



Key Stage 3

Science

Home learning pack



Biology

Cells, Tissues and Organs

Biology- Key Terms

- **Adaptation:** A feature of an organism's body which helps it to survive.
- **Bacteria:** Single-celled micro-organisms. Singular is bacterium.
- **Bacterial cell:** A microscopic individual cell of a bacterium.
- **Cell:** Basic unit of life. Unicellular organisms only have one cell. Multicellular organisms have many cells.
- **Cell membrane:** A selectively permeable membrane surrounding the cell and controlling the entry and exit of materials.
- **Cell wall:** a structural layer surrounding all types of plant cells, situated outside the cell membrane. It can be tough, flexible, and sometimes rigid. It provides the cell with both structural support and protection, and also acts as a filtering mechanism.
- **Chloroplast:** Contains the green pigment chlorophyll; the site of photosynthesis.
- **Cytoplasm:** The gel like substance inside a cell.
- **Light microscope:** Device that uses visible light and a series of lenses to produce an enlarged image of an object.
- **Mitochondria:** Structures in the cytoplasm of cells where respiration takes place (singular is mitochondrion).
- **Multicellular:** Having more than one cell.
- **Nucleus:** The nucleus controls what happens inside the cell. Chromosomes are structures found in the nucleus of most cells. The plural of nucleus is nuclei.
- **Organ:** A group of different tissues that work together to carry out a particular function, e.g. heart and lungs.
- **Organ system:** A group of organs that work together to complete a specific function.
- **Specialised:** A cell that has become differentiated to carry out a particular function, e.g. red blood cell.
- **Tissue:** A group of similar cells that carry out the same function, e.g. muscle tissue.
- **Unicellular:** A single-celled organism.
- **Vacuole:** A space within the cytoplasm of plant cells that contains cell sap.



Comparing Cells Worksheet

Complete the table below by placing a tick (✓) or cross (x) to show whether the part is present in each type of cell.

Use your table to compare the structure of the typical eukaryotic (plant and animal) and prokaryotic (bacterial) cells you have built.

Part of the Cell	Typical Animal Cell	Typical Plant Cell	Typical Prokaryotic Cell
cell membrane			
cell wall			
chloroplast			
cytoplasm			
DNA loop			
flagellum			
mitochondria			
nucleus			
permanent vacuole			
plasmid			
ribosome			

Microscope

Task: Label all main part of the microscope image below.



Tissues, Organs and Organ systems

Task: Answer the seven questions below:

1. State what all living things are made of.

2. Name three parts of animal and plant cells.

3. Name three specialised cells.

4. What is a tissue?

5. State the name of a group of tissues working together.

6. What is an organ system?

7. Give three examples of organ systems and their functions.

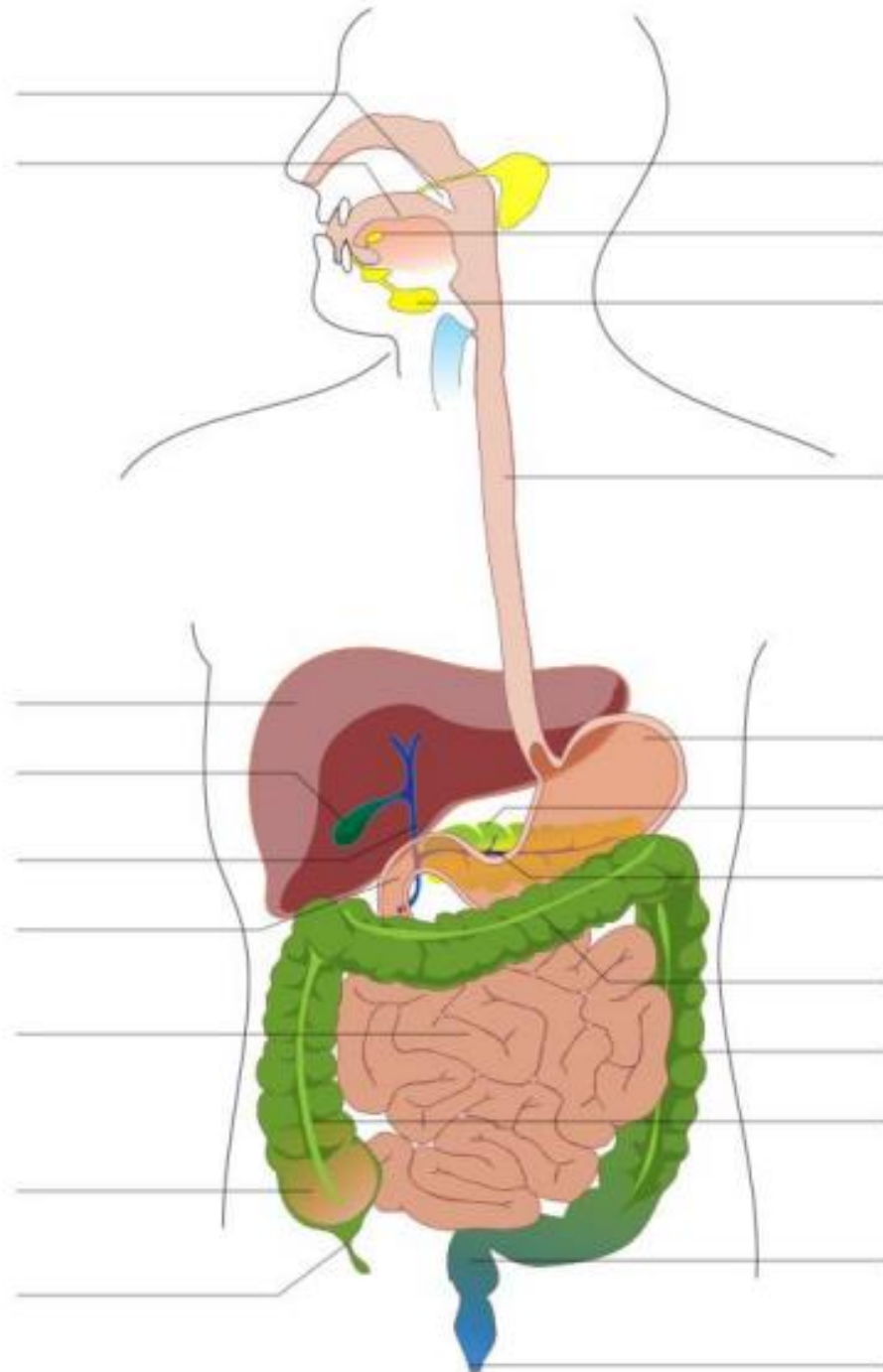
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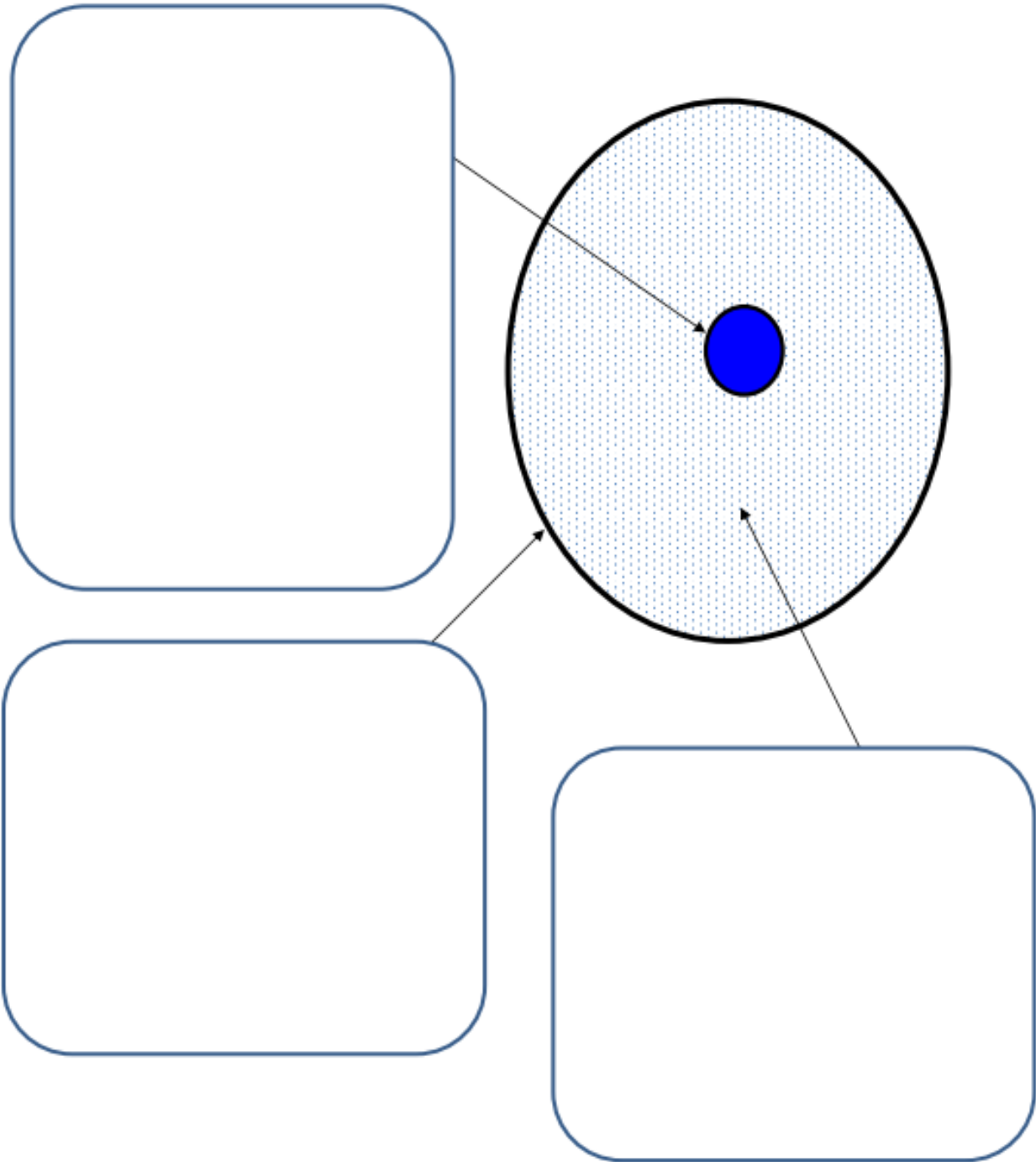
Organs and Organ systems

Task: Label all parts of an adult digestive system on the diagram below.



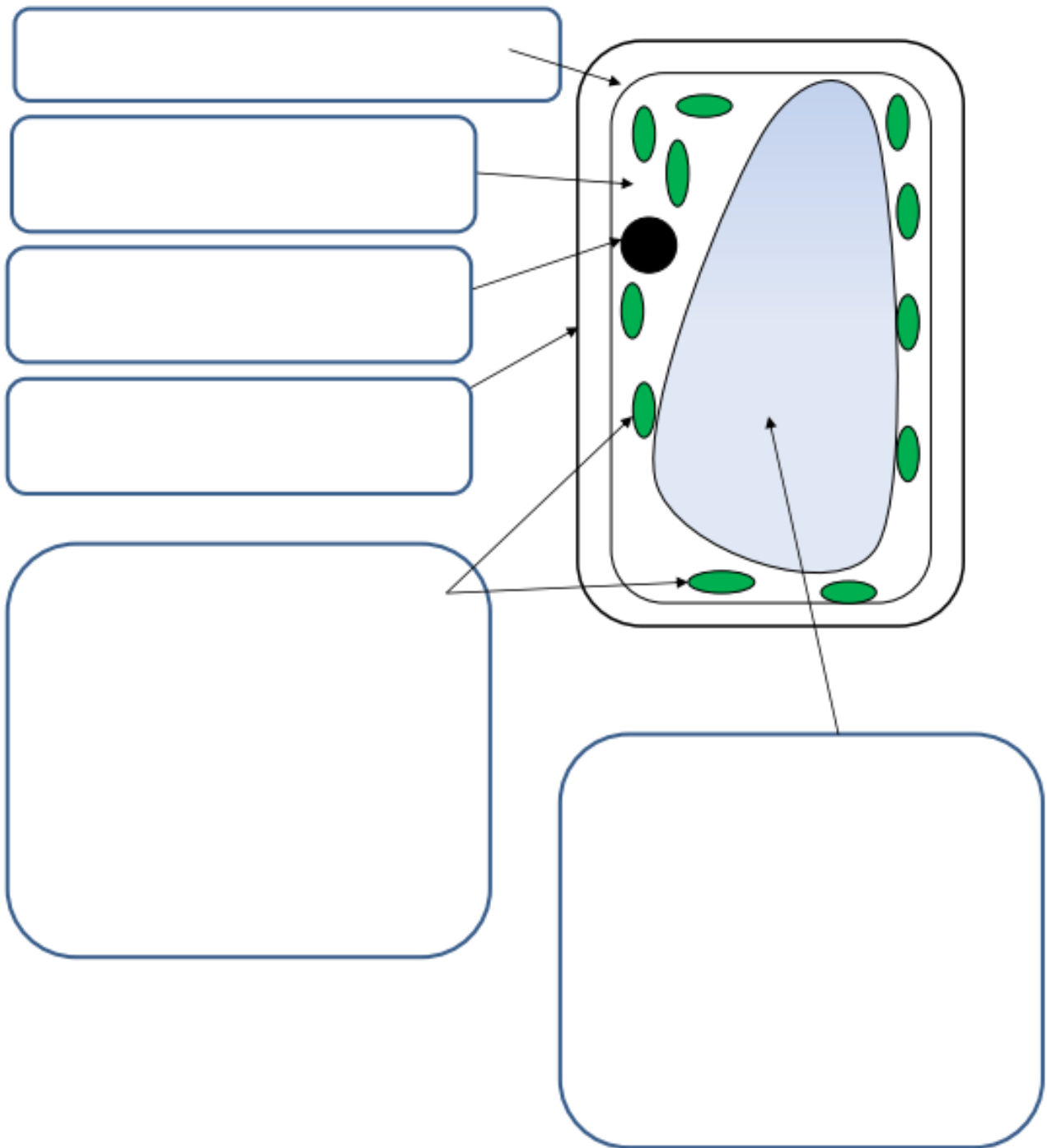
Animal Cells

Task: Label the three parts of an animal cell on the diagram below. Add a brief explanation of their use for each part.



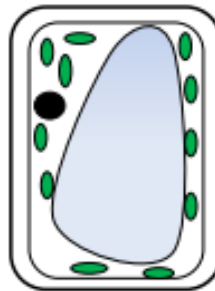
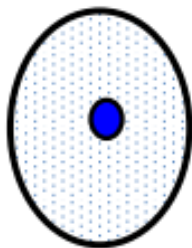
Plants Cells

Task: Label the six parts of a plant cell on the diagram below. Add a brief explanation of their use for each part.



Comparing Animal & Plant Cells

Task: State the differences and similarities between plant and animal cells, by completing the table below. Label the parts of cells which appear in both types of cells on the two diagrams below.



Part of cell	Present in animal cell (yes or no)? 	Present in plant cell (yes or no)? 
nucleus		
cytoplasm		
cell wall		
cell membrane		
vacuole		
chloroplasts		

Check your cells and systems knowledge

Task: Answer the six questions below:

1. Getting rid of waste is one of the life processes. What name is given to this process? Underline the correct answer.

Ingestion

Nutrition

Excretion

2. What is the job of the nucleus? Underline the correct answer.

- To control what substances go into and out of the cell.
- To give a plant cell its shape.
- To control what happens inside the cell.

3. What is the job of the cell membrane? Underline the correct answer.

- To control what substances go into and out of the cell.
- To give a plant cell its shape.
- To control what happens inside the cell.

4. Which of these is only present in plant cells? Underline the correct answer.

Membrane

Cell-wall

Nucleus

5. What sort of structure is the heart? Underline the correct answer.

A tissue

An organ

An organ system

6. Which of the following is not an organ system? Underline the correct answer.

Circulatory system

Nervous system

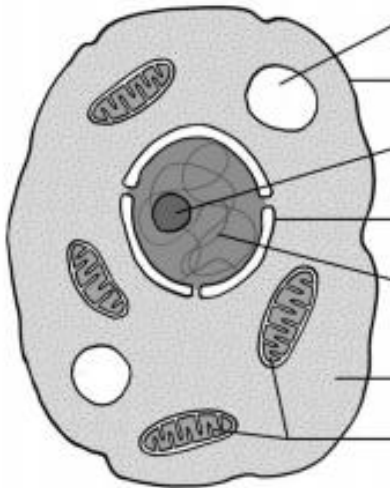
One-way system

Cells, tissues, organs and systems

Task: Fill in the missing words from the four common definitions listed below.

- _____ are organised into tissues, organs, systems and organisms.
- Tissue. A group of similar cells that carry out the same _____.
- _____. A group of different tissues that work together to carry out a particular function, e.g. heart and lungs.
- Organ system. A group of _____ that work together to complete a specific _____.

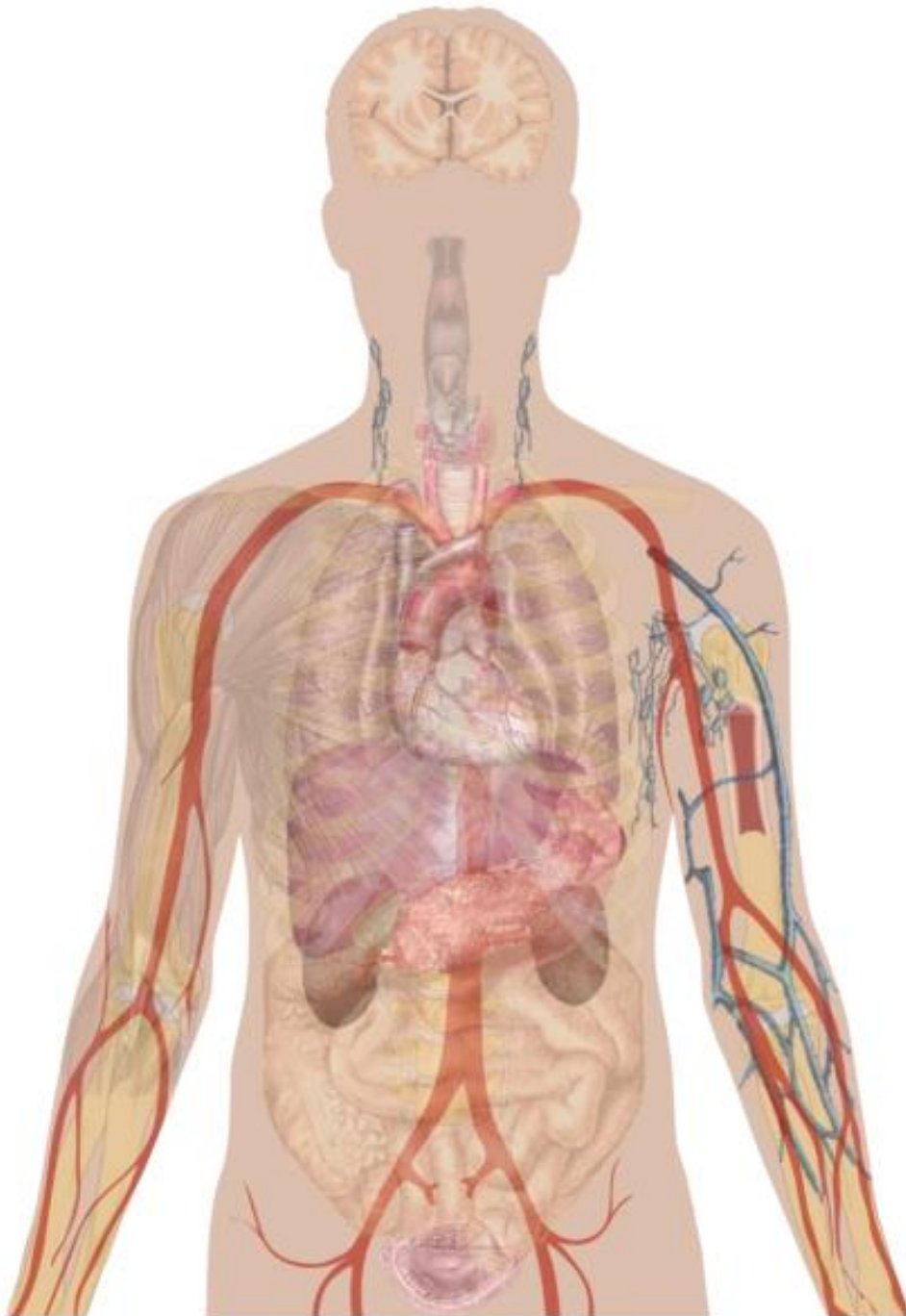
Task: Label the diagram below to show which three common properties are shared between these two types of cells. Label each type of cell.



Organs

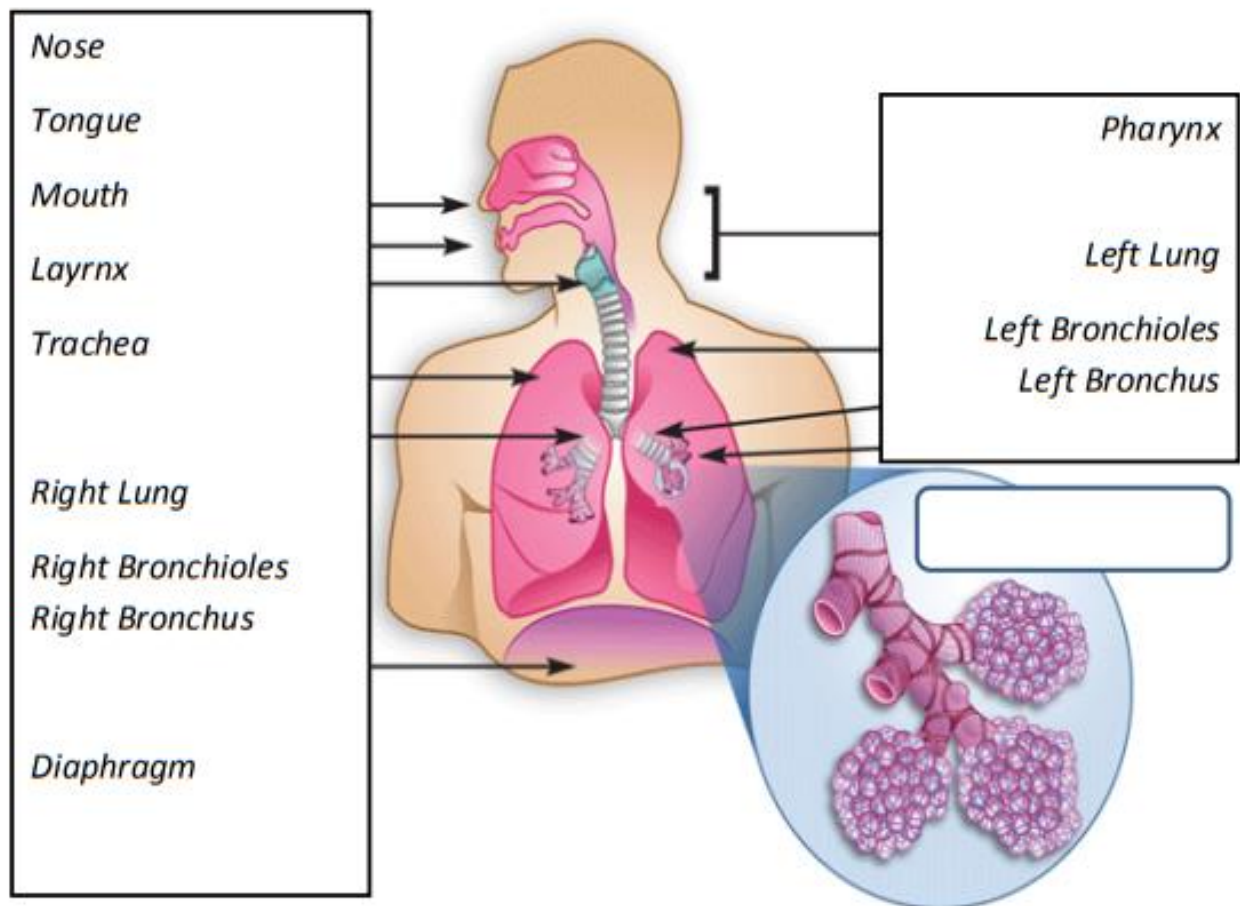
A group of tissues that work together to perform a function, e.g. the heart.

Task: Label the major organs on the male image below. Next to each organ, state their major function in the body.



Organs

Task: Draw a line from the list of words on the left and right boxes to the corresponding part of the lungs image.



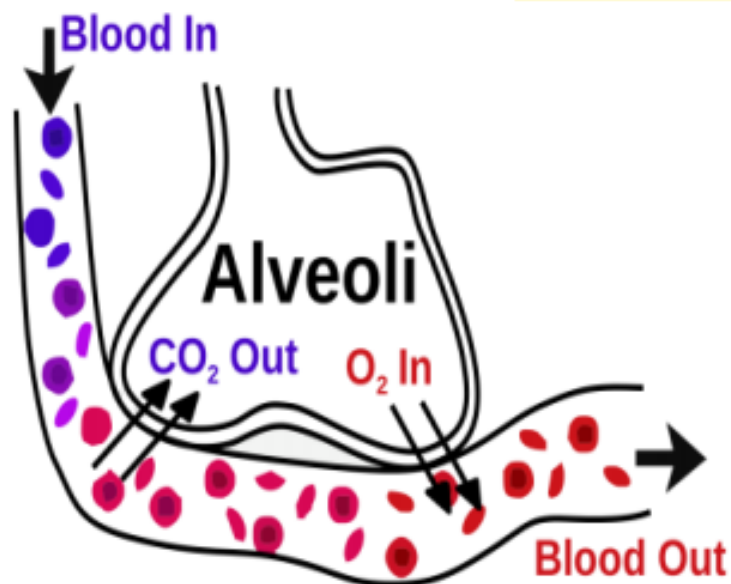
Task: Label the magnified view of the lung section above right.

Organs

Task: Briefly explain how gas exchange in the alveoli occurs.

Task: What is the name of the gas marked CO_2 in the diagram below?

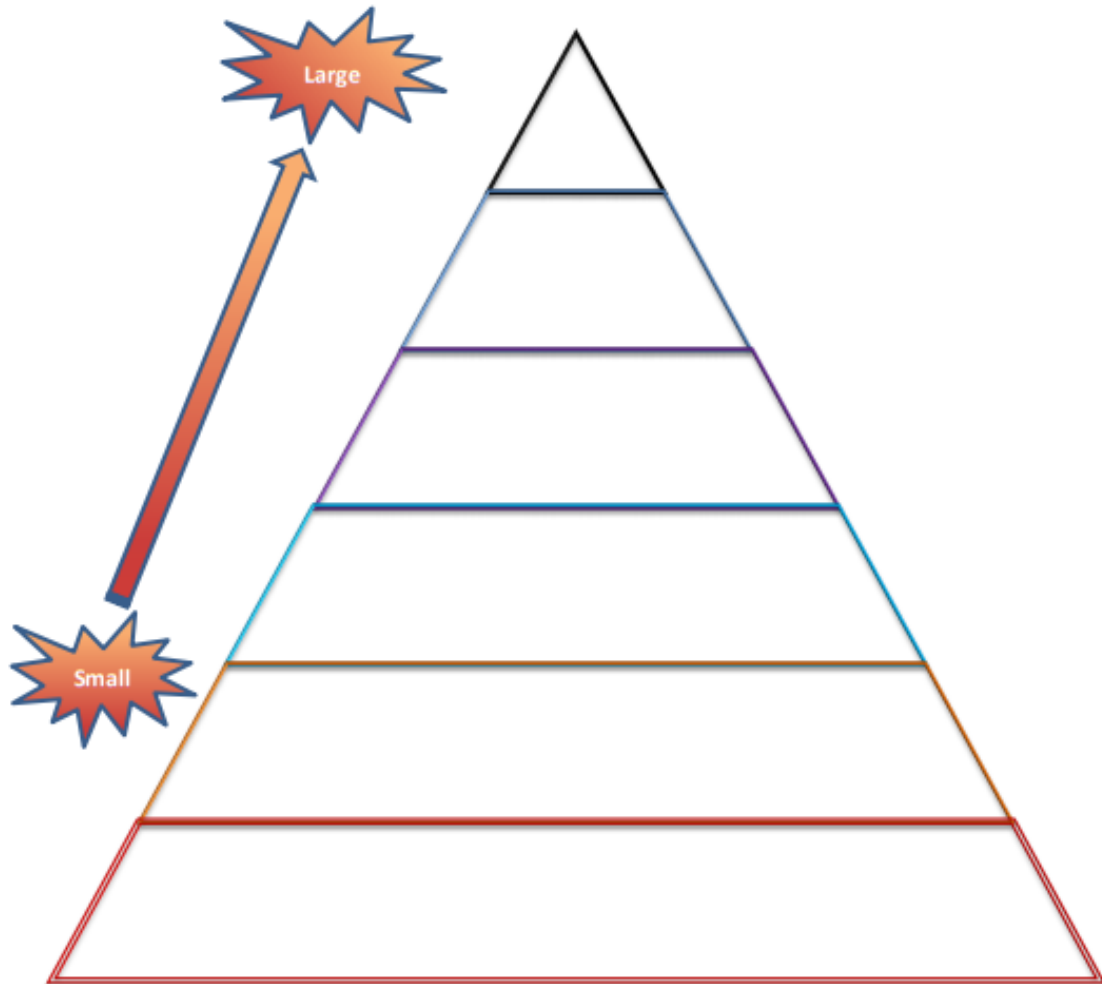
Task: What is the name of the gas marked O_2 in the diagram below?



The Respiratory System

Task: Write the words listed below on the pyramid. Put them in the correct order, so you have the *smallest structure* on the bottom and work up to the largest.

Key words: **Organism, Cell, Organelle, Tissue, Organ system and Organ.**



Organ Systems

Task: Test your knowledge of how cells and systems work together by answering true or false to the six statements below.

Questions	True or False?
The spinal cord and brain are organs in the central nervous system?	
The circulatory system carries electrical messages around the body?	
An organelle is bigger than an organ?	
Lots of organ systems work together to make an organism?	
Tissues are made from only one type of cell?	
A cell is bigger than an organ?	

Specialised cells

Task: Check your knowledge of specialised cells by answering true or false to the seven statements below.

Questions	True or False?
Another name for the egg cell is the 'ovum'.	
When the filaments in muscle cells contract the muscle cell gets longer and when the filaments in the muscle cell relax the muscle cell gets shorter.	
The function of a red blood cell is to carry oxygen and carbon dioxide around the body.	
Palisade cells are found in the roots of plants.	
The neuron nerve cell has a long thin axon which makes it faster to send electrical messages around the body.	
The scientific name for a sperm cell tail is the flagellum.	
The heart is mostly made up of specialist muscle cells.	
Root hair cells form the hair on our heads.	

Microscope

Under the microscope

Task: Use the words in the box to fill in the gaps in the sentences below.

- Coverslip
- Eyepiece
- Magnified
- Microscope
- Objective
- Slide
- Specimen



- Cells need to be _____ to see them clearly. We can use a _____ to do this.
- When using a microscope, the thing we are looking at is called the _____ and it is placed on a piece of glass called a _____.
- A drop of water is also added and another thin piece of glass called a _____ is placed on top.
- The lens of the microscope that is closest to the object we want to look at is called the _____ lens. The other lens is the _____ lens.

Task: Label the stages of a frog's lifecycle.

Life Cycle



Task: Draw out and label four distinct stages in the lifecycle of a human.

NOTES



Chemistry

Acids and Alkalis

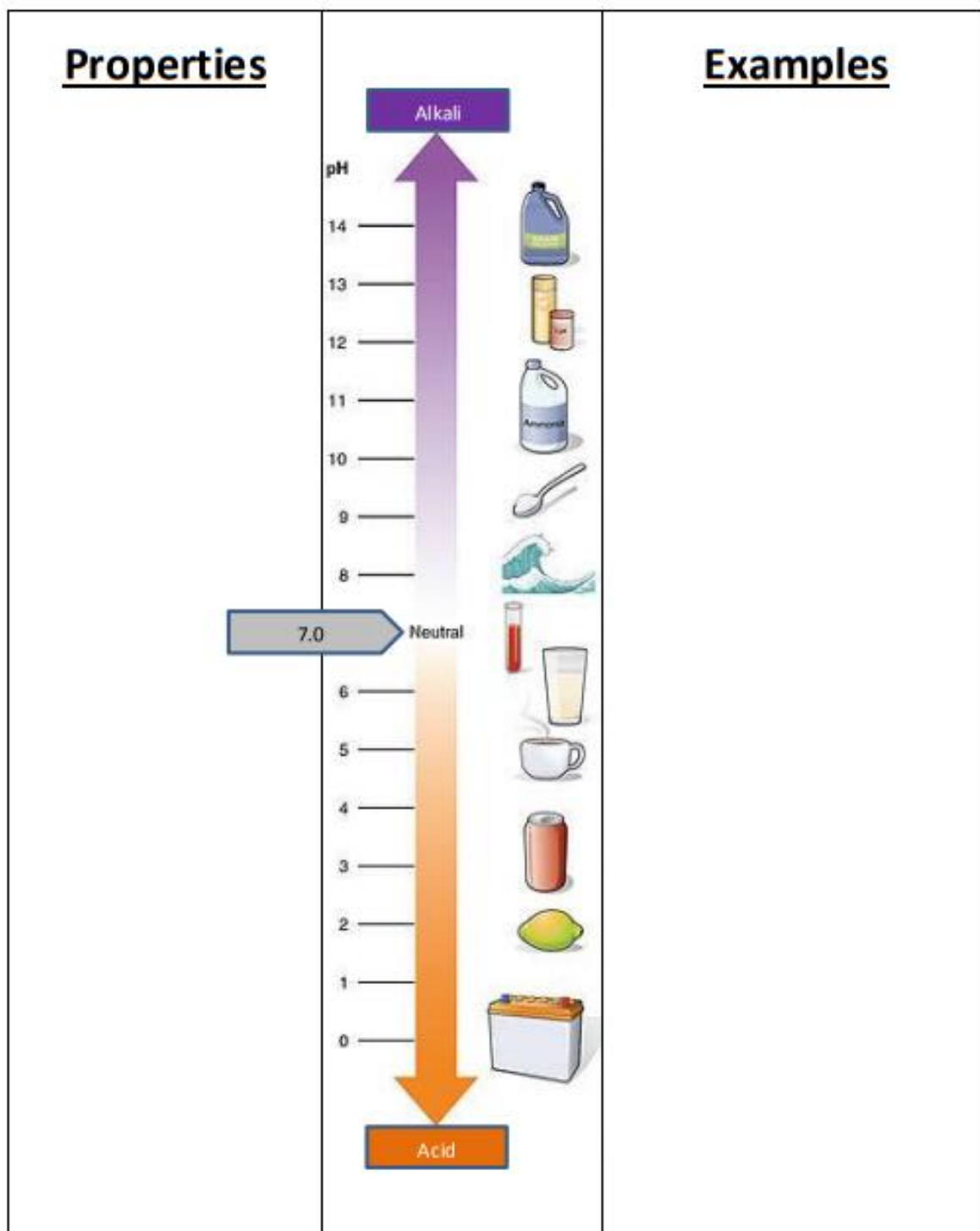
Chemistry- Key Terms

- **Acid:** A substance with particular chemical properties including turning litmus red, neutralizing alkalis, and dissolving some metals.
- **Alkali:** A substance with particular chemical properties including turning litmus blue and neutralizing or effervescing with acids.
- **Base:** A substance that will neutralise an acid, but does not dissolve in water.
- **pH value:** A measure of acidity or alkalinity of water soluble substances (**pH** stands for 'potential of Hydrogen').
- **Atom:** The smallest particle of a chemical element that can exist.
- **Element:** Each of more than one hundred substances that cannot be chemically interconverted or broken down into simpler substances and are primary constituents of matter.
- **Compound:** A thing that is composed of two or more separate elements; a mixture.
- **Endothermic reaction:** A chemical reaction that is accompanied by the absorption of heat
- **Exothermic reaction:** A chemical reaction that is accompanied by the release of heat
- **Mixture;** A mixture is made from different substances that are not chemically joined.
- **Nucleus:** The positively charged central core of an atom, consisting of protons and neutrons and containing the vast majority of mass.
- **Electron:** A subatomic particle with a charge of negative electricity, found in all atoms and acting as the primary carrier of electricity in solids.
- **Oxidation:** The gain of oxygen by a substance. For example, magnesium is oxidised when it reacts with oxygen to form magnesium oxide:
magnesium + oxygen $\rightarrow$ magnesium oxide. $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$.

Task: Tick whether the substances listed in the table below are acid or alkali. In the far right hand column add a substance which could neutralise it.

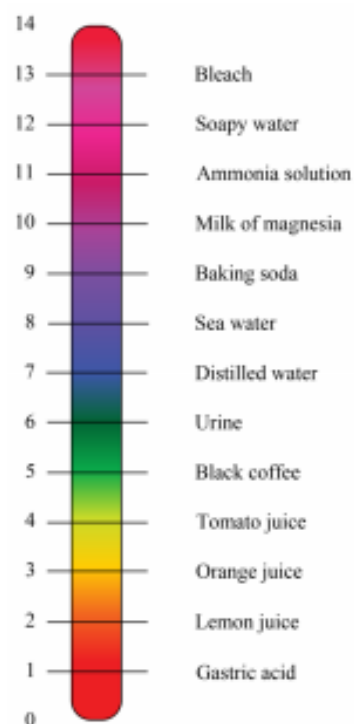
Substance	Acid	Alkali	Neutralise
Vinegar			
Orange juice			
Urine			
Ammonia solution			
Garden Lime			
Indigestion powder			
Caustic soda			
Black coffee			
Distilled Water			

Task: Fill up the pH scale below with examples of acid and alkalis (bases) – in the right column. In the left column, list common properties of these acids and alkalis (bases).



Task: Fill in the gaps in each of the sentences below.

- All substances are divided into three categories:
acids, alkalis and _____ substances.
- There are strong and weak acids and bases, and their strengths are described by the _____ scale.
- Acids typically taste _____, and will turn litmus paper _____.
- Bases (alkalis) typically taste _____, and will turn litmus paper _____.
- pH value is a number from _____ to _____, with _____ as the middle (neutral) point.
- Values below 7 on the pH scale indicate _____ which increases as the number _____, with 1 being the most _____.
- The letters pH stand for _____ of _____.
- Pure water is neutral, at pH _____, being neither an _____ nor a _____.
- Litmus is a water-soluble mixture of different _____. It is often absorbed onto filter paper to produce one of the oldest forms of pH _____, used to test materials (i.e. soil) for acidity.



Task: Fill in the correct colour for the respective pH values in the table below.



pH range	Description	Colour
< 3	Strong acid	
3-6	Weak acid	
7.0	Neutral	
8-11	Weak base	
> 11	Strong base	

Task: Fill in the blank spaces in the statement below:

The colours from yellow to red indicate an _____ solution, colours light blue to dark blue indicate _____ and green colour indicates that a solution is _____.

Task: Revise your knowledge of the acid and alkali key terms, by answering the nine questions below. Underline the correct answer for each question.

1. What is a chemical with a pH less than 7.0 called?

acid

alkali (base)

neutral

compound

2. What is a chemical with a pH of 7.0 called?

acid

alkali (base)

neutral

compound

3. What shows whether something is alkali or acid?

element

indicator

neutral

compound

4. What is a liquid with a solid dissolved in it called?

solution

soluble

statin

stem cell

5. What is the correct terminology when substances chemically combine?

a solution

a mixture

a reaction

an explosion

6. What is a dangerous substance that dissolves other materials called?

a dissolved solution

a strong alkali

corrosive

acid bath

7. What is a corrosive alkali is called?

dangerous

caustic

corrosive

bleacher

8. Name a red and blue indicator

blotter

lampit paper

litmus paper

tinnitus

9. What is the most common solvent called?

A solution

neutral solution

inert gas

water

Task: Answer the seven questions below.

1. **Describe how the pH scale is related to how acidic or alkaline a solution is.**
2. **Give the name of a compound that contains two elements joined together.**
3. **Calculate the answer to the following question. Underline your answer.**

A chemist burns 0.8 g of iron in oxygen. The iron reacts to form 1.1 g of iron oxide. Calculate the mass of oxygen that reacted with the iron.

1.9g

1.7 g

1.8 g

0.3 g

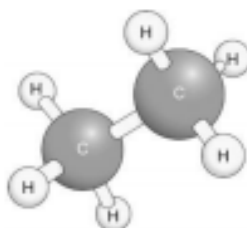
4. **Copper is used to make electrical wires. Give two properties of copper that allow it to be used effectively for electrical wires.**

Property 1 _____

Property 2 _____

5. **Why don't we use wood to make electronic equipment?**
6. **Imagine a substance that is a red, shiny solid at room temperature, with a melting point of 115 °C. It is brittle and a poor conductor of heat. State whether this substance is a metal or a non-metal. Give a reason for your answer.**

7. **This model represents ethane.**

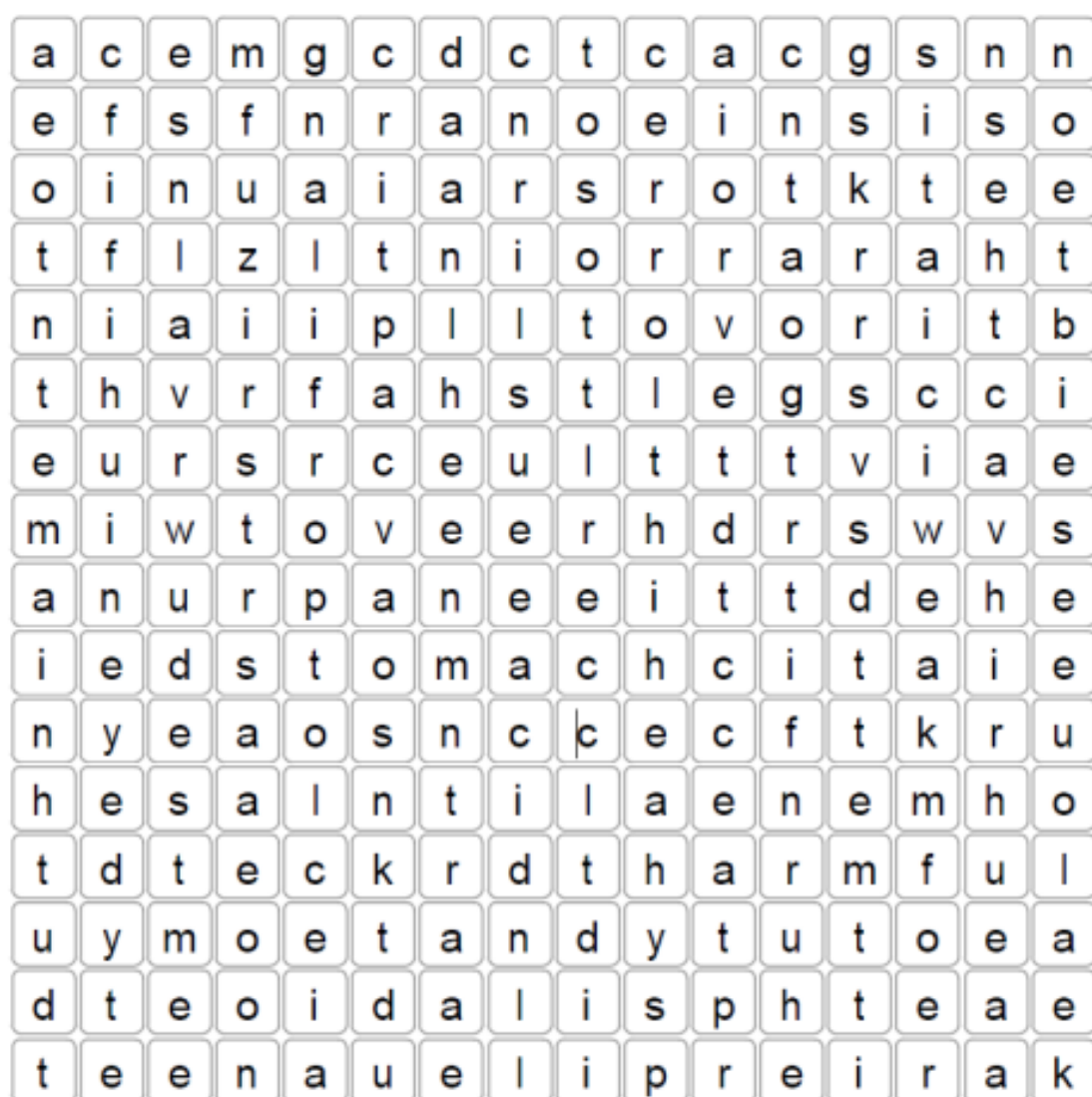


Write the formula for ethane.

Task: Locate the following words on the word search grid below.

Words to find:

acid, alkali, antacid, citric, corrosive, harmful, hazard, hydrochloric, irritant, neutralise, nitric, stomach, strong, sulphuric, weak.



Task: Read the following scenario then answer all three questions.

Scene: James completes an experiment testing the pH of different acids in the lab'.

Q1. Underline his control variables (what he should keep the same) from the list below:

1. Volume of acid
2. Volume of alkali
3. Number of drops of indicator
4. Type of indicator
5. pH of acid

Q2. Identify the independent, dependent and control variables for the above experiment.

Independent	
Dependent	
Control	

Q3. Explain why understanding variables are so important in experiments like this.

Task: Answer the following five questions.

Q1. Write a word equation for neutralisation using these substances.

Water, Sodium hydroxide, Sodium Chloride, Hydrochloric acid

Q2. Underline a reactant in this word equation:

Nitric acid + Potassium Hydroxide + Potassium Nitrate + Water

Q3. Fill in in the blanks of the following sentence.

Salts are made by the _____ of acids with _____.

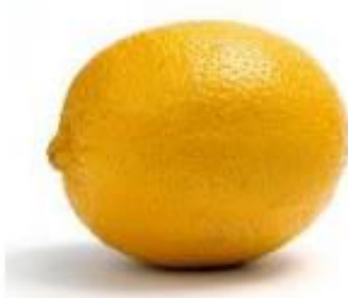
Q4. Underline the correct measurement for volume.

cm³, cm², cm

Q5. If this glass beaker was 10cm diameter, and 50 cm tall; how much liquid can it contain?



clue: $V = \pi r^2 h$

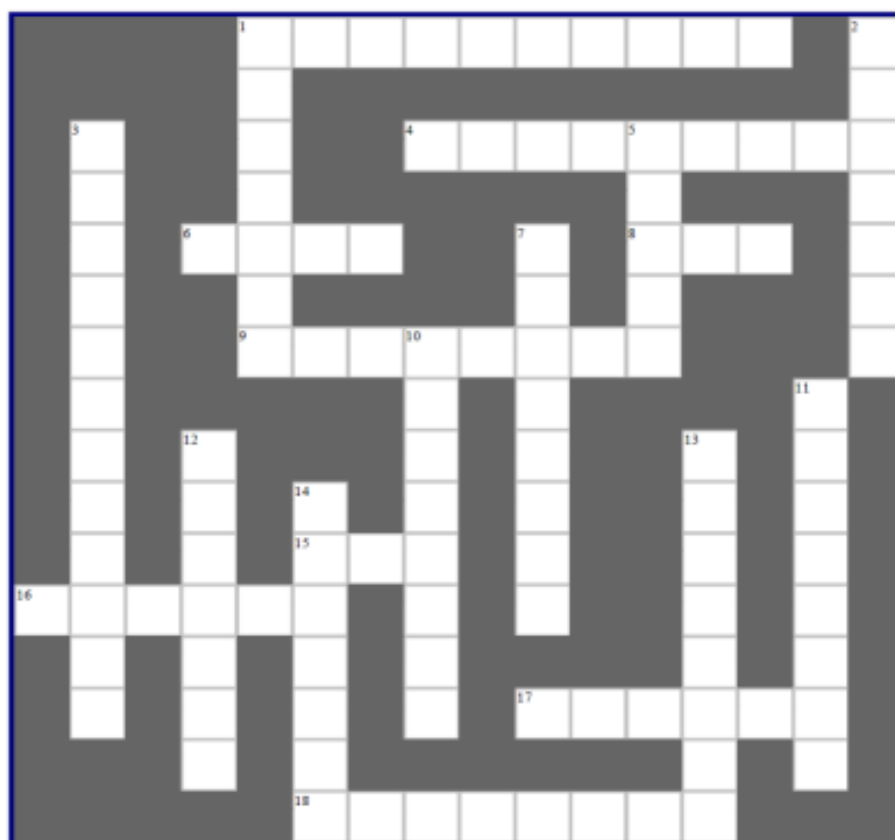


Task: What is the common link with the above food/drink items?

Task: fill in the blanks to each statement below:

- Acids have a _____ taste
- Vinegar contains _____ acid
- Lemons contain _____ acid
- Fizzy drinks contain _____ acid
- Tea contains _____ acid
- Vitamin C is also called _____ acid, found in fruit and vegetables.

Task: Use the clues at the bottom of the page to complete this crossword.



Across

1. Burning something in air. (10)
4. Chemical reaction with oxygen. (9)
6. Produce palatable food by applying heat. (4)
8. Atom with an excess + or – electric charge. (3)
9. A tiny particle, much lighter than an atom, that carries a negative electric charge. (8)
15. Fossil fuel raw material used to make most plastics.(3)
16. A fraction of crude oil that is used in buses and lorries as a fuel. (6)
17. A positive ion that travels towards the negative cathode. (6)
18. Where new chemical products form from chemical reactants. (8)

DOWN

1. To react metal with the atmosphere and water. (7)
2. A chemical building block used to form plastics. (7)
3. A technique used to separate liquids with different boiling points. (12)
5. A negative ion that travels towards the positive anode. (5)
7. Fuel used in aircraft, also called kerosene.(8)
10. A substance that increases the rate of a chemical reaction but that is not used up itself. (8)
11. Breaking long chain hydrocarbon molecules into more useful short chain molecules. (8)
12. General name for a polymer like polythene, polypropylene, nylon and polystyrene. (7)
13. A portion of crude oil with a particular boiling point. (8)
14. A very long molecule formed from a string of identical chemical building blocks. Often a type of plastic. (7)



Chemistry

**Elements, Compounds
and atoms**

Chemistry- Key Terms

- **Acid:** A substance with particular chemical properties including turning blue litmus paper red, neutralising alkalis, and dissolving some metals.
- **Alkali:** A substance with particular chemical properties including turning red litmus paper blue and neutralising or effervescing with acids.
- **Base:** A substance that will neutralise an acid, but does not dissolve in water.
- **pH value:** A measure of acidity or alkalinity of water soluble substances (pH stands for 'potential of Hydrogen').
- **Atom:** The smallest particle of a chemical element that can exist.
- **Element:** Each of more than one hundred substances that cannot be chemically interconverted or broken down into simpler substances and are primary constituents of matter.
- **Compound:** A thing that is composed of two or more separate elements.
- **Endothermic reaction:** A chemical reaction that is accompanied by the absorption of heat.
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- **Mixture:** A mixture is made from different substances that are not chemically joined.
- **Nucleus:** The positively charged central core of an atom, consisting of protons and neutrons and containing the vast majority of its mass.
- **Electron:** A stable subatomic particle with a charge of negative electricity, found in all atoms and acting as the primary carrier of electricity in solids.
- **Oxidation:** The gain of oxygen by a substance. For example, magnesium (Mg) is oxidised when it reacts with oxygen (O_2) to form Magnesium Oxide (MgO).

Boiling: The change of state from liquid to gas that occurs when bubbles of the substance in its gaseous state form throughout the liquid.

Boiling point: The temperature at which a substance boils.

Change of state: The process by which a substance changes states.

Collide: To bump into, or hit, a particle or surface.

Condensation: Water which collects as droplets on a cold surface when humid air is in contact with it.

Diffusion: The movement of liquid or gas particles from a place of high concentration to a place of low concentration.

Evaporate: The change of state from liquid to gas that occurs when particles leave the surface of the liquid.

Freezing: The change of state from liquid to solid.

Gas: In the gas state, a substance can flow and can also be compressed.

Liquid: In the liquid state, a substance can flow but cannot be compressed.

Material: The different types of stuff that things are made from.

Melting: The change of state from solid to liquid.

Melting point: The temperature at which a substance melts.

Mixture: A material whose properties are not the same all the way through.

Particle: The tiny things that all materials are made from. The smallest unit of matter.

Property: Quality of a substance or material that describes its appearance or how it behaves.

Solid: In the solid state, a substance cannot be compressed and it cannot flow.

States of matter: The three forms in which a substance can exist i.e. solid, liquid, and gas.

Sublime: The change of state from solid to gas.

Tasks: Fill in the missing element letters for these sections of the Periodic Table.

				5	6	7	8	9	10
				Boron	C Carbon	Nitrogen	O Oxygen	Fluorine	Neon
				13	14	15	16	17	18
				Aluminum	Silicon	Phosphorus	S Sulfur	Chlorine	Argon
27	28	29	30	31	32	33	34	35	36
Cobalt	Ni Nickel	Copper	Zn Zinc	Gallium	Germanium	Arsenic	Se Selenium	Bromine	Krypton
45	46	47	48	49	50	51	52	53	54
Rhodium	Pd Palladium	Silver	Cd Cadmium	Indium	Tin	Antimony	Tellurium	I Iodine	Xenon
77	78	79	80	81	82	83	84	85	86
Ir Iridium	Platinum	Au Gold	Mercury	Thallium	Pb Lead	Bismuth	Po Polonium	Astatine	Radon
109	110	111	112	(113)	114	(115)	116	(117)	118
Mendelevium									

Task: Use the words in bold at the bottom of the page to fill in the gaps in the sentences below.

Elements join together by _____ reactions to form _____.

Compounds have different _____ to the elements that formed them.

In a chemical reaction new _____ are formed and energy is taken in (_____) or given out (_____). It is also difficult to _____ a chemical reaction.

substances, properties, reverse, compounds, chemical, endothermic, and exothermic.

Task: Revise your knowledge of the Periodic Table key terms, by answering the nine questions below. Underline the correct answer for each question.

1. Which of the following is the symbol for copper?

C

Ca

Co

Cu

2. Which of the following is the symbol for sodium?

Na

S

Sd

So

3. In the periodic table, what is a period?

A horizontal row

A vertical column

The left hand side

The middle block

4. Which of the following is the name for group 8 in the periodic table?

Alkali metals

Alkaline earth metals

Halogens

Noble gases

5. Which of the following is the name for group 7 in the periodic table?

Alkali metals

Alkaline earth metals

Halogens

Noble gases

6. Which of the following is the name for group 1 in the periodic table?

Alkali metals

Alkaline earth metals

Halogens

Noble gases

7. Which of the following is the name for group 2 in the periodic table?

Alkali metals

Alkaline earth metals

Halogens

Noble gases

8. Which of the following elements is a metal?

Magnesium

Nitrogen

Helium

Phosphorus

9. What is listed in the Periodic Table?

Compounds

Elements

Gases

Metals

Task: Sort the following list into elements and non-elements:

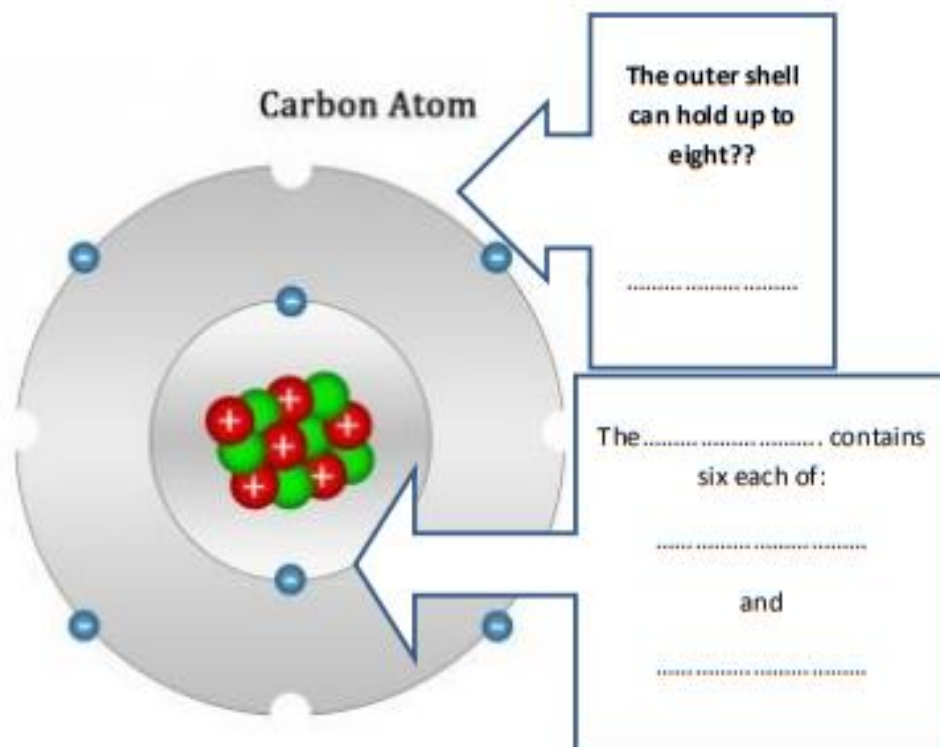
Soap, wax, water, sulphuric acid, vinegar, sulphur, magnesium, salt, carbon dioxide, carbon monoxide, calcium, calcium carbonate, chalk, soil, iron, steel, carbon, aluminium, fluoride, potassium, rubber, manganese, phosphorus, tin, concrete, gold, chloride, blood, brass.

elements	non-elements

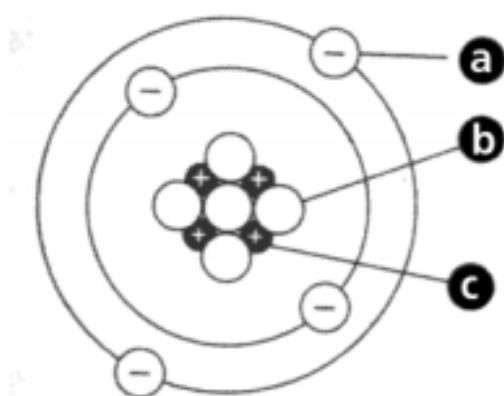
Task: Fill in the blanks in the five statements below.

- An element is a _____ substance that cannot be reduced into anything simpler.
- Everything on earth is made up from many different _____.
- An _____ is the smallest part of an element.
- Each element contains only _____ type of atom.
- Atoms have a _____ at its centre, with _____ floating/moving around it.

Task: label the parts of the carbon atom diagram below.



Task: In any typical elemental configuration there exists three primary "components". Label the common name for the three parts: a, b and c.



Task: Label these four parts of the element Copper. You can refer to the Periodic Table for other examples of this labelling of the elements.

29	←	
Cu	←	
Copper	←	
63.55	←	

Task: Rock salt is a fine mixture of sand and salt particles. They can be separated using well proven methods.

1. Draw and label a diagram of the typical laboratory equipment you would use for this separation process.
2. Explain how a pure sample of salt can be obtained from rock salt in a laboratory.

Diagram:

Explanation (include the type of separation process):

Task: Fill in the blanks in the following passages, using the words below.

solid particles individual iron substances water properties

All substances are made up of tiny parts called _____ .

Different _____ contain different particles. For example, a piece of iron contains particles of _____ ,
and a glass of _____ contains thousands and thousands of water molecules.

Particles can have certain _____ when they are all together in a substance, but when they are on their own they don't have these properties.

A gold ring has a yellow colour and is _____ at room temperature, but an _____ particle of gold isn't yellow and isn't a solid. It can only have these properties when it is with other gold particles.

Task: Check your knowledge of particles and key terms, by answering the nine questions below. Underline the correct answer for each question.

1. Which of these is the smallest particle?

An atom

A molecule

A speck of dust

2. Which of these is the correct symbol for magnesium?

MG

mg

Mg

3. Which statement about atoms and molecules are correct?

- Elements always exist as separate atoms
- Elements always exist as pairs of atoms called molecules
- Elements and compounds can exist as molecules

1. How many different atoms are there in a compound?

One

Always two

Two or more

2. Approximately how many elements are there?

100

4

1,000,000

6. Which one is a compound?

Water

Hydrogen

Helium

7. Which of these contains two carbon atoms and six hydrogen atoms?

CH₄

C₂H₆

C₂H₄

8. Which of these contains four hydrogen atoms?

CH₃OH

H₂O

H₂O₂

9. How many atoms are there in total in a molecule of sulphur trioxide, SO₃?

Two

Three

Four

Task: Label each of these three states of matter.



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Task: Use the words below to fill in the blanks for each statement.

fast volumes fixed far escape poured touch
compressed past fill.

Solid	Liquid	Gas
The particles are in _____ positions. Solids cannot be _____. Solids have fixed _____.	The particles can move _____ one another but cannot _____. Liquids have fixed volume but can be _____.	The particles are very _____ apart and do not _____ one another. The particles move very _____ and can be compressed. Gases _____ any space.

Task: Fill in the blanks in the following passages, using the words below.

solid particles individual iron substances water properties

All substances are made up of tiny parts called _____ .

Different _____ contain different particles. For example, a piece of iron contains particles of _____ ,
and a glass of _____ contains thousands and thousands of water molecules.

Particles can have certain _____ when they are all together in a substance, but when they are on their own they don't have these properties.

A gold ring has a yellow colour and is _____ at room temperature, but an _____ particle of gold isn't yellow and isn't a solid. It can only have these properties when it is with other gold particles.

Task: Check your knowledge of particles and key terms, by answering the nine questions below. Underline the correct answer for each question.

1. Which of these is the smallest particle?

An atom

A molecule

A speck of dust

2. Which of these is the correct symbol for magnesium?

MG

mg

Mg

3. Which statement about atoms and molecules are correct?

- Elements always exist as separate atoms
- Elements always exist as pairs of atoms called molecules
- Elements and compounds can exist as molecules

1. How many different atoms are there in a compound?

One

Always two

Two or more

2. Approximately how many elements are there?

100

4

1,000,000

6. Which one is a compound?

Water

Hydrogen

Helium

7. Which of these contains two carbon atoms and six hydrogen atoms?

CH₄

C₂H₆

C₂H₄

8. Which of these contains four hydrogen atoms?

CH₃OH

H₂O

H₂O₂

9. How many atoms are there in total in a molecule of sulphur trioxide, SO₃?

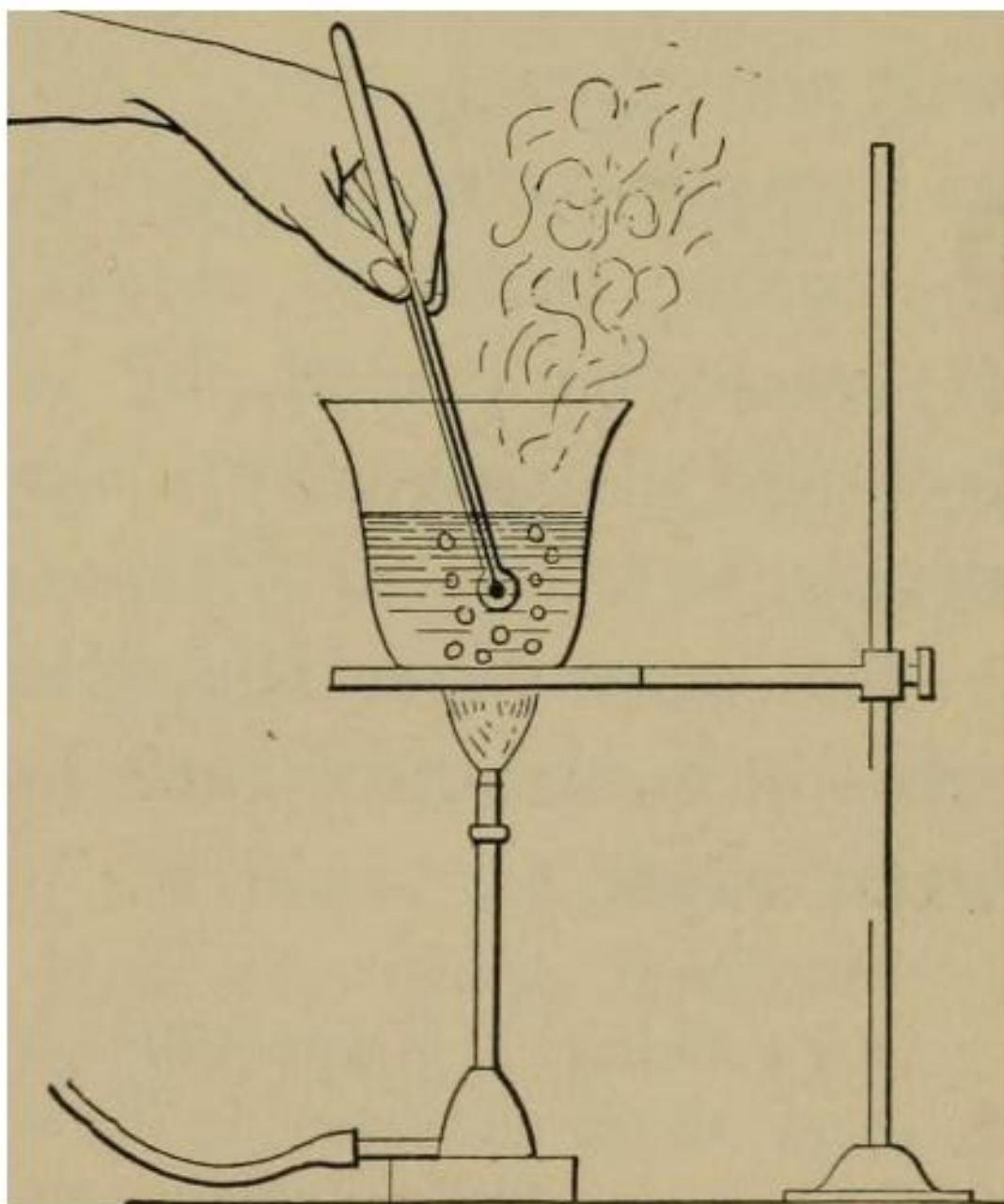
Two

Three

Four

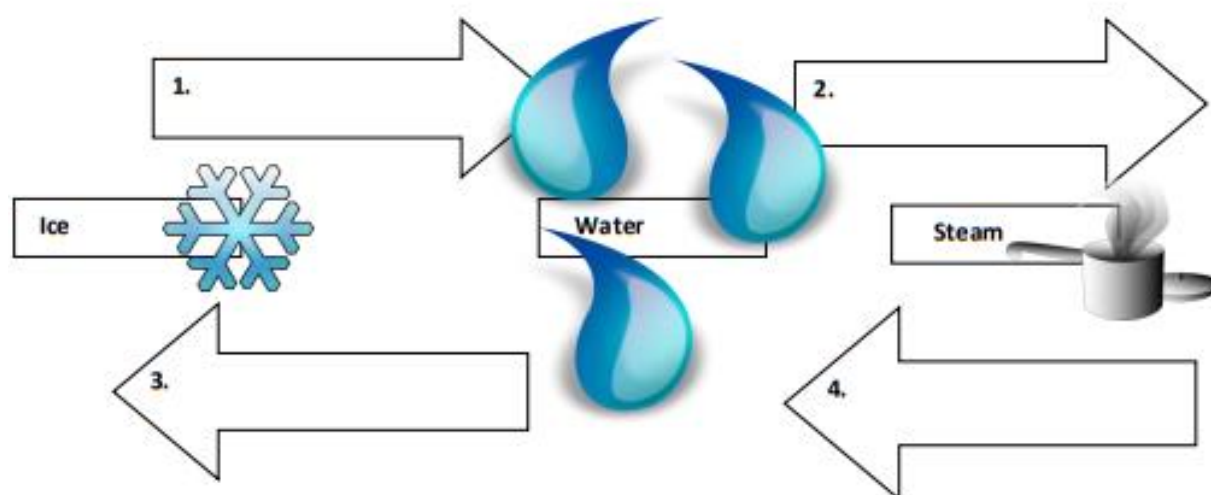
Scene: Water is being boiled in a laboratory experiment.

Task: Label the apparatus in diagram below. Label the two states of water in the diagram.



Task: State the boiling point of water in degrees Celsius ($^{\circ}\text{C}$), and explain what happens to the water molecules as the water is heated until it boils.

Task: complete the following diagram and table to show what happens to an ice cube when it is heated up in a saucepan. Label all four arrows (1–4 below) with the name of each change of state and process.



Task: State what happens to both the boiling and freezing temperatures of water when an impurity is introduced into solution, i.e. salt.

Task: Write a short description next to each of the key terms listed in the table below.

solid	
liquid	
atom	
state	
energy	
compound	
temperature	
diffusion	