Curriculum Links

Safety issues
Please refer to the risk assessments for all the practical activities. If visiting LifeLab please read and sign the teacher agreement prior to your visit. Potential sensitivity relating to students taking their own measurements. Potential sensitivity relating to the Meet the Scientist sessions, depending on the visiting scientists area of research, e.g. cancer

KS3 Science Programme of Study (DfE National Curriculum PoS)

Scientific attitudes

- pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility
- understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review
- evaluate risks

Experimental skills and investigations

- ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience
- select, plan and carry out the most appropriate types of scientific enquiries to test predictions, including identifying independent and control variables, where appropriate
- use appropriate techniques, apparatus and materials during fieldwork and laboratory work, paying attention to health and safety
- make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements

Analysis and evaluation

- apply mathematical concepts and calculate results
- present observations and data using appropriate methods, including tables and graphs

Measurement

- understand and use SI units
- use and derive simple equations and carry out appropriate calculations
- undertake basic data analysis including simple statistical techniques

KS4 GCSE Science Programme of Study (DfE National Curriculum PoS)

Development of Scientific thinking

- the ways in which scientific methods and theories develop over time
- using a variety of concepts and models to develop scientific explanations and understanding
- appreciating the power and limitations of science and considering ethical issues which may arise
- explaining every day and technological applications of science; evaluating associated personal, social, economic and environmental implications; and making decisions based on the evaluation of evidence and arguments
- evaluating risks both in practical science and the wider societal context, including perception of risk
- recognising the inportance of peer review of results and of communication of results to a range of audiences

Experimental skills and strategies

- carry out experiments appropriately, having due regard to the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations
- make and record observations and measurements using a range of apparatus and methods

Analysis and evaluation

- present observations and data using appropriate methods
- translating data from one form to another
- carry out and represent mathematical and statistical analysis
- interpret observations and other data, including identifying patterns and trends, make inferences and drawing conclusions
- being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error

Vocabulary, units, symbols and nomenclature

- developing their use of scientific vocabulary and nomenclature
- use SI units
- use prefixes and powers of ten for orders of magnitude (e.g. kilo, centi, milli, micro, nano)
- using an appropriate number of significant figures in calculations

Curriculum Links

KS3 Biology subject content (DfE National Curriculum PoS)	KS4 Biology subject content (DfE National Curriculum PoS)
Structure and function of living organisms; cells and organisation • cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope • the function of the cell membrane, cytoplasm and nucleus **Nutrition and digestion** • content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, dietary fibre and water, and why each is needed • the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases **Gas exchange systems** • the structure and function of the gas exchange system in humans, including adaptation to function • the mechanism of breathing to move air in and out of the lungs, including simple measurements of lung volume • the impact of exercise, asthma and smoking on the human gas exchange system **Genetics and evolution; inheritance, chromosomes, DNA and genes** • heredity as the process by which genetic information is transmitted from one generation to the next • a simple model of chromosomes, genes and DNA in heredity	**Cell Biology** • cells as the basic structural unit of all organisms; adaptations of cells related to their functions; the main sub-cellular structures of eukaryotic and prokaryotic cells **Transport systems** the relationship between the structure and functions of the human circulatory system **Health, disease and the development of medicines** • the relationship between health and disease • non-communicable diseases • the impact of lifestyle on the incidence of non-communicable diseases **Evolution, inheritance and variation** • the genome as the entire genetic material of an organism • how the genome, and it's interaction with the environment, influence the development of the phenotype of an organism • most phenotypic features being the result of multiple, rather than single, genes • the uses of modern biotechnology including gene technology; some of the practical and ethical considerations of modern biotechnology

KS4 GCSE Food preparation and nutrition (DfE National Curriculum PoS)
Nutrition • major diet-related health risks including obesity, cardiovascular, bone health, dental health, iron deficiency anaemia, diabetes

KS3 Physical Education (DfE National Curriculum PoS)	KS4 Physical Education (DfE National Curriculum PoS)
• they should develop the confidence and interest to get involved in exercise, sports and activities out of school and in later life, and understand and apply the long term health benefits of physical activity	• they should get involved in a range of activities that develops personal fitness and promotes an active, healthy lifestyle

Curriculum Links

PSHE
(DfE National curriculum PoS)

Mental wellbeing

- that mental wellbeing is a normal part of daily life, in the same way as physical health
- that there is a normal range of emotions (e.g. happiness, sadness, anger, fear, surprise, nervousness) and scale of emotions that all humans experience in relation to different experiences and situations
- simple self-care techniques, including the importance of rest, time spent with friends and family and the benefits of hobbies and interests
- where and how to seek support (including recognising the triggers for seeking support), including whom in school they should speak to if they are worried about their own or someones else's mental wellbeing or ability to control their emotions (including issues arising online)
- it is common for people to experience mental ill-health. For many people who do, the problems can be resolved if the right support is made available, especially if accessed early enough
- that happiness is linked to being connected to others
- the benefits and importance of physical exercise, time outdoors, community participation and voluntary and service-based activities on mental wellbeing and happiness

Physical health and fitness

- the characteristics and mental and physical benefits of an active lifestyle
- the risks associated with an inactive lifestyle (including obesity)
- the positive associations between physical activity and promotion of mental wellbeing, including as an approach to combat stress
- the characteristics and evidence of what constitutes a healthy lifestyle, maintaining a healthy weight, including the links between an inactive lifestyle and ill-health, including cancer and cardio-vascular ill-health

Healthy eating

- the characteristics of a poor diet and risks associated with unhealthy eating (including, for example, obesity and tooth decay) and other behaviours (e.g. the impact of alcohol on diet or health)

Health and prevention

- the importance of sufficient good quality sleep for good health and how a lack of sleep can affect weight, mood and ability to learn

Basic first aid

- life-saving skills, including how to administer CPR

Behaviour Change Theory links

BCT 1.1 Goal setting (behaviour)
BCT 1.3 Goal setting (outcome)
BCT 1.4 Action planning
BCT 1.8 Behavioural contract
BCT 1.9 Commitment
BCT 2.3 Self-monitoring of behaviour
BCT 2.6 Biofeedback
BCT 5.1 Information about health consequences
BCT 5.2 Salience of consequences
BCT 6.1 Demonstration of the behaviour
BCT 6.2 Social comparison
BCT 8.1 Behavioural practice/rehearsal

TEACHER INFORMATION

Thank you for booking a LifeLab Day, we look forward to welcoming you and your students soon. Please read the following information before you attend, and sign the agreement overleaf.

- Students must wear school uniform
- All students will need to bring a packed lunch
- Your coach driver will be given details of the hospital drop off point and a member of LifeLab staff will meet you there. Students will need to move through the hospital in groups of no more than 15. We do have to walk through clinical areas so would appreciate it if you could ensure that students know that noise should be kept to a minimum.
- If you are the last class from your school visiting LifeLab, please return all appropriate resources to us during your visit

TEACHER AGREEMENT

For completion by teacher attending LifeLab Day

Please initial the box

I have read and agree with the following statements:

- I will ensure that, to the best of my knowledge, no students are unwell on the day of the visit (students who have been suffering with vomiting or diarrhoea must be clear of symptoms for 48 hours before they visit the hospital) ☐
- I will inform LifeLab staff of any health problems or other relevant issues relating to specific pupils on arrival ☐
- I will ensure that all students remain on the LifeLab premises at all times (Students are not permitted to leave LifeLab to buy food or use the shops etc.) ☐
- Two members of staff will be present during the visit ☐
- I will take responsibility for student behaviour and discipline ☐
- I will ensure that all students have parental consent to attend the LifeLab Day and participate in activities, and will return all consent forms to LifeLab staff on the day of the visit or before. ☐

Name of School……

Name of Teacher……

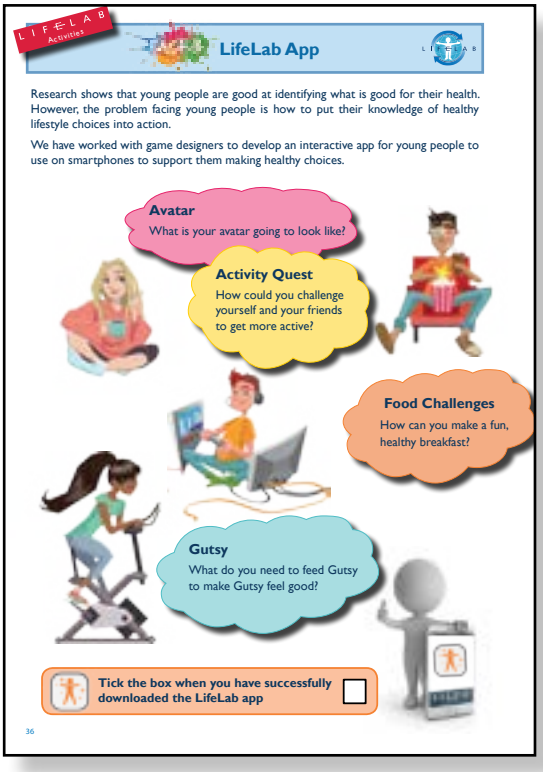
Signature: ……. Date: ……

LifeLab Activities

Objectives

At the end of the LifeLab activities students should be able to:

- Describe how scientists measure health
- Use scientific equipment safely to collect health measurments
- Explain how genes could affect your health
- Describe some of the research being carried out at the University and the Hospital
- Design a health pledge to improve their own long-term health



LifeLab Flight Case

To enable schools to access the LifeLab day activities in school during COVID-19 restrictions, we have packaged up the activities into a flight case to send them out to your school! There will be a detailed teachers' guide accompanying the flight case to support the delivery of the activities, along with student information sheets and PowerPoints for all the activities.

Downloading the LifeLab app

Students will be given instructions on how to download the LifeLab app. Please remind your students about using the app in the post LifeLab Activity lessons.
The app is designed to support students in making healthy behaviour changes through eating well and being more physically active.
Parents will also have access to a parent app with information and help on how they can support their child at home.

Health Pledge

Please find a copy of the A3 student health pledge over the page, an electronic copy is stored on the teachers' memory stick.
To support students with their health pledge, practise engaging with them in Healthy Conversation Skills using ***"What?"*** and ***"How?"*** questions.
Please find Healthy Conversation Skills training and support for teachers online at: www.southampton.ac.uk/lifelab/professional-development.page (password: LifeLab01)

Meet the Scientist Interviews

We have recorded several interviews with scientists and researchers who work at Southampton University and University Hospital Southampton. These interviews are availble to view via the link: www.efolio.soton.ac.uk/blog/lifelab/meet-the-scientist/

Level Up Your Life

Discuss with a partner the following questions.....

1. What area of your lifestyle could you change to impove your health?

2. How important is this for you?

3. What are the possible changes you could make to improve this area of your life?

4. What would be the best change to fit in with your lifestyle?

5. What difference will this change make to your life?

6. How confident are you that you can do this on a scale of 1-5 ?

After your discussion fill in the boxes below:

1. **My health pledge** is to.....

2. What is the first step you will **take** to start this pledge?

3. How will you make it **measurable?**
e.g. When will you start? How often? Which days?
How many? How long?

4. What might make it **difficult** for you to achieve your pledge?

5. How could you get over these difficulties?
Who might **support** you with this pledge?

6. How **long** will it take you to achieve this pledge?
What will be the **positive impact** on your health?

Back at school - 7. How **successful** was your pledge?

1 2 3 4 5
Not very successful — Very successful

What will be you next steps?

Chris's Measurements Summary

You will need to use data on Chris's health data to complete the 'How are You' Quiz for him. Most of this will have been collected during the LifeLab day but any information you need for the quiz can be found below.

Measurement	Value
Blood pressure	110 systolic, 70 diastolic
Grip strength	25.9 kg
Flexibility	9 cm
Jump height	44 cm
Blood glucose	Normal
Height	158 cm
Mass	45 kg
BMI	18
Waist circumference	80 cm
Percentage body fat	21%
Peak flow	390 l/min
FVC	2.8 l

'How are You' Quiz Questions and Answers:
How are you feeling right now?
Mostly full of beans
Can run a little way
Feel fairly calm
Sleep fairly well
Feel quite lean
Feel fairly happy
What stops you taking care of yourself?
I don't know what to do
Who depends on you being healthy?
None of these
Apart from not getting ill, what are your top 3 health priorities?
Having more energy, feeling young, having a more active social life
Eating choices:
A - sugary drinks, A - chips, C - plain cereal, A- hard cheese, A - burger
How many servings of fruit and vegetables do you eat a day?
1-2
What snacks do you eat in a normal day?
Crisps and cakes
Drinking:
Never

Chris's Measurements Summary

'How are You' Quiz Questions and Answers:
How much exercise do you get every day?
Monday - 20 minutes
Tuesday - 1 hour
Wednesday - 30 minutes
Thursday - 30 minutes
Friday - 1 hour
Saturday - 1 hour
Sunday - none
How much strengthening activity do you do?
Monday - none
Tuesday - 30 minutes
Wednesday - none
Thursday - none
Friday - none
Saturday - none
Sunday - none
Do you smoke?
No