Boldon School

INNOVATE: FOCUS: ACHIEVE

Study to Succeed

KNOW MORE DO MORE REMEMBER MORE

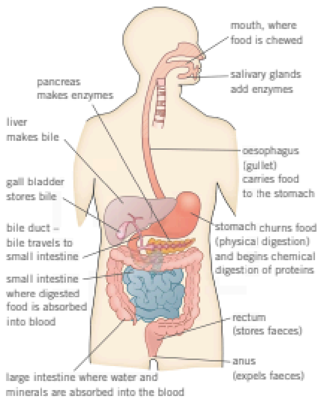
Half term 1

Subject:Science

Diet

The digestive system

Bacteria live on fibre in your diet in the large intestine and make important vitamins (e.g., vitamin K).



Enzymes

Enzymes are special proteins that can break large molecules of nutrients down into small molecules.

Enzymes are known as biological **catalysts** – they speed up **digestion** without being used up.

There are three main types of enzyme involved in digestion:

	Type of enzyme		
	carbohydrase	protease	lipase
digests	carbohydrates (e.g., starch) → sugars	protein → amino acids	lipids → fatty acids and glycerol

Nutrients

Nutrient	Role in your body
carbohydrates	main source of energy
lipids	fats and oils provide energy
proteins	growth and repair of cells and tissues
vitamins and minerals	essential in small amounts to keep you healthy
water	needed in all cells and body fluids
fibre	provides bulk to food to keep it moving through the gut (not actually a nutrient)

Food tests

Starch

Add a few drops of iodine solution to the food solution.

Result: If the solution turns blue-black, the food contains starch.

Lipids

Add a few drops of ethanol to the food solution, shake it, and leave for one minute. Then pour the ethanol into a test tube of water.

Result: If the solution turns cloudy, the food contains lipids.

Sugar

Add a few drops of Benedict's solution and heat the solution in a water bath.

Result: If the solution turns orange-red, the food contains sugar.

Protein

Add a few drops of copper sulfate solution and sodium hydroxide solution.

Result: If the solution turns purple, the food contains protein.

Effects of an unhealthy diet

A **balanced diet** is when you have the right proportions of the food groups to keep you healthy.

Eating an unbalanced diet can lead you to be:

underweight

Increased risk of:
- poor immune system
- lack of energy
- lack of vitamins and minerals.

overweight

Increased risk of:
- heart disease
- stroke
- diabetes
- some cancers.

vitamin and mineral deficient

Vitamin A deficiency can lead to night blindness.

Vitamin D deficiency can lead to rickets.

Effects of lifestyle on health

Drugs

Drugs are any chemicals that affect the way your brain and body work.

Medical drugs	Recreational drugs
• used in medicine • benefit your health if used correctly • used to treat symptoms or cure illness • some have side effects	• taken for enjoyment/to relax/stay awake • normally have no health benefits • many can be harmful • many are illegal
examples include: painkillers, antibiotics, and cough mixture	examples include: alcohol, caffeine, heroine, cocaine, tobacco

Alcohol

Alcohol is a depressant because it slows down your body's reactions.

Drinking large amounts of alcohol over a long time can cause:
- stomach ulcers
- heart disease
- reduced fertility
- brain damage
- liver damage (cirrhosis)

Drinking during pregnancy increases the risk of:
- miscarriage
- stillbirth
- premature birth
- low birth weight babies
- Fetal Alcohol Syndrome (FAS)

Smoking

Cigarette smoke is full of harmful chemicals including:

tar – clogs the lining of the lungs and alveoli, contains cancer-causing chemicals

nicotine – an addictive stimulant

carbon monoxide – stops blood from carrying oxygen.

Smoking can cause many different diseases, including:
- heart disease
- emphysema
- respiratory infections
- strokes
- lung cancer

Smoking during pregnancy increases the risk of miscarriage and low birth weight babies, and can also affect the fetus' development.

Addiction – When your body becomes used to the chemical changes caused by a drug and you need to take the drug to feel normal.

When a person who is addicted to a drug tries to stop taking it, they may suffer from sickness, nausea, stomach cramps, headaches, anxiety, and sweating. These are called **withdrawal symptoms**.

Key terms

Make sure you can write definitions for these key terms.

addiction anus balanced diet carbohydrase carbohydrate carbon monoxide catalyst deficiency digestion digestive system drug enzyme fibre food test large intestine lipid lipase mineral nicotine nutrient oesophagus protease protein rectum small intestine stimulant stomach tar vitamin withdrawal symptom

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The **Periodic Table** displays the names and symbols of all the **elements** we have discovered which are organised by their **chemical properties** and their **physical properties**.

Physical properties

The **physical properties** of an element describe how a substance behaves generally.
*(E.g., **conductor** of electricity, dense, conductor of heat, shiny, **malleable**, sonorous, high melting and boiling points)*

Chemical properties

The **chemical properties** of an element describe how a substance behaves in terms of its chemical reactions.
For example, how reactive it is, what other substances it reacts with, and the products it forms in reactions.

metals are to the left of the red line

non-metals are on the right

			H hydrogen														He helium
Li lithium	Be beryllium											B boron	C carbon	N nitrogen	O oxygen	F fluorine	Ne neon
Na sodium	Mg magnesium											Al aluminum	Si silicon	P phosphorus	S sulfur	Cl chlorine	Ar argon
K potassium	Ca calcium	Sc scandium	Ti titanium	V vanadium	Cr chromium	Mn manganese	Fe iron	Co cobalt	Ni nickel	Cu copper	Zn zinc	Ga gallium	Ge germanium	As arsenic	Se selenium	Br bromine	Kr krypton
Rb rubidium	Sr strontium	Y yttrium	Zr zirconium	Nb niobium	Mo molybdenum	Tc technetium	Ru ruthenium	Rh rhodium	Pd palladium	Ag silver	Cd cadmium	In indium	Sn tin	Sb antimony	Te tellurium	I iodine	Xe xenon
Cs caesium	Ba barium	La lanthanum	Hf hafnium	Ta tantalum	W tungsten	Re rhenium	Os osmium	Ir iridium	Pt platinum	Au gold	Hg mercury	Tl thallium	Pb lead	Bi bismuth	Po polonium	At astatine	Rn radon
Fr francium	Ra radium																

metals non-metals

solids liquids gases at room temprature

This version of the Periodic Table does not include every discovered element.

- columns are called **groups**
- rows are called **periods**

Elements in a group normally have similar properties, meaning chemists can predict properties of elements based on their group.

Metals

- normally good conductors of heat and electricity
- shiny when cut
- malleable
- **dense** and **sonorous**
- most have high melting points

Non-metals

- often have properties the opposite of metals
- low boiling points, so are gases at room temperature
- poor conductors of electricity and heat
- dull in appearance
- low density
- **brittle** and not sonorous

Group 1

- called the **alkali metals**
- like all other metals but are very **reactive**
- react vigorously (strongly) with water
- get more reactive as you go down the group
- lower melting points than most other metals
- melting points decrease down the group
- always produce a metal hydroxide and hydrogen gas when reacted with water

Group 7

- called the **halogens**
- generally very reactive
- generally the opposite of Group 1
- melting point increases down the group while reactivity decreases.
- take part in **displacement reactions**, where an element from higher up the group takes the place of one from lower down the group in a compound.

For example: *potassium iodide + chlorine → potassium chloride + iodine*

Group 0

- called the **noble gases**
- very unreactive
- low boiling points, so are gases at room temperature
- like the halogens, their boiling points increase down the group

Key terms Make sure you can write definitions for these key terms.

alkali metal brittle conductor chemical property dense displacement reaction element group halogen malleable metal noble gas non-metal period Periodic Table physical property sonorous reactive