

Intermediate 1 Biology – Health & Technology – A Healthy Heart

i The heart and circulatory system.

- The heart as a muscle which pumps blood around the body.
- The three main blood vessels are arteries, veins and capillaries.
- Transport function.

ii Pulse rate as a health indicator.

- Pulse rate, its measurement and the normal range of values.
- Recovery time.
- Effect of exercise on pulse rate and recovery time.

iii The concept of blood pressure.

- Blood pressure, its measurement and average value.
- Blood pressure under different conditions and its significance for health.

iv Blood tests and cell counts.

- Detection of infection and other medical conditions to include anaemia, diabetes and leukaemia.
- Identification of blood groups.
- Measurement of alcohol or drug concentration in blood.

	Course	Int.1 Biology	Topic	A healthy heart	Lesson	1 – What does the heart do?
Present	Connect the Learning	<ul style="list-style-type: none"> In groups – produce a mindmap to show what they already know about the heart. <ul style="list-style-type: none"> Stimulus questions: <ul style="list-style-type: none"> Where is it? What does it do? How can we keep it healthy? How do we know it it's healthy? Encourage reference back to physiological measurements task. 				
	Discuss Learning Outcomes	<ul style="list-style-type: none"> Overall topic learning outcomes: <ul style="list-style-type: none"> What does the heart do? Pulse rate. Blood pressure. Blood tests. What does the heart do? <ul style="list-style-type: none"> How does the heart pump blood around the body? What are the three main blood vessels? 				
	Share New Information	<ul style="list-style-type: none"> Set the challenge that each pair needs to be able to draw a diagram showing how the heart pumps blood around the body through the three main blood vessels. Heart dissection showing chambers of the heart and direction of blood flow – particular emphasis on the heart as a muscle and the role of the three types of blood vessel. 				
Apply	Activity Search For Meaning	<ul style="list-style-type: none"> Pairs are given a piece of text which outlines the function of the heart and each of the three types of blood vessel. Students underline the relevant pieces of information which they will include in their diagram. 				
	Demonstrate New Understanding	<ul style="list-style-type: none"> Students work in pairs to produce drafts of their diagrams on whiteboards. Once checked against a resource or by the teacher, they each copy their diagram into their jotters. 				
Review	Review & Reflect	<ul style="list-style-type: none"> Answer the following questions: <ul style="list-style-type: none"> How does the heart pump blood around the body? What are the three main blood vessels? 				
	Evaluation	<ul style="list-style-type: none"> 				

	Course	Int.1 Biology	Topic	A healthy heart	Lesson	2 - Why does blood need to be transported around the body?
Present	Connect the Learning	<ul style="list-style-type: none"> Glow Science Heart Facts & Video http://bit.ly/hGg7Tb 				
	Discuss Learning Outcomes	<ul style="list-style-type: none"> Why does blood need to be transported around the body? 				
	Share New Information	<ul style="list-style-type: none"> Glow Science Video: Heart http://bit.ly/eziXpa 				
Apply	Activity Search For Meaning	<ul style="list-style-type: none"> Whole class discussion around the question: Why does blood need to be transported around the body? 				
	Demonstrate New Understanding	<ul style="list-style-type: none"> Student's write a story or a comic which shows what the blood transports around the body – complete for homework. 				
Review	Review & Reflect	<ul style="list-style-type: none"> Return to the mind maps from last lesson and add new learning. 				
	Evaluation	<ul style="list-style-type: none"> 				

	Course	Int.1 Biology	Topic	Healthy Heart	Lesson	3 – What does pulse rate tell us?
Present	Connect the Learning	<ul style="list-style-type: none"> Students measure their own, or their partner's, pulse rates. 				
	Discuss Learning Outcomes	<ul style="list-style-type: none"> What does pulse rate tell us? What is recovery time? What effect does exercise have on pulse rate and recovery time? 				
	Share New Information	<ul style="list-style-type: none"> Teacher exposition explaining the terms pulse rate and recovery time. 				
Apply	Activity Search For Meaning	<ul style="list-style-type: none"> What effect does exercise have on pulse rate and what is your recovery time? <ul style="list-style-type: none"> How could we investigate this? Pupils plan and carry out an investigation in pairs to answer this question. 				
	Demonstrate New Understanding	<ul style="list-style-type: none"> Answer textbook questions on page 22. 				
Review	Review & Reflect	<ul style="list-style-type: none"> Open question – what have you learnt today? → encourage recognition of investigative skills as well as KU. 				
	Evaluation	<ul style="list-style-type: none"> 				

		Course	Int.1 Biology	Topic	Healthy Heart	Lesson	4 – What is Blood Pressure?
Present	Connect the Learning	<ul style="list-style-type: none"> How can blood pressure be measured? 					
	Discuss Learning Outcomes	<ul style="list-style-type: none"> What is Blood Pressure? Why does Blood Pressure change? What is the significance of Blood Pressure for health? 					
	Share New Information	<ul style="list-style-type: none"> Video Clip - The Effects of Alcohol on Blood Vessels http://www.bbc.co.uk/learningzone/clips/the-effects-of-alcohol-on-blood-vessels/5368.html 					
Apply	Activity Search For Meaning	<ul style="list-style-type: none"> Produce a leaflet for a doctor's surgery explaining: <ul style="list-style-type: none"> What blood pressure is. How blood pressure can be measured. What 'normal' blood pressure is. The causes of high blood pressure. The possible effects of high blood pressure. The possible effects of low blood pressure. How moderate quantities of alcohol can help reduce blood pressure. 					
	Demonstrate New Understanding						
Review	Review & Reflect	<ul style="list-style-type: none"> Why did we learn that? 					
	Evaluation	<ul style="list-style-type: none"> 					

	Course	Int.1 Biology	Topic	Healthy Heart	Lesson	5 – Blood
Present	Connect the Learning	<ul style="list-style-type: none"> What's in your blood? 				
	Discuss Learning Outcomes	<ul style="list-style-type: none"> What's in your blood? What are blood groups? How can we detect blood diseases? How can we measure drugs in blood? 				
	Share New Information	<ul style="list-style-type: none"> Whole class discussion of blood components. Show Give Blood Adverts and Stock Levels – Discuss Blood Groups. 				
Apply	Activity Search For Meaning	<ul style="list-style-type: none"> Students Research Questions following from Stock Levels. 				
	Demonstrate New Understanding	<ul style="list-style-type: none"> Complete a table to show possible blood transfusions. 				
Review	Review & Reflect	<ul style="list-style-type: none"> Discuss learning outcomes. 				
	Evaluation	<ul style="list-style-type: none"> 				

		Course	Int.1 Biology	Topic	Healthy Heart	Lesson	6 – Blood Diseases & Drugs
Present	Connect the Learning	<ul style="list-style-type: none"> Using whiteboards – draw and label the three main components of blood. 					
	Discuss Learning Outcomes	<ul style="list-style-type: none"> How can we detect blood diseases? How can we measure drugs in blood? 					
	Share New Information	<ul style="list-style-type: none"> Students produce a mindmap to show how blood diseases can be detected: <ul style="list-style-type: none"> Infection Anaemia Diabetes Leukaemia Research blood alcohol content and driving – produce a poster, leaflet or video for a drink driving campaign which includes information on the legal limit for alcohol in the blood when driving and how this will be measured. 					
Apply	Activity Search For Meaning						
	Demonstrate New Understanding						
Review	Review & Reflect	<ul style="list-style-type: none"> Textbook questions on page 32. 					
	Evaluation	<ul style="list-style-type: none"> 					