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16th November 2026

Dear Parent/Carer,

I am writing to inform you about the upcoming Year 7 Science mid-year assessments, which will begin during the week commencing **Monday 11th January 2027**.

These assessments are an important opportunity for students to demonstrate their scientific knowledge, understanding and progress so far this academic year. The results will help us identify areas of strength and any gaps in learning that require further support. They will also help inform future teaching and decisions about class groupings, including opportunities for students to move into the Aspire Science set.

We therefore strongly encourage all students to prepare thoroughly and demonstrate their full potential.

Assessment Information

Students will complete one **60-minute Science assessment**, consisting of:

- **Biology:** 20 minutes
- **Chemistry:** 20 minutes
- **Physics:** 20 minutes

The assessment will cover the following topics:

- **7.01:** Particles, Substances and Mixtures
- **7.02:** Fundamentals of Physics
- **7.03:** Cells and Organisation

A detailed examination timetable will be emailed home shortly.

How Can Students Prepare?

We recommend that students use three key revision strategies:

1. **Knowledge Organisers and Blank Page Retrieval:** Students should use the Year 7 Knowledge Organiser on the school website. They should read one small section, close the organiser and write everything they can remember on a blank page, before checking and correcting any gaps.
2. **Core Knowledge Questions:** Students should test themselves using the question banks for all three topics in the attached revision guide. They should cover the answers, attempt each question independently and revisit anything they get wrong.
3. **Noticed:** Students can access app.noticedtechnology.com to revisit lessons they found difficult. In Resources → Science, they should choose one of the three topics, select a lesson and open its Interactive worksheet.

Detailed instructions for all three revision methods, the complete core knowledge question sets and screenshots showing how to use Noticed are attached to this letter.

We would greatly appreciate your support in encouraging your child to start revising early, complete short, focused revision sessions and use the core knowledge questions to test their understanding at home.

Thank you for your continued support.

Kind regards,

Mrs Markham

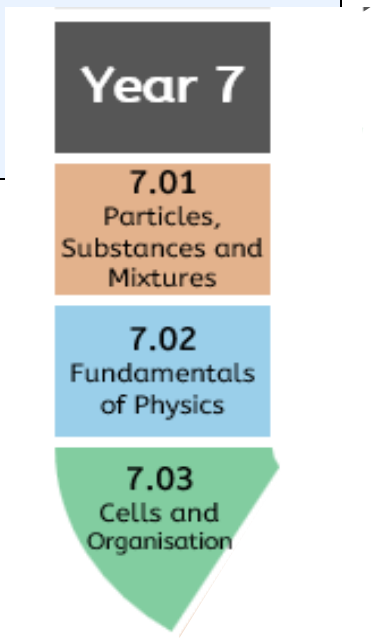
Head of Science
Stockport Academy

Year 7 Science - Essential knowledge

Mid-Year Assessments - January 2027

This guide only includes the topics and essential knowledge that could be assessed in your Mid Year Assessment. The assessment will be a 60-minute paper.

Biology: 7.03 Cells and Organisation
Chemistry: 7.01 Particles, Substances and Mixtures
Physics: 7.02 Fundamentals of Physics



How to use this essential knowledge booklet:

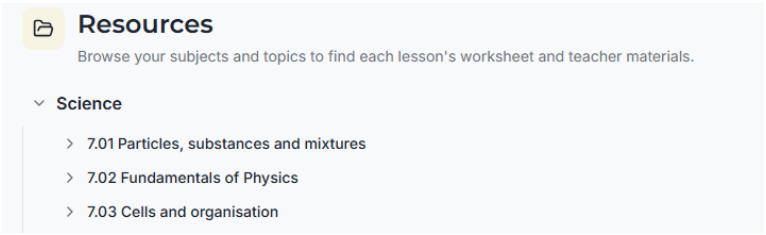
- Revise one section at a time.
- Cover the bullet points and see if you can explain them out loud.
- Learn the key words and their definitions.
- Practice drawing and labelling the diagrams.
- Answer the quick check questions using full sentences, unless the question says otherwise – then check your answers (on the final page).

If you would like to revise a particular lesson you found challenging this year, you can use **Noticed:**

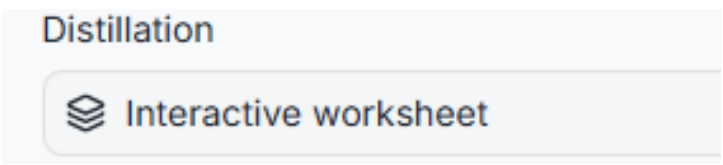
1. **Visit app.noticedtechnology.com**
2. Open Resources → Science, expand the topic you want to revise, select the lesson and open Interactive worksheet.

Follow these screenshots to find lesson-by-lesson worksheets. Use them especially for lessons you found difficult.

1. In Resources → Science, expand one of your three exam topics.



2. Choose Interactive worksheet to recap a lesson (example: Distillation).



Biology

This topic is about cells and how living things are organised.

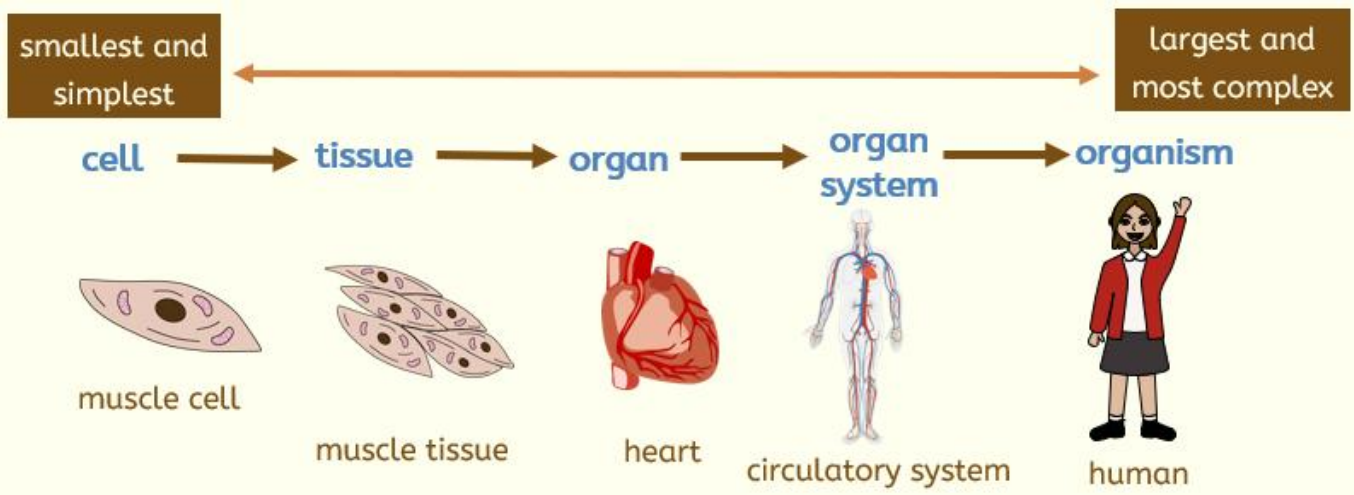
7.03 Cells and organisation

1. Cells and organisation

What you need to know:

- Living things are called organisms.
- All living organisms carry out life processes such as movement, growth, reproduction, respiration, sensitivity, excretion and nutrition.
- Cells are the building blocks of living things.
- Some organisms are unicellular, which means they are made of one cell. Others are multicellular, which means they are made of many cells.
- A tissue is a group of similar cells. An organ is a group of tissues working together. An organ system is a group of organs working together.
- Specialised cells have structures that help them do particular jobs.

Key words: organism, cell, unicellular, multicellular, tissue, organ, organ system, specialised



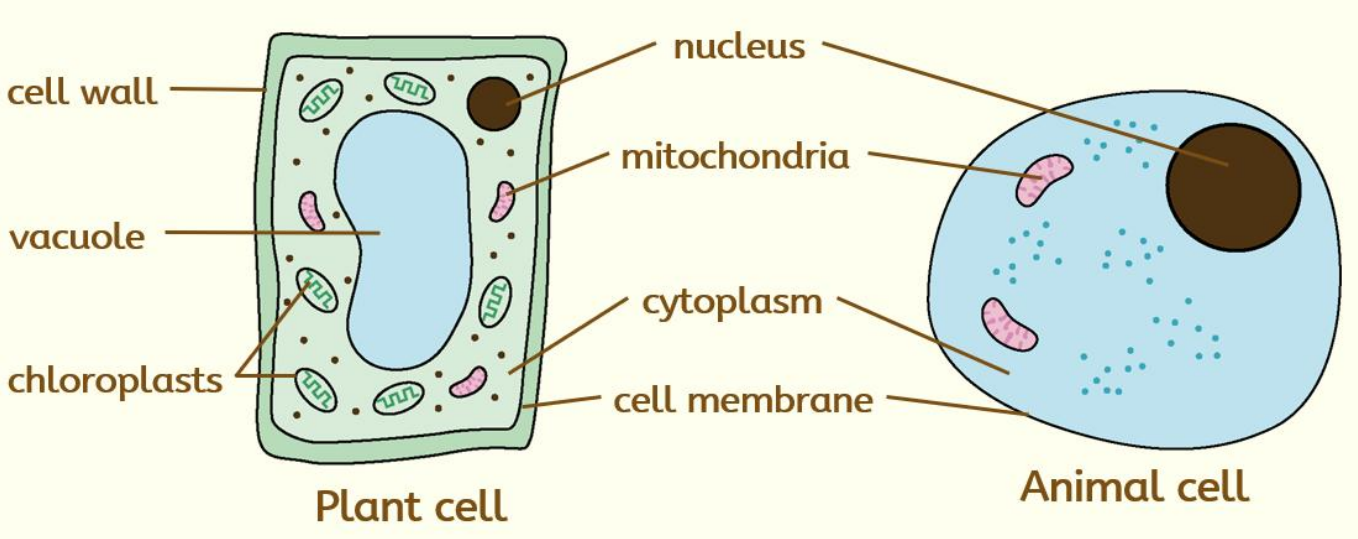
The levels of organisation in animals with an example of the levels of organisation within the circulatory system.

2. Animal cells and plant cells

What you need to know:

- Animal and plant cells both have a cell membrane, cytoplasm, nucleus and mitochondria.
- The cell membrane controls what enters and leaves the cell.
- The nucleus contains genetic information and controls the activities of the cell.
- Mitochondria are where respiration happens and energy is released.
- Plant cells also have a cell wall, a large vacuole and chloroplasts.
- The cell wall gives support. The vacuole contains cell sap. Chloroplasts are used in photosynthesis.

Key words: cell membrane, cytoplasm, nucleus, mitochondria, cell wall, vacuole, chloroplast



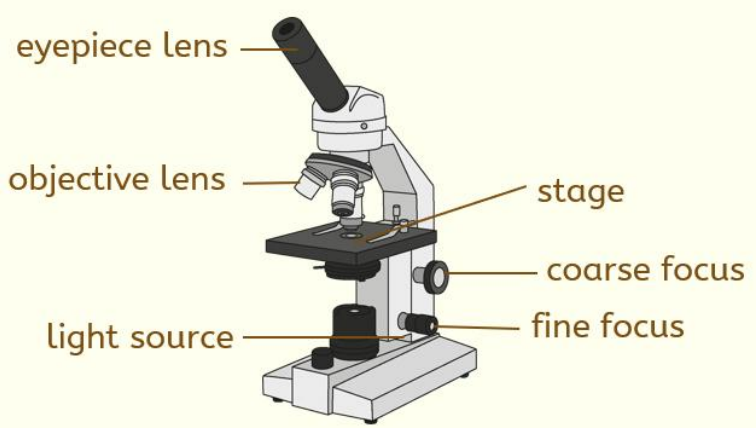
Use this diagram to practice naming the parts of an animal cell and a plant cell.

3. Microscopes

What you need to know:

- Animal and plant cells both have a cell membrane, cytoplasm, nucleus and mitochondria.
- A microscope magnifies and observes objects using lenses.
- Its main parts include the stage, eyepiece lens, objective lenses, coarse focus, fine focus and light source.
- The eyepiece lens is where we look through the microscope
- Objective lenses, typically three (×4, ×10, ×40), provide varying magnification levels
- The stage holds the specimen, secured by stage clips
- The light source emits light to illuminate the object (built-in or reflected by a mirror)
- Coarse focus allows rough adjustments of focus by moving the stage
- The fine focus enhances clarity.

Key words: stage, eyepiece lens, objective lenses, coarse focus, fine focus, light source



You should be able to: label a diagram of a microscope and describe how to use a microscope to view a cell/specimen.

4. Respiration and diffusion

What you need to know:

- Respiration is the process in cells that releases energy.
- Respiration uses glucose and oxygen.
- Respiration produces carbon dioxide and water.
- Diffusion is the movement of particles from a high concentration to a low concentration.
- Oxygen and carbon dioxide move in and out of cells by diffusion.
- Diffusion happens faster when the temperature is higher, when there is a larger surface area, or when the difference in concentration is bigger.

Key words: respiration, glucose, oxygen, carbon dioxide, diffusion, concentration

Biology quick check:

1. Can you name the parts of an animal cell and a plant cell?
2. Can you explain the difference between a tissue, an organ and an organ system?
3. Can you explain what diffusion is?

Chemistry

This topic is about particles, pure substances and mixtures.

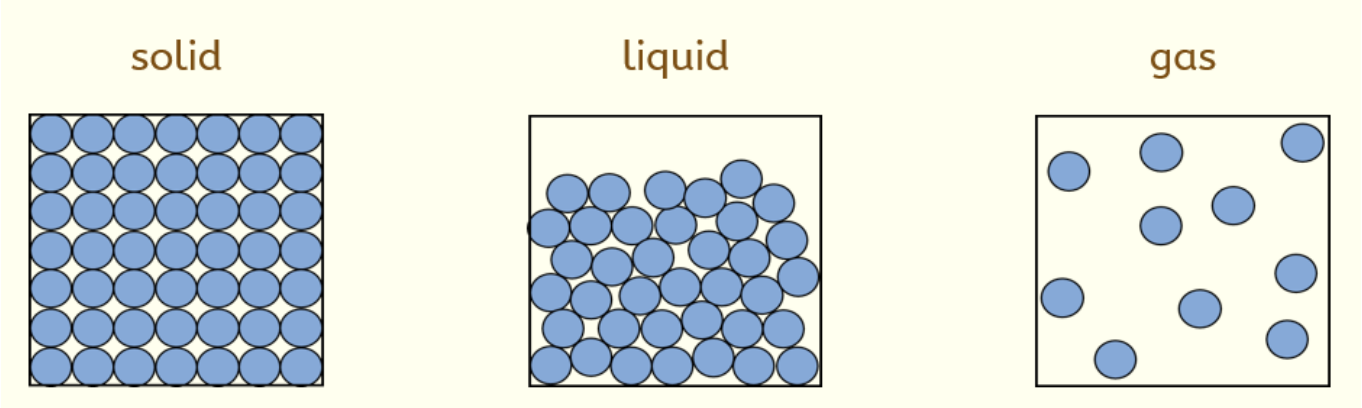
7.01 Particles, Substance and Mixtures

1. The particle model of matter

What you need to know:

- All matter is made of tiny particles.
- A solid has particles that are close together in a fixed arrangement and only vibrate.
- A liquid has particles that are close together but can move past each other.
- A gas has particles that are far apart and move quickly in random directions.
- Heating transfers energy to particles so they move faster.
- Cooling removes energy so particles move more slowly.

Key words: matter, particle model, solid, liquid, gas



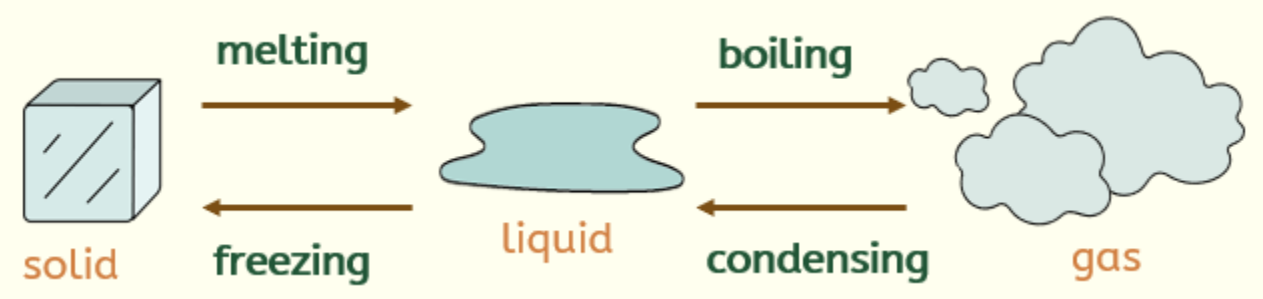
Use this diagram to practice particle diagrams.

2. Changes of state

What you need to know:

- Changing state is a physical change because no new substance is made.
- Melting is solid to liquid. Freezing is liquid to solid.
- Boiling is liquid to gas. Condensation is gas to liquid.
- During a change of state, particles are arranged differently and move differently.
- Every pure substance has a fixed melting point and boiling point.
- Water melts at 0 degrees Celsius and boils at 100 degrees Celsius.

Key words: physical change, melting, freezing, boiling, condensation, melting point, boiling point



Use this diagram to practice the names of changes of state.

3. Gas pressure

What you need to know:

- Gas particles move around quickly and hit the inside walls of a container (e.g. balloon).
- These collisions create gas pressure.
- Gas pressure increases if the gas is heated because the particles move faster.
- Gas pressure can also increase if more gas particles are added to the container.

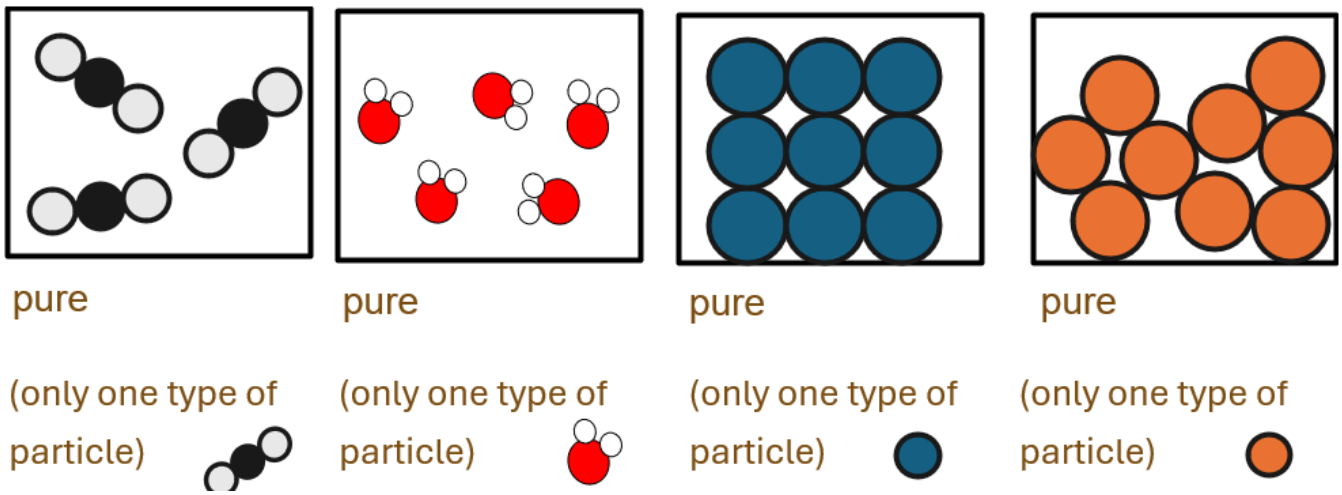
Key words: gas pressure, collision

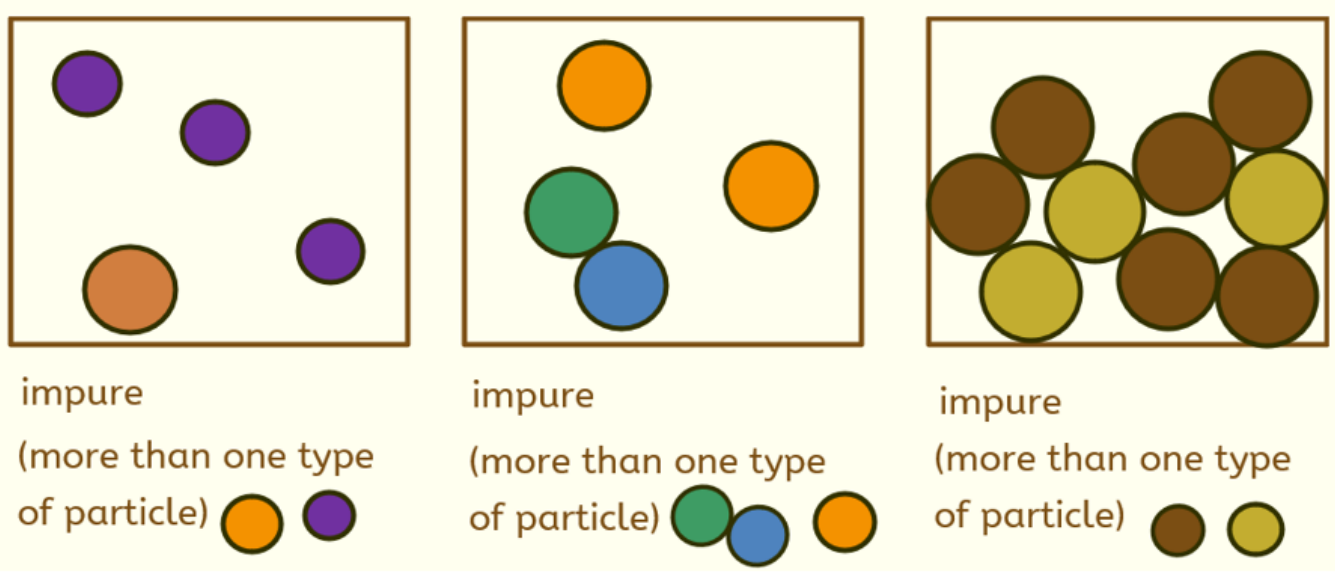
4. Pure substances and solutions

What you need to know:

- A pure substance contains only one substance.
- A mixture contains two or more substances together.
- A solute dissolves in a solvent to make a solution.
- If the solvent is water, the solution is called aqueous.
- A solution is clear, although it may be coloured.
- A saturated solution cannot dissolve any more solute.

Key words: pure, solution, solute, solvent, aqueous, saturated





5. Separating mixtures

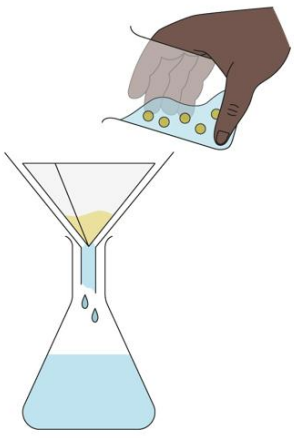
What you need to know:

- Mixtures can be separated because the substances in them are not chemically joined.
- Filtration can separate an insoluble solid from a liquid.
- Evaporation can remove a solvent and leave the dissolved solid behind.
- Crystallisation can make crystals from a solution.
- Distillation can separate liquids with different boiling points.
- Chromatography can separate some dissolved substances, such as dyes.
- Magnets and sieves can also be used for some mixtures.

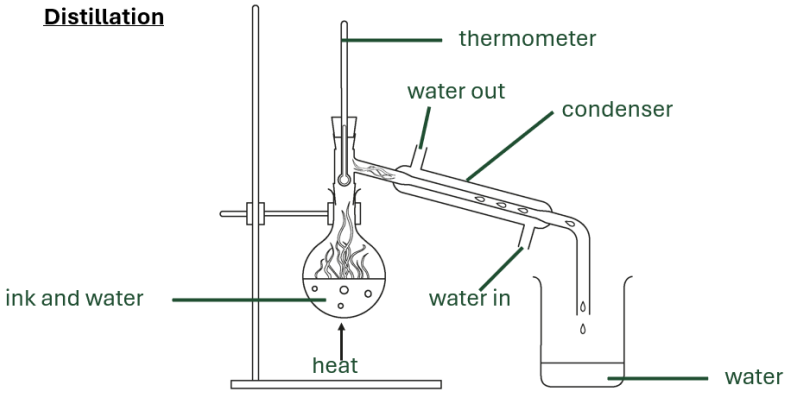
Key words: filtration, evaporation, crystallisation, distillation, chromatography, insoluble

You should be able to: choose the correct method to separate a given mixture.

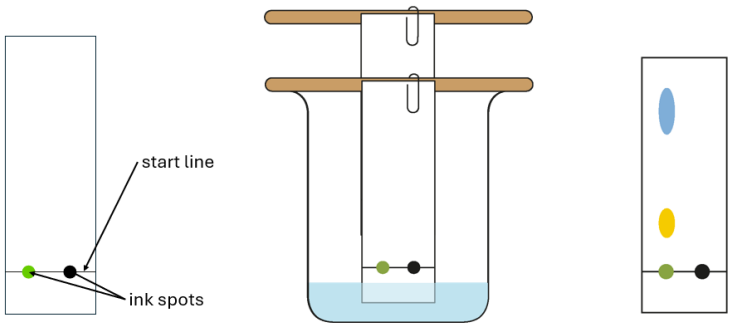
Filtration



Distillation



Chromatography



Chemistry quick check:

1. Can you draw particles in a solid, liquid and gas?
2. Can you explain how to separate a mixture using filtration or evaporation?

Physics

This topic is about forces and energy.

7.02 Fundamentals of Physics

1. Forces

What you need to know:

- A force is a push or a pull.
- Forces have size and direction.
- Some forces are contact forces, such as friction, air resistance and water resistance.
- Some forces are non-contact forces, such as gravity and magnetism.
- Weight is the force caused by gravity.
- A force can change the speed, direction or shape of an object.

Key words: force, contact force, non-contact force, gravity, weight, friction

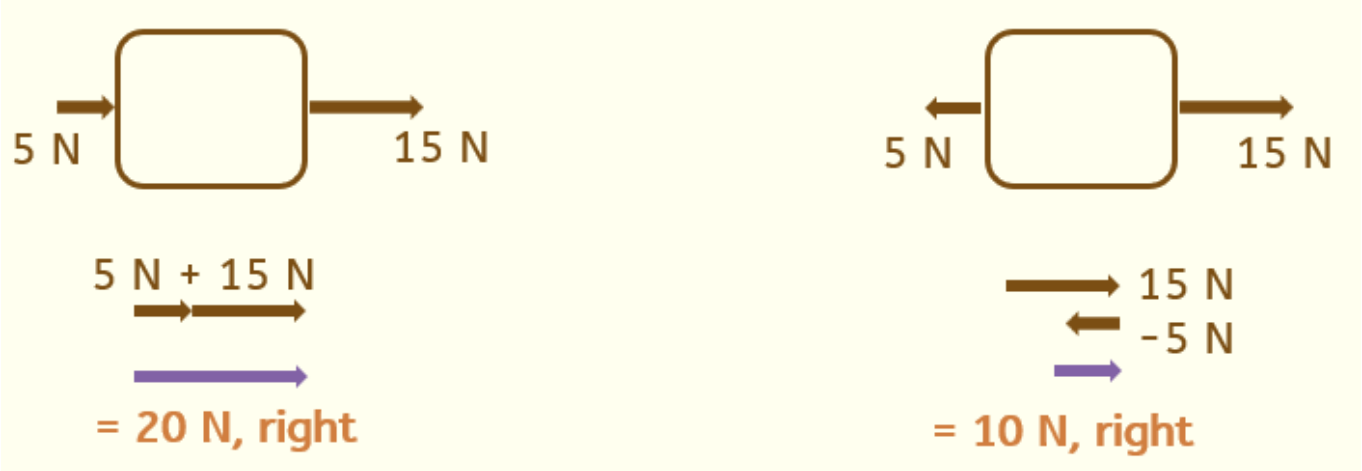
2. Force diagrams and resultants

What you need to know:

- Forces can be shown using arrows.
- A longer arrow means a bigger force.
- The direction of the arrow shows the direction of the force.
- The resultant force is the overall force after all the forces have been combined.
- Balanced forces give a resultant force of zero.
- Unbalanced forces give a non-zero resultant force and can change motion.

Key words: arrow, resultant force, balanced, unbalanced

You should be able to: draw a simple force diagram and work out the direction of the resultant force.



3. Deformation and friction

What you need to know:

- A force can stretch or squash an object.
- Stretching is linked to tension.
- Squashing is linked to compression.
- Friction resists motion between surfaces.
- Friction can be useful, for example when walking, but it can also be unwanted.
- Lubricants can reduce friction.

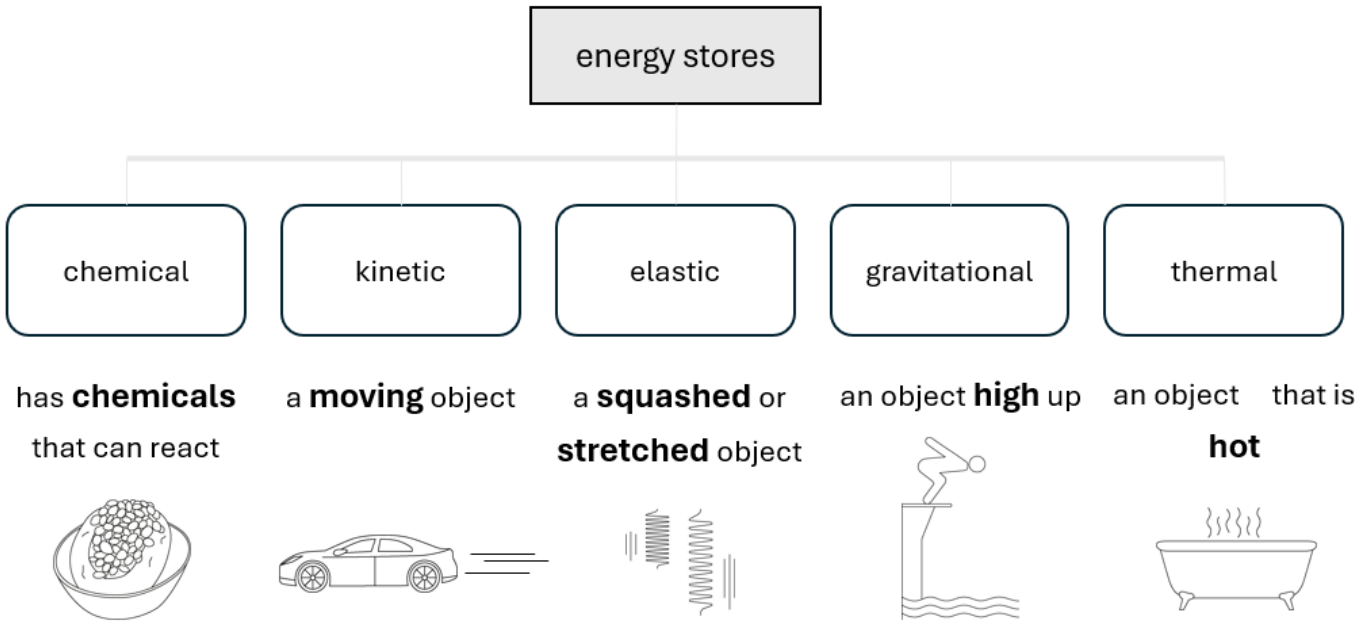
Key words: tension, compression, friction, lubricant

4. Energy stores and transfers

What you need to know:

- Energy is stored in different ways.
- Year 7 energy stores include chemical, kinetic, elastic, gravitational and thermal stores.
- Energy can be transferred mechanically, electrically, by heating, by radiation and by chemical reactions.
- Energy is conserved. It does not disappear.
- Energy often spreads to the surroundings, usually to the thermal store, which can make energy less useful.

Key words: energy store, chemical, kinetic, elastic, gravitational, thermal, conserved



Energy pathways

mechanical

because a **force** has acted on an object, moving it



electrical

because an **electric current** is flowing



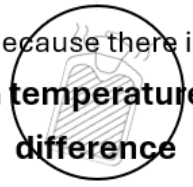
radiation

because an area is being **lit up**



heating

because there is a **temperature difference** between objects in contact



chemical reaction

because chemicals are **reacting**



Year 7 Science

Essential Knowledge Quiz

Mid-Year exams – January 2027

How to use this essential knowledge quiz:

1. Choose a topic you want to revise (HINT – start with topics you feel less confident with to make the biggest improvements)
2. Use the Question column to test yourself by covering the Answer column with a piece of paper
3. Say your answer out loud or write your answer down
4. Check it carefully
5. Revisit questions you find hard regularly

Science branch	Topics included
Biology	7.03 Cells and organisation
Chemistry	7.01 Particles, substances and mixtures
Physics	7.02 Fundamentals of Physics
Working scientifically	Exam skills used across the assessment

Biology

7.03 Cells and organization:

1. Cells and organisation

No.	Question	Answer
1	What is an organism?	An organism is a living thing.
2	Name the seven life processes that living organisms carry out.	Movement, growth, reproduction, respiration, sensitivity, excretion and nutrition.
3	What are cells?	Cells are the building blocks of living things.
4	What does unicellular mean?	Unicellular means made of one cell only.
5	What does multicellular mean?	Multicellular means made of many cells.
6	What is a tissue?	A tissue is a group of similar cells working together.
7	What is an organ?	An organ is a group of tissues working together.
8	What is an organ system?	An organ system is a group of organs working together.
9	What is a specialised cell?	A specialised cell has structures that help it do a particular job.
10	Put these in order from smallest to largest: organ, cell, organ system, tissue.	Cell -> tissue -> organ -> organ system.

2. Animal cells and plant cells

No.	Question	Answer
1	Name four structures found in both animal and plant cells.	Cell membrane, cytoplasm, nucleus and mitochondria.
2	What is the job of the cell membrane?	It controls what enters and leaves the cell.
3	What is the job of the nucleus?	It contains genetic information and controls the activities of the cell.
4	What happens in the mitochondria?	Respiration happens and energy is released.
5	Name three structures found in plant cells but not animal cells.	Cell wall, large vacuole and chloroplasts.
6	What is the job of the cell wall?	It supports the plant cell.
7	What is found inside the vacuole?	Cell sap.
8	What are chloroplasts used for?	Photosynthesis.
9	Which cell structure controls the activities of the cell?	The nucleus.
10	Which cell structure controls what enters and leaves the cell?	The cell membrane.

3. Microscopes

No.	Question	Answer
1	What is a microscope used for?	A microscope magnifies and observes objects using lenses.
2	What is the eyepiece lens?	The part of the microscope that you look through.
3	What are objective lenses used for?	They provide different magnification levels, such as x4, x10 and x40.
4	What is the stage used for?	The stage holds the specimen.
5	What are stage clips used for?	They hold the specimen in place on the stage.
6	What is the light source used for?	It shines light through or onto the specimen so it can be seen.
7	What is the coarse focus used for?	It makes rough adjustments to focus, often by moving the stage.
8	What is the fine focus used for?	It makes the image clearer and sharper.
9	Which objective lens should you usually start with?	The lowest power objective lens, because it is easier to find and focus the specimen.
10	Why should you use the fine focus after the coarse focus?	To improve clarity without making large movements that could lose the image.

4. Respiration and diffusion

No.	Question	Answer
1	What is respiration?	Respiration is the process in cells that releases energy.
2	What two substances are used in respiration?	Glucose and oxygen.
3	What two substances are produced in respiration?	Carbon dioxide and water.
4	What is diffusion?	Diffusion is the movement of particles from a high concentration to a low concentration.
5	Which gases move in and out of cells by diffusion?	Oxygen and carbon dioxide.
6	What does high concentration mean?	There are lots of particles in a particular area.
7	What does low concentration mean?	There are fewer particles in a particular area.
8	How does temperature affect diffusion?	Diffusion is faster at higher temperatures because particles move faster.
9	How does surface area affect diffusion?	A larger surface area makes diffusion faster.
10	How does the difference in concentration affect diffusion?	A bigger difference in concentration makes diffusion faster.

Chemistry

7.01 Particles, substances and mixtures:

1. The particle model of matter

No.	Question	Answer
1	What is all matter made of?	Particles.
2	How are particles arranged in a solid?	Close together in a fixed arrangement.
3	How do particles move in a solid?	They vibrate in fixed positions.
4	How are particles arranged in a liquid?	Close together but not in a fixed arrangement.
5	How do particles move in a liquid?	They move past each other.
6	How are particles arranged in a gas?	Far apart.
7	How do particles move in a gas?	Quickly, in random directions.
8	What happens to particles when a substance is heated?	Energy is transferred to the particles, so they move faster.
9	What happens to particles when a substance is cooled?	Energy is removed, so the particles move more slowly.
10	Which state has particles in a fixed arrangement?	Solid.

2. Changes of state

No.	Question	Answer
1	Why is changing state a physical change?	No new substance is made.
2	What is melting?	Changing from a solid to a liquid.
3	What is freezing?	Changing from a liquid to a solid.
4	What is boiling?	Changing from a liquid to a gas.
5	What is condensation?	Changing from a gas to a liquid.
6	What happens to particles during a change of state?	They are arranged differently and move differently.
7	What is a fixed melting point?	The temperature at which a pure substance melts.
8	What is a fixed boiling point?	The temperature at which a pure substance boils.
9	What is the melting point of water?	0 degrees Celsius.
10	What is the boiling point of water?	100 degrees Celsius.

3. Gas pressure

No.	Question	Answer
1	How do gas particles move?	Quickly and in random directions.
2	What creates gas pressure inside a container?	Gas particles collide with the inside walls of the container.
3	Give an example of a container where gas pressure acts.	A balloon.
4	What happens to gas pressure when a gas is heated?	Gas pressure increases.
5	Why does heating a gas increase pressure?	The particles move faster and collide more frequently or harder with the container walls.
6	What happens to gas pressure if more gas particles are added?	Gas pressure increases.
7	What is a collision?	When particles hit another particle or surface.
8	Why can gas fill a container?	Gas particles are far apart and move randomly in all directions.

4. Pure substances and solutions

No.	Question	Answer
1	What is a pure substance?	A substance that contains only one substance.
2	What is a mixture?	Two or more substances together that are not chemically joined.
3	What is a solute?	The substance that dissolves.
4	What is a solvent?	The liquid that the solute dissolves in.
5	What is a solution?	A mixture made when a solute dissolves in a solvent.
6	What does aqueous mean?	A solution where the solvent is water.
7	What does a solution look like?	It is clear, although it may be coloured.
8	What is a saturated solution?	A solution that cannot dissolve any more solute.
9	In salt water, what is the solute?	Salt.
10	In salt water, what is the solvent?	Water.

5. Separating mixtures

No.	Question	Answer
1	Why can mixtures be separated?	The substances in them are not chemically joined.
2	What does filtration separate?	An insoluble solid from a liquid.
3	What does evaporation do?	It removes a solvent and leaves the dissolved solid behind.
4	What is crystallisation used for?	Making crystals from a solution.
5	What does distillation separate?	Liquids with different boiling points.
6	What can chromatography separate?	Some dissolved substances, such as dyes.
7	What is an insoluble solid?	A solid that does not dissolve in a solvent.
8	Which method could separate sand from water?	Filtration.
9	Which method could get salt from salt water?	Evaporation or crystallisation.
10	Which method could separate colours in ink?	Chromatography.

Physics

7.02 Fundamentals of Physics

1. Forces

No.	Question	Answer
1	What is a force?	A push or a pull.
2	What two things do forces have?	Size and direction.
3	What is a contact force?	A force that acts when objects are touching.
4	Give three examples of contact forces.	Friction, air resistance and water resistance.
5	What is a non-contact force?	A force that acts without objects touching.
6	Give two examples of non-contact forces.	Gravity and magnetism.
7	What is weight?	The force caused by gravity.
8	Name three things a force can change.	The speed, direction or shape of an object.
9	Is friction a contact force or non-contact force?	Contact force.
10	Is gravity a contact force or non-contact force?	Non-contact force.

2. Force diagrams and resultants

No.	Question	Answer
1	How can forces be shown in a diagram?	Using arrows.
2	What does a longer force arrow show?	A bigger force.
3	What does the direction of the arrow show?	The direction of the force.
4	What is the resultant force?	The overall force after all forces have been combined.
5	What is the resultant force when forces are balanced?	Zero.
6	What do balanced forces do to the motion of an object?	They do not change the motion of the object.
7	What are unbalanced forces?	Forces that give a non-zero resultant force.
8	What can unbalanced forces do?	They can change motion.
9	If a 10 N force acts left and a 10 N force acts right, what is the resultant force?	0 N, because the forces are balanced.
10	If forces are unbalanced, is the resultant force zero or non-zero?	Non-zero.

3. Deformation and friction

No.	Question	Answer
1	What can a force do to the shape of an object?	It can stretch or squash it.
2	What is tension linked to?	Stretching.
3	What is compression linked to?	Squashing.
4	What does friction do?	It resists motion between surfaces.
5	Give one useful example of friction.	Friction helps us walk without slipping.
6	How can friction be unwanted?	It can slow moving objects or cause wear and heating.
7	What can reduce friction?	Lubricants.
8	What is a lubricant?	A substance used to reduce friction between surfaces.
9	What type of force is friction?	A contact force.
10	When an object is squashed, is it under tension or compression?	Compression.

4. Energy stores and transfers

No.	Question	Answer
1	What are energy stores?	Ways in which energy is stored.
2	Name five energy stores.	Chemical, kinetic, elastic, gravitational and thermal.
3	What is the chemical store?	Energy stored in substances such as food, fuels and batteries.
4	What is the kinetic store?	Energy stored by moving objects.
5	What is the elastic store?	Energy stored in stretched or compressed objects.
6	What is the gravitational store?	Energy stored by objects raised above the ground.
7	What is the thermal store?	Energy stored in hot objects due to particle motion.
8	Name five ways energy can be transferred (pathways).	Mechanically, electrically, by heating, by radiation and by chemical reactions.
9	What does ‘energy is conserved’ mean?	Energy is not created or destroyed; it is transferred between stores.
10	Where does energy often spread to?	The surroundings, usually to the thermal store, making energy less useful.

Working scientifically

Exam skills

Working scientifically

No.	Question	Answer
1	What should you do when answering questions with diagrams?	Read the diagrams carefully and use the labels you have been taught.
2	What should you do if asked to draw/complete a diagram?	Always use a pencil and complete as neatly as possible.
3	Why should you use correct scientific key words?	They make your answers precise and help you gain marks.
4	What does compare mean in science?	Describe similarities and differences clearly.
5	Give two examples of comparisons you may need to make.	Solids and liquids; arteries and veins; metals and non-metals.
6	What should you do if asked how to separate a mixture?	Choose the correct separating method for the mixture.
7	What can observations help you decide in chemistry?	Whether a chemical reaction has happened.
8	Name three types of diagrams you may need to draw neatly.	Particle diagrams, force arrows and ray diagrams.
9	How should you answer questions unless told otherwise?	Using full sentences.
10	What does ‘explain’ mean in a question?	Give reasons for your answer.
11	What does ‘describe’ mean in a question?	Say what happens in a process or how something happens – sometimes in steps.
12	What does ‘calculate’ mean in a question?	Identify numbers in the question and work out the answer with a calculation – you must include your working out!