

THE WINTERTON FEDERATION MEDIUM TERM PLAN SCIENCE Spring 2 YEAR 6

Staying Alice	Learning Objective	Activity – Switched On Science	STEM Activities	Success Criteria
<p>Session 1</p>	<p>To recognise the parts of the circulatory system.</p> <p>To understand the function of some of the parts of the circulatory system.</p>	<p>Quick Challenge:- Give the children a diagram of the human body with the organs on it and ask them to label as many as they can.</p> <p>Show a completed circulatory diagram of the body (Activity resource book page 11) and what the function is of each main organ in the system – in this case, the lungs, heart, blood vessels and blood – may need to research.</p> <p>Annotate diagram.</p> <p>Set up an activity to show the blood traveling round the body. As the blood travels from the heart to the lungs, The ‘blood’ then travels back to the heart, which pushes them out into and to the other parts of the body. The blood should visit the small intestine and pick up ‘nutrients’ and give this to body parts. The blood should pick up ‘water’ from the large intestine and give this to body parts as well. As the ‘blood’ travels to each body part, it exchanges ‘oxygen’ for ‘carbon dioxide’ and ‘other wastes.’</p> <p>When the oxygen is used up, the blood then travels back to the heart and lungs to exchange the carbon dioxide and waste for new oxygen</p> <p>Use a diagram on the board to discuss how the blood flows through the body. Play a quick draw game, where you call out either a process, e.g. ‘collect oxygen’, or a function, e.g. ‘pumps blood, transports nutrients, digests food, exchanges carbon dioxide for oxygen’, etc. and children either call out or write the name of the organ on a whiteboard to hold up.</p>		<p>I can name parts of the circulatory system.</p> <p>I can explain the functions of these parts.</p> <p>I can understand how we can use a model to represent the circulatory system.</p>

<p>Session 2</p>		<p>Ask the children to place their fist where they think their heart is. What clues do they have that it is there? Explain that their fist is about the same size as their heart. Discuss why it might be located in the body and where it is. Say that you have just found another heart in your body – you must have two – put your fingers on your temples and say you can even hear it. Discuss whether this is another ‘heart’ or not. Why can you hear it? How many other places can you feel your heart and how can you feel it? The children explore their heartbeat and what it sounds like and where else in the body you can feel it. They can use a stethoscope and listen to their own heart and each-others. Ask the children whether they really do have more than one heart – they will probably know that the beat in their wrist and at their temples is their ‘pulse’, but what is a pulse? Ask them to find at least two pulses and ask what they are pushing against. Demonstrate a pulse with a piece of rubber tubing with a syringe, or turkey baster or even a balloon filled with water attached at the end. Squirt water gently down the tube. Then get a child to put their finger down on the tubing, but not all the way – what happens when you pump the water this time? You should be able to feel it move. When you push on a vein or artery, you squash it against bone and can feel the blood being pushed and pumped by the heart. Discuss what the heart is for and how you can feel your pulse.</p>		
<p>Session 3</p>	<p>To understand the need for a healthy balanced diet. To investigate some effects of exercise on the body. To take and record</p>	<p>Show a short video of a swimmer underwater – how long can they stay there? Do you think the swimmer has bigger lungs than most people? Put up a challenge on the board: As you exercise your breathing increases but your heart rate stays the same. Say this is what</p>		<p>I can explain simply why our heartbeat changes as we exercise. I can make careful measurements and observations. I can present my data in appropriate ways and explain</p>

	<p>measurements. To present data in appropriate ways. To use evidence to support or refute an assertion.</p>	<p>you believe and here are your results (have some fictitious results on the board that prove what you are saying). Do they agree with you? Explain that the children have to prove you wrong or right and be scientific as you want facts and figures and explanations of why. Discuss how the results could have been improved from your experiment – e.g. repeating them. Discuss why this would be a useful idea. How will you make sure that your results are reliable? Need to rest between the exercises and have more than one person doing it and take the results from each person. This is an increase in sample size. In groups come up with ways in which they can disprove your theory that your heart rate doesn't increase when you exercise. They need to carry out their activity and produce a table of results that can back up their ideas. Ask them to present their results and their explanation of why pulse and breathing rate increase. This could be as a news reporter, talking to an expert, or as a series of photographs and captions if they research as well. Discuss whether your ideas have changed and how their data has convinced you that you were wrong.</p>		<p>why. I can suggest whether evidence supports or contradicts an idea.</p>
<p>Session 4</p>	<p>To understand the need for a healthy balanced diet. To explain the effect of drugs on the body. To analyse data and suggest how it supports ideas about a healthy diet and lifestyle.</p>	<p>Collect a range of images or empty packs of simple foods and drugs, such as coffee, wine, cigarettes, sugar, chocolate, cough mixture, aspirin. Discuss which are drugs and which aren't. They are all drugs, but some are medicines too. Show the film 'Staying alive' http://sos.lgfl.org.uk/topic.html?y=6&t=2 pupil video and ask questions to stimulate discussion such as: Why do people who do more physical activity tend to need to eat</p>		<p>I can identify the components of a healthy and varied diet. I can describe how diet affects health. I can describe how ideas about a healthy diet and lifestyle have changed over time. I can recognise some harmful effects of drugs. I can use data to support explanations</p>

		<p>more? What kinds of food are good at supplying energy? How does our body respond to us doing physical activities? Why do athletes need to manage their diets carefully?</p> <p>Carry out the data activity to consider the numbers of smokers in UK (see page 31). Calculate the cost of smoking a packet of 20 cigarettes in a day. Then if you added drinking two pints of beer and a glass of wine every night, how much would it cost? What could you have bought with that money? In groups make a short advert to show the dangers of drugs and what to do if you are offered them. They will need some time to research a few drugs, e.g. cannabis, cocaine, cigarettes, alcohol, etc. Each group could look at a different drug. Encourage the children to think of just one or two ideas. Make the commercial no longer than 60 seconds long, with a slogan if they can.</p> <p>Discuss the requirements for a healthy life and how these affect the entire body. Children can look at the worksheets about life expectancy and discuss how it has changed over time, and why.</p>		
<p>Session 5</p>		<p>Show a range of foods and quickly ask if they would provide all the nutrients needed in a day? This recaps that they know what food groups they should be eating. Is it better to have them fresh or tinned or frozen or processed? Look at the ingredients and the now available symbols that tell you how much fat, number of calories, etc. there are in a food.</p> <p>Explain that scientists are continually finding out about what we need to eat. Many years ago in France, children from poorer families were dying much younger than those from wealthier families. Can you decide why this</p>		

		<p>is? What information would you need? Explain that wealthy families could afford bread and butter and milk, but poorer families only had potatoes and gravy from the little bit of meat they had. The potatoes did contain some vitamin C, just as the sailors needed, but the bread and butter didn't. What did the milk contain that the wealthy children did benefit from? (Calcium for teeth and bones.) What combination of foods would you suggest to ensure children had adequate vitamin C in their diets? What is vitamin C for? Research what vitamin C is for and what foods it is found in.</p> <p>Share the background to Orr's work on poor people and diets. Discuss the impact of smoking and drinking costs from the previous session and how this could make diets worse. Orr proved that children needed milk to drink. Use the worksheet to draw a graph about what Orr discovered about children needing milk. Answer the questions. Use the information gathered by Orr to produce evidence to write to the Prime Minister of the time, explaining why children should have milk. Include any other information you have gained about health and how your body works to back up your ideas.</p>		
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