laboratory exploration and use of microscopes



Flowering plant

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Global citizenship, internationalism, local environment

- Local environment: identifying locally growing flowering plants

