Year 6 SCIENCE Topic 5: Fabulous Physics and Fitness Freaks (2 Weeks)		
Assessment Questions: *What are the main parts of the circulator system?* *How does the heart function?* *How can drugs affect our bodies?* *How does light travel?* *How do we see objects, that are not sources of light?* *Why do shadows occur?*		
Values: Truthfulness and Trust		
KNOW	DO	UNDERSTAND
Light **S: recognise that light appears to travel in straight lines** **S: use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye** **S: explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes** **S: use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them** ***Vocabulary:*** reflect, travels, beam, eyes, shadow, cast, opaque, transparent, translucent, sources. Children know that light travels in straight lines. To travel round corners or to change direction, it must be reflected. Children know which objects give out light or reflects light. Children can give examples of this. Children know that we see, because light travels from the object to the eye. Children know that shadows change throughout the day, depending on where the light source is. They know shadows occur because the light cannot go through an opaque object, so it has to go around. **Animals, including humans** **S: identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood** **S: recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function** **S: describe the ways in which nutrients and water are transported within animals, including humans**	**WS: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **WS: taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate** **WS: recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** Children will draw scientific diagrams of the eye. They will also draw scientific diagrams of how light travels. This will be labelled. Children will ask questions about how light can travel round a corner. They will then experiment with mirrors to see if they can get the light to travel. Children might decide where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets.	*PRIOR KNOWLEDGE: In Year 3, children explored the way that light behaves, including light sources, reflection and shadows. They have also named and classified opaque, translucent and transparent objects.* Children will build on this knowledge by including the eye and how light travels. Children will apply this to real life situations, such as cars (mirrors), cameras etc. *PRIOR KNOWLEDGE: Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system).* Children will be visited by the police, who will speak to them about drugs. This will link with PSHE and will prepare them for their move to secondary school

Vocabulary: circulatory system, heart, blood, blood vessels, diet, exercise, drugs, lifestyle, nutrients, transported, organs, lungs, ventricles, atriums, plasm, platelets, oxygen, carbon dioxide, red and white blood cells, pulse. Children know that the the circulatory system is a network consisting of blood, blood vessels, and the heart. This network supplies tissues in the body with oxygen and other nutrients, transports hormones, and removes unnecessary waste products. Children know that the human **heart** is an organ that pumps blood throughout the body via the circulatory system, supplying oxygen and nutrients to the tissues and removing carbon dioxide and other wastes. They learn that red blood cells carry oxygen, white blood cells fight infection, platelets help to prevent bleeding, and that plasma is the medium in which these components are suspended. Children describe the functions of red blood cells, white blood cells, platelets and plasma, and create a pie chart showing the percentage of each component by volume in a typical sample of blood. Children learn that excerise increases your pulse. Children know that drugs will have an effect on your heart and body.	Children will carry out an experiment looking at exercise and heart rate. They will ensure it is a fair test and they will be able to name the variables. Children will also create a pie chart showing the results from the class, they will also do one on the computer. Children will look at whether drugs effect your heart. They will gather evidence to support or refute their ideas.	