# KNOWLEDGE ORGANISER

### Year 10 Half Term 3



| Name:         |  |
|---------------|--|
| Tutor Group:  |  |
| Academic Vear |  |

# How to use your Knowledge Organiser



The aim of the knowledge organiser is to ensure that **ESSENTIAL KNOWLEDGE** is stored and retrieved over a long period of time.



You need to ensure that you keep your knowledge organiser in your bag, ready for revision, quizzing and to refer to at any time in all of your subjects.

|        | Look, Cover,<br>Write, Check  | Definitions to<br>Key Words   | Flash Cards   | Self Quizzing  | Mind Maps   | Paired<br>Retrieval  |
|--------|---|---|---|--|---|--|
| Step 1 | Look at and study<br>a specific area of<br>your knowledge<br>organiser                          | Write down the<br>key words and<br>definitions.   | Use your<br>knowledge<br>organiser<br>condense and<br>write down key<br>facts and/or<br>information on<br>your flash cards. | Read through a<br>specific area of<br>your knowledge<br>organiser                                    | Create a mind<br>map with all the<br>information that<br>you can<br>remember from<br>your knowledge<br>organiser. | Ask a partner or<br>someone at<br>home to have the<br>quiz questions or<br>flash cards in<br>their hands.                |
|        |   | ß   |   |  |   |  |
| Step 2 | Flip the<br>knowledge<br>organiser and<br>write everything<br>you can<br>remember.              | Try not to use the solutions to help you.   | Add diagrams or<br>pictures if<br>appropriate. Write<br>the solutions on<br>the back of the<br>cards.                       | Turn over and<br>answer the<br>questions related<br>to that area.                                    | Check your<br>knowledge<br>organiser to<br>correct or<br>improve your<br>mind map.                                | Ask them to test<br>you by asking<br>questions on the<br>section you have<br>chosen from your<br>knowledge<br>organiser. |
|        |   |   |   |  | <br>0 0 0   |  |
| Step 3 | Check what you<br>have written.<br>Correct mistakes<br>and add extra<br>information.<br>Repeat. | Check your work.<br>Correct using red<br>pen and add more<br>information if<br>appropriate. | Self quiz using the<br>cards or ask some<br>to help by quizzing<br>you.   | Turn back over<br>and mark your<br>quiz. Keep<br>quizzing until you<br>get all questions<br>correct. | Try to make<br>connections that<br>links information<br>together.   | Either say or<br>write down you<br>answers.  |
|        |   |   |   |  | ふう  | ┣测骨  |



|                                 | Angles  |                                      |
|---------------------------------|---|--------------------------------------|
| Topic/Skill                     | Definition/Tips   | Example                              |
| 1. Types of<br>Angles           | Acute angles are less than 90°.<br>Right angles are exactly 90°.<br>Obtuse angles are greater than 90° but less<br>than 180°.<br>Reflex angles are greater than 180° but less<br>than 360°. | Acute Right Obtuse Reflex            |
| 2. Angle<br>Notation            | Can use <b>one lower-case</b> letters, eg. $\theta$ or $x$<br>Can use <b>three upper-case</b> letters, eg. <i>BAC</i>   |                                      |
| 3. Angles at a Point            | Angles around a point add up to 360°.   | $\frac{d}{c}a$ $a+b+c+d=360^{\circ}$ |
| 4. Angles on a<br>Straight Line | Angles around a point on a straight line<br>add up to 180°.   | $x y$ $x + y = 180^{\circ}$          |
| 5. Opposite<br>Angles           | Vertically opposite angles are equal.   | $\frac{x/y}{y/x}$                    |
| 6. Alternate<br>Angles          | Alternate angles are equal.   | x y                                  |
| 7.<br>Corresponding<br>Angles   | Corresponding angles are equal.   | y x x                                |
| 8. Co-Interior<br>Angles        | Co-Interior angles add up to 180°.  | x y                                  |
| 9. Angles in a<br>Triangle      | Angles in a triangle add up to 180°.  | B 45 ° 55° C                         |

| <b>Right Angle</b> Triangles have a <b>90°</b> angle in. | A  |
|--|--|
| <b>Isosceles</b> Triangles have <b>2 equal sides</b> and |  |
| 2 equal base angles.                                     |  |
| Equilateral Triangles have 3 equal sides                 |  |
| and 3 equal angles (60°).                                | Right Angled Isosceles   |
| Scalene Triangles have different sides and               |  |
| different angles.  | 60   |
|  |  |
| Base angles in an isosceles triangle are                 | 60° 60'  |
| equal.   | Equilateral Scalene  |
| Angles in a quadrilateral add up to 360°.                |  |
|  | 750  |
|  | 120  |
|  |  |
|  |  |
|  |  |
|  | 65° 93°  |
| A 2D shape with only straight edges.                     | Rectangle, Hexagon, Decagon, Kite etc.   |
|  |  |
| A shape is regular if all the sides and all the          |  |
| angles are equal.  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| 3-sided = 1 riangle                                      |  |
| 4-sided = Quadrilateral                                  |  |
| 5-sided = Pentagon                                       | Triangle Quadrilateral Pentagon Hexagon  |
| <b>0</b> -sided = Hexagon<br><b>7</b> sided = Hentegon   |  |
| r = r = r = r = r = r = r = r = r = r =                  | $7 \wedge A$   |
| 0 sided = Nonegon  |  |
| 10 sided - Deegon  | Heptagon Octagon Nonagon Decagon   |
| $\frac{10-51400 - D(tagoli}{(n-2) \vee 100}$             | Sum of Interior Angles in a Decagon –  |
| $(n - 4) \land 100$<br>where n is the number of sides    | $(10 - 2) \times 180 - 14.0^{\circ}$   |
|  |  |
| $(n-2) \times 180$                                       | Size of Interior Angle in a Regular  |
| <u> </u>   | Pentagon =   |
| You can also use the formula:                            | $(5-2) \times 180$   |
| 180 – Size of Exterior Anale                             | $\frac{1}{5} = 108^{\circ}$  |
| 360  | Size of Exterior Angle in a Regular  |
| <u> </u>   | Octagon =  |
| 'n   | 360  |
|  | $\frac{1}{8} = 45^{\circ}$   |
|  | Right Angle Triangles have a 90° angle in.Isosceles Triangles have 2 equal sides and2 equal sides and 2 equal base angles.Equilateral Triangles have 3 equal sidesand 3 equal angles (60°).Scalene Triangles have different sides anddifferent angles.Base angles in an isosceles triangle areequal.Angles in a quadrilateral add up to 360°.A 2D shape with only straight edges.A shape is regular if all the sides and all the<br>angles are equal.3-sided = Triangle<br>4-sided = Quadrilateral<br>5-sided = Pentagon<br>6-sided = Hexagon<br>7-sided = Heptagon<br>8-sided = Octagon<br> |

|                              | · ····································   |
|------------------------------|--|
| Topic/Skill                  | Question   |
| Types of Angles              | Here are four angles A, B, C and D.  |
|                              | Which angle is acute?<br>Which angle is obtuse?<br>Which angle is reflex?                                |
| Angles at a Point            | Work out the size of the angle marked <i>x</i> .   |
| Angles on a<br>Straight Line | <i>ABC</i> is a straight line. Work out the size of the angle marked <i>x</i> .<br>$A \xrightarrow{B} C$ |
| Angles in Parallel<br>Lines  | $A \xrightarrow{f_{x}} B$ $C$  |
| Angles in a<br>Triangle      | $A = \begin{bmatrix} B \\ 32 \end{bmatrix} C$  |
| Types of Triangles           | Calculate x and y  |

| Angles in a<br>Quadrilateral | У<br>  |
|------------------------------|--|
|                              | 120° 130°  |
|                              | Work out the size of angle y.  |
| Names of Polygons            |  |
|                              |  |
|                              |  |
|                              |  |
|                              | Name the polygon   |
| Size of Interior             | Work out the size of each interior angle in the regular shape below: |
| Angle in a Regular           |  |
| Polygon                      |  |
|                              |  |
|                              |  |
| Size of Exterior             |  |
| Angle in a Regular           |  |
| Polygon                      |  |
|                              |  |
|                              | Work out the size of an exterior angle of a regular hexagon.         |

| Biology Knowledge Orga      |   |  |   | rgani   | iser   | ,                               |                       |                             | PATHOGENS are microorganisms which cause<br>disease. |                                |                     |                    |  | ise                    |                                   |                       |                           |                    |
|-----------------------------|---|--|---|---|--|---------------------------------|-----------------------|-----------------------------|--|--------------------------------|---------------------|--------------------|--|------------------------|-----------------------------------|-----------------------|---------------------------|--------------------|
| IN _                        | IN UNITY WE SUCCEED Infection and Respons   |  |   | Se  |  |                                 |                       |                             | spread   | , blid                         | d use of            | s, control<br>s.   | , wash<br>ry, cook                         | ent using              | squitoes.<br>It bites             | s. Spray              |                           |                    |
| HUN                         | MAN DEFEN   | CE SYS   | STEMS   |   |  | Phagocy                         | ⁄te                   |                             |  |                                | ol of               | s a c              | js an<br>Is.                               | eaves<br>1 tool        | giene<br>poult                    | atme<br>cs.           | of mo                     | eave<br>cide.      |
|                             | NON-  | SPECIFI  | C DEFENCES  |   |  |                                 |                       | WHIT                        | TE BLOOD (   | CELLS                          | ontr                | on a               | drug                                       | ted le<br>wash         | d hy<br>nate<br>thoro             | s. Tre<br>ibioti      | to pi                     | ted l<br>fungi     |
|                             | Nose  | Nasal h<br>prev<br>t                           | airs, sticky mu<br>ent pathogens<br>hrough the nos  | cus and cilia<br>entering<br>strils.  |  |                                 |                       | Ph                          | Phagocytes er<br>pathoge                             | <b>osis</b><br>ngulf the<br>ns | eatment/O           | Vaccinat           | ti-retrovira<br>co                         | nove infec             | nprove foc<br>nds, vacci<br>food  | e condoms<br>ant      | vent breec<br>Ise of nets | move infec<br>with |
|                             | rachea and<br>bronchus  | Lin<br>pathoge<br>upv                          | ed with mucus<br>ens. Cilia move<br>/ards to be swa | to trap<br>the mucus<br>allowed.  | Pa   | thogen<br>Antige                | n –                   | Spec                        | Antibodi<br>ific proteins                            | <b>ies</b><br>that attach      | Ĕ                   | 5                  | ds. Ani                                    | Rer                    | r not ha                          | or Use                |                           | d or Rei           |
| St                          | omach acid  | Stom<br>i                                      | ach acid (pH1)<br>ngested patho                     | kills most<br>gens.   |  | specific p<br>on the pat        | rotein<br>hogen       |                             | Antigens of  | ns                             | ssion               | tion fron          | tact and ody fluic                         | ounds ir<br>aused by   | ared in<br>ditions of<br>operly   | contact<br>oody fluic | al vector<br>toes)        | via wind<br>er     |
|                             | Skin  | Waterpr<br>o                                   | oof barrier. Gla<br>I which kill mic                | ands secrete<br>robes   |  | Antibody                        |                       | Ne<br>pr                    | eutralises th<br>oduced by b                         | e toxins<br>bacteria.          | Transmi             | plet infec         | ezes and<br>xual con<br>ange of b          | ers via w<br>dermis ca | pod prep<br>enic conc<br>ooked pr | t sexual<br>ange of b | an anima<br>(mosqui       | s carried<br>wate  |
| DRI                         | UGS Tradition   | nally drug                                     | s were extracte                                     | ed from plants  | s and microorganisms. Drugs have to be tested and trialled for             |                                 | ialled for<br>age     |                             | Drol   | Se<br>excha                    | Ente                | Fc<br>unhygie<br>o | Direc                                      | By                     | Spore                             |                       |                           |                    |
| Pa                          | Antibiotics e.g. PenicillinKill infective bacteria inside the bodyPainkillers e.g. ParacetamolTreat the symptoms of a disease only. |  | Preclin<br>Clinic                                   | Preclinical trials - cells, tissues and animals<br>Clinical trials - use healthy volunteers and<br>patients, below are the stages |  | nd animals<br>nteers and<br>des |                       | sh                          | lage to  | aves                           | lting,              | n when             | adache,<br>ea                              | leaves                 |                                   |                       |                           |                    |
| _                           | Crmc//  | 1st i  | nfection by   | White blood   | l cells detect   | Stage '                         | 1 Sta                 | age 2                       | Stage 3  | Stage 4                        | sm                  | kin ra             | dam<br>, leac                              | on le                  | vomi<br>ea.                       | , pair<br>ng          | r, hea<br>arrhoa          | ts on              |
| cinatio                     | amount of<br>inactive   | p  | athogen   | Antibodies a blood and a  | are released into the memory is created.                                   | Healthy<br>voluntee             | y S<br>nu             | mall<br>mber                | A larger<br>number of                                | A<br>DOUBLE<br>BLIND           | Sympto              | r. red sł          | system                                     | pattern                | cramp,<br>diarrhoe                | scharge<br>urinatir   | ing feve<br>iting, dia    | ack spo            |
| Vaco                        | pathogen<br>injected  | Re-i<br>t                                      | nfection by<br>he same<br>athogen                   | Antibodies a faster so sy   | are made much<br>mptoms don't appear                                       | to chec<br>TOXICIT              | k t<br>TY EFF         | iest<br>ICACY               | test<br>DOSAGE                                       | trial using<br>a<br>PLACEBO    |                     | Feve               | Flu like s<br>immune                       | Mosaic                 | Fever,                            | Green di              | Reoccurr                  | Purple bl          |
|                             |   | Ant  | ibiotic Resistar                                    | it Bacteria   |  | PLANT                           | S                     |                             | DEF  | ENCES                          |                     |                    |  | , sn                   | la                                | ea                    |                           | *                  |
| A bund<br>includi<br>variet | ch of bacteria,<br>ing a resistant<br>y   | get bat<br>antibiotic<br>of the no<br>bacteria | hed in The bact rmal and die. com                   | resistant<br>eria multiply<br>become more<br>mon.   | Eventually, the<br>entire infection<br>evolves into a<br>resistant strain. | Mineral<br>itrates              | Neede<br>To synt      | ed for.<br>thesise<br>tein. | Physical<br>Cellulose o<br>Waxy cutio<br>Bark on tre | cell walls<br>cle<br>ees       | Disease             | Measles            | NH   | Tobacco<br>mosaic vii  | Salmonel                          | Gonorrho              | Malaria                   | Rose blac<br>spot  |
| 0 00/0                      | 1000 C  | 1111   | 8888  |   |  | Mg                              | To synt               | thesise<br>ophyll           | Chemical<br>Antibacteri<br>Poison<br>Mechanica       | ia<br>al                       | How it<br>makes you | feel ill           | Reproduces<br>inside living<br>cells which | burst when .<br>full.  | Reproduces<br>rapidly and         | releases<br>toxins    |                           |                    |
|                             | normal bacteri  | um d   | condead bacte                                       | rium  |  | ۵.                              | Proc<br>flower<br>fru | duce<br>rs and<br>uit.      | Hairy stem<br>Mimicry                                | ns/leaves                      | athogen             |                    | Virus                                      |                        |                                   | 3acteria              | Protist                   | snbun              |
|                             |   | num  |   |   |  |                                 |                       |                             |  |                                | <u> </u>            |                    |  |                        |                                   | -                     |                           |                    |



### Biology Knowledge Organiser Infection and response

### Self quizzing questions

### Pathogens

- 1. What is a pathogen?
- 2. What type of pathogen causes salmonella?
- 3. How can bacterial infections be treated?
- 4. What is a symptom of gonorrhoea?
- 5. How is malaria transmitted?
- 6. How can the spread of tobacco mosaic virus be prevented?
- 7. How do viruses make you feel ill?

### Human Defenses

- 8. Describe how the skin stops pathogens entering the body.
- 9. Which type of non-specific defense kills pathogens in contaminated food?
- 10. What 3 ways do white blood cells defend against pathogens?
- 11. What is phagocytosis?
- 12. How do antibodies defend against pathogens?
- 13. What is an antigen?
- 14. How are bacterial toxins neutralised?

### <u>Drugs</u>

- 15. How were drugs first developed?
- 16. What is a painkiller, give an example.
- 18. What are drugs tested on before humans?
- 19. What 3 things are drugs tested for during a trial?
- 20. What is antibiotic resistance?
- 21. What is a vaccine?

### Plants

- 22. Which nutrient is needed for chlorophyll production?
- 23. Name a physical defence.
- 24. Explain why a plant needs nitrates.

### Further Opportunities

- 1. Visit Oak Academy and work through the topic, answer the questions in your reflection log <u>https://classroom.thenational.academy/units/infe</u> <u>ction-and-response-4f71</u>
- 2. Describe how the effectiveness of antibiotics can be tested.
- 3. Explain what a double blind trial and a placebo are.
- 4. HIGHER: Research monoclonal antibodies and their uses.



### Chemistry Knowledge Organiser Year 10: Chemical changes part 1 (Triple FT)

#### Reactions of metals with Oxygen. This is called Oxidation:

Metals react with oxygen to form metal oxides:

magnesium + oxygen → magnesium oxide

 $2Mg + O_2 \rightarrow 2MgO$ 

#### The reactivity series:

Metals form positive ions when they react.

Reactions of metals with water and acids:

The reactivity of a metal is related to its tendency to form positive ions.

The reactivity series arranges metals in order of their reactivity (their tendency to form positive ions). <u>Carbon</u> and <u>hydrogen</u> are non-metals but are included in the reactivity series, they can be used to extract some metals from their oxides; if they are more reactive than the metal. **Displacement:** 

A more reactive metal can displace a less reactive metal from a compound. Eg: Silver nitrate + Sodium chloride → Sodium nitrate + Silver chloride

|                       | Reactions with water                                 | Reactions with acid  |
|-----------------------|--|--|
| Group 1 metals        | Reactions get more vigorous as you go down the group | Reactions get more vigorous as you go down the group                   |
| Group 2 metals        | Do not react with cold water                         | Observable reactions include fizzing and temperature increases         |
| Zinc, iron and copper | Do not react with cold water                         | Zinc and iron react slowly with acid. Copper does not react with acid. |

#### Extraction of metals using reduction:

Unreactive metals, such as gold, are found in the Earth as the metal itself. They can be mined straight from the ground. Metals less reactive than carbon can be **extracted** from their oxides by reduction.

Eg: zinc oxide + carbon  $\rightarrow$  zinc + carbon dioxide

In this reduction reaction the zinc oxide loses the oxygen.

#### The pH scale and neutralisation:

You can use **universal indicator** or a pH probe to measure the acidity or alkalinity of a solution against the **pH scale**. Acids produce hydrogen ions (H<sup>+</sup>) in **aqueous solutions**.

Aqueous solutions of alkalis contain hydroxide ions (OH<sup>-</sup>).

In neutralisation reactions, hydrogen ions react with hydroxide ions to produce water:  $H^+ + OH^- \rightarrow H_2O$ 



#### **KEY VOCAB**

**Oxidation:** Where a substance gains oxygen. Eg: iron rusting. **Reduction:** Where a substance loses oxygen. Eg: Using carbon to extract iron from iron oxide. **Reactivity series:** A list of metals placed in order, from most reactive to least reactive; **Displacement:** A reaction where a more reactive metal takes the place of a less reactive metal in a compound. **Group 1 and 2 metals:** These are metals on the far left of the periodic table.

Vigorous: A vigorous reaction is a fast one.

**Extracted:** This means taken out from. Eg: metals are extracted from a metal oxide. **Universal indicator:** A mixture of chemicals that changes colour in acids and alkalis of different strengths.

**pH scale:** This shows the strengths of acids and alkalis using numbers from 1 to 14. **Aqueous solutions:** are made by dissolving a substance in water.

Salt: A substance produced by a neutralisation reaction. Neutralisation: Acids can be neutralised by alkalis and bases Base: A base is a substance that neutralises an acid e.g. a soluble metal hydroxide or a metal oxide



| <u>Q</u>   | Chemistry Knowledge Organiser   |   |  | KEY VOCAB  |
|--|---|---|--|--|
|  | Year 10: Chemical changes part 2  | Alkali: An alkali is a soluble base e.g. metal hydroxide.   |  |  |
| Reactions of metals<br>Acids react with some   | and acids:<br>metals to produce salts and hydrogen. Eg: metal + acid → metal sa   | lt + hydrogen   |  | <u><b>Titration</b></u> : an experiment to find<br>the precise volume of acid and<br>alkali that neutralise each other |
| The type of salt made  | depends on the type of acid used in the reaction:<br>loric acid $\rightarrow$ magnesium chloride + hydrogen   | Acid name   | Salt name  | Electrolysis: splitting up ionic   |
| zinc + sulfuric acid $\rightarrow$   | zinc sulfate + hydrogen   | Hydrochloric acid   | Chloride   | compounds using electricity.   |
| Neutralisation reaction  | ons using bases and alkalis<br>/drochloric acid → sodium chloride + water   | Sulfuric acid   | Sulfate  | Electrolyte: Charged ions that   |
| calcium carbonate + s  | ulfuric acid $\rightarrow$ calcium sulfate, + carbon dioxide + water  | Nitric acid   | Nitrate  | move in a solution to conduct electricity.   |
| Making a soluble sa  | t – Required practical – 6 mark question:   |   |  | Anode: a positive electrode  |
| Soluble salts can be   | made from reacting acids with solid insoluble substances (e.g. m  | etals, metal oxides, hyd  | lroxides and   | Cathode: negative electrode:   |
| Add the solid to the evaporating dish, to  | warm acid and stir in the beaker, until no more dissolves. Filter of produce solid salts, and pat dry.  | ff excess solid and then  | crystallise in an  | Anion: Negative ion, moves to the anode.   |
| Titrations:<br>Titrations are used to v<br>1. Use the pipette to a<br>2. Fill the burette with<br>mix.<br>3. Stop adding the ac<br>reading. Repeat steps   | work out the precise volumes of acid and alkali solutions that react with dd 25 cm <sup>3</sup> of alkali to a conical flask and add a few drops of indicator. acid and note the starting volume. Slowly add the acid from the burett id when the end-point is reached (the appropriate colour change in the s 1 to 3 until you get consistent readings.  | each other.<br>te to the alkali in the conic<br>indicator happens). Note  | cal flask, swirling to   | Cothodo (vo) Anodo (tvo)   |
| Electrolysis:<br>When an ionic composi-<br>called electrolytes. Pas-<br>In the diagram on the in-<br>negative Bromide anii<br>Metals which are more<br>Aluminium oxide is elect<br>Electrolysis of aqueo<br>the elements involved.<br>At the negative electron<br>metal is more reactive<br>At the positive electron<br>bromine or iodine form | und is melted or dissolved in water, the ions are free to move. These and ssing an electric current though electrolytes causes the ions to move to right, Molten lead bromide is electrolysed. The positive Lead <b>cation</b> , moves to the positive cathode.<br>The reactive than carbon are extracted using <b>electrolysis</b> , because the caterolysed. This process is expensive due to the huge amount of energy our solutions: The ions discharged when an aqueous solution is electrorer rode: Metal will be produced on the electrode if it is less reactive than hydrogen. | re then able to conduct el<br>the electrodes.<br>oves to the <b>negative cati</b><br>arbon can not <b>reduce</b> the<br>y required to produce the<br>rolysed depend on the rel<br>nydrogen. Hydrogen will b<br>ion (Cl <sup>-</sup> , l <sup>-</sup> , Br <sup>-</sup> ) then you | ectricity and are<br>node. The<br>metal. Eg:<br>electrical current.<br>ative reactivity of<br>be produced if the<br>will get chlorine, | $(-Pb^{2+} Br^{-})$  |



### Chemistry Knowledge Organiser Year 10: Chemical changes (Triple FT)

# Self quizzing questions

#### Key Vocabulary:

- 1. Rusting is an example of what type of reaction?
- 2. What does the reactivity series show?
- 3. What is a displacement reaction?
- 4. What does the pH scale tell us?
- 5. What is an aqueous solution?

#### **Reactions of metals with Oxygen :**

- 6. Write the word equation for the oxidation of Calcium
- 7. What type of ions do metals make when they react?
- 8. Name 4 metals which are less reactive than carbon, but more reactive than hydrogen?
- 9. Name a metal that can displace lead from lead chloride?
- 10. Name 3 metals less reactive than hydrogen

#### Reactions of metals with water and acids:

- 11. Name a group 1 metal that reacts more vigorously with water than Sodium?
- 12. Name a group 2 metal that reacts more vigorously with acids than Magnesium?
- 13. What would you observe if Calcium is placed in cold water?
- 14. What would you observe if copper is placed in cold water?
- 15. What would you observe if copper is placed in an acid?

#### Extraction of metals using reduction:

- 16. Name 3 metals that can be found as metal in the Earth's crust?
- 17. Name 2 metals that can be extracted from their oxide using reduction by carbon?
- 18. When a metal oxide is reduced by carbon what is lost from the metal oxide?
- 19. When a metal oxide is reduced by carbon, which gas is produced?
- 20. Name a metal that can not be extracted from its oxide by using carbon? The pH scale and neutralisation:
- 21. What does a pH of 2 tell you?
- 22. What ions do acids always produce?
- 23. What ions do alkalis produce?

#### 24. What is the pH range for alkalis?

25. What is the ionic equation for neutralisation?

### Reactions of metals and acids:

- 24. Which gas is produced when metals react with acids?
- 25. Which salt is produced when zinc reacts with hydrochloric acid?
- 26. Which salt is produced when Magnesium reacts with sulfuric acid?
- 27. Which gas is always produced when a metal carbonate reacts with an acid?
- 28. What is a base?

#### Making a soluble salt – Required practical – 6 mark question:

- 24. Which salt will be made if Calcium oxide reacts with hydrochloric acid?
- 25. What two things would you do to the acid to make it react faster?
- 26. When would you stop adding the Calcium oxide?
- 27. What equipment would you need to filter the excess Calcium oxide?
- 28. How would you make sure your salt was dry?

### Titrations:

- 29. What are titrations used for?
- 30. What do you add to the conical flask?
- 31. What do you put in the burette?
- 32. If you used universal indicator, when would you stop adding the acid?
- 33. What would you write down?

#### Electrolysis:

- 34. What is an electrolyte?
- 35. What charge does a cation have?
- 36. What charge does an anode have?
- 37. Why is extracting aluminium, using electrolysis expensive?
- 38. What is produced at the negative cathode, if Zinc chloride is electrolysed?
- 39. What is produced at the positive anode, if Zinc chloride is electrolysed?

### Further opportunities:

- 1. Visit the Oak academy and work through lessons 1-22, write your answers in your reflection log: https://classroom.thenational.academy/units/chemical-changesa5ba
- 2. Visit Kay science. Watch the videos for the topic 4 and write answers in your reflection log. <u>https://www.kayscience.com/course/chemistry</u>
- 3. Keep practicing by trying these online quizzes at footprints science: <u>https://www.footprints-science.co.uk/index.php</u>



### Knowledge Organiser Atomic Structure



Proton:Charge PositiveMass 1Electron:Charge NegativeMass NegligibleNeutron:Charge NeutralMass 1

| (e)(e)            |                       |   |
|-------------------|-----------------------|---|
| Scientist         | Time                  | Contribution  |
| John Dalton       | Start of 19th century | Atoms were first described as solid spheres.  |
| JJ Thomson        | 1897                  | Thomson suggested the plum<br>pudding model – the atom is a<br>ball of charge with electrons<br>scattered within it.  |
| Ernest Rutherford | 1909                  | Alpha Scattering experiment –<br>Rutherford discovered that<br>the mass is concentrated at<br>the centre and the nucleus<br>is charged. Most of the mass<br>is in the nucleus. Most atoms<br>are empty space. |
| Niels Bohr        | Around 1911           | Bohr theorised that the electrons were in shells orbiting the nucleus.  |
| James Chadwick    | Around 1940           | Chadwick discovered neutrons in the nucleus.  |

### Alpha

Alpha radiation is an alpha particle emitted from the nucleus of a radioactive nuclei. It is made from two protons and two neutrons. They can't travel too far in the air and are the least penetrating – stopped by skin and paper. However, they are highly ionising because of their size.



An alpha particle is made of two protons and two neutrons. The atomic number goes down by two and mass number decreases by four.



### Gamma

A gamma wave is a wave of radiation and is the most penetrating – stopped by thick lead and concrete.

There is no change to the nucleus when a radioactive source emits gamma radiation. It is the nucleus getting rid of excess energy.

### Beta

Beta radiation is a fast moving electron that can be stopped by a piece of aluminium. Beta radiation is emitted by an atom when a neutron splits into a proton and an electron.



A neutron turns into a proton and releases a an electron. The mass of the nucleus does not change but the number of protons increases.



### Isotopes:

Atoms of the same element can have different numbers of neutrons.

Some atomic nuclei are unstable. The nucleus give out radiation as it changes to become more stable. This is a random process called radioactive decay



### Half Life:

Time taken for the number of radioactive nuclei in an isotope to halve. Radioactivity is random. Decay is measured in becquerels Bq. 1 Bq is 1 decay per second.

### **Irradiation:**

Process of exposing an object to nuclear radiation. To prevent this sources are placed in lead-lined boxes and often workers stand behind lead barriers or wear lead protective clothing. Irradiation stops when away from source.

### **Contamination:**

Unwanted presence of materials containing radioactive atoms on other materials. The hazard is due to the decay of the contaminating atoms. The type of radiation emitted affects the level of hazard.

### **Danger:**

Alpha: Most dangerous when inside body, due to ionisation. Beta: More dangerous outside body as able to penetrate. Gamma: Most dangerous outside body as penetrating.

### **Background Radiation:**

Is around us all the time and comes from natural sources such as rocks, cosmic rays from space and man-made sources such as fallout from nuclear weapons testing and accidents.



### Knowledge Organiser Atomic Structure

### **Atomic Structure:**

- 1. Draw a labelled diagram of the current atom.
- 2. Where are Protons and Neutrons found?
- 3. Where are Electrons found and what are there charge?
- 4. What charge are Protons and Neutrons?
- 5. Describe the Plum Pudding Model.
- 6. Describe the experiment that Rutherford devised.

### Radioactive Decay

- 1. Describe Alpha Decay.
- 2. Describe Beta Decay.
- 3. Describe Gamma radiation.

### Dangers of Radiation.

- 1. Define Irradiation.
- 2. Define Contamination.
- 3. Give an example of background radiation.
- 4. Compare the dangers of Alpha and Gamma Radiation.

### **Isotopes:**

- 1. Define Isotope.
- 2. Define Half-Life.
- 3. Calculate half life for isotope on graph.

### **Further Opportunities**:

Research and describe the worst radioactive accident in history (Chernobyl). Include ideas about half life and the radioactive emissions and their hazards and impacts.

Make a 3 D Model of an atom. (Use different coloured sweets for Protons, Electrons and Neutrons).

Make a revision map / revision cards of the links between Physics Atomic Structure and Chemistry Atomic Structure and The Periodic Table.

### **An Inspector Calls**

| Context             | Context   |   |  |  |  |  |  |  |
|---------------------|---|---|--|--|--|--|--|--|
|                     | <b>Class system:</b> society in 1912 was clearly structured into <i>upper class</i> (Lord and Ladies, royalty, people with <i>inherited wealth</i> ); <i>middle class</i> ('white collar' workers: business owners, doctors, lawyers etc); and <i>working class</i> (manual labourers). Judgements about people's characters were often made based on their class: "Girls of that class – " (Mrs Birling, hinting that working class women are wild and unpredictable, Act 2) |   |  |  |  |  |  |  |
| £ÅÅ.                | <b>Capitalism:</b> a <i>social system</i> that believes individual wealth is good for society. Business are owned by private individuals who can compete for <i>"lower costs and higher prices" (Mr Birling, Act 1).</i> Priestley hated Capitalism; he created Mr and Mrs Birling to show <i>Capitalist</i> ideas as outdated and selfish.   |   |  |  |  |  |  |  |
| <u>**</u>           | <b>Socialism:</b> a social system that believes business and industries should be owned by everyone, so that all profit equally from their success. The Inspector is a <b>Socialist</b> voice; he believes "We are members of one body. We are responsible for each other." (The Inspector, Act 3)  |   |  |  |  |  |  |  |
| <b>*</b>            | Women: Society in 1912 was <i>patriarchal</i> ; women were at a significant disadvantage. They receive lower wages than men, they were not able to vote and they were often looked down on. Women we not expected to voice opinions, which is why Mr Birling fires Eva: "She had a lot to say - far too muc so she had to go" (Mr Birling, Act 1)   |   |  |  |  |  |  |  |
| Big Idea            | Big Ideas   |   |  |  |  |  |  |  |
| Generat<br>differer | ional<br>nces   | The older <i>generation</i> (Mr and Mrs Birling) are a symbol of Capitalism, so they do not change their ways and they are reluctant to accept <i>blame</i> for their role in Eva's demise. The younger generation, on the other hand (Sheila and Eric) become a symbol of Socialism as the play progresses. They accept blame and want to change; they change throughout the play, for the better. |  |  |  |  |  |  |
| Responsibility      |   | The Inspector, as <i>Priestley's mouthpiece</i> , is a symbol of Socialism – he wants everyone to look after each other and to view <i>community</i> as very important. He is sent to uncover the family's wrongdoings and to make them see that they should take <i>responsibility</i> for others. Sheila and Eric realise this, but Mr and Mrs B do not.  |  |  |  |  |  |  |

Gender<br/>inequality<br/> $Q = \delta$ Priestley wanted to show his audience that there was a lot of *inequality* back in 1912 when it<br/>came to how women were treated. By making certain characters out to be sexist, he highlighted<br/>this problem and tried to shame audiences into changing their own views about gender equality<br/>too. This is perhaps why the victim of their actions is a woman, and why she is working class<br/>(working class women were at the bottom of the pile).

### **Key Quotes**

' A man has to mind his own business and look after himself and his own-' Arthur Birling

'She was claiming elaborate fine feelings and scruples that were simply absurd in a girl in her position' – Sybil Birling 'I felt rotten about it at the time and now I feel a lot worse'- Sheila Birling

'I suppose it was inevitable. She was young and pretty and warm heart- and intensely grateful.- Gerald Croft 'You never understanding anything. You never did. You never even tried'- Eric Birling

'We don't live alone. We are members of one body. We are responsible for each other.' - Inspector Goole

| Transferable               | Transferable knowledge   |  |  |  |  |
|----------------------------|--|--|--|--|--|
| Morality Play              | A play with a <b>moral</b> message (a message about right and wrong), traditionally where characters <b>personify</b> abstract qualities designed to educate or challenge the <b>audience</b> . For example, Mr Birling is a <b>symbol</b> of Capitalism; the Inspector is a <b>symbol</b> of Socialism. <b>Priestley</b> uses both these characters as a means of exploring these concepts. |  |  |  |  |
| Allegory                   | A story, poem, or picture that can be interpreted to reveal a hidden meaning, typically a moral or political one.  |  |  |  |  |
| The text is a<br>construct | Don't forget! <b>Nobody in the play is real:</b> every character has been <i>created</i> by JB Priestley in order to make a specific point or serve a purpose. For example, Eva Smith is a <i>symbol</i> of the working class: she has been created by Priestley to represent a larger group of people.  |  |  |  |  |

### An Inspector Calls

#### Context



- When was 'An Inspector Calls' written?
- When was it set?
  - Describe the British class system before the First World War.
  - What is the difference between Socialism and Capitalism?
- Describe Priestley's political beliefs.
- ĸŔŔŧ Explain the significance of each icon around this box.

#### Big Ideas Generational What is the difference between the responses of the old and young characters to the differences Inspector? Write a page of your reflection log for Eric and Sheila, then one for Mr and Mrs Birling, to show how they respond. Responsibility Which members of the family accept responsibility? Which do not? What is Priestley's message to his audience? How are Priestley's ideas about socialism expressed through the responses of each character?

| Gender        | • Why is Eva Smith's position in society 'weakened'?  |
|---------------|---|
| inequality    | <ul> <li>How is the theme of social class introduced at the start of the play?</li> <li>How does Mrs Birling refer to Eva Smith?</li> </ul> |
| $\bigcirc -1$ | <ul> <li>Why is Mr Birling dismissive of his factory workers?</li> </ul>  |
| ¥-O           | Write a page of your reflection log to summarise your understanding of the role of women in   |
|               | the play.   |

#### **Key Quotes**

For each of the key quotations listed on the knowledge organiser (highlighted in yellow and in the 'key quotes' box), write down the quotation and then complete an 'explosion' task, exploring its links to themes and characters.

Use a page of your reflection log to copy out the quotes from memory – categorise them by theme or character.

| Transferable knowledge  |   |  |  |  |
|-------------------------|---|--|--|--|
| Morality Play           | <ul> <li>Describe the conventions of a Morality Play. Explain how 'An Inspector Calls' fits into this<br/>genre.</li> </ul>   |  |  |  |
| Allegory                | What is an allegory? How does this term apply to 'An Inspector Calls'?  |  |  |  |
| The text is a construct | <ul> <li>Explain what is meant by this phrase.</li> <li>For each character, explain why they have been constructed – what might Priestley have wanted to achieve through each one?</li> </ul> |  |  |  |

#### Vocabulary

#### Key vocabulary is included on the knowledge organiser in bold and italics. Find each word and write a list of key vocabulary. • Look up and write down a

- definition for any word you don't understand or are unsure of.
- Write a new sentence for each word, relating it to an aspect of 'An Inspector Calls'.

#### Extra research: Characters

- How is Arthur Birling described in the stage directions? How does Mr Birling view Sheila's engagement? Describe Mrs Birling's personality. What is Mrs Birling's primary concern? Describe the change in Shelia's attitude as the play progresses. How is Eric introduced? What are your first impressions of him? ٠ Why might Eric be most responsible for the family's downfall? Give a quotation that suggests Gerald may not have treated Eva fairly.
  - Give a quotation that summarises the Inspector's attitude towards society





### French Knowledge Organiser **GCSE** core information

### Year 10/Theme 2 LOCAL, NATIONAL, INERNATIONAL AND **GLOBAL AREAS OF INTEREST**

### **Prior Knowledge**

|                    | masculine | feminine | plural |
|--------------------|-----------|----------|--------|
| 'the'              | le        | la       | les    |
| 'a' or 'some' (pl) | un        | une      | des    |

If a noun begins with a vowel or *h*, *le* or *la* shortens to l', e.g. l'église (the church).



#### G How to say 'in'

J'habite ... (I live ...) dans une ville/un village (in a town/village) au centre-ville (in the town centre) en ville (in town) à la campagne/montagne (in the countryside/mountains) NB: au bord de la mer (at the seaside). Feminine countries (e.g. Angleterre, Écosse, Irlande): use en. Masculine countries (e.g le pays de Galles): use au.

Plural countries (e.g. les États-Unis): use aux. Towns and cities (e.g. Paris): use à.

Points of the compass (e.g. l'est): use dans.

#### G On peut + infinitive

Les renseignements

On peut means 'you can'. It comes from the verb pouvoir (to be able to, can). It is usually followed by the infinitive of another verb.

**On peut aller** à un match de foot. You can go to a football match. On peut visiter le château. You can visit the castle.

- il y a ... means 'there is ...' or 'there are ...'. Il y a un stade. There is a stadium.
- Il y a des magasins. There are some shops.

Il n'y a pas de/d' ... means 'there isn't a ...' or 'there aren't any ...'.

Il n'y a pas de gare. There isn't a station. Il n'y a pas d'hôtels. There aren't any hotels. Note: after the negative *il n'y a pas de ...*, you do not need un, une or des.

#### G Irregular adjectives

The following adjectives are irregular:

| masc sg | fem sg  | masc pl | fem pl   |
|---------|---------|---------|----------|
| beau    | belle   | beaux   | belles   |
| vieux   | vieille | vieux   | vieilles |

- Most adjectives go after the noun, e.g. une ville intéressante.
- But some go before the noun, e.g. un grand château, un petit village, une belle plage, de vieux bâtiments, de iolies maisons.
- NB des changes to de when the adjective comes before the noun.



### Ma ville/région

G The pronoun y

of the infinitive:

avoir or être:

ou use the superlative to say 'the biggest', 'the longest', 'the most popular', etc. To form the superlative, put *le/la/les* + *plus* before an adjective. The adjective must agree with the noun. le plus long fleuve the longest river la plus haute tour the highest tower les plus belles plages the most beautiful beaches If the adjective goes after the noun, so does the superlative le musée le plus populaire the most popular museun To say 'the best ...' use le/la/les meilleur(e)(s) ...



The pronoun y means 'there'. It replaces  $\dot{a}$  + a noun.

If the verb is followed by an infinitive, y goes in front

Tu peux y faire de la voile. You can go sailing there.

J'y suis allée l'année dernière. I went there last year.

In the perfect tense, y goes in front of the part of

• In the present tense, y goes in front of the verb:

On y va tous les ans. We go there every year.

Most negative expressions are in two parts and go around the verb: ne ... rien (nothing) ne ... iamais (never) ne ... personne (nobody, not anyone) ne ... plus (no longer, not any more) ne ... que (only) ne ... aucun(e) (no, not any, not a single .

ne ... ni ... ni ... (neither ... nor ...) is in three parts: put a noun after each ni.







- NB: aucun agrees with the noun.

To ask 'which ...?' or 'what ...?', use the adjective quel ...? It must agree with the subject of the sentence. masc sg auel auelle fem sg masc pl quels quelles fem pl

#### G Asking questions

G

- To ask for something (e.g. a map), use Avez-vous ...? To ask whether there is something (e.g. a restaurant),
- use Est-ce au'il v a un/une ...? For other types of information, use question words like combien?, à auelle heure?, où?
- Quel/quelle/quels/quelles ...? ('which ...?' or 'what ...?')
- is an adjective and must agree with the noun. **Ouels** sont les horaires d'ouverture?

What are the opening hours?





### La météo

#### G The future tense

You use the future tense to say 'will'

1941, vivre ses choix

**UN VILLAGE** 

For -er and -ir verbs, the future stem is the infinitive.

ie rester**ai** nous resterons (I will stay) (we will stay) tu rester**as** vous rester**ez** (vou will stay) (you will stay)

ils/elles resteront (they will stay)

Some key verbs have irregular future stems, but use the same endings as above:

venir – je **viendr**aj (I will come)

### G Si clauses

Si (s' before the vowel i) means 'if'. Use si + a weather phrase + the near future tense to describe future plans.

S'il pleut, on va aller au cinéma. If it rains, we're going to go to the cinema.



or 'shall' do something. To form this tense, use the future stem plus the appropriate ending.

il/elle/on restera (he/she/we will stav)

aller - j'irai (I will go) avoir - j'aurai (I will have) être - je serai (I will be) faire - je ferai (I will do)





•

# **History Knowledge Organiser** Britain: Health and the People 2. The beginnings of change.

#### Key dates **Key individuals** Impact of the Renaissance on Britain Through careful Paré was a surgeon who Harvey investigated and 1400s The Renaissance - a changed ideas about period of history observation and proved that the heart when there was a surgery and cauterisation. acted as a pump, that dissections Vesalius 'rebirth' of ancient He ran out of cautery oil proved that some of blood circulated rather Greek and Roman Galen's findings were and used Vigo's oil of than being burned up and ideas. wrong. This encouraged that veins had one way roses, egg yolk and Vigo published Of people to question the turpentine mixture. He valves. It was 50 years 1525 Andreas Vesalius Ambroise Paré wounds in General knowledge used for 1400 found they slept well and before the University of years. His books inspired Paris taught his ideas. His their wounds healed 1543 Vesalius published the work of people in quickly. He also used discovery was not The Fabric of the England. ligatures and made false immediately useful without Human Body limbs. further scientific discovery. 1575 Paré published Works on Surgery **Dealing with disease Prevention of disease** William Harvey John Hunter 1588 William Clowes King Charles was given 58 drugs some of Inoculation - giving a weakened form of published Proved which would have contributed to his death. live germs to build up immunity. It could Practice Ordinary people still went to be fatal but had been the most popular barber-surgeons, apothecaries, wise 1628 Harvey published De method of dealing with smallpox. women and quacks. New medicines were Motu Cordis Jenner had noticed that milkmaids did not being brought back on voyages of Edward Jenner Thomas Sydennam get smallpox but did get cowpox. From 1665 The Great Plague discovery. The Great Plague hit again in this developed a vaccination from the latin 1665 and there was still no cure. In the 18th vacca - cow. He could not explain his Other key people 1685 King Charles II died century hospitals began to be built. findings scientifically so his ideas were not William Clowes John Hunter the scientific method and embedded until a £10,000 research grant Nicholas Culpeper collected anatomical specimens for his 1796 Edward Jenner's from parliament in 1802. In 1853 Lady Mary Wortley Montagu cowpox vaccination collection. vaccination was compulsory.

### **KEY VOCABULARY/TERMS**

Renaissance, anatomy, blood, illustrations, Barber-Surgeons, Bec de Corbin, cauterisation, ligature, surgery, amputation, oil of roses, egg yolk, turpentine, circulation, arteries, veins, valves, quack, purgative, emetic, enema, Great Plague, watchmen, searchers, quarantined, epidemic, leeches, poisoned air, apothecary, hospitals, dispensary, specimens.



### History Knowledge Organiser Britain: Health and the People Medicine stands still.

|    | Questions *based on your key people knowledge organiser          | Answers |
|----|--|---------|
| 1  | Who was Andreas Vesalius?*                                       |         |
| 2  | Who was Ambroise Paré?*  |         |
| 3  | Who was William Harvey?*   |         |
| 4  | Who was John Hunter?*  |         |
| 5  | Who was Edward Jenner?*  |         |
| 6  | What does the word renaissance mean?                             |         |
| 7  | How long had Galen's work been followed for?                     |         |
| 8  | What was the name of Vesalius' book?                             |         |
| 9  | What was Paré's new mixture made from?                           |         |
| 10 | Who did he get the idea from?                                    |         |
| 11 | What was the name of Paré's book?                                |         |
| 12 | What was the name of Harvey's book?                              |         |
| 13 | How many different medications were given to King Charles I?     |         |
| 14 | When did the Great Plague hit Britain?                           |         |
| 15 | What was inoculation?  |         |
| 16 | What does the Latin word 'vacca' mean?                           |         |
| 17 | How much money was Jenner given as a research grant?             |         |
| 18 | When did Smallpox vaccination become compulsory?                 |         |
| 19 | Where did ordinary people go for treatment?                      |         |
| 20 | Where were new medicines discovered and brought back to Britain? |         |



# History Knowledge Organiser Britain: Health and the People 3. A revolution in medicine.

### Key individuals

Louis Pasteur, Robert Koch, John Tyndall, William Cheyne, Paul Ehrlich, Humphry Davy, Horace Wells, William Clark, Dr Crawford Long, William Morton, Robert Liston, Queen Victoria, James Simpson, Joseph Lister, Edwin Chadwick, Dr John Snow, Joseph Bazalgette.

### **Treatment of disease**

1861 - Louis Pasteur discovered Germ Theory proving the theory of Spontaneous Generation wrong but it was not accepted immediately. Robert Koch applied Pasteur's theory to human diseases. He was the founder of bacteriology and proved that specific bacteria caused specific diseases. In 1876 he discovered the microbe responsible for anthrax, 1884 - cholera and 1882 - tuberculosis. He also discovered stains to dye microbes under a microscope. Pasteur and Koch were rivals and sponsored by their governments which motivated their work. Pasteur and his team created a vaccine for rabies and anthrax. This work was accepted in Britain due to John Tyndall and William Cheyne. Paul Ehrlich (Koch's assistant) found chemicals that would not only stain but kill specific types of bacteria. In 1909 he discovered a chemical cure for syphilis. These cures became known as 'magic bullets'. Prontosil worked against the germs that caused blood poisoning and 'sulpha drugs' were developed for meningitis, pneumonia and scarlet fever.

### Improvements in surgery

The key problems of surgery were pain, infection and blood loss. Anaesthetics - nitrous oxide was identified by Humphrey Davy and used by Horace Wells in 1844 to extract teeth. Ether was also used by the dentist William Clark in 1842 and Dr Crawford Long removed a neck growth with it. In 1846 William Morton gave a public demonstration and in December Robert Liston amputated a leg with it. It was difficult to inhale though and was also flammable. Chloroform was the alternative and discovered by James Simpson. Surgeons could now take more time over operations but this had initial problems such as dosage. Hanner Greener died of an overdose during a toenail operation in 1848. In 1853 Queen Victoria used chloroform in childbirth making it more acceptable. Antiseptics - Joseph Lister had read about Germ Theory and applied it to the problem of infection. He used carbolic acid to stop the spread of germ spraying it on hands, wounds, equipment and in the room. This dramatically reduced death from infection but they were still wearing outdoor clothing and it was not pleasant to use. The next step was aseptic surgery where germs were removed from the room. Facemasks, rubber gloves, gowns and sterilised instruments replaced public operating theatres and dramatically reduced infections.

### **Public Health**

The Industrial Revolution led to a population explosion and a movement of people into the rapidly expanding towns. The government attitude was laissez-faire meaning they did not believe it was their job to deal with domestic matters. The back to back houses and lack of sanitation led to cholera (a waterborne disease) epidemics in 1837, 1838, 1848, 1853-5 and 1865-6. In 1832 Edwin Chadwick collected information about the conditions on towns in the Report on the Sanitary Condition of the Labouring Population. This identified problems in the towns and cities leading to the 1848 Public Health Act. However this was voluntary and many councils did nothing. In 1854 Dr John Snow discovered the cause of Cholera adding more evidence that something needed to be done. This was followed by the Great Stink of 1858 where the sewage in the Thames led the government to leave the city. As a result Joseph Bazalgette was given the job of building the sewers under London. He was given £3 million. He used 318 million bricks and built 83 miles of sewers removing 420 million gallons of sewage a day. Once fully operational cholera never returned. Louis Pasteur discovered germs in 1861 adding more evidence that something must be done. After working class men gained the vote in 1867 the government brought in more laws to improve people's lives. 1866 - Sanitary Act. 1875 - Artisans Dwelling Act, Sale of Food and Drugs Act. The Second Public Health Act of 1875 was compulsory and made councils responsible for public health.

### Key dates

| 1832 | Edwin Chadwick Public<br>Health Report  |
|------|---|
| 1837 | Cholera outbreak  |
| 1842 | Ether used  |
| 1844 | Nitrous oxide used  |
| 1846 | Ether used in public demonstration  |
| 1848 | First Public Health Act,<br>Hannah Greener died                                   |
| 1853 | Queen Victoria uses<br>chloroform   |
| 1854 | Dr Snow discovers cause of cholera  |
| 1858 | Great stink and<br>Bazalgette starts<br>building sewers                           |
| 1861 | Germ theory   |
| 1866 | Sanitary Act  |
| 1875 | Second Public Health<br>Act, Artisan's Dwelling<br>Act, Sale of Food and<br>drugs |
| 1909 | Chemical cure for syphilis  |

### **KEY VOCABULARY/TERMS - tier 3**

Spontaneous generation, germ theory, bacteria, bacteriology, microscope, government, vaccine, rabies, anthrax, cholera, syphilis, chemical, prontosil, magic bullets, blood poisoning, meningitis, pneumonia, scarlet fever, anaesthetics, antiseptics, ether, chloroform, nitrous oxide, aseptic, surgery, sterilised, operating theatre, pain, infection, blood loss, sanitation, laissez-faire, sanitation, sewers, artisan, dwelling, Public Health Act, water, voluntary, compulsory.



# History Knowledge Organiser

### Britain: Health and the People 3. A revolution in medicine.

| Quiz questions   |  |
|--|--|
| 1. When was Germ theory discovered?                                    |  |
| 2. Who discovered Germ theory?   |  |
| 3. What was the connection between the answer to qu 2 and Robert Koch? |  |
| 4. What microbes did Koch identify/discover?                           |  |
| 5. What are the 3 problems of surgery?                                 |  |
| 6. What is an anaesthetic?   |  |
| 7. What anaesthetics were used during the 1800s and who used each?     |  |
| 8. What was the significance of Hannah Greener?                        |  |
| 9. What was the significance of Queen Victoria?                        |  |
| 10. What is an antiseptic and who used them?                           |  |
| 11. What is the next step of advancement after antiseptic surgery?     |  |
| 12. What other additions were made to surgery?                         |  |
| 13. Which people were connected to public health?                      |  |
| 14. What did the government do to improve public health in the 1800s?  |  |
| 15. What was laissez-faire?  |  |
| 16. Who was the Sewer King and what did he do for London?              |  |
| 17. What was a magic bullet?   |  |
| 18. Which magic bullet treated blood poisoning?                        |  |



### History Knowledge Organiser Britain: Health and the People 4. Modern medicine.

### Key individuals

Alexander Fleming, Howard Florey, Ernst Chain, Karl Landsteiner, Wilhelm Rontgen, Albert Hustin, Harold Gillies, Archibald McIndoe, Dwight Harken, William Beveridge, Aneurin Bevan - Minister of Health who introduced the NHS. Christian Barnard, Francis Crick and James Watson - discovered DNA, Roy Calne - anti rejection drugs.

### **Treatment of disease**

In 1928 Alexander Fleming was working to find a way to kill the staphylococcus germ. He found penicillin by chance after leaving petri dishes out whilst on holiday. When he came back he noticed that a mould had grown which killed the bacteria. He published his findings about the first antibiotic but did nothing else with it. Ernst Florey and Howard Chain read the article and asked the British government for funding but got only £25. They tested it on policeman Albert Alexander who had an eye infection. It worked until they ran out of penicillin. When America joined WW2 the gave \$80 million to develop and mass produce penicillin. By the time of the D-Day landings there was enough to treat the casualties. Other antibiotics followed; streptomycin, tetracycline, mitomycin. In recent years however there are antibiotic resistant bacteria due to overuse including MRSA. Today there are also a variety of alternative treatmer including acupuncture, homeopathy and aromatherapy. Vaccines for diphtheria, whooping cough, polio, rubella, MMR and HPV are now available for all.



### Impact of war and technology on surgery

WW1 was on a scale previously unseen with new injuries caused by new weapons. X-rays had been discovered in 1895 by Wilhelm Rontgen but portable machines could help doctors find shrapnel and look for broken bones without cutting people open. The Army Leg Splint was designed to put broken bones in traction. Infections such as gangrene were common so surgeons cut away the infected flesh and soaked the wound in saline. Shell shock was identified during the war after the suffers originally being treated as cowards. Today it is known as PTSD. Karl Landsteiner had discovered blood groups which helped doctors complete blood transfusions. In 1914 Albert Hustin discovered that glucose and sodium could stop it clotting on contact with air meaning it could be bottled. In 1938 advances in storage mean the National Blood Transfusion Service opened.Harold Gillies developed plastic surgery to help men who suffered severe facial wounds during WW1 by 1921 he had treated over 5000 servicemen. In WW2 his cousin Archibald McIndoe did further work on faces and hands. Heart surgery progressed through Dwight Harken who operated on 134 hearts with no fatalities. Since the war there have been kidney, heart, lung, liver and facial transplants. These became more successful with cyclosporine to stop organ rejection. DNA and stem cells are being mapped and used to grow new organs.

### **Public Health**



By 1900 poverty was still an issue in Britain. This was highlighted by the Boer War of 1899-1902. 40% of the men who volunteered were not fit for military service mostly due to poor diet and poverty-related illnesses. This was supported by the work of Booth and Rowntree. Booth studied London and created a map showing the distribution of poverty across London. In his book 'Life and Labour of the People in London' he wrote that 30% of the population lived in poverty despite many working. In York Seebohm Rowntree discovered that 28% of the population were in poverty but also that this could change during their lifetime. This he displayed in his poverty line. These concerned the government as did rivalry from nations including Germany and the USA. The new political party Labour was aimed at working people so something had to be done to win working votes. The Liberal Party came to power in 1906. They introduced; 1906 - Free School Meals, 1907 - School medical service, 1908 - Children and Young Persons Act, The Old Age Pension, 1909 - first job centres, 1911 - the National Insurance Act. These provided a safety net for children, the old, the sick and the unemployed. WW1 and WW2 highlighted that there was still more to be done. In 1942 the Beveridge Report said that people had the right to be free of the 'five giants' that could ruin their lives. Disease, want (need), ignorance, idleness, squalor (very poor living conditions). After the was the Labour Party set up the Welfare State to care for people 'from the cradle to the grave'. The NHS began in 1948 initially with completely free health care. A weekly child care payment, benefits for the very poor and slum clearance were all part of this. The NHS budget in 2015-2016 was £116 billion. In the C21st the government continues to try and improve health - 2006 a smoking ban was passed in public places extended to cars in 2015.

### **KEY VOCABULARY/TERMS**

staphylococcus, penicillin, bacteria, antibiotics, x-rays, shrapnel, splint, infection, gangrene, shell shock, PTSD, blood transfusion, plastic surgery, transplan, cyclosporine, organs, Boer War, poverty, Liberal Reforms, Free school meals, Labour party, Old Age Pension, National Insurance Act, unemployed, disease, want, ignorance, squalour, Welfare State, NHS, slum clearance, budget, smoking ban.

|             | _   |  |  |
|-------------|---|--|--|
| 1899        | Boer War  |  |  |
| 1906        | Liberal Reforms, Free<br>School Meals                 |  |  |
| 1907        | School medical service                                |  |  |
| 1908        | Children and Young<br>Persons Act, Old Age<br>Pension |  |  |
| 1909        | First job centres                                     |  |  |
| 1911        | National Insurance Act                                |  |  |
| 1914<br>-18 | WW1 Albert Hustin and storage of blood                |  |  |
| 1921        | Over 5000 patients had<br>plastic surgery             |  |  |
| 1928        | Penicillin discovered                                 |  |  |
| 1942        | Beveridge Report                                      |  |  |
| 1948        | NHS introduced  |  |  |
| 1953        | DNA discovered  |  |  |
| 1967        | First heart transplant                                |  |  |
| 1978        | First IVF baby Louise<br>Brown                        |  |  |
| 1978        | Smallpox eradicated                                   |  |  |
| 2006        | Public smoking ban                                    |  |  |
| 2008        | First full face transplant                            |  |  |
| 2015        | Smoking ban extended to cars                          |  |  |

Key dates

1895 X-rav



### History Knowledge Organiser Britain: Health and the People 4. Modern medicine.

# Quiz questions 1. Which war identified problems with the health of the British people? 2. Which two men collected evidence about poverty in London and York? 3. What acts did the Liberal government introduce to improve the health of the public? 4. Which invention of 1895 was used to find shrapnel in WW1 and who discovered it? 5. What advancement did Albert Hustins make during WW1? 6. Which two men developed plastic surgery in WW1 and WW2? 7. How did heart surgery advance during WW2? 8. Who found penicillin, when and how? 9. Who developed penicillin, when and how? 10. What is penicillin the first of? 11. Which report was written during WW2 and what was its significance? 12. When did the NHS begin? 13. When was the first heart transplant and was it successful? 14. What other types of transplant have been done since? 15. When was DNA discovered? 16. What is antibiotic resistance and why is it a challenge for modern medicine? 17. What examples of alternative medicines are there? 18. Which modern health policy was introduced in 2015?



Kaiser, militarism, Bundesrat, Chancellor, Reichstag, industrialisation, trade union, SPD - Social Democratic Party, socialism, Weltpolitik, patriotic, mutiny, abdicate, November Criminals



### History Knowledge Organiser Germany 1890 - 1945 1. The Kaiser's Germany

| Quiz questions  |  |
|---|--|
| 1. When was Germany created?  |  |
| 2. When did Wilhelm II become Kaiser?                               |  |
| 3. When were the Naval Laws?  |  |
| 4. What did the Naval Laws do?                                      |  |
| 5. What was Weltpolitik?  |  |
| 6. How was the Kaiser usually dressed?                              |  |
| 7. What land was in Germany's empire?                               |  |
| 8. How many men were in the German army by 1914?                    |  |
| 9. What was Germany producing by 1913?                              |  |
| 10. Which markets did Germany dominate?                             |  |
| 11. What did workers join to try and improve conditions?            |  |
| 12. What was the name of the political party German workers joined? |  |
| 13. The leader of Prussia became the?                               |  |
| 14. Who made state laws?  |  |
| 15. Who made federal laws   |  |
| 16. Who controlled the army and navy?                               |  |
| 17. When was WW1?   |  |
| 18. When did the Kaiser abdicate?                                   |  |

| IN UNITY WE SUCCEED      | History Knowledge Organiser<br>Key people Germany |                            |                           | https://quizlet.com/_8<br>hu2ay?x=1jqt&i=1kh5<br>hl for answers |                              |
|--------------------------|---|----------------------------|---------------------------|---|------------------------------|
| Kaiser<br>Wilhelm II     | Friedrich<br>Ebert                                | Gustav<br>Stresemann       | Wolfgang<br>Kapp          | General<br>Ludendorff   | Adolf Hitler                 |
|                          |   |                            |                           |   |                              |
| Paul von<br>Hindenburg   | Franz von<br>Papen                                | Ernst Röhm                 | Joseph<br>Goebbels        | Heinrich<br>Himmler   | Leni<br>Riefenstahl          |
|                          |   |                            |                           |   |                              |
| Gertrud<br>Scholtz Klink | Marlene<br>Dietrich                               | Karl<br>Liebknecht<br>Rosa | Claus von<br>Stauffenberg | Martin<br>Niemoller   | Hans and<br>Sophie<br>Scholl |
|                          |   | Luxemburg                  |                           |   |                              |

| IN UNITY WE SUCCEED | History Knowledge Organiser<br>Key people Germany |  |  |
|---------------------|---|--|--|
| Key person          | Role  |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |
|                     |   |  |  |



### History Knowledge Organiser Germany 1890 - 1945 The Weimar Republic

**Hyperinflation** 

**Munich Putsch** 

1923

8-9/11/23



armistice, democratic republic, Spartacists, communism, Freikorps (Free Corps), Weimar Republic, left wing, right wing, constitution, proportional representation, majority, Article 48, Reichstag, Chancellor, President, November Criminals, Treaty of Versailles, diktat, reparations, hyperinflation, putsch, Ruhr.



### History Knowledge Organiser The Weimar Republic

| Quiz | questions                                     |  |  |  |  |  |  |  |  |
|------|---|--|--|--|--|--|--|--|--|
| 1    | What was the role of the President?           |  |  |  |  |  |  |  |  |
| 2    | Who was the first President?                  |  |  |  |  |  |  |  |  |
| 3    | Who was the second President?                 |  |  |  |  |  |  |  |  |
| 4    | What was the role of the Chancellor?          |  |  |  |  |  |  |  |  |
| 5    | Name three Chancellors.                       |  |  |  |  |  |  |  |  |
| 6    | What was the Reichstag?                       |  |  |  |  |  |  |  |  |
| 7    | What system of voting did Weimar use?         |  |  |  |  |  |  |  |  |
| 8    | Who could vote in Weimar Germany?             |  |  |  |  |  |  |  |  |
| 9    | When did WW1 end?                             |  |  |  |  |  |  |  |  |
| 10   | What happened on 6/1/19?                      |  |  |  |  |  |  |  |  |
| 11   | What happened on 28/1/19?                     |  |  |  |  |  |  |  |  |
| 12   | What happened on 13/3/20?                     |  |  |  |  |  |  |  |  |
| 13   | What happened in January 1923?                |  |  |  |  |  |  |  |  |
| 14   | What happened on the 8-9th November 1923?     |  |  |  |  |  |  |  |  |
| 15   | What were the threats to the Weimar Republic? |  |  |  |  |  |  |  |  |
| 16   | Who voted for the NAzis?                      |  |  |  |  |  |  |  |  |
| 17   | Who voted for the Communists?                 |  |  |  |  |  |  |  |  |
| 18   | Which party was Ebert the leader of?          |  |  |  |  |  |  |  |  |

#### 1 - Tropical rainforest characteristics

Location: Either side of the equator

Climate: 25 – 30°C mean temp.

Soil: Thin fertile layer at surface as

Over 2500 mm precip. annually

**Biodiversity:** Most biodiverse

biome with 50% of all plant and

Vegetation: Dense. Distinct layers

with a dense canopy of tall trees.

Dark conditions on forest floor

Epiphytes on high branches and

lianas wrap around trees.

Intense sunlight in canopy

Leaves have waxy surfaces,

berries and flowers grow here.

Food abundant in the canopy

Dark and damp on forest floor

Capybaras have wide, webbed

feet to prevent sinking in mud.

here as food is abundant.

Leaves have drip tips

**Animal adaptations:** 

dappled shade.

Shrubs have larger leaves and are

nutrients are leached

animal species.

**Plant adaptations**:

shade tolerant.

**Heavy** rain

between 20° north and south.

2 - Deforestation & sustainable management

**Causes of deforestation** 

### 3 - Hot desert characteristics

Location: Within the Tropics.

between 20-30° north and south

Climate: Over 30°C mean temp..

4 - Desertification & opportunities and challenges of development

Areas on the fringe of hot deserts are at risk.

#### **Causes of desertification**





Climate change leads to droughts - crops fail.

The resulting lack of vegetation to bond the soil 🕺 means it is eroded by regular strong winds and occasional rain storms

#### Strategies to reduce the risk of desertification:

Water and soil management Using appropriate technology Tree planting

#### **Economic development:**

#### **Opportunities**

Mineral extraction Farming Energy

generation Tourism

#### Challenges



Extreme temperatures Inaccessibility Water Supply



Less than 250 mm precip.

**Biodiversity**: Very low. Plants and animals have very specialised adaptations to survive.

Vegetation: Sparse. Isolated shrubs where water is available.

### **Plant adaptations:** Lack of water

Thin leaves or spines to reduce water loss.

Long roots to reach deep underground water.

### **Animal adaptations:**

#### Lack of water

Beetles - textured skin to collect water from the air

Snakes and lizards - waterproof skin to retain water

#### Lack of vegetation

Fat stored in a camel's hump provides three weeks of food

#### **High daytime temperatures**

Jerboa are nocturnal and live underground

### Economic development Economic decline



#### Sustainable management

Increased consumer awareness Birds, insects and monkeys live Selective logging Conservation Jaquars are camouflaged for the Education. Ecotourism International agreements.

Debt reduction

### 5 - Key terms

**Ecotourism** - Responsible travel to natural areas protecting environments and livelihoods

Sustainable management - used in a way which allows current and future needs to be met

**Biodiversity -** The variety of life

Deforestation - The removal of trees

**Desertification** - The process by which land becomes drier or degraded.



Population pressure Impacts of deforestation

### **Economic:**

### **Environmental:**

















Commercial

HOL-

Ö

Hydroelectricity Road building

Logging

Mineral

farmina

farming

extraction

Subsistence

|     | 1 - Tropical rainforest<br>characteristics             | 2   | - Deforestation & sustainable<br>management                                      |      | 3 - Hot desert characteristics   | 4 -<br>a | 4 - Desertification & opportunities<br>and challenges of development        |  |  |
|-----|--|-----|--|------|--|----------|---|--|--|
| 1.  | Where are tropical rainforests located?                | 1.  | What are the causes of deforestation?  | 1.   | Where are hot deserts<br>located?                                      | 1.       | Which areas are at risk from desertification?                               |  |  |
| 2.  | What is the mean temperature?                          | 2.  | Suggest why mineral extraction can lead to                                       | 2.   | What is the mean temperature?  | 2.       | Name five factors which can cause desertification.                          |  |  |
| 3.  | What is the annual precipitation?                      | 3.  | deforestation.<br>Suggest how farming can  | 3.   | What is the annual precipitation?                                      | 3.       | Explain how population<br>growth can lead to the loss                       |  |  |
| 4.  | What is the soil like?                                 | -   |  | 4.   | What is the soil like?   | _        |   |  |  |
| 5.  | What is the biodiversity like?                         | 4.  | Suggest how population pressure can lead to                                      | 5.   | What is the biodiversity like?   | 4.       | Explain how climate change can lead to the loss of                          |  |  |
| 6.  | What is the vegetation like?                           |     | deforestation  | 6.   | What is the vegetation like?   |          | vegetation.   |  |  |
| 7.  | How have plants adapted to the dark conditions on      | 5.  | What type of electricity can be generated?                                       | 7.   | How have plants adapted to the lack of water?                          | 5.       | Why does the loss of<br>vegetation lead to<br>desertification?              |  |  |
| 8.  | the forest floor?<br>How have plants adapted           | 6.  | What are the two types of farming?   | 8.   | How have animals adapted to the lack of water?                         | 6.       | What strategies can be<br>used to reduce the risk of                        |  |  |
| 9   | to the heavy rain?<br>How have plants adapted          | 7.  | What are the economic<br>impacts of deforestation?                               | 9.   | How have animals adapted   |          | desertification?  |  |  |
| 5.  | to the intense sunlight in the canopy?                 | 8.  | Why might deforestation result in fewer tourist                                  | 10.  | How have animals adapted to the high daytime                           | 7.       | What are the opportunities for economic development in areas of hot desert? |  |  |
| 10. | How have animals adapted to ensure they get food?      | 9.  | numbers?<br>What are the environmental   | 11.  | temperatures?  | 8.       | What are the challenges to economic development in                          |  |  |
| 11. | How have animals adapted                               |     | impacts of deforestation?  |      | of plants and animals to the   |          | areas of hot desert?  |  |  |
|     | to the dark damp<br>conditions on the forest<br>floor? | 10. | What can be done to<br>manage tropical rainforests<br>in a more sustainable way? |      | climate?   | 9.       | What type of renewable<br>energy could be generated<br>in hot desert areas? |  |  |
|     |  |     |  |      |  |          |   |  |  |
|     |  |     | 5 - Ke   | y te | rms  |          |   |  |  |
|     | I. What is ecotourism?                                 | 2   | • What is sustainable management?  | 3    | <ul><li>What is biodiversity?</li><li>What is deforestation?</li></ul> | 5        | • What is desertification?  |  |  |

Questions



### RE Knowledge Organiser Philosophy

### What is Philosophy?

Philosophy tries to explain the nature of life through the use of reason and argument, rather than by experimentation. This means philosophers attempt to prove that God exists, for example, not by scientific methods, but by using logic.

How successful these attempts are depends on how logical they are. They can be disproved by finding faults in their logic.

Syllogism, or Syllogistic Logic, is made up of three parts the major premise, the minor premise and the conclusion. Aristotle came up with one of the most famous examples of a syllogism:

All men are mortal (major premise)

Socrates is a man (minor premise)

Therefore: Socrates is mortal (conclusion)

### **Branches of Philosophy**

There are three main areas of philosophy which we will focus on when studying philosophy. They are Ethics, Epistemology and Metaphysics.

Ethics is the study of what is right and wrong in human behaviour. It examines the actions of humans and aims to identify what is right and wrong in specific situations. Epistemology is the study of the nature, origin, and limits of human knowledge. Basically it is about the study of knowledge. What can we know? A fundamental question concerning Epistemology is, what is knowledge? Metaphysics is the study of the fundamental nature of reality. It is mainly concerned with explaining the nature of being and the world.Much before the discovery of modern science, all the science-related questions were asked as a part of Metaphysics.

### Voltaire

François-Marie Arouet, who wrote under the pseudonym Voltaire is one of France's greatest ever writers. Born in Paris he wrote a number of Plays, Songs and novels. Although only a few of his works are still read, he continues to be held in worldwide repute as a courageous crusader against tyranny, bigotry, and cruelty. His philosophical works were witty and satirical and although some didn't appreciate Voltaire's criticisms, his work remains hugely influential today.

Voltaire challenged religion and linked it to many issues he saw in society during his lifetime. His books and pamphlets contained scores of assaults on church authority and clerical power.

Voltaire believed above all in the efficacy of reason. He believed social progress could be achieved through reason and that no authority - religious or political or otherwise - should be immune to challenge by reason. He emphasised in his work the importance of tolerance, especially religious tolerance. In the *Lettres philosophiques* (translates to Letters on the English), Voltaire discussed the effects and benefits of religious tolerance after living in Britain. This showed that although he was critical, he did see some benefit in religious tolerance during that time.



### **Philosophy and Religion**

Philosophy and Religion has had a mixed relationship depending on different periods in history. There are plenty of philosophical arguments that support religion, such as William Paley's Design argument that supports the existence of God. There have been numerous other arguments including the Cosmological argument and the Moral argument that in the past have aimed to justify the existence of God. Many of these arguments were based off the key philosophical areas. For example, Paley's Design argument links to Metaphysics, as he uses the creation of animals and their perfect adaptations to point to an existence of God.

On the other hand, philosophers like Voltaire looked at the Ethics around religion, especially Christianity, and thought there were serious issues which he challenged in his work. This shows that philosophy has both supported and challenged religion throughout history.

In more recent times, with the development of technology, scientists have been able to answer some of the questions posed by philosophers in the past, thus leading to new arguments being made. Scientists have insisted that it is up to religious believers to prove God's existences, whereas religious believers have insisted that scientists need to prove that God does not exist. This challenge is not as easy one, as there is no way for science to prove the non-existence of something. For example, there is no evidence of their being a Loch Ness monster, however one can not say categorically that it does not exist in one form or another.

Another theory that links to Philosophy and events that take place around the world is the butterfly effect. The butterfly effect is the idea that small, seemingly trivial events may ultimately result in something with much larger consequences – in other words, they have non-linear impacts on very complex systems. For instance, when a butterfly flaps its wings in India, that tiny change in air pressure could eventually cause a tornado in America.



### **KEY VOCABULARY/TERMS**

Philosophy, Design argument, Predetermination, Butterfly Effect, Voltaire, Immortality, Revelations, Ultimate Questions, Miracles, logic, illogic, Moral argument, Cosmological argument, William Paley, Immanuel Kant, infinite regress, conscience, Pseudonym, Metaphysics, Ethics, Epistemology, Knowledge, Lettres Philosophiques



### RE Knowledge Organiser Philosophy

| Quiz questions  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|
| What was Voltaire's real name?  |  |  |  |  |  |  |
| Name three branches of Philosophy   |  |  |  |  |  |  |
| Which philosopher came up with the Design Argument?                       |  |  |  |  |  |  |
| What is Metaphysics the study of?   |  |  |  |  |  |  |
| Give one example of Logic   |  |  |  |  |  |  |
| What did Voltaire's books and pamphlets contain?                          |  |  |  |  |  |  |
| What is Epistemology the study of?  |  |  |  |  |  |  |
| What does the Design argument say is proof that God exists?               |  |  |  |  |  |  |
| Where was Voltaire born?  |  |  |  |  |  |  |
| Name three arguments for the existence of God                             |  |  |  |  |  |  |
| Why is it difficult for scientists to prove God is not real?              |  |  |  |  |  |  |
| What is Ethics the study of?  |  |  |  |  |  |  |
| What has allowed scientists to answer the questions of some philosophers? |  |  |  |  |  |  |
| What is the butterfly effect?   |  |  |  |  |  |  |
| Give an example of how the butterfly effect works                         |  |  |  |  |  |  |
| What does Lettres Philosophiques translate to in English?                 |  |  |  |  |  |  |
| What is also important to have when trying to use logic?                  |  |  |  |  |  |  |
| After living in Britain, what did Voltaire stress was important?          |  |  |  |  |  |  |

### GCSE Computer Science Topic 1.2 Memory

Computer memory is a physical device capable of storing information temporarily or permanently.

ROM stands for Read Only Memory.



ROM is non-volatile. This means that without power, data is retained (safe/stored).

ROM is read-only. This means that the data inside ROM is fixed. It can only be read, not written to.

ROM stores the instructions required to boot up the computer.

These instructions are called the BIOS (Basic Input Output System).

The BIOS checks the hardware is functioning and loads the operating system into RAM.



UNITY WE SUCCEED

Virtual memory is an area of the hard-drive used as temporary RAM, when RAM is full.

### A DISADVANTAGE

The read-write speeds of a hard drive is much slower than RAM. Therefore it takes longer to fetch data to the CPU to be processed.

There will be a significant drop in system performance if the system has to rely heavily on virtual memory.

If the OS is constantly swapping data between RAM and the hard drive, programs will run more SLOWLY. *This is called disc thrashing.* 

RAM stands for Random Access Memory.



RAM is volatile, this means that without power, data is lost.

RAM is editable, this means that what is stored in RAM read from and written to. e.g. data moved in and out.

RAM stores the Operating System once the computer has booted up.

RAM also stores any program instructions and data that are open / running or in use.

\*any program/app that is open on your computer system is moved into RAM.

RAM is often removable. You can upgrade many computers by adding more RAM.



If there are too many programs open at once or a particularly memory intensive program is open, there may not be enough space in RAM to hold all of the program data.

The OS swaps out some of the data from RAM to secondary storage (hard drive) to make room for the new data.

If there was no virtual memory the OS would have to say: "Sorry, you can not load any more applications. Please close another application to load a new one."

Usually the LEAST recently used data is swapped out to virtual memory. When the data is needed again it is transferred back to RAM to be accessed by the CPU.

The more RAM a computer system has, the less virtual memory will be needed. *Adding more RAM can significantly improve the performance of a computer*.



### **GCSE Computer Science** - Topic 1.2 Memory

### What I need to know:

| Define memory.  | When many programs are running at once a computer may have to use virtual memory.  |
|---|--|
| State what RAM stands for.  |  |
| State what ROM stands for.  | [2]  |
| Describe the main differences between ROM and RAM.                              | d) Explain one disadvantage of using virtual memory.   |
| Explain RAM's purpose in a computer system.                                     | [2]  |
| Explain ROM's purpose in a computer system.                                     | Fergus' computer has 8 GB of RAM. State the purpose of RAM in a computer.  |
| Define virtual memory.  |  |
| Explain why virtual memory is needed.   | [1 mark]   |
| Describe the main disadvantage of using virtual memory.                         | Jane is using her laptop to watch a movie she has downloaded in a multimedia player.<br>(a) What would be held in RAM when the movie is playing? |
| Explain why adding more RAM could improve the performance of a computer system. |  |
| Describe the difference between volatile and non-volatile memory.               |  |
|   | [3]  |
| [Total 2 marks]   | When a computer is switched on the BIOS runs. The BIOS is stored in the computer's ROM.  |
| Explain why the BIOS is stored in ROM instead of RAM.                           | a) State <b>two</b> functions of the BIOS.   |
|   | 1  |
|   | 2  |
| [2]   | [4]  |

| GCSE Computer Science<br>Topic 2.2 Programming (1)<br>Variables and constants are used to store values in<br>algorithms and programs. Variables and constants are   | SEQUENCE: Instructions are foll<br>the order they<br>SELECTION: Used in algorithe<br>between two or<br>Selection usually uses a combin<br>stateme  | int()<br>float()<br>bool()<br>str()<br>ASC()<br>CHR()  | Converts to an integer<br>Converts into a real number<br>Converts into Boolean<br>Converts to a string<br>Converts into ASCII code<br>Converts into ASCII character |   |  |  |
|---|--|--|---|---|--|--|
| defined as ' a named memory location'.         Variables' values can change while a program is running.         Constants' values must not change while a program is running.         Rules for naming variables/constants:         Identifiers are the name of the variable or constant.         They should 'describe' the data being stored.   | <ul> <li>IF/ ELSE statements are used<br/>when there are only 2 options.</li> <li>IF = QUESTION, followed by<br/>what to do if the answer is<br/>true.</li> <li>ELSE, what to do if the<br/>answer is False</li> <li>If there are more than 2<br/>options, ELSE-IF is used.</li> </ul> | <pre>INT johnvote = 0, suevote = 0, alanvote = 0 STRING vote vote = INPUT("Please cast your vote") SWITCH vote: =     CASE "John":         johnvote = johnvote + 1         print("You've voted for John.") CASE "Sue":         suevote = suevote + 1         print("You've voted for Sue.") CASE "Alan":         alanvote = alanvote + 1         print("You've voted for Alan.") ENDSWITCH</pre> |   |   |  |  |
| <ul> <li>Short identifiers are quick/easy to write.</li> <li>Long identifiers are more descriptive.</li> <li>Identifiers cannot contain spaces must be consistent throughout the program.<br/>CamelCaseUsesUpperAndLowerCaseLetters<br/>Snake_case_links_all_the_words_with_an_underscore.</li> </ul>   | ITERATION: The process of repeating a set of instructions for<br>a fixed number of times OR until there is a desired outcome.<br>Iteration is carried out using a programming construct called<br>'loops'.COUNT CONTROLLED loopsCONDITION CONTROLLED:<br>Loops are used when the       |  |   | <pre>'IF usertype == "Teacher" THEN Allow unrestricted access. 'ELSEIF usertype == "Parent" THEN Allow level 1 restricted access. 'ELSEIF usertype == "Pupil" THEN Allow level 2 restricted access. 'ELSE Deny all access. 'ENDIF</pre> |  |  |
| functions. The assignment operator is = It is used to assign values to constants or variables   | of times.<br>The number of iterations is<br>known before the loop is<br>started.   | number of iterations<br>needed is not known.<br>The code is iterated while<br>or until a condition is met.   | Arithmetic operators: Characters that perform arithmetic functions.   |   |  |  |
| It is used to assign values to constants or variables.         Comparison operators compare the value or expression on their left hand side to the value or expression on the right hand side and produce a Boolean value (True or False)         INPUT: Data that is put into the algorithm or program by the user.         OUTPUT:         • Data that is taken out of the program or algorithm | <ul> <li>DATA TYPE: A category of Used to make programs more r</li> <li>INTEGER: A negative or positive</li> <li>REAL: A negative or positive</li> <li>CHARACTER: A SINGLE numb</li> <li>STRING: A collection of charamarks.</li> <li>BOOLEAN: True or False</li> </ul>                | r classification of data.<br>obust and memory efficient.<br>tive WHOLE number.<br>decimal number.<br>per, letter or symbol.<br>acters enclosed in speech   | +<br>-<br>/<br>**<br>//<br>DIV  | Addition<br>Subtraction<br>Multiplication<br>Division (decimal answer)<br>To the power of<br>Division (integer answer)  |  |  |
| <ul> <li>and displayed to the user.</li> <li>This is usually done using a print statement.</li> </ul>   | <b>CASTING:</b> A function which converts an item of data into a different data type.  |  |   | Divides and returns the remainder.  |  |  |



### GCSE Computer Science - Topic 2.2 Programming (1)

### What I need to know:

| REPEAT Loop:  | WHILE Loop:  | DO WHILE Loop:  |
|---|--|---|
| <pre>INT total = 0 INT cost, coin, change cost = total cost in pence REPEAT coin = INPUT("Value of coin") total = total + coin UNTIL total ≥ cost change = total - cost OUTPUT change</pre> | <pre>INT total = 0 INT cost, coin, change cost = total cost in pence WHILE total &lt; cost     coin = INPUT("Value of coin")     total = total + coin ENDWHILE change = total - cost OUTPUT change</pre> | <pre>INT total = 0 INT cost, coin, change cost = total cost in pence D0 coin = INPUT("Value of coin" total = total + coin WHILE total &lt; cost change = total - cost OUTPUT change</pre> |
| The loop starts at <u>REPEAT</u> and ends<br>when the <u>UNTIL</u> condition is <u>true</u><br>— when the total is greater than or<br>equal to the cost.                                    | The loop starts by checking the <u>WHILE</u><br>condition is <u>true</u> and keeps repeating<br>until it is <u>false</u> — when the total is<br>greater than or equal to the cost.                       | The loop starts at <u>DO</u> and repeats<br>until the <u>WHILE</u> condition is <u>false</u><br>— when the total is greater than<br>or equal to the cost.                                 |

### Describe the differences between **repeat**, **while** and **do while** iteration.

|                        | An electric heater has four temperature settings (0, 1, 2 and 3).<br>The code below controls the temperature of the heater.  |
|------------------------|--|
| r in programming.      | a) Rewrite this program using a different selection statement.   |
|                        | CASE 3:<br>temperature = 50<br>CASE 2:<br>Put each of these statements into the correct box below.<br>REPEAT-UNTIL IF-THENLELOE SWITCH-CASE DO-UNTIL IF-ELSEIF WHILE |
| count-controlled<br>n. | temperature = 30     Selection Statements       CASE 1:     Iteration Statements       temperature = 20     Iteration Statements                                     |
|                        | CASE 0:<br>temperature = 0<br>ENDSWITCH  |
|                        | Lasminda has written the following program to convert minutes into hours and minutes   |
|                        | INT minutes, hours, mins       minutes, hours, mins         minutes = INPUT("Enter a number of minutes")       a) int("76423")                                       |
| in casting             | hours = minutes DIV 60<br>mins = minutes MOD 60<br>print(str(hours) + " hours and " + str(mins) + " minutes")  |
| ator.                  | a) Is this an example of a sequence, selection or iteration? Tick the correct box.<br>Sequence Selection Iteration [1] b) ASC("T")<br>                               |
| ors and their          | b) What would the program print if the input was 150?<br>  |
|                        |  |

State how variables and constants are used in programming.

#### Define variable.

Define constant.

Outline the rules for naming constants/variables.

State what is meant by an operator

State what the assignment operator is used for in programming.

State the function of comparison operators.

Define the terms input / output.

Define the term sequence.

Outline what selection is used for in programming

Define the term 'iteration'.

Describe the difference between count-controlled and condition controlled iteration.

Define the term data type.

Outline the 5 main data types.

Define the term casting.

Outline the function of the 6 main casting commands.

Define the term arithmetic operator

List the 7 main arithmetic operators and thei mathematic function.

# INNOVATION



Tonality

Rhythm

### Music Knowledge Organiser Paul Simon 'Call Me Al'

**Context:** The title for this song came about from an incident at a party that Paul Simon attended with his first wife, Peggy Harper. Also present at the party was the French composer who inadvertently referred to Paul Simon as 'Al' and Peggy as 'Betty'. The first part of the song appears to be describing a man going through a mid-life crisis and reflecting on his life – 'Why am I soft in the middle? Where's my wife and family? What if I die here? Who will be my role model?' As the song progresses, by the third verse the theme becomes more biographical, reflecting on Paul Simon's travels to South Africa.

Syncopation, syllablic speech-like rhythms, short value notes in the melody, offbeat,

F major: F (I), Gm (ii), Bb (IV), C (V)

semiquavers, sextuplets, grace notes, drum fill

Bass riff (0:00) 2 bar repeated pattern, slap technique



Brass/sax riff (0:00) 2 bar repeated pattern



| Section  | Timing                                       | Content   |   | Instrumentation/Sonority - |  |  |
|--|--|---|---|----------------------------|--|--|
| Intro  | 0:00-0:14                                    | Brass and saxophone stepwise riff, (homophonic texture) with Bass riff          | F,C, Bb   | mixture of African and     |  |  |
| Verse 1  | 0:15-0:43                                    | 2x 8 bars. B1-16 solo, spoken and syllabic. B17-24 doubling octave lower.       | F,C,Gm  | • Guitar                   |  |  |
| Chorus 1   | 0:44-0:59                                    | Sung with brass and sax riff from introduction.                                 | Sung with brass and sax riff from introduction. F,C, Bb |                            |  |  |
| Verse 2  | 1:00-1:28                                    | As verse 1  | s verse 1   |                            |  |  |
| Chorus 2     1:29-1:45     As first chorus but with different high ending        |  | <ul> <li>Synthesizer</li> <li>Six string electric bass</li> </ul>               |   |                            |  |  |
| Penny whistle solo 1:46-2:15   |  | Starts on 2nd quaver (off beat). Folk style. Semiquavers, sextuplets, grace r   | Guitar synthesizer                                      |                            |  |  |
| Middle 8         2:16-2:29         Brass/sax riff from introduction (homophonic) |  | <ul> <li>Bass/baritone<br/>saxophone</li> </ul>                                 |   |                            |  |  |
| Verse 3  | 2:30-2:58                                    | 8 As verse 1 and 2  |   | Trumpets     Trombonos     |  |  |
| Chorus 3   | Drus 3     2:59-3:13     As second chorus    |   | Penny Whistle   |                            |  |  |
| Verse 4  | rse 4 3:14-4:02 Repeated 'na-na' and humming |   | <ul> <li>Background vocals</li> </ul>                   |                            |  |  |
| Instrumental Break   | 3:44 - 3:47                                  | Fretless bass solo - fast semiquavers and wide range of pitch. Slap bass teo    | <mark>hnique.</mark>                                    |                            |  |  |
| Outro  | 3:47 - end                                   | Fragments of chorus and brass/sax riff introduction with falsetto oohs until fa | ade out   |                            |  |  |



### Music Knowledge Organiser Paul Simon 'Call Me Al'



### QUESTIONS

- 1. Identify the form and structure of 'Call Me Al'.
- 2. Identify the key of the song?
- 3. Which instruments play riffs?
- 4. What playing technique is used by the bass guitar?
- 5. Identify two melodic features in 'You Can Call Me Al.
- 6. Which style of music has influenced this song? Give examples.
- 7. Identify two rhythmic features in 'You Can Call Me Al.
- 8. How does the song end?
- 9. Explain how the elements of **melody**, **sonority and texture** add interest and variety to 'You Can Call'. (8 marks)

### Structure

Can you remember the structure of the song? Can you identify the key features of each section? Draw a table and test yourself.

### VOCABULARY - Can you define what each of these terms mean?

| BASS RIFF | BRA | SS/SAX RIFF  | STEP | WISE   | F MAJOR | PENNY    | WHISTL | .E   | BRIDGE  | MIDDLE 8    | DOUBLING    |
|-----------|-----|--------------|------|--------|---------|----------|--------|------|---------|-------------|-------------|
| OCTAVE    | НОМ | OPHONIC TEXT | FURE | SLAP   | BASS    | SEMIQUAV | ERS    | PHRA | SE SE   | XTUPLET     | GRACE NOTES |
| SYNTHESIS | ED  | RANGE OF PIT | СН   | 2ND QU | AVER OF | THE BAR  | OFFBE  | AT   | FADE OL | JT SYLLABIC | C FALSETTO  |

### NOTATE AND PLAY









### ART Knowledge Organiser

Year 11 : Term 2:1



### **ASSESSMENT OBJECTIVES**

These are the 4 objectives used to mark your work in GCSE Art, with suggestions of what you should do for each one. Each objective is worth 24 marks

Remember that the objectives cover all of the work in each project, from initial sketches and notes to the final image.



I have researched the work of artists.

I have worked in the style of an artist.

I have written about the artists and how they have influenced my work.



I have experimented with a range of materials and techniques. My sketchbook shows how I have developed my idea from an initial start to a final conclusion. My work has been completed with care and thought.



I have drawn images from observation. I have worked from relevant

photographic images.

I have used annotation to explain the development of and my thoughts about my work.



CONCLUSION

I have produced my own imaginative final piece of work. My work shows a clear connection to the work of my chosen artist I have thought carefully about the presentation of my work throughout the project.





### ART TEXTILES Knowledge Organiser Term 2.1 Textiles Artist: Nikki Parmenter





#### Nikki Parmenter Artist Statement

I am a Cheshire based artist who specialises in mixed media, textile based pieces. I take my inspiration from a variety of sources and I am particularly interested in the way in which ancient societies created a series of visual symbols to represent the things which were important to them. I investigate myth and legend and draw parallels between societies, showing that although many people have different beliefs we are all united by visual iconography.





The best we ca

#### **Methods of Working**

I use a wide range of materials in my work including felt, fabric, threads, beads, metal, acetate, Angelina fibres, wire, hose pipe, pipe cleaners, plastics, jewellery, wood, car spray, paint, padding, metal mesh, felt pens, paper and funky foam.

As well as more traditional equipment I use various other items such as a sewing machine, jigsaw, glue gun, soldering gun, iron, photocopier and hot air gun.

| Key vocabulary |   |
|----------------|---|
| Embellish      | To make (something) more attractive by the addition of decorative details or features. "blue silk embellished with golden stitching." |
| Iconography    | The visual images and symbols used in a work of art or the study or interpretation of these.  |



### ART TEXTILES Knowledge Organiser Term 2.1 Textiles Artist: Nikki Parmenter



### Complete the following tasks in your reflection log.

Describe the work of Nikki Parmenter.

What techniques does she use to create her work?

What is her work based on?

What does the word embellish mean?

### What does iconography mean?









### YEAR 10 Photography Knowledge Organiser

### Shutter Speed KO



FAST shutter speed



The **TV setting** on the DSLR camera allows you to alter the shutter speed. Using a **fast shutter** speed will allow you to capture movement as if **frozen in time.** 

Using a **slow shutter** speed will create a **blur** of moving objects - this can be artistic.



TV mode stands for Time Value but is better known as Shutter Priority Mode.

The **faster the shutter speed, the less light** you will allow in to the lens so you might need a brighter setting or to use additional light otherwise your photo will be very dark. The **slower shutter speed, the more light** you will allow in so you can work in very dark settings.

Try drawing with light!





### **Assessment Tasks**



Use these checklists to make sure you've thought of everything for Task 2.

| Chosen activity:              | Video analysis                 | Logbooks               |  |
|-------------------------------|--------------------------------|------------------------|--|
| I have                        | Monitoring competition results | Coach/peer<br>feedback |  |
| identified my strengths.      | Activity trackers              | Other technology       |  |
| monitored my performance.     | Fixed practice                 | Whole practice         |  |
| planned a training programme. | Variable practice              | Progressive drills     |  |
|                               | Part practice                  | Altering the context   |  |



### Graphic Design Knowledge Organiser

Year 10 : Term 2:1



### **Components of Graphic design**

**Colour** - According to the way our natural senses function Colour is the most influential, followed by Shapes, Symbols, and finally Words. It can attract your attention, change your mood and plays a major part in how we see and define things. Colour has the power of persuasion. Graphic designers use the colour wheel to create colour schemes that work successfully.

The colour wheel is set out into primary colours, secondary colours and tertiary colours. A colour scheme based on related colours Related colours are any three colours which are side by side on a 12 part colour wheel, such as yellow-green, yellow, and yellow-orange. Usually one of the three colours is the most dominant.



A colour scheme based on complementary colours Complementary colours are any two colours which are directly opposite each other, such as red and green and red-purple and yellow-green. In the illustration above, there are several variations of yellow-green in the leaves and several variations of red-purple in the orchid. These opposing colours create maximum contrast and maximum stability.

### **KEY VOCABULARY**

Colour, tone, contrast, line, composition

**Tone** -This refers to the lightness or darkness of something. This could be a shade or how dark or light a colour appears. Tones are created by the way light falls on a 3D object. The parts of the object on which the light is strongest are called **highlights** and the darker areas are called **shadows**. There will a range of tones in between the highlights and shadows

**Contrast** –is the amount of difference between the lightest and darkest tones. It should be combined with a range of mid tones. Contrast in tones can help create a dramatic artwork.

**Line** - is used to add style, enhance comprehension, create forms, and divide space by being a border around other design elements or divider between them. ... Whatever the line is made up, be it curved, dotted, zigzag or straight, it can effectively define elements in graphic design.

**Composition** - is the area of graphic design where all the separate elements come together to form a whole. When all of your type, your images, your graphics and colours, come together to form one cohesive design.

A successful composition means that you have arranged, distributed, aligned and compiled your design in a way that not only looks good but is also highly functional and effective

#### **ASSESSMENT CRITERIA**

**Competence** - How you complete and improve your work using the project activities.

**Technical ability** – experiment with all of the different components of graphic designing explaining every aspect in detail.



### Graphic design Knowledge Organiser Year 10 : Term 2:1



| Components of graphic design   | Why is line important in graphic design?   |
|--|--|
| Why is colour important in graphic design?   | ••••••   |
|  | Why is composition important in graphic design?  |
| In the boxes below create a colour scheme that uses colours that work well together. |  |
| Explain why the colours<br>you used work well.                                       | In the box below sketch out the design for a<br>business card that will advertise a hand<br>crafted furniture company called 'Bespoke'.<br>Be sure to focus on colour, tone , line and<br>composition. |
| why is tone and contrast important in graphic design?                                |  |
| In the box below created a shaded area that blends from dark to light.               |  |



