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**Knowledge Rich Curriculum Plan**

SCIENCE- (Human Lifestyles and Health)



| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that…* | **Prior Knowledge:**  *In order to know this, students need to already know that…* | **Working Scientifically** | **Tiered Vocabulary and Reading Activity** | **Assessment** | **Support** |
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| **What humans need in their diet** | *A balanced diet consists of the 7 nutrients (Carbohydrates, proteins, lipids, fibre, water, vitamins, minerals) in the correct amounts.*  *Carbohydrates are the main source of energy for the body. There are 2 types; starch found in potatoes, pasta, bread and Sugar found in chocolate/sweets*  *Proteins are found in meat, lentils, beans, fish and are needed for growth and repair.*  *Lipids are found in butter, oil, crisps, pizza, cheese and are needed in small amounts for energy and insulation.*  *Fibre is found in cereal, brown bread/rice, vegetables and is needed to move food through the digestive system and push the waste material out of the body*  *Vitamins and minerals are needed in small amounts to keep the body healthy. They are commonly found in fruit and vegetables. Examples of vitamins include vitamin A which is vital for good eyesight and vitamin K which helps the blood to clot. Calcium is a mineral needed for health bones and teeth and iron is needed for healthy blood*  *Water is essential to keep the body hydrated, helps to regulate body temperature, helps excretion and prevents constipation.* | Nutrition (MRS GREN) is obtaining food for health and growth. Excretion is the removal of waste substances.  It is important to eat the right foods in the right amounts, exercise regularly and maintain good hygiene.  The eat well plate is a Guide that shows how much of what we eat overall should come from each food group to achieve a healthy, **balanced diet**.  Calcium is a mineral found in milk and is needed for health bones and teeth  Misconception- Students will try to name ‘dairy’ as a nutrient group | Optional food tests practical | **Balanced Diet** consists of the 7 nutrients in the right amounts  **Insulate**- Keeping warm by reducing heat loss  **Malnutrition-** Health problem that occurs when people don’t eat the right amounts of each nutrient | Home learning Quiz 1  Summative assessment 3 | *Knowledge organiser (provided on Teams and in class)*  <https://www.bbc.co.uk/bitesize/topics/zjr8mp3/articles/zhkbn9q> |
| **The effects of exercise on the human body** | *Short term effects are seen during exercise, but disappear afterwards as the body returns to normal. These include Muscles contracting more often, Heart rate Increasing, Breathing rate increasing, More blood being pumped to the muscles, Body temperature increasing so increased sweating to help cool the body.*  *Long term effects appear more gradually and don’t disappear if you exercise regularly. These include Muscle size Increasing, Heart muscles becoming stronger, Lung volume increaing, Bones becoming stronger, Lower resting heart rate, Heart rate returning to normal more quickly*  *(Quicker recovery rate)*  *Data can be collected to investigate the short term effects of increased heart rate and increased breathing rate.* | Regular exercise is good for the body  When we exercise our heart beats faster to pump more blood around the body. | Collecting and recording results  Plotting a graph  Describing the graph and interpreting data | **Benefit** – A helpful or good effect.  **Rate -** The number of times something happens in a certain amount of time  **Recovery Rate -** The time taken for a person’s body to return to normal after a period of exercise.  **Metronome -** A piece of equipment that creates a clicking sound at regular intervals. Used to set a specific pace | Home learning Quiz 1  Summative assessment 3 | *Knowledge organiser (provided on Teams and in class)*  <https://www.bbc.co.uk/bitesize/guides/zghmp39/revision/1> |
| ***Eating too much or too little*** | *Students will learn that obesity is a risk factor for many other diseases including heart disease (which can cause a heart attack or stroke) and type 2 diabetes*  *Students will learn that eating too little can result in malnourishment which has side effects like hair loss, poor skin, stunted growth, weight loss, rickets and difficulty concentrating.* | *Eating too much is associated with obesity*  *Eating too little is associated with anorexia*  *If you don’t have a balanced diet then this can lead to health problems* |  | ***Mass -*** *is the amount of matter eg., body mass*  ***Obese -*** *describes a person who is extremely overweight.*  ***Physical -*** *means related to the body eg., physical health.*    ***Mental -*** *means related to the mind eg., mental health.*  ***Risk Factor*** *- Something that increases the chance of getting a disease*  ***Side Effects*** *- An undesirable effect* | *Home learning Quiz 1*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/articles/zc8bydm*](https://www.bbc.co.uk/bitesize/articles/zc8bydm) |
| ***Variation and dietary requirements*** | *Students will learnt that at different life stages, people have different dietary requirements*  *Pregnant women need to eat more protein to help the baby grow, more calcium for healthy bones.*  *Elderly people*  *People with physical jobs*  *People with sedentary jobs/lifestyles*  *Vegetarians* |  |  | ***Sedentary Lifestyle- Spending a lot of time sitting down***  ***Intolerance- Unable to eat certain food without it having unwanted effects***  ***Legumes- Fruits, beans, peas, seeds*** | *Home learning Quiz 1*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/articles/zc8bydm*](https://www.bbc.co.uk/bitesize/articles/zc8bydm) |
| ***Use of Recreational drugs*** | *A drug is a substance that has an effect on the body. Medicines are drugs that help people suffering from pain or disease.*  *Recreational drugs are taken by people because they like the effects they have on their bodies.*  *Some recreational drugs are legal, such as tobacco and alcohol. However, there are restrictions on who can buy them. Caffeine, found in coffee, is another recreational drug. Most other recreational drugs are illegal, and these include cannabis, ecstasy and heroin. Some medicines are misused and taken for recreational use, rather than for medical reasons. They become illegal under these circumstances.*  *Illegal drugs are classified from Class A to Class C. Class A drugs are most dangerous, with the most serious penalties for possession or dealing. Class C drugs are the least dangerous, with the lightest penalties, but this does not mean they are safe to take. Most recreational drugs can be addictive.*  *Any drug that is misused can cause damage to the body, as well as personal and social problems. Injecting any drug with a needle and syringe that someone else has used may lead to a number of diseases from infected blood.*  *Recreational drugs can often be classified as depressants or stimulants.*  *Depressants:*  *Alcohol – long term and short term effects*  *Heroin*  *Stimulants:*  *Nicotine- Long term and short term*  *Caffeine*  *Cocaine*  *Ecstasy* | *Students may have a misconception that all drugs are bad due to how the word is used in our communities.*  *Recreational drugs have a serious effect on behaviour and health*  *Some recreational drugs are legal (Caffeine, Tobacco, alcohol) and some are illegal (Cannabis, Ecstasy, Heroin)*  *Doctors can prescribe medical drugs to help people. Paracetamol (Calpol) and Ibuprofen are drugs that can be taken to ease pain.* |  | *Misuse: the wrong or improper use of something*  *Drug: something that has an effect on your body when you take it.*  *Recreational: relating to or denoting activity done for enjoyment when one is not working*  *Stimulant- Drugs that shorten reaction times*  *Depressant- Drugs that make reaction times longer* | *Home learning Quiz 1*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/topics/ztnnb9q/articles/zrs44xs*](https://www.bbc.co.uk/bitesize/topics/ztnnb9q/articles/zrs44xs) |
| ***Food Tests*** | *Students will learn that iodine is used to test for starch and the iodine turns from orange to black.*  *Students will learn that Biuret’s is used to test for protein and it turns from blue to lilac*  *Students will learn that Benedict’s is used to test for sugar and it turns from blue to Brick red. Benedict’s needs to be warmed in a water bath.*  *Students will learn that ethanol is used to test for fat and a creamy emulsion forms.* | *Students will already be able to give examples of food containing*  *Students may have the misconception that the food changes colour. Make it clear it is the reagent that changes colour.* | *Conducting a qualitative test*  *Making observations*  *Forming conclusions* | *Reagent- a substance or compound added to a system to cause a chemical reaction, or added to test if a reaction occurs.* | *Home learning Quiz 1*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/guides/zxcrsrd/revision/5*](https://www.bbc.co.uk/bitesize/guides/zxcrsrd/revision/5) |

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| ***Energy In food*** | *Students will learn that food is a store of chemical energy and can be transferred from the food to the consumer.*  *Different foods will have different amounts of energy and each individual will require a specific amount of food depending on their energy requirements. This will depend upon; age, sex, activity, job, if they are pregnant.*  *That our bodies use the chemical energy from food for movement, growth, repair and to keep warm.*  *Chemical energy can be transferred to thermal energy. There more chemical energy transferred the higher the temperature meaning the more chemical energy that the food contains.* | *Students should know the unit for energy J or KJ.*  *That Kilo- means 1000*  *Food from animals and plants help keep the consumer alive and carry out activities* | *Conduct an experiment to conclude that different foods contain different amounts of energy.*  *Forming conclusions and evaluations* | *Kilo- a unit equalling one thousand (1000).*  *Joules- unit for work done/ energy.*  *Chemical energy- Energy stored in the bonds of chemical compounds.* | *Home learning Quiz 1*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/topics/zf339j6/articles/z2wkcmn*](https://www.bbc.co.uk/bitesize/topics/zf339j6/articles/z2wkcmn) |