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Class:

LifeLab: Me, My Health and My Children's Health

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EACH-B

University of Southampton

University Hospital Southampton NHS
NHS Foundation Trust

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LifeLab: Me, My Health and My Children's Health

This innovative education programme was established through collaboration between the University of Southampton's Education School, Faculty of Medicine, the National Institute for Health Research (NIHR) Southampton Biomedical Research Centre, the Mathematics and Science Learning Centre (MSLC), the Medical Research Council Lifecourse Epidemiology Unit (MRC LEU) and Southampton schools and local government

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The LifeLab teaching module and materials have been endorsed by the Royal College of Paediatrics and Child Health (RCPCH)

Introduction

What is LifeLab?

LifeLab is a joint project run by University of Southampton and University Hospital Southampton NHS Foundation Trust, located in a purpose built facility at Southampton General Hospital.

LifeLab focuses on educating young people about health risks. Our aim is to help you understand how you can reduce your own health risks as you get older and how you can reduce risks for any children you may decide to have in the future.

The module includes lessons in which you will look at how scientists carry out investigations to study health. As part of the module, you will have the opportunity to take part in the LifeLab activities, where you will have the chance to carry out activities using state-of-the-art equipment and technology, finding out about your own health and talking to working scientists.

See what LifeLab is like here: http://bit.ly/LifeLabSchoolsIntroduction

What benefits will I get from completing the LifeLab Module?

As part of the LifeLab module you will carry out a health-related science investigation. The work for this can be credited towards a Bronze Crest Award. These awards are given out by the British Science Association and can also count towards the Duke of Edinburgh Bronze Award.

COVID-19 Young Health Champions Qualification

This is a Level 2 Certificate, awarded by the Royal Society of Public Health (RSPH). It will enable you to develop knowledge and confidence to take on the role of a COVID-19 Young Health Champion among your peers. In this role you will gain an understanding of the measures in place to prevent the spread of COVID-19, and deliver a campaign to raise the awarness of the important role young people can play in following these measures.

Engaging Adolescents in Changing Behaviour (EACH-B)

This is a project building on LifeLab's current research. We are working with game designers from Glasgow Caledonian University and researchers to develop an intervention to motivate and support teens to eat better and be more active using a specially designed app for your smartphones.

Contents

Key:


Discuss


Write


Draw


I.T


Measure


Calculate


Sort


Action


EACH-B App


COVID-19 YHC

Learning Objectives

At the end of this unit of work, I will be able to:	
Lesson 1 How Scientists Work	• Recognise the role scientists played in the COVID-19 pandemic • Describe how scientists conduct trials to develop new treatments • Identify the advantages of taking part in scientific research
Lesson 2 Health and Scientific Data	• Compare methods scientists use to study health in our communities • Describe the types of evidence different data sources can give us • Evaluate my own diet
Lesson 3 What are Health Risks?	• Determine possible risks to our health • Suggest how different factors might influence an individual's health • Work collaboratively to carry out research on a non-communicable disease
Lesson 4 Assessing Health	• Identify risk factors that can affect our health • Analyse evidence from different sources • Draw conclusions from the evidence
LifeLab Activities	• Describe how scientists measure health • Use scientific equipment safely to collect my health measurements • Explain how my genes could affect my health • Describe some of the research being carried out at the University and Hospital • Design a health pledge to improve my own long term health
Lesson 5 Making Choices	• Analyse health data and health risks • Review progress made with my health pledge • Evaluate the marketing strategies used in selling food
Lesson 6 Identifying Misinformation	• Identify fake news and its purpose • Describe how misinformation impacts on individuals and society • Explain why it is important to check how good, relevant and sufficient evidence is • Suggest ways we can identify misinformation
Your Scientific Health Investigation	• Formulate my own question to investigate health • Design and construct a plan for my own scientific health investigation • Safely carry out my scientific health investigation • Record reliable, precise and accurate data • Make a conclusion based on the evidence collected in my investigation • Present my results as a scientific health investigation poster • Evaluate your scientific health investigation posters
Delivering a COVID-19 Health Message	• Understand why peer advice is important for the delivery of health messages • Carry out preparations for delivering a message around COVID-19 • Deliver a message around COVID-19 • Evaluate the delivery of my COVID-19 message

Objectives

At the end of this lesson I should be able to:

- Recognise the role scientists played in the COVID-19 pandemic
- Descibe how scientists conduct trials to develop new treatments
- Identify the advantages of taking part in scientific research

Start of lesson			End of lesson		
Confident	OK	Not so sure	Confident	OK	Not so sure
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○	○	○	○	○	○
○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

How well did you understand today's material?

What skills have you used today?

What will you make sure you remember from today?

Current Health issues

Activity 1: Where do you stand on current health issues?

Read the following statements and decide how much you agree or disagree with each. Position yourself on the class line and fill in the scales below.

1. **All unhealthy food outlets should be banned within one mile of schools.**

Agree — Disagree

2. **It is suggested the production of meat is causing more greenhouse gases which harm the planet. Meat eating is killing our planet.**

Agree — Disagree

3. **The COVID-19 vaccine should be made compulsory for everyone**

Agree — Disagree

Activity 2: How would you define health?

What is the World Health Organisation (WHO) definition of health?

What is significant about this definition?

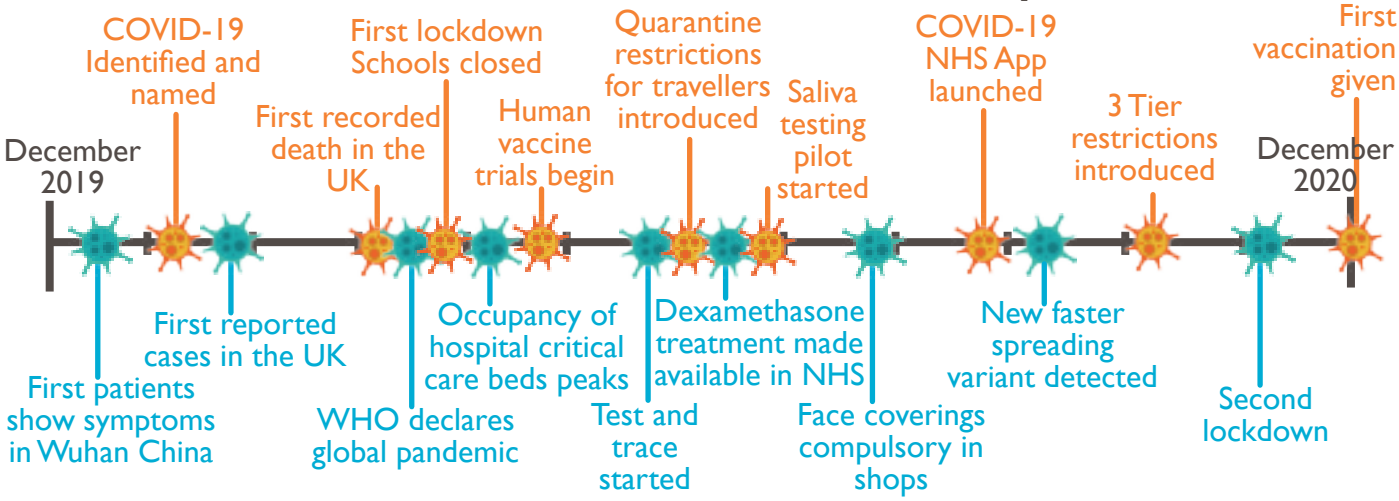
Lesson 1

What is COVID-19?

Science has played an important role during the pandemic in finding the answers to many of these questions, coming up with solutions to the problems, and in developing new equipment, tests, treatments and medicines.

Coronaviruses are a group of viruses that cause illnesses ranging from the common cold to more severe respiratory diseases. COVID-19 is the illness caused by one particular coronavirus called SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), but to reduce communication errors, the WHO calls it "the virus responsible for COVID-19".

Timeline for the first 12 months of the COVID-19 pandemic:



Activity 3: What role did science and research play in the COVID-19 pandemic?

Discuss as many examples of the ways you can think of that the scientists were involved.

How can we take part in Scientific Research?

Activity 4: Vaccines and trials

All new tratments' have to be tested in clinical trials.

Meet Dr Alasdair Munro who is working on a new COVID-19 vaccine and Ruth who volunteered to take part in the trial.

There are strict criteria for people who want to volunteer to take part in clinical trials. Look at the case studies from people applying to take part in a trial to test for a new vaccine, who would you choose to take part and why?

Candidate	rejected or accepted	Reasons why

Activity 5: Could you participate in scientific research?

Most people engage with scientific research through news headlines, social media and some as patients through clinical trials.

This is called PPI (Patient and Public Involvement)

How do you think the views of young people can help the research being carried out?

How could young people benefit from taking part?

What might put young people off taking part?

Find out more about clinical trials and research in Southampton at:
www.uhs.nhs.uk/Research/Research.aspx

Homework task: Ready for the next lesson, photograph or write down everything you eat in one day and take a photo showing the inside of your fridge.

Lesson 2

Health and Scientific Data

Objectives

At the end of this lesson I should be able to:

- Compare methods scientists use to study health in our communities
- Describe the types of evidence different data sources can give us
- Evaluate my own diet

Start of lesson			End of lesson		
Confident	OK	Not so sure	Confident	OK	Not so sure
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○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

What skills have you used today?

What skills did you find difficult today?

What will you make sure you remember from today?

Looking at Scientific Research Studies

The TeC-19 study carried out research into understanding the experiences of and the impact the COVID-19 restrictions had on teenagers and how they could be better supported during the pandemic.

UKTeC-19
TEENS AND COVID-19
in the United Kingdom

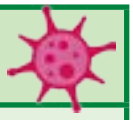
The Southampton Women's Survey is a study learning about how diet and lifestyle factors influence the health and wellbeing of women and their children.

Activity 1: Comparing scientific research studies

Working in small groups, use the sources of information to answer the questions in the table opposite for your case study, either the Southampton Women's Survey or TeC-19. Share your information within your group so you can complete the questions for both studies.

Lesson 2

Comparing Studies

Questions	Southampton Women's Survey	TeC-19 Study 
What was the aim of the study?		
Who is taking part in the study?		
How was the data collected?		
What data did they collect? Give some examples		

What types of information do the different sources give us?

Research scientists use different methods to collect data from different sources.
What is the difference between information collected in numbers and the information collected in words?

	words or text	numbers
Describe what type of information these sources give us?		
Give some examples		

How can we eat well to support our health and immune system?

Activity 2: "My Eatwell Guide"

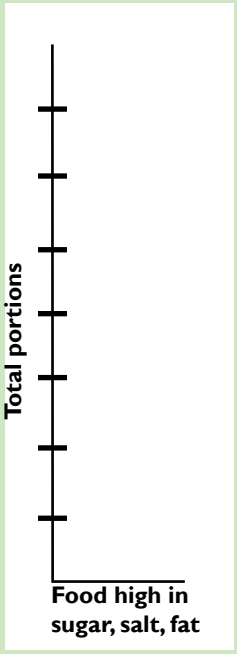
As part of both studies the scientists asked participants to keep food diaries. Using your food diary or meal photos, input your data into the Excel spreadsheet.

A. Fill in the Excel spread sheet

- Open the spreadsheet called "My Eatwell Guide" and save it under your name
- Open the spreadsheet tab at the bottom of the page "What's in my diet". Use your food diary to enter the information into the green boxes
- Count each time you have written an item of food as '1' portion, except for milk where 1 portion = a glass of milk or 1 serving of a bowl of cereal
- As you enter your information, the spreadsheet will calculate how many portions of each food group you have eaten
- Once you have entered all the information, click on the spreadsheet tab "My Eatwell Guide"
- This pie-chart will show you how similar your Eatwell Guide is to the official Eatwell Guide

B. What does your Eatwell Guide look like?

Make a copy of your Eatwell Guide in the space below. Add up the total portions from the 'foods high in sugar, salt and fat' graph and fill in the box on the right, using your own scale.



Activity 3: How Healthy is my Diet?

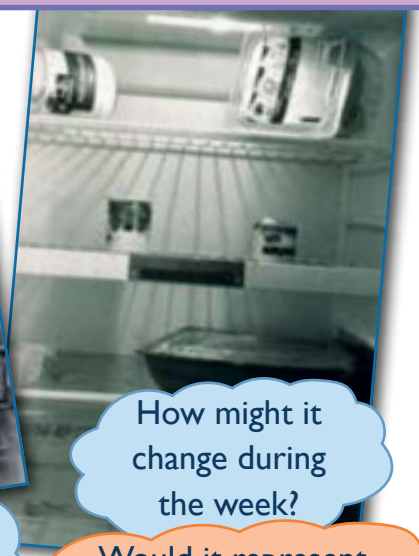
Compare your Eatwell Guide to the official Eatwell Guide below.

- What are the **similarities**?
- What are the **differences**?
- What surprised you about your Eatwell Guide?
- How did the pandemic affected your diet?
- How do you think you could **improve** your diet?

Research is also about helping people change. People can find this very difficult but the EACH-B app will help and show YOU how easy it can be to build small changes into your life.

Lesson 2

What's in Your Fridge?



These fridge photos are from some of the women who took part in the Southampton Women's Survey.

The photos provide a snapshot for the scientists collecting information on what the women ate.

How might it change during the week?

What would a photo of your fridge reveal about your family's eating habits?

Would it represent **all** the different foods that you eat? If not, why not?

Activity 4: How can we collect health data?

Discuss with your partner or group and list as many new different methods you can now think of that could be used to collect data about a person's health.

Homework task: Questions you could discuss at home with your family.

- How healthy do you think your family diet is across a few days or a week?
- How did the pandemic affect your family's diet?
- How well does it compare to the Goverment's recommended Eatwell Guide?
- How do you and your family aim to eat your 5-a-day fruit and vegetables?
- What changes could you suggest to improve your family's overall diet?

Lesson 3

What are Health Risks?

Objectives

At the end of this lesson I should be able to:

- Determine possible risks to our health
- Suggest how different factors might influence an individual's health
- Work collaboratively to carry out research on a non-communicable disease

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What new things have you learnt today?

How well did you understand today's material?

What skills have you used today?

What skills did you find difficult today?

What will you make sure you remember from today?

Lesson 3

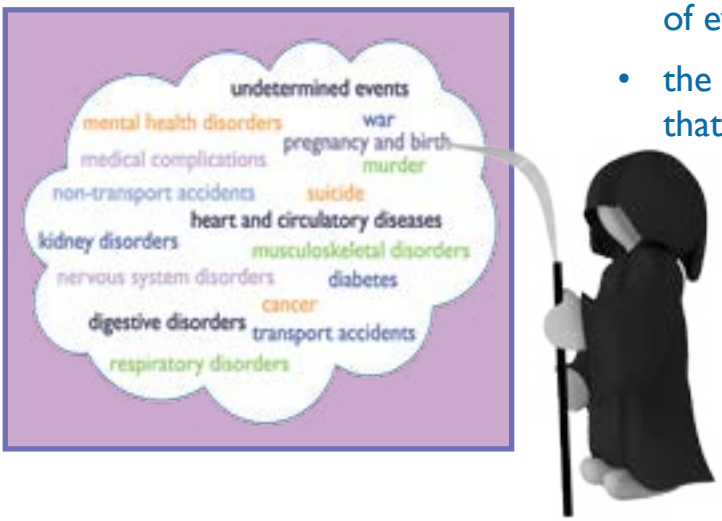
Causes of Death

When someone dies, a doctor or a coroner will decide the cause of death and record it on the person's death certificate.

The cause of death is based on rules set out by the International Classification of Diseases (ICD) and is obtained from the conditions reported by the doctor or coroner.

The cause is based on the **World Health Organisation** (WHO) definition as:

- the disease or injury that initiated the train of events directly leading to death, or
- the circumstances of the accident or violence that precedes the fatal injury.



The Department of Health has a list of hundreds of conditions which can be recorded on the death certificate as a cause of death.

Activity 1: Can you rank the causes of death?

Identify the **top 3 most** common and the **least** common in the UK

	most common	2nd most common	3rd most common	Least common
My suggestion				
Actual order				

Discuss what impact has COVID-19 had on the causes of death?

Activity 2: Can you sort the cards into three groups?

1. Identify group A and B and write your own classification for group C in the boxes below:

A.

_____ Diseases are diseases which are unable to be passed from one person to another, so you can't contract them from somebody.

List 3 that are linked to lifestyle behaviours:

-
-
-

B.

_____ Diseases are diseases which can be passed from one person to another, so you can contract them from somebody.

C. Other

2. How do non-communicable diseases affect the risk for COVID-19 patients?

3. Which category do each of the top 3 most common causes of death fit into?

Activity 3: How has this changed over time?

How do you think the main causes of death have changed over time?

What do you think has led to these changes?

Identify 3 advances that have improved public health over time.

Public health advance	How has it affected public health?

Non-Communicable Diseases (NCDs)

Type 2 Diabetes

There are 4.2 million people diagnosed with diabetes in the UK, but a further 1 million people are believed to have the condition but have not been diagnosed.

Heart disease

Coronary heart disease is the UK's biggest killer, causing 73,000 deaths each year, an average of 190 people each day, or one every seven minutes.

Mental Health and Wellbeing

1 in 10 young people will experience a mental health problem. The number of young people attending A&E with a recorded mental condition has almost tripled since 2010.

Chronic Obstructive Pulmonary Disease (COPD)

The total annual cost to the NHS is estimated to be over £800 million for direct health care costs and 24 million working days per year are lost due to COPD.

Cancer

4 in10 cancers could be prevented. Overweight and obesity is the second biggest preventable cause of cancer after smoking.

Stroke

Every year it is estimated that more than 152,000 people in the UK have a stroke. That's one person every three and a half minutes.

Researching Non-Communicable Diseases

Activity 4: My group's NCD is:

What is it? *Explain what area of the body is involved, and what is happening to that area.*	**Who gets it?** *Who is at more risk and why ? e.g. Males/Females, Age?* *Should people affected take extra precautions to shield from COVID-19?*
What are the symptoms? *What do people affected suffer from?*	**What are the risk factors?** *For example: Is the condition more likely if you smoke, or are overweight?* *How would COVID-19 affect this condition?*
What is the treatment? *Medicines, operations or lifestyle changes.*	**What can we all do to reduce our risk?** **What lifestyle choices might you want to make?**

Useful website links can be found at the back of this booklet.

Assessing Health

Objectives

At the end of this lesson I should be able to:

- Identify risk factors that can affect our health
- Analyse evidence from different sources
- Draw conclusions from the evidence

Start of lesson			End of lesson		
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○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

How well did you understand today's material?

What skills did you use today?

What skills did you find difficult?

What will you make sure you remember from today?

Physical Inactivity

A lack of exercise causes:

Heart attack

Stroke

Bowel cancer

Breast cancer

Diabetes

High Cholesterol

High cholesterol causes:

Heart attack

Stroke

Obesity

Obesity causes:

Heart attack

Stroke

Complications due to Type 2 diabetes

High blood pressure

Some cancers

Alcohol

Drinking too much alcohol causes:

Stomach cancer

Oesophageal cancer

Liver disease

Stroke

Liver cancer

Breast cancer

Low Fruit and Vegetables

A diet low in fruit and vegetables causes:

Heart attack

Stroke

Some cancers

Non-Transport Accidents

For example:

Falls

Accidental drug overdose (e.g. heroin)

Choking and suffocation

Fire

Drowning

Smoking

Smoking causes:

Lung cancer

COPD (obstructed airways)

Heart attack

Pneumonia

Stroke

Other types of cancer

Infections

For example:

Diarrhoea and vomiting

Bacterial diseases

HIV

Tuberculosis

Influenza/Flu

COVID-19

High Blood Pressure

High blood pressure causes:

Heart attack

Stroke

Heart failure

Activity 1: Play the Tower of Risk

Tower of Risk instructions

Take it in turns to remove a block and after each turn **discuss** the following points in your group:

- Identify your risk
- How high/big is your risk compared to others?
- What could it lead to?
- How could you reduce this risk?
- What would be the risk for someone with COVID-19?

Tower of RISK

Lesson 4

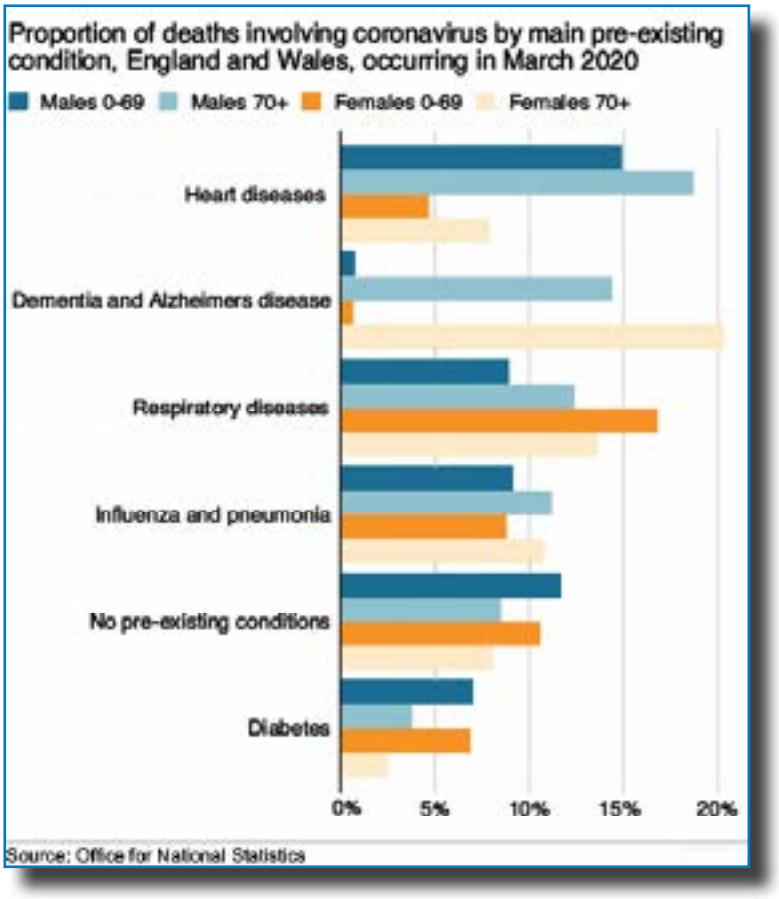
How can health data help individuals?

This bar chart shows some of the data collected during the COVID-19 pandemic

What does the data tell us?

How could you use this data?

Who might this data be useful to?



Activity 2: What health conditions increase the risk for people suffering with COVID-19?

Identify three groups of people who are at increased risk:

-
-
-

Discuss what extra precautions may these people need to consider taking to reduce their risk?

Chris's Grandad's Death Certificate, Fred Curtain

BIRTHS AND DEATHS REGISTRATION ACT 1953
(Form prescribed by Registration of Births and Deaths Regulations 1987)

Registrar to enter No. of Death Entry .....

MEDICAL CERTIFICATE OF CAUSE OF DEATH

For use only by a Registered Medical Practitioner WHO HAS BEEN IN ATTENDANCE during the deceased's last illness, and to be delivered by him forthwith to the Registrar of Births and Deaths.

Name of deceased ..... Fred Curtain .....

Date of death as stated to me ..... 23rd ..... day of ..... October .... 1983 ..... Age as stated to me ..... 50 .....

Place of death ..... Southampton General Hospital .....

Last seen alive by me ..... 19th ..... day of ..... October .... 1983 .....

1 The certified cause of death takes account of information obtained from post-mortem.
2 Information from post-mortem may be available later
3 Post mortem not being held.
4 I have reported this death to the Coroner for further action.
(See overleaf)

Please ring appropriate digit(s) and letter

a Seen after death by me.
b Seen after death by another medical practitioner but not by me
c Not seen after death by a medical practitioner.

CAUSE OF DEATH

The condition thought to be the 'Underlying Cause of Death' should appear in the lowest completed line of Part I.

These particulars not to be entered in death register

Approximate interval between onset and death

I (a) Disease or condition directly leading to death† ..... Myocardial Infarction (Heart attack) ..... 1 hour

(b) Other disease or condition, if any, leading to: **I(a)** ..... High blood pressure ..... 5 years

(c) Other disease or condition, if any, leading to: **I(b)** ..... High cholesterol ..... 7 years

II Other significant conditions **CONTRIBUTING TO THE DEATH** but not related to the disease or condition causing it ... Obesity .....

The death might have been due to or contributed to by the employment followed at some time by the deceased ☐ Please tick where applicable

This does not mean the mode of dying, such as heart failure, asphyxia, asthenia, etc: it means the disease, injury, or complication which caused death.

I hereby certify that I was in medical attendance during the above named deceased's last illness, and that the particulars and cause of death above written are true to the best of my knowledge and belief.

Signature ..... MR Davey ..... Qualifications as registered by General Medical Council ..... BM GP MRCP .....

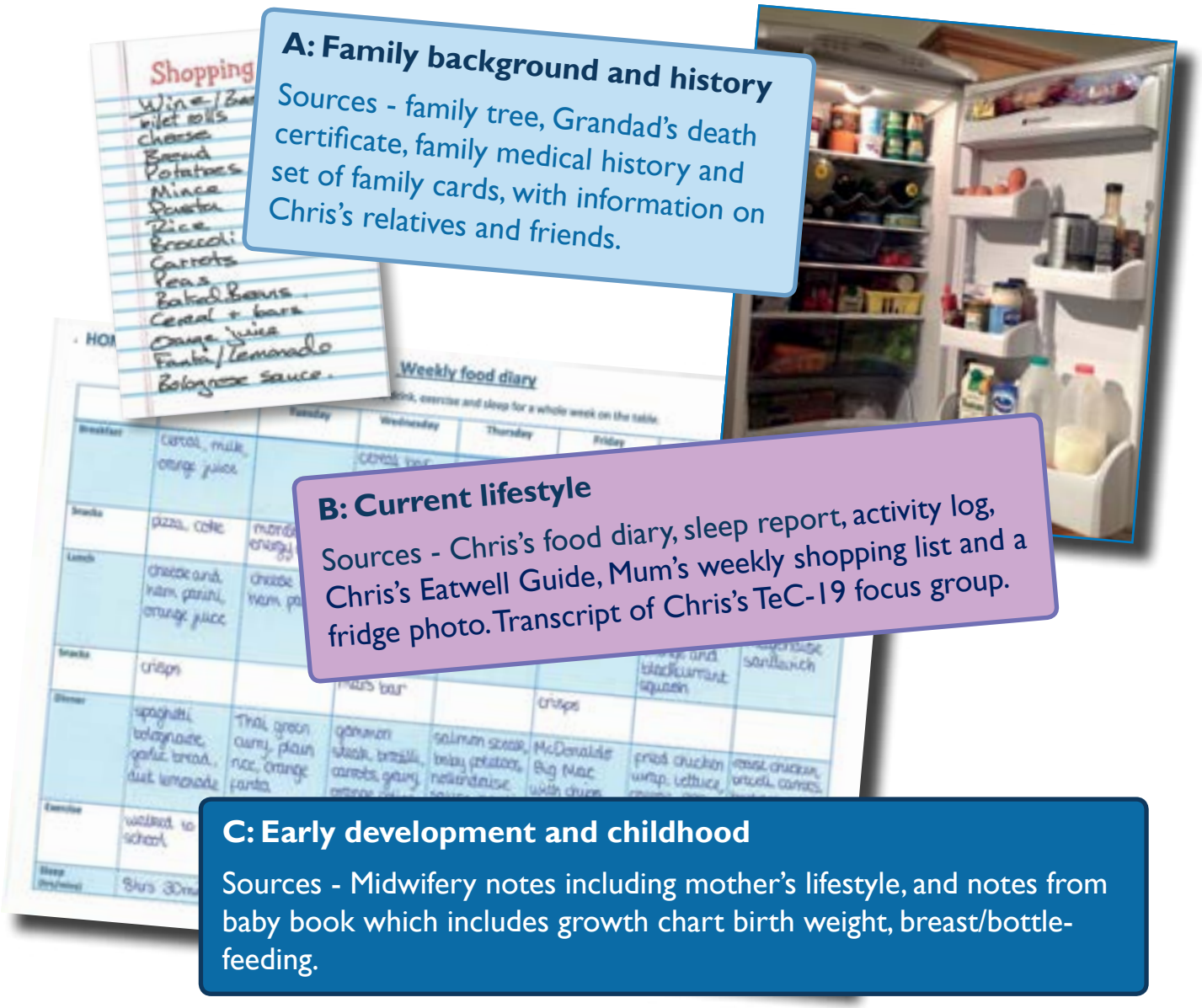
Residence ..... Sunnyfields GP Surgery ..... Date ..... 25.10.1983 .....

For deaths in hospital: Please give the name of the consultant responsible for the above- named as a patient ..... Dr Robert Grace .....

Death Certificate Template adapted from NHS Choices website - Atlas of Risk

Lesson 4

Assessing Chris's Health



A: Family background and history

Sources - family tree, Grandad's death certificate, family medical history and set of family cards, with information on Chris's relatives and friends.

B: Current lifestyle

Sources - Chris's food diary, sleep report, activity log, Chris's Eatwell Guide, Mum's weekly shopping list and a fridge photo. Transcript of Chris's TeC-19 focus group.

C: Early development and childhood

Sources - Midwifery notes including mother's lifestyle, and notes from baby book which includes growth chart birth weight, breast/bottle-feeding.

Activity 3: Researching Chris's health

- Which pieces of evidence are most helpful?
- Why are they helpful, what does the evidence tell you?
- What are the health risks Chris may face in the future?
- Who in Chris's family is most at risk from COVID-19 based on their health data?

Use the table on the **following page** to summarise your findings.

Activity 4: Sharing findings

Share your findings with the other groups, and record their findings

Summary Table **(Activity 3 and 4)**	Group A: Family Background	Group B: Current Lifestyle	Group C: Early Development and Childhood
Which pieces of evidence are most helpful? Why?			
How do you know they are trustworthy or unbiased?			
What does the evidence tell you?			
What are the health risks Chris may face in the future?			

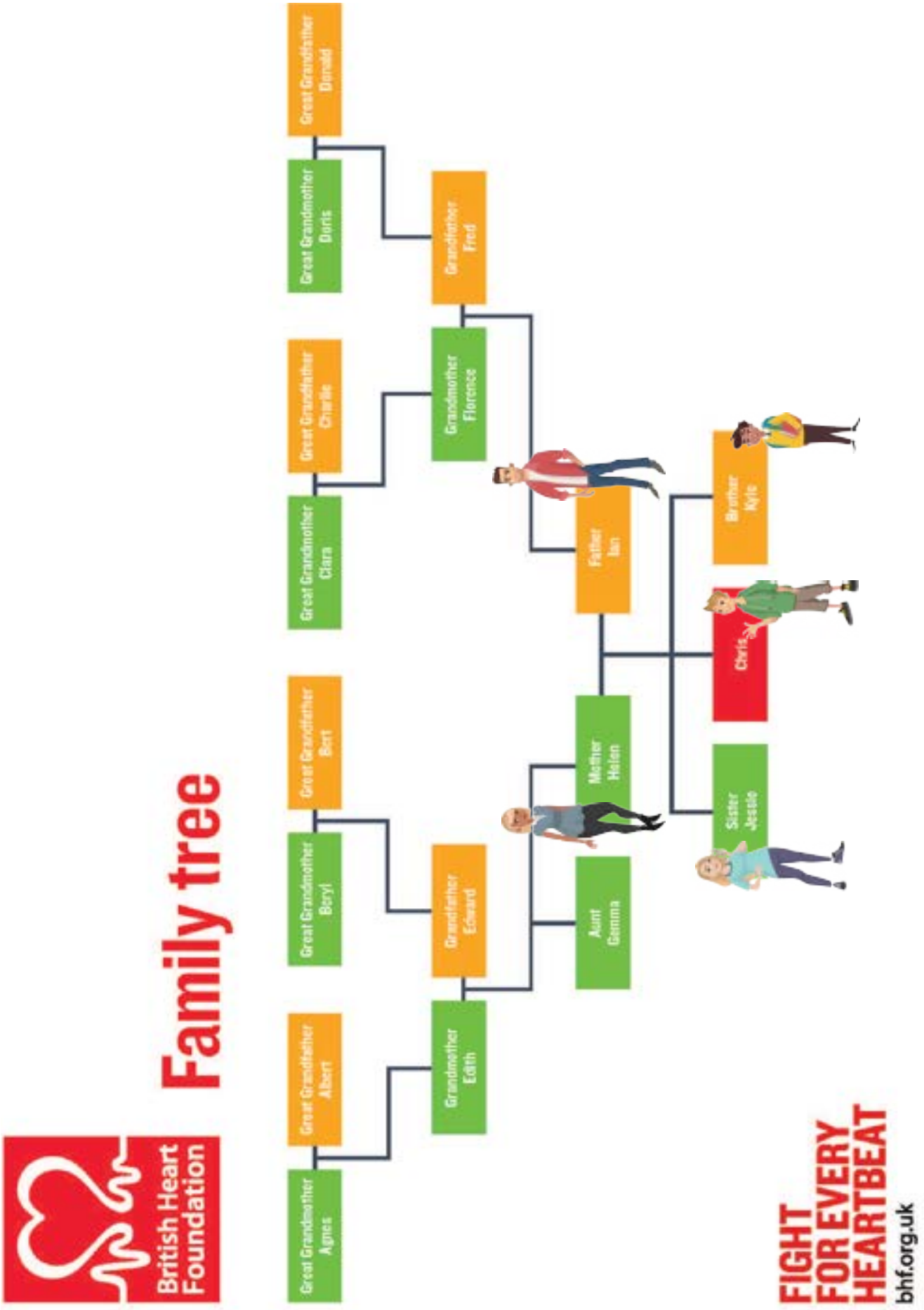
How worried should Chris be?

Not at all worried — Very worried

1 2 3 4 5

Who in Chris's family is most at risk from COVID-19 based on their health data?

Introducing Chris and his Family



LifeLab Activities

Objectives

At the end of this lesson I should be able to:

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

Start of lesson			End of lesson		
Confident	OK	Not so sure	Confident	OK	Not so sure
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

What skills have you used today?

What skills did you find difficult today?

How have you decided to 'Level Up Your Life'? What health pledge did you make?

How confident are you that you can achieve it, on a scale of 1-5?

LIFELAB Activities

Measuring Health

Blood pressure tells us how hard the heart is having to work to pump blood round the body, and how much resistance the blood vessels have to the blood pumping.

Imagine your blood vessels are like a garden hose. If you put your fingers over the hose to make the opening narrow, the water will come spurting out really fast and strong. This is high pressure. If you take your fingers away the water will come out gently. This is low pressure.

1 in 3 adults in England and Scotland have High Blood Pressure.
This puts them at increased risk of having a Heart Attack or Stroke.

There are 2 figures:

Systolic - The highest level your blood pressure reaches when your heart contracts and pumps blood into your arteries.

Diastolic - The lowest level your blood pressure reaches as your heart relaxes between beats.

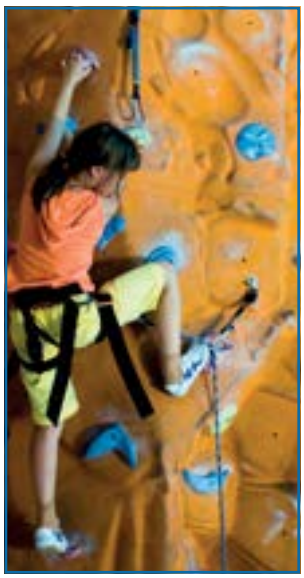
1. What is your **blood pressure?**

_____ Systolic _____ Diastolic

Chris's blood pressure

_____ Systolic _____ Diastolic

Using the chart, how do you compare?



Evidence shows us that the **strength of your grip** can give an indication of how strong all your muscles are.

2. What is your **grip strength?**

	Ist attempt (kg)	2nd attempt (kg)	3rd attempt (kg)	Your maximun (kg)	Chris's Maximum (kg)
Right hand					
Left hand					

Using the graph, how do you compare?

Measuring Health

Flexibility and Jump height. Measuring the **flexibility** of your lower back and hamstrings can give a good indication of how flexible your arteries are. People with less flexible arteries have been shown to be at a greater risk of cardiovascular disease.

Measuring **jump height** can help us to understand how powerful the hamstring tendons are. If your leg muscles are powerful, research suggests that your heart muscle should also be healthy and strong.

3. How **flexible** are your hamstrings?

_____ cm

Chris's flexibility

_____ cm

4. How high can you **jump**?

_____ cm

Chris's jump height

_____ cm

Blood Glucose Testing

Blood glucose levels are taken to test for **Type 2 Diabetes.**

The blood test has to be taken when the patient has been **fasting** (not eating or drinking anything other than water) for 8 hours.

When a person fasts, their body is stimulated to produce **glucose**. In a person who does not have diabetes, the body produces enough **insulin** to lower the glucose back to normal. The blood test will only contain a small amount of glucose.

In a patient with **Type 2 Diabetes**, the body does not respond properly to insulin, so the glucose level in the blood is **high**.

5. Testing **Blood Glucose**

Sample	Glucose Level (mmol/l)	Diagnosis
Aunt Gemma		
Chris		

Measuring Health

What is your mass adjusted for your height?

This measurement is called your BMI and can **indicate** a healthy mass for a particular height.

BMI Calculation $\frac{\text{Mass in kg}}{(\text{Height in m})^2} = \frac{\text{Mass in kg}}{\text{height x height}}$

6. What is your **BMI**?

	Mass (kg)	Height (m)	Height (m^2)	BMI
Me				
Aunt Gemma	100.7	1.65		
Chris				

Using the chart, how do you compare?

Who is in the healthy range?

For men and women aged over18

Your BMI is a useful number to know but you should also measure your waist. This is because people who carry too much weight around their middle have a greater risk of developing coronary heart disease, high blood pressure and diabetes.

7. What is your **waist measurement**?

_____ cm

Chris's waist

_____ cm

8. What is your **body fat** %?

_____ %

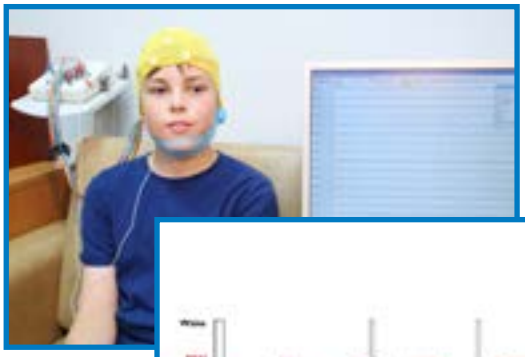
Using the charts, how do you compare?

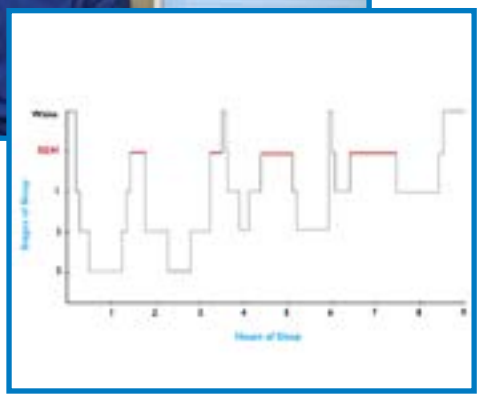
Chris's body fat

_____ %

LIFELAB Activities

Sleep





During **sleep studies,** scientists record the electrical activity in the brain and muscles, and heart rhythms using electrodes placed on the body. This is called **polysomnography**.

A **hypnogram** can then be produced using the data showing the different phases of sleep

Sleep is really important for our bodies. Studies have found that sleep can affect your health by:

- Releasing growth hormone which helps you grow
- Repairing cells damaged from injury
- Boosting mental well being
- Helping prevent type 2 diabetes and heart disease
- Boosting immunity, memory and performance
- Helping keep you slim

The Sleep Council provides helpful advice and tips for getting a good night's sleep to improve your health and wellbeing

www.sleepcouncil.org.uk

Teenagers are recommended to get a minimum of 9 hours of good sleep on school nights.

Scientists can use timed tasks, e.g, the Tower of Hanoi to measure cognitive ability. This is a measure of how quickly your brain is able to process information to carry out problem solving exercises. This can be affected by how much sleep you get.

9. How well did you do on the **Tower of Hanoi**?

Number of discs: _____ Time to complete the tower: _____

How many hours sleep did you have last night? _____

How do you think your school work and concentration levels are affected by your sleep?

Chris's result:

Number of Discs: ____ Time: _____
Hours of Sleep (from the graph) ___

LIFELAB Activities

Rate your Wellbeing

Wellbeing (feeling good and functioning well) is really important for everyone. Developing an awareness of how to look after your wellbeing is a key part of everyday life, can help you preform well at school, be happy and stay healthier.

12. How are you **feeling?**

Here is a picture of five faces. The left one is the worst possible day for you and the right one is the best possible day for you. Where on this scale do you feel you are at this moment? Shade in the face that best matches how you're feeling today:

It's important to remember that it is normal for your emotional wellbeing to have ups and downs. Part of looking after your wellbeing is knowing how to bounce back from setbacks, and how to lift your mood again when things are difficult. Concerns arise when someone's mood continues to drop over a long period of time, or several challenging events occur close together.

13. How can you **improve your mental wellbeing?**

Evidence suggests there are five steps we can all take to help improve our mental wellbeing. If you give them a try, you may feel happier, more positive and able to get the most from life. **What could you do for each one?**

The Five Ways to Wellbeing

Connect – connecting with others

Give – giving, looking outward as well as inward

Be Active – doing something active

Take Notice – taking notice of the world around you

Keep Learning – learning new things

The MeeTwo app provides a safe and secure forum for teenagers wanting to discuss any issue affecting their lives.

CPR

Cardiopulmonary resuscitation (CPR) is a first aid technique that can be used if someone is not breathing properly and there are no other signs of life.

Chest compression CPR keeps blood and oxygen circulating in the body.

At the moment, less than 10 per cent of the 30,000 people in the UK who have a cardiac arrest out of hospital each year survive long enough to leave hospital alive. If someone carries out early CPR, it may double a casualty's chances of survival.

15. How to perform **Hands-only CPR**

If someone is not breathing normally and not responding to you, shout for help and call 999 for an ambulance then start chest compression CPR straight away.

To carry out a chest compression:

1. Place the heel of your hand on the breastbone at the centre of the person's chest. Place your other hand on top of your first hand and interlock your fingers.
2. Position yourself with your shoulders above your hands.
3. Using your body weight (not just your arms), press straight down by 5–6cm on their chest, then raise them again.
4. Try to perform **approximately 2 chest compressions every second.**
5. Continue this until the ambulance arrives.

Record your % CPR score here:

_____%

In an emergency remember Dr ABC:

Danger - Check its safe to treat the casualty

Response - Check for a response. Shake the casualty gently and shout loudly

Airway - Check the casualty's airway is open and unblocked, tilt the head back and lift their chin

Breathing - Check they are breathing. Look, listen and feel for breaths. **If not breathing call 999**

Circulation - Start hands only CPR, hard and fast until help arrives

EACH-B LifeLab App

Research shows that young people are good at identifying what is good for their health. However, the problem facing young people is how to put their knowledge of healthy lifestyle choices into action.

We have worked with game designers to develop an interactive app for young people to use on smartphones to support them making healthy choices.

Avatar

What is your avatar going to look like?

Activity Quest

How could you challenge yourself and your friends to get more active?

Food Challenges

How can you make a fun, healthy breakfast?

Gutsy

What do you need to feed Gutsy to make Gutsy feel good?

Tick the box when you have successfully downloaded the LifeLab app ☐

LIFELAB Activities

Meet the Scientists

Scientist 1

Which scientist did you listen to?

Give 2 interesting facts you found out:

-

-

Scientist 2

Which scientist did you listen to?

Give 2 interesting facts you found out:

-

-

Having now met a scientist, what three words would you now use to describe scientists?

Why is research important? What are the possible real world applications?

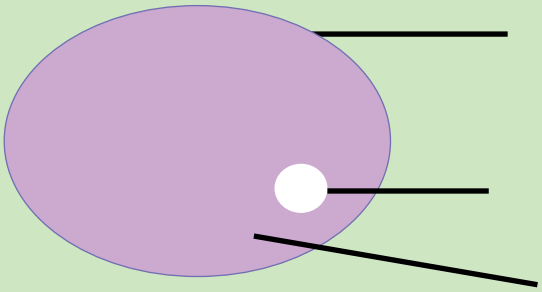
Why do you think people choose to become scientists?

Would you consider a **STEM** (**S**cience, **T**echnology, **E**ngineering, **M**aths) career?

DNA

Label the diagram of the cell.

Where is the DNA found?



Extracting DNA

What is the lysis buffer made of?

What does the lysis buffer do?

Why is ethanol used?

What affect does temperature have?

DNA facts:

- **DNA** stands for Deoxyribonucleic Acid
- **DNA** is the molecule which contains the instructions to make living organisms.
- The structure of a **DNA** molecule is a double-stranded helix.
- There is about 2 metres of **DNA** found in the nucleus of every cell
- To fit all this **DNA** into the nucleus, it is coiled up into structures called chromosomes
- Our chromosomes are arranged in pairs. We inherit one copy of the pair from our mum and one from our dad
- If you could type 60 words per minute, eight hours a day, it would take approximately 50 years to type out the instructions to make a human.
- Sections of **DNA** form genes. Individual genes can control specific characteristics (e.g. eye colour) or functions, or work together to control other characteristics (e.g. height)
- You have 99.5% of your **DNA** in common with your parents, 98% in common with a chimpanzee and 40% in common with a cabbage!

Epigenetics

What is epigenetics?

The name ***epi*** (from Greek: over, outside of, around)
genetics (from Ancient Greek: origin).

What is epigenetics?

- Epigenetics is the study of how the environment (e.g. what we eat, how much we exercise, where we live, whether we smoke etc.) can change how our genes work.
- DNA is often referred to as the blueprint or instruction manual for our bodies.
- Epigenetics tell our bodies which section of the blueprint (or which page of the instruction manual) to read at a given time.
- Epigenetic changes do not alter the letters of our DNA, but instead change its punctuation – like an exclamation mark (!), **bold,** or comma (i.e. "Let's eat Grandad." This phrase with an epigenetic change might be "Let's eat, Grandad").

Why is it important?

- These "punctuation" changes can turn genes "on" or "off" inside cells like traffic lights. This process is called gene regulation.
- Genes that are switched on tell cells what to become e.g eye cells, brain cells or skin cells.
- They also control how our organs form, how our bodies respond to disease and infection, and much, much more.
- Gene regulation influences our health throughout our life and new research suggests that epigenetic changes may affect not only ourselves, but also our future children.
- It is important for women to eat well in pregnancy and for young children and teenagers to receive a good diet. At these important times our diet is setting the 'traffic lights' which can affect future health.
- Epigenetic changes can be reversible. The choices we make may undo or lessen the effects of early epigenetic marks on our DNA and prevent us passing them on to our children.
- **This is like playing a card game. Even if you are dealt a bad hand it is possible to play it well. It is also possible to mess up a good start in life with the wrong life choices.**

Gel Electrophoresis

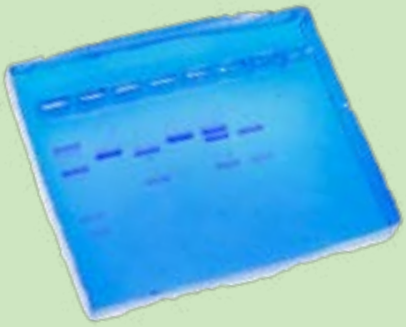
Gel Electrophoresis

This process uses electricity to separate DNA fragments by size as they move through a gel.

Why would scientists investigate DNA?

How might they use the information they have discovered?

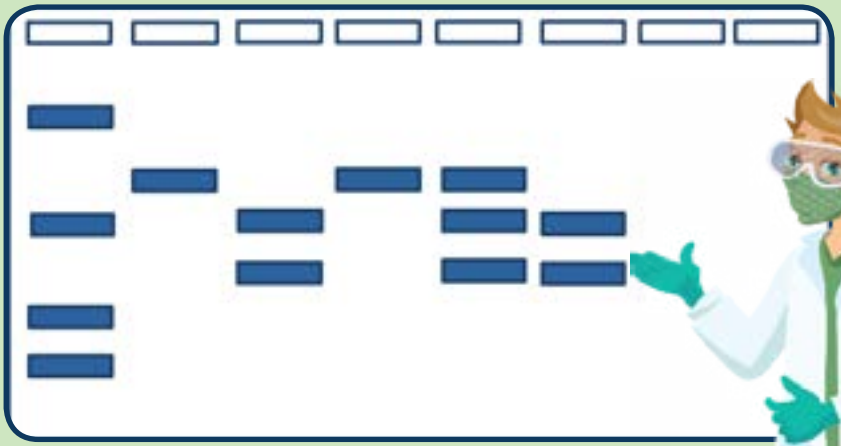
Looking at gels



DNA ladder to measure bands

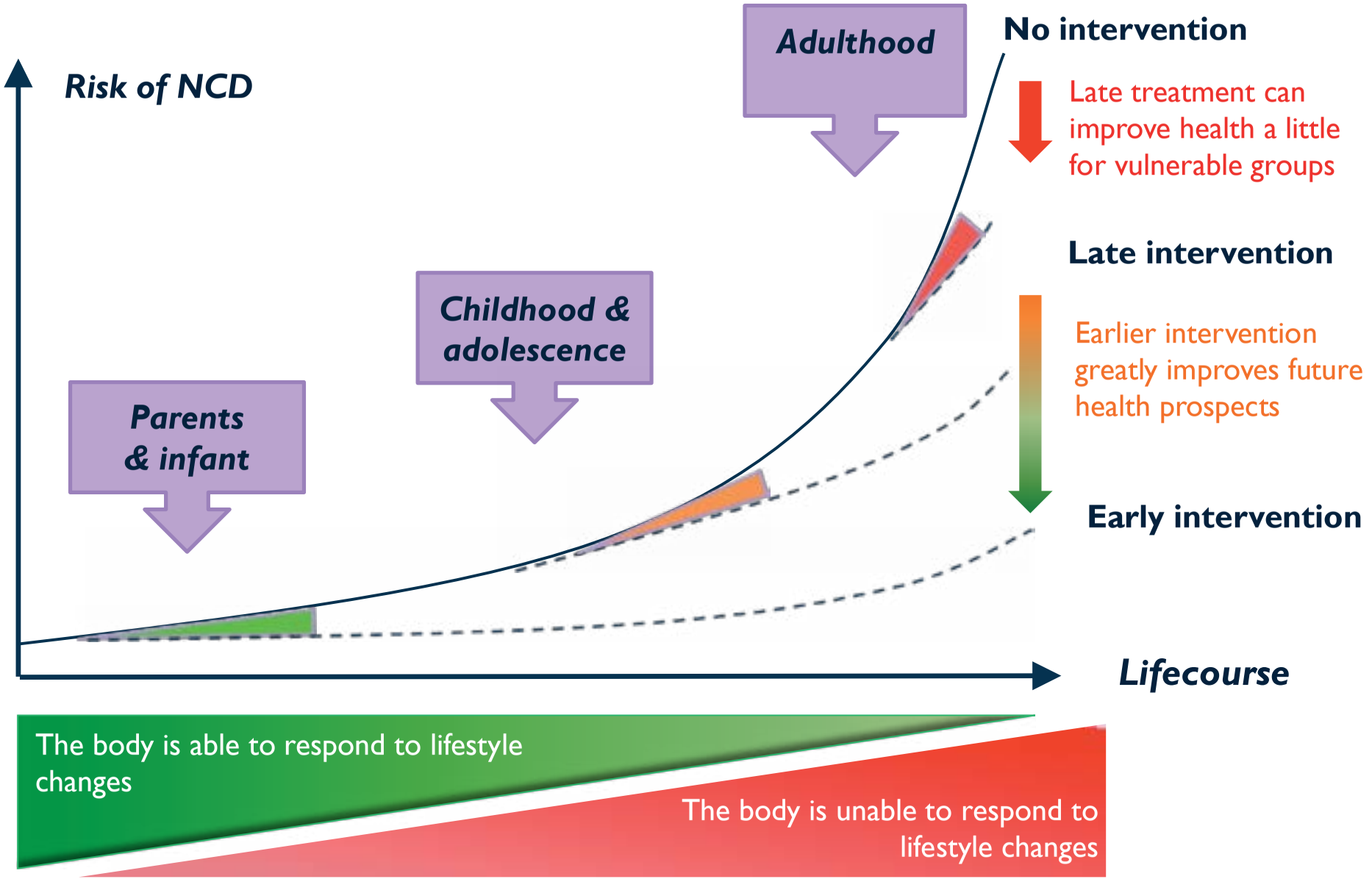
Person with the 'normal' gene

Person with high cholesterol



What conclusions can you draw from these results?

Risk of NCD over the *lifecourse*



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?

Lesson 5

Making Choices

Objectives

At the end of this lesson I should be able to:

- Analyse health data and health risks
- Review progress made with health pledge
- Evaluate marketing strategies used in selling food

Start of lesson			End of lesson		
Confident	OK	Not so sure	Confident	OK	Not so sure
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

What will you make sure you remember from today?

What steps have you made towards 'Levelling Up Your Life'?

What does your avatar look like?

Have you been on a mission with Doug yet?

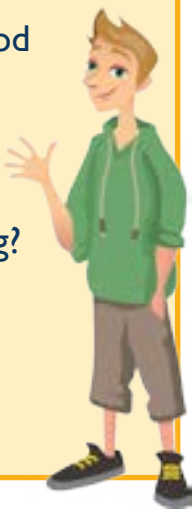
Activity 1:
Thinking about your own health

Complete the 'How are You' Quiz

Complete the quiz about your own attitudes towards health and wellbeing.

How would you rate your own health and wellbeing?

Very Bad — 1 2 3 4 5 — Very Good



How does your **health pledge** help you improve your health and wellbeing?

Lesson 5

Who Controls What you Eat?

The facts:

- There is a conclusive link between the diet of children and teenagers and their mental and emotional health and wellbeing
- Our environment has slowly changed, making it harder for children and teenagers to make healthy choices
- Efforts to help children eat healthily are being undermined by sophisticated promotions for unhealthy foods
- Unhealthy foods are three times cheaper than healthy food
- Half of breakfast cereals marketed to children and teenagers are high in sugar and a single portion would make up a third of their daily allowance

Activity 2: How do you think companies encourage you to buy junk food?

Discuss all the possible methods that you can think of with a partner.

Activity 3:What marketing tactics are you aware of?

Have a look at examples of the different marketing tactics used on the cards.

How many have you experienced?

Rank the cards in order of which you are most concerned about to the least concerned.

Did you know?

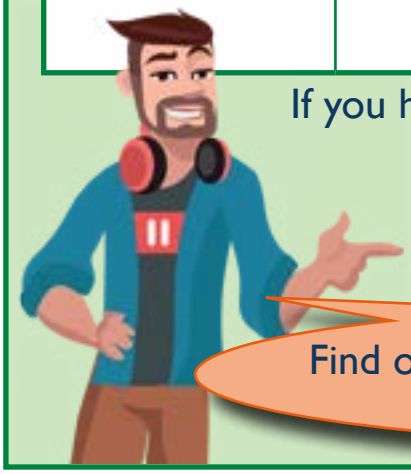
- Children and teenagers are particularly susceptible to advertising of unhealthy food and drink. See it, want it, buy it, eat it!
- Marketing techniques used to target children and teenagers are increasingly sophisticated, and often work at a subliminal level that is not recognised

Activity 4: Who is feeding teenagers' junk food habits?

Describe 3 different examples of marketing tactics you have experienced in the table below:

Location of where you are being targeted?	What tactics do they use? How do they work?	How does this make you feel? What do you think should be done about this?

If you had the power, what changes would be your priority?



Find out how aware the rest of your family are of these marketing strategies.

Lesson 6

Misinformation

Objectives

At the end of this lesson I should be able to:

- Identify fake news and its purpose
- Describe how misinformation impacts on individuals and society
- Explain why it is important to check how good (quality), relevant and sufficient evidence is
- Suggest ways we can identify misinformation

Start of lesson			End of lesson		
	OK	Not so sure		OK	Not so sure
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

What skills have you used today?

What skills did you find difficult today?

How well did your group work together in planning your health investigation?

Have you fed Gutsy? Did you make Gutsy feel good?

What is Fake News?

Activity 1:What is fake news?

Add to the mind-map everything you know about fake news!
There are some questions to get you started.

Can you Identify Misinformation?

Activity 2: What is misinformation and disinformation?

Write your own definitions for the key words:

Fake News =

Disinformation =

Misinformation =

Activity 3: What does misinformation look like?

Give two examples of misinformation in the table below:

Example of misinformation	Where could it be found?	Who might start it?	Why? What is its purpose?

What's the Problem?

Activity 4: What's the problem?

Discuss the following questions below

Activity 5: Top tips to check?

Think about how you could check for yourself if an article is **reliable** and **trustworthy**, write down your top three tips you would advise a friend on how to check:

-
-
-

Your Scientific Health Investigation

Objectives

At the end of this lesson I should be able to:

- Formulate my own question to investigate health
- Design and construct a plan for my own scientific health investigation
- Safely carry out my scientific health investigation
- Record reliable, precise and accurate data
- Make a conclusion based on the evidence collected
- Present my results as a scientific health investigation poster
- Evaluate your scientific health investigation posters

Start of lesson			End of lesson		
Confident	OK	Not so sure	Confident	OK	Not so sure
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Complete this section at the end of the lesson

What new things have you learnt today?

What skills have you used today?

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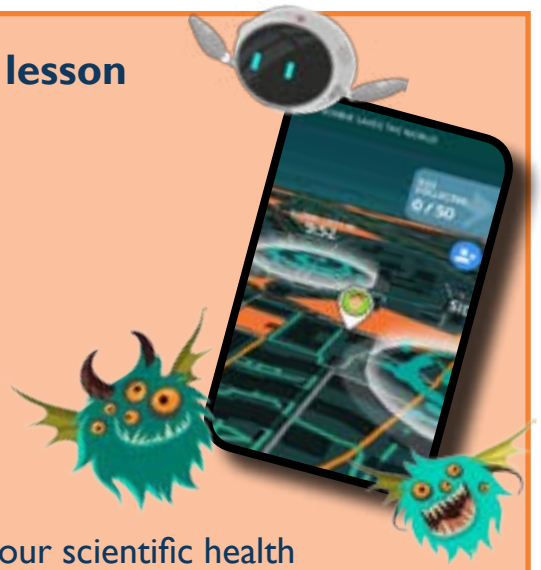


How well did your group work together to create your scientific health investigation poster?

How many people have you saved from the procrastination gas?

Planning Your Scientific Health Investigation

How you travel to school can affect how alert you are in lessons: What do you think?

What will be our method?

What measurements or data will we need?

How will we collect our data?

How about if we measure something or carry out a survey or questionnaire?

How do we know people are happy to take part?

How will we know our conclusion is trustworthy?

What resources will we need to be able to carry out our investigation?

How will we make sure it is safe?

What question on health are you going to investigate?

What are CREST Awards?

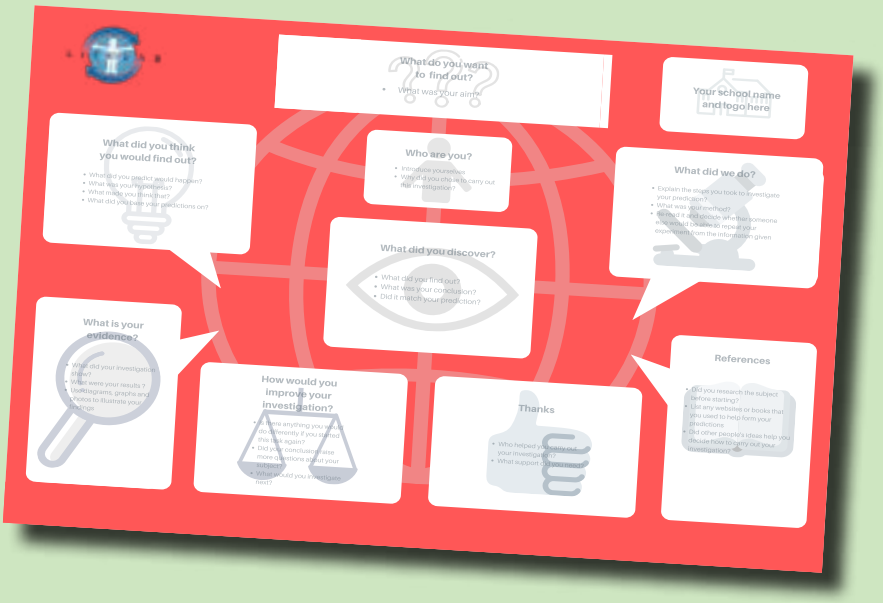
They are a UK award scheme for 11-19 yr olds. They recognise success, building skills and demonstrating personal achievement in science, technology, engineering and maths (STEM) project work.

What do I need to do to complete a Bronze CREST Award?

By completing the LifeLab module and your Scientific Health Investigation you have the opportunity of submitting your work for a CREST Bronze Award or a Discovery Award.

You will need to provide the following evidence:

- Your completed **Scientific Health Investigation Poster**



- Your completed student profile sheet, which your teacher will give you. In each section explain what you did, including what it is and where it is shown in your poster. For example; 'Having discussed ideas we agreed our aim which is shown in the box on our Scientific Health Investigation Poster'.

If you're working in a group or team, each team member should complete a separate student profile.

Scientific Health Investigation Posters

Design your own scientific health investigation poster

Using the poster template, make your own poster to show your health investigation.

Judging your scientific health investigation posters

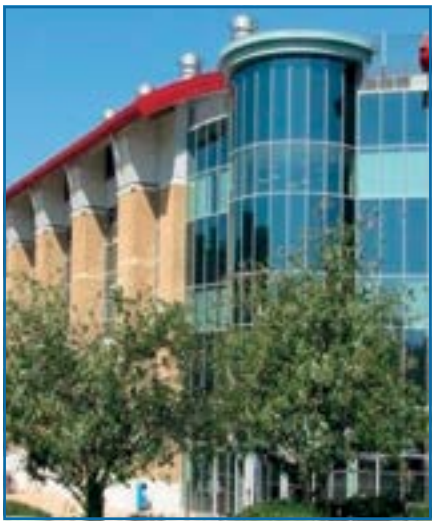
Discuss how you are going to judge the posters and agree the criteria.

What are you going to give marks for? What are you looking for? How are you going to decide which poster should go to the LifeLab Schools' Conference?

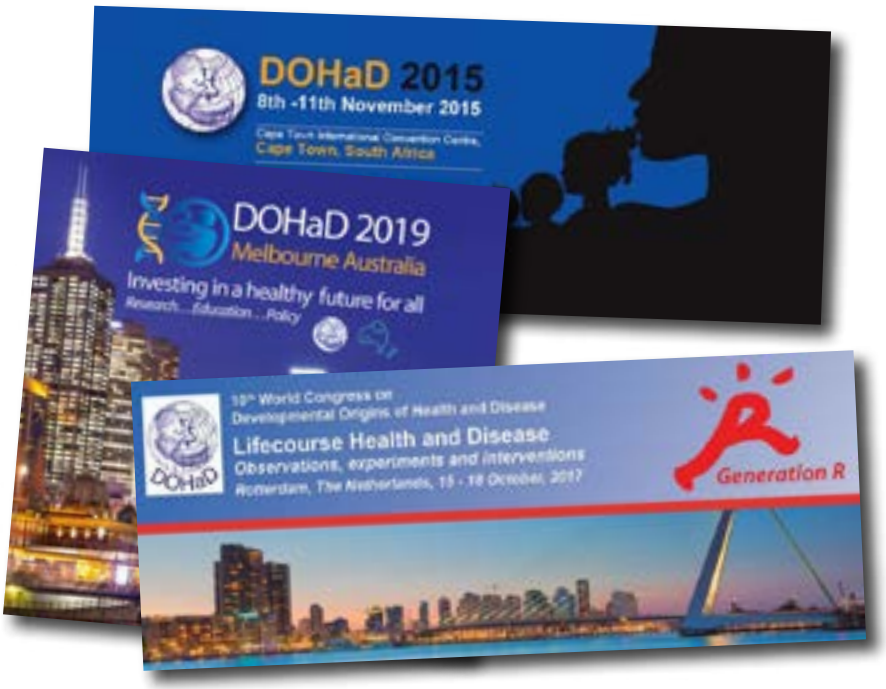
What is a Scientific Health Conference?

Many scientists from the University of Southampton and throughout the United Kingdom are working to understand more about how we can make sure people have a Healthy Start to Life. They work with scientists in universities all around the world who belong to the International Society for **Developmental Origins of Health and Disease, (DOHaD)**.

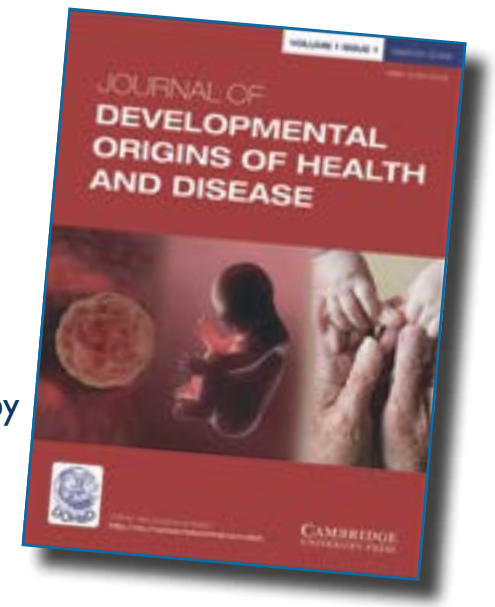
Every year the DOHaD scientists from across the world meet to talk about what they have been doing. They talk about their work and share ideas, and learn from each other. **Collaboration and team work are important for scientists.**



The University of Southampton Institute of Developmental Sciences, University Hospital Southampton



At a conference, scientists will either give a talk or present a poster. After a talk or a poster presentation there is time for questions from the audience.



The scientists also have a journal where they can send reports about their work. The reports have to be reviewed by other scientists and then approved by the editor before they can be published. Scientists from all around the world read journals to find out about what other scientists are doing.

Delivering a COVID-19 Health Message

Objectives

At the end of this lesson I should be able to:

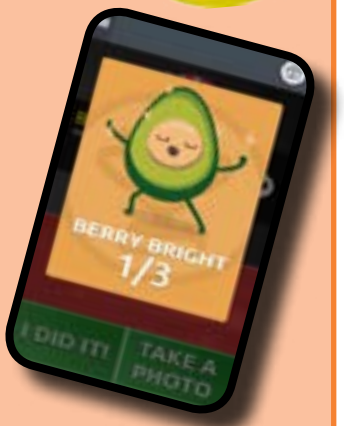
- Understand why peer advice is important for the delivery of messages around COVID-19
- Carry out preparations for delivering a message around COVID-19
- Deliver a message around COVID-19
- Evaluate the delivery of my COVID-19 message

Start of lesson			End of lesson		
Confident	OK	Not so sure	Confident	OK	Not so sure
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

Complete this section at the end of the lesson

What new thing have you learnt today?

What skills have you used today?



What skills did you find difficult today?

What steps have you made towards 'Levelling Up Your Life'?

Have you taken a food challenge? Which one are you going to do next?

What Role can Young People Play?

1. Young people can't catch COVID-19

2. Young people are less likely to die as a result of COVID-19

3. Young people can't catch COVID-19, but they can pass it on to others

4. Young people are less likely to be admitted to hospital as a result of COVID-19

5. Children and young people with COVID-19 are more likely than adults to be asymptomatic

6. It's only people in their 80's and 90's who die from COVID-19

7. Children and young people appear to be less likely to catch COVID-19 than adults

8. If you have an underlying health condition you become reallly ill from COVID-19

Activity 1: What role can young people play?

Can you sort the 8 statements above into true or false and give the **evidence or the reasoning** you used to make your choice in the table below:

Statements which are **True**	Statements which are **False**

Who's Advice Would You Listen To?

Activity 2: Who's advice would you listen to?

The way in which we react to advice and the likelihood of us taking it on board, can often depend on exactly who is giving us that advice.

Imagine that someone was giving you some advice around an aspect of your health. What do you think would be the advantages and disadvantages of receiving that same piece of advice from a **peer** or from an **authority figure** e.g. teacher, parent or other adult?

Advantages of **peer** advice	Advantages of **authority** figure advice
Weaknesses of **peer** advice	Weaknesses of **authority** figure's advice

Activity 3: What is the role of a COVID-19 Young Health Champion?

When talking to someone in your capacity as a COVID-19 Young Health Champion, it is important that they know what you can do as part of your role. It is equally important that they know what you cannot do as part of your role.

Read the statements below. Tick the boxes that you believe are activities that are covered by your roles and responsibilities as a COVID-19 Young Health Champion:

- Provide someone with a COVID-19 test ☐
- Talk to someone about the importance of measures in place to stop the spread of COVID-19 ☐
- Tell someone whether they have COVID-19, based on their symptoms ☐
- Give someone an instruction to self-isolate ☐
- Explain what the purpose of social distancing is ☐
- Offer advice to someone who is unsure about whether the guidelines apply to them ☐
- Talk about the reasons that can make someone not follow the guidelines ☐
- Act as a substitute for professional medical advice if required ☐

Activity 4: Planning to deliver your COVID-19 health message

Once you have decided on your topic, use the prompts below and record your ideas:

1. What are the **key points** you are covering in your message?

2. How are you going to **deliver** your message? What is the best way to reach your intended audience, what are the advantages and disadvantages?

3. Make a list of all the **resources** you use to help you prepare for your message, including any you are using to sign post your audience to.

4. What **materials** are you making to help deliver your message? Explain why they are suitable for your choosen audience?

Delivering your COVID-19 Message

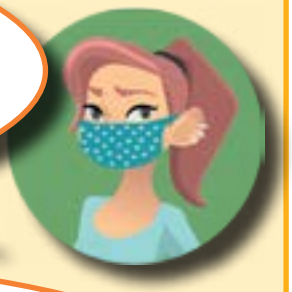
5. Be prepared! What questions might you expect to be asked? Prepare your answers below:

Question:

Answer:

Question:

Answer:



Question:

Answer:

Task 5: Delivering your COVID-19 message

Now that you have designed your message around COVID-19, you will need to deliver it to your chosen audience. You will need to collect some evidence relating to the message that you have developed. This could include:

- an audio or video file of you delivering your message
- examples of the resources you developed
- screenshots of the content of the message, if you are delivering it using social media

Evaluating your COVID-19 Message

Task 6: Evaluating the delivery of your COVID-19 message

Now that you have delivered your message, it is important to evaluate how effective it was to help you think about whether you should do anything differently next time.

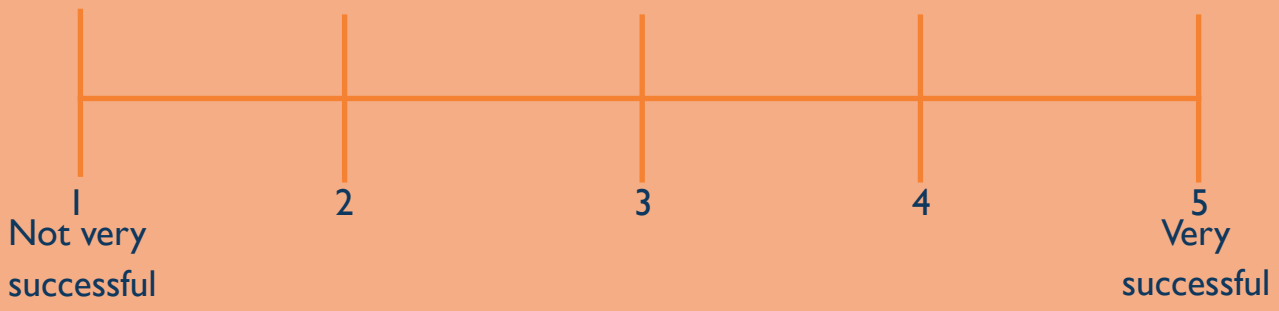
There are two essential elements to this; getting feedback and deciding what you want to change.

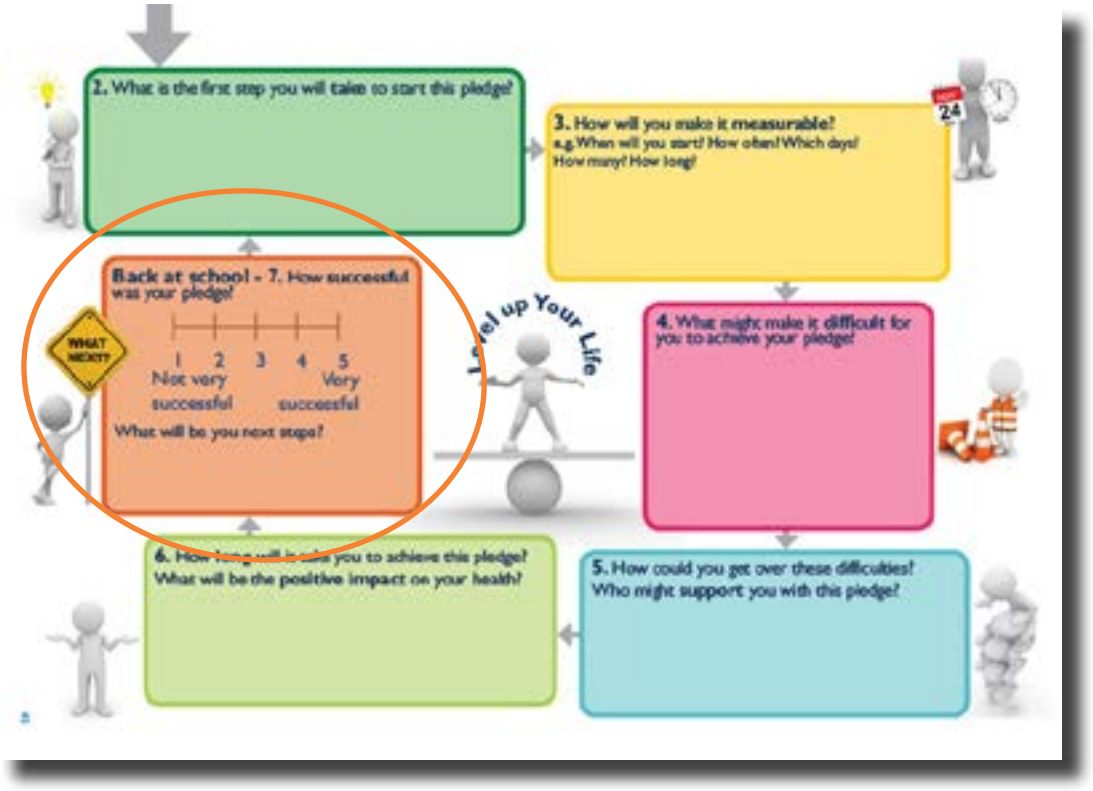
Complete the grid below with feedback from at least two of the three different sources listed below:

Person providing feedback	Positive areas	Areas to work on and improve
Fellow COVID-19 Young Health Champion		
Audience member		
Teacher		

Evaluating and reviewing your health pledge

7. How successful was your health pledge?





Next steps

What could you do to make your health pledge more successful?

What do you think is the next step for you?

Directory of Online Resources & Websites

COVID-19 information:

NHS UK: www.nhs.uk/conditions/coronavirus-covid-19

UK Goverment: www.gov.uk/coronavirus

World Health Organisation: www.who.int/health-topics/coronavirus

Southampton Women's Survey: www.mrc.soton.ac.uk/sws/

Clinical research in Southampton: www.uhs.nhs.uk/Research/Research.aspx

Type 2 Diabetes:

Diabetes UK website: www.diabetes.org.uk

Heart disease:

BHF Youth website - www.yheart.net

(Can order paper copies of BHF publications, e.g. 'Keep your heart healthy')

Mental Health and Wellbeing:

Young Minds website: www.youngminds.org.uk

Places to get help and advice on emotional wellbeing or to discuss feelings are:

ChildLine: www.childline.org.uk Phone: 0800 1111

Samaritans: www.samaritans.org Phone: 116 123

COPD:

British Lung Foundation: www.blf.org.uk/Conditions/Detail/COPD (Also available to order hard copies)

Cancer:

Cancer Research UK - in the teacher section you will find the following links:

What are we made of ? Background info on cells: www.cancerresearchuk.org/cancer-info/cancerandresearch/all-about-cancer/what-is-cancer/organs-tissues-cells/

What causes cancer? www.cancerresearchuk.org/about-cancer/causes-of-cancer

Can cancer be prevented? www.cancerresearchuk.org/about-cancer/causes-of-cancer/can-cancer-be-prevented-0

Stroke:

Stroke Association: www.stroke.org.uk/about/what-is-a-stroke (Can download large fact sheets)

The Sleep Council: www.sleepcouncil.org.uk

How are You Quiz: www.nhs.uk/oneyou/how-are-you-quiz/

Epigenetics: www.letsgethealthy.org/about-the-research/station-descriptions/epigenetics/

CPR: www.bhf.org.uk/heart-health/life-saving-skills/hands-only-cpr

BSA Bronze CREST awards: www.britishscienceassociation.org/crest-bronze

Glossary of Key Words & Terms

accuracy	a correct measurement, free from errors, judged to be close to the true value
acknowledgments	in published work scientists acknowledge others' help and contributions
antibodies	what the body's immune system produces to fight disease
asymptomatic	a person who is infected with a disease but shows no symptoms
balanced diet	a diet that contains the proper proportions of carbohydrates, fats, proteins, vitamins, minerals, and water necessary to maintain good health
BMI	body mass index, a calculation of mass divided by height squared
calorie	a unit of fuel or energy value of food
cancer	the illness or condition that is caused by the presence of a malignant tumour
cardiovascular disease	a general term that describes a disease of the heart or blood vessels
cholesterol	there are 2 types of cholesterol: LDL ("bad") cholesterol and HDL ("good") cholesterol, made by the liver and used to build cell membranes
communicable diease	a disease that spreads from one person or animal to another, caused by viruses, bacteria, fungi or protists
conclusion	a decision made or an opinion formed after considering the relevant facts and evidence, or supported by valid data
COPD	Chronic Obstructive Pulmonary Disease is the name given for a collection of lung diseases, eg. chronic bronchitis or emphysema
CPR	Cardio Pulmonary Resuscitation, an emergency procedure for providing blood circulation when normal circulation has stopped, supplying life-sustaining oxygen to the brain and other vital organs
diastolic blood pressure	this is the lowest level your blood pressure reaches as your heart relaxes between beats
epidemic	an outbreak of a large number of cases of a particular disease happening at the same time in a particular community
epigenetics	the study of changes in organisms caused by modification of gene function that does not involve alteration of the genetic code of the DNA itself
evaluation	an assessment of the value, quality, importance or extent of something
evidence	scientific data that links an idea or claim to a conclusion
gel electrophoresis	using electricity to separate DNA fragments by size as they move through a gel
gene	a unit consisting of a sequence of DNA that occupies a specific location on a chromosome and determines a particular characteristic
genome	an organism's complete set of DNA, including all of its genes
health	physical, mental and social wellbeing and not merely the absence of disease or infirmity
heart disease	any medical condition of the heart or the blood vessels supplying it that impairs cardiac functioning

Glossary of Key Words & Terms

hypothesis	a proposal intended to explain certain facts or observations, used as a basis for further investigation
lifestyle	is the way you live including your habits, attitudes, interests and behaviours
marketing strategy	business tactics which help companies increase growth and sales through marketing, promotions and advertising
NCDs	Non-communicable diseases are unable to be passed from one person to another
obese/obesity	a term used to describe somebody who is very overweight, with excess body fat and a BMI above 30
pandemic	a disease which is spread worldwide, affecting a large number of people
pledge	a promise to do, give or refrain from doing something
PPI	Patient and Public Involvement. Ensures everyone has the chance to comment on how research is carried out and helps shape the research.
precision	measurements where there is very little spread about the mean value, it depends on the extent of random errors
reference	a note directing the reader to another passage or someone else's work
reliable	measurements able to be trusted to be accurate or to provide a correct result, can be repeatable and reproducible
repeatability	a measurement is repeatable if the original experiment repeats the investigation using the same method and equipment and obtains similar results
reproducibility	a measurement is reproducible if the investigation is repeated by another person, or by using different equipment or techniques and similar results are obtained
risk factor	a feature of somebody's habits, lifestyle, genetic makeup, or personal history that increases the probability of disease or harm to health
stroke	a sudden blockage or rupture of a blood vessel in their brain resulting in, e.g. loss of consciousness, partial loss of movement, or speech
systolic blood pressure	this is the highest level your blood pressure reaches when your heart beats
type 2 diabetes	a condition where the pancreas doesn't produce enough insulin or the body's cells don't react to insulin, that causes high blood glucose levels which damage blood vessels, nerves and organs
ultrasound scan	a painless test that uses high frequency sound waves to create images of internal organs and structures inside your body
vaccine	a substance containing an altered or weakened bacteria or virus, that stimulates the body's immune system to produce antibodies and develop immunity to a specific disease
variables	quantities or characteristics capable of changing or varying, e.g. independent, dependent, control, categorical or continuous variables
virus	an ultramicroscopic organism which is capable of multiplying in living cells and cause disease
zoonotic	a disease which can pass from an animal or insect to humans

Notes

Notes

Acknowledgments

LifeLab: Me, My Health and My Children's Health (2021)

Lisa Bagust, Hannah Davey, Donna Lovelock and Kathryn Woods-Townsend

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Learning Resources

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Use of the Resources

These resources are for use in those schools participating in the **LifeLab Programme 2021**

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Please ask a member of LifeLab staff for more information on becoming a LifeLab Ambassador, Young Health Champion or taking part in the Medics Summer School. Or alternatively email: lifelab@soton.ac.uk


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