

LESSON 4 EMERGENCY!



BIG IDEA

Many patients that present in A&E do not have a disease but have become unwell due to the abuse of a substance such as alcohol. In this lesson, students learn the effects of recreational drugs and also how hospitals tackle this. A link is made back to the first lesson in order to consider infection control in hospitals.



LEARNING OBJECTIVES

Some students will be able debate the social and economic implications of recreational drug use.

Most students will be able to identify the possible effects of extreme exercise on health and life process.

All students will be able to describe the effects of recreational drugs on behaviour, health and life processes.



RESOURCES

Resource 4.1: Hospital medical staff

Resource 4.2: List of suggested websites for research

Resource 4.3: A&E Patients

LESSON 4: EMERGENCY! SETTING THE SCENE

Alongside the prevention of disease through hygiene, diet and exercise, health in London also depends upon a responsive health service. The city's accident and emergency (A&E) departments are amongst the busiest in the country. A&E departments (also known as emergency departments or casualty) deal with life-threatening emergencies, such as loss of consciousness, breathing difficulties or severe bleeding or burns or scalds. Other reasons why people attend emergency departments include sporting injuries or health issues arising from alcohol or substance misuse.

Working alongside the NHS in emergencies and at events, such as the Virgin Money London Marathon, and providing first aid in their communities is the St John's Ambulance. Every year more than 400,000 people learn to save a life through their training programmes, including hundreds of thousands of young people.



AMBULANCE PARKED OUTSIDE ACCIDENT AND EMERGENCY
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LESSON 4: EMERGENCY!

ACTIVITIES

STARTER: STAYING ALIVE – FIRST AID

Introduce students to Dr's ABC (Danger, Response, Shout for help, Airway, Breathing, Circulation). Teach students the recovery position and get them to practice on each other if there is sufficient space.

[nhs.uk/video/pages/recovery-position.aspx](https://www.nhs.uk/video/pages/recovery-position.aspx)) Show the 'hard and fast video':

[nhs.uk/video/pages/vinnie-jones-how-to-perform-cpr.aspx](https://www.nhs.uk/video/pages/vinnie-jones-how-to-perform-cpr.aspx)

Use this to get students to think about someone going in to hospital via A&E and get students to think-pair-share the different medical staff that work in a hospital. Then get them to match the different roles with titles Resource 4.1: Hospital medical staff (page 53).

Differentiation

You could extend students by getting them to also discuss the non-medical staff that would work in a hospital.



ST JOHN'S AMBULANCE FIRST AIDERS AT THE LONDON MARATHON, 2014
image by Katie Chan ©

MAIN 1: WHAT'S THE EFFECT?

Give teams of students a different substance to research (see list below) and produce a poster about the substance and its effect. These posters are then set up on display and students circulate to learn about the different substances.

Substances:

- ◆ Alcohol
- ◆ Caffeine
- ◆ Nicotine
- ◆ Cocaine
- ◆ Ecstasy
- ◆ Amphetamines
- ◆ Cannabis
- ◆ Heroin

Differentiation

Support students by providing a list of websites to use for their research Resource 4.2: List of suggested websites for research (page 54).

MAIN 2: WHAT'S HAPPENED?

Hand out Resource 4.3: A&E patients (page 55) which describes the symptoms of different people who have turned up at A&E. Ask students to discuss what has happened (which may or may not be related to substance abuse) to present with the symptoms they have. They have to decide first steps and whose role that would be, for example, should the patient be sent to a radiographer for an X-ray?

Differentiation

To extend students get them to triage the patients, deciding who needs to be seen more urgently.

You can also extend students by getting them to consider the difficulties faced in A&E in terms of the behaviour of patients who come in with problems relating to substance abuse. You can also extend students by getting them to consider ethical and moral implications of treating patients presenting with substance abuse problems, for example with questions such as:

- ◆ Should NHS money be spent on those who arrive in A&E having been in an accident after getting drunk?
- ◆ Should NHS money be spent on treating patients with addiction?
- ◆ Should NHS money be spent on educating the public about the effects of drugs?

Extension

- ◆ What does it mean to be ‘responsible’?
- ◆ Do people have real choice in what they do?
- ◆ Does making a drug illegal make people safer or in greater danger? Why?
- ◆ Is it okay for an athlete to use a performance-enhancing drug? Why?
- ◆ It is okay for a dancer to use a performance-enhancing drug? Why?
- ◆ Is it okay to use a performance-enhancing drug for an exam in school? Why?
- ◆ Should coffee be banned?

These questions give students the opportunity to explore socio-scientific issues. Students should be encouraged to take a scientific approach based on facts, data, information and evidence. Other approaches such as ethical or value based approaches can be used to analyse and understand problems and decision making. Students need to be aware of the different approaches and when to use. There is an opportunity to link back to the diet lesson in terms of socioeconomics and addiction (see further reading for Wellcome Trust resource on Addiction).

MAIN 3: HOW CLEAN ARE YOUR HANDS?

Revisit the agar plates from Lesson 1.

Students write up their findings in relation the question they decided to investigate.

Differentiation

Students can be supported by providing sentence starters.

Students can be extended by writing an evaluation of their experiment, including its limitations and what further investigations are required.

Plenary

Dedicate time to peer review students’ survey of the food and exercise habits of their fellow students that they should have completed for homework from Lesson 3. If this is too challenging for students provide them with a survey you have created.

Students should be asking questions relating to the food groups, water consumption and physical activity. It is best to limit them to six questions (for the purpose of data collation later). It is important to review students’ surveys to ensure they are not asking inappropriate questions (e.g. relating to drug or alcohol use). Students need to also have determined how they are going to collect their data (e.g. use of tallies).

One team of students could survey what the type of food available in the canteen each day and the quantity sold of each item, by asking the canteen staff (this will require liaison with appropriate people in your school).

Considering the scenario of A&E and the results of their experiment, get students to review and re-draft their infection control action plan from Lesson 1.

Homework ideas

Introduce the Explore visit that class will be making. Ask students to identify a number of enquiry questions that they would like to investigate on their visit, that will extend their understanding of the way science helps Londoners stay healthy. Depending on your chosen destination, examples might include:

- ◆ How have improvements in scientific understanding changed the way we treat illness?
- ◆ How could Londoners change their behaviour to improve their health?

Students could also carry out their survey, or this could be done after the Explore visit and the Connect lesson.

Other suggestions

The London Ambulance Service (LAS) has many exciting careers options for Londoners. To invite a paramedic to visit your school to talk about working for LAS please email <mailto:ppi@london-amb.nhs.uk> or call 020 3069 0383. Alternatively use the online booking form:

londonambulance.nhs.uk/getting_involved/schools/arrange_for_us_to_visit.aspx

To find out more about careers in the London Ambulance Service please visit:

londonambulance.nhs.uk/working_for_us.aspx

Further reading

www.stem.org.uk/elibrary/resource/35288/making-a-difference-engineering-careers-in-medicine

nationalstemcentre.org.uk/elibrary/resource/9140/debate-kit-are-we-too-clean

nationalstemcentre.org.uk/elibrary/resource/501/physical-health-activity-sheets

bigpictureeducation.com/addiction

(Note that Big Picture is aimed at students 16+ but can provide useful stimuli and information for KS3).

fbs.leeds.ac.uk/performance2012/EducationalResources.php

londonlives.org/static/Hospitals.jsp

nhs.uk/NHSEngland/thenhs/nhshistory/Pages/NHShistory1948.aspx

sja.org.uk/sja/schools.aspx

Career information

This website is a fun and informative introduction for young people to careers in medicine.

tasteofmedicine.com

LESSON 4: EMERGENCY!**RESOURCE 4.1: HOSPITAL MEDICAL STAFF**

For more details and further information on any of the following roles, visit:

nhs.uk/careers/a-to-z

JOB TITLE	ROLE
AUDIOLOGIST	Assess hearing and balance function.
CHIROPODIST/PODIATRIST	Diagnose and treat abnormalities of the lower limbs.
PHLEBOTOMIST	Collect blood from patients for examination in laboratories, the results of which provide valuable information to diagnosing illness.
LEARNING DISABILITIES NURSE	Aim to improve the well-being and social inclusion of people to allow them to pursue a fulfilling life.
PARAMEDIC	Senior healthcare professional at an accident or a medical emergency.
SPEECH AND LANGUAGE THERAPIST	Assess and treat speech and communication problems in people of all ages and support people with swallowing problems.
VASCULAR SCIENTIST	Image and assess the blood flow of patients with diseases of the arteries and veins.

LESSON 4: EMERGENCY!

RESOURCE 4.2: LIST OF SUGGESTED WEBSITES FOR RESEARCH



talktofrank.com/drugs-a-z

safe.met.police.uk/drugs_and_alcohol/get_the_facts.html

drugscope.org.uk/drugsearch

project6.org.uk/information-advice

nhs.uk/livewell/drugs/Pages/Drugshome.aspx

urban75.com/Drugs/helpline.html

LESSON 4: EMERGENCY!

RESOURCE 4.3: A&E PATIENTS



PATIENT 1

A woman in her late twenties comes to A & E complaining of a serious headache. She is very upset and vomiting and is asking for strong pain killers. She says that the pain killers given to her last week by the GP were not strong enough and the headache has not gone away and the others she has been given are making her sick.

PATIENT 2

A middle aged woman is brought into A&E on a trolley from an ambulance. She has a cut to her hands and one on her face. She is shouting very loudly using poor language and saying that her bag has been stolen. She tries to stand up but is very unstable and needs to be helped back to the seat in the waiting area.

PATIENT 3

A young boy has been out jogging with his friends and has fallen over the edge of the pavement cutting his knees and elbows. He is complaining of intense pain in his arm and shoulder.

PATIENT 4

An elderly gentleman has been found on the floor at his home. He is conscious but his foot is at a strange angle to his body. He is having great difficulty breathing and has a very bad cough.

PATIENT 5

A teenage girl has been brought in to A&E on a trolley from school. She passed out in a lesson and has a cut on her forehead. She is thin and pale and is complaining of very bad stomach cramps.

PATIENT 6

A middle aged man waiting in A&E is very violently sick repeatedly. He says he started to feel ill in the middle of the night having been out to eat with friends. He is very pale has strong stomach cramps and is unable to even take a drink of water. He feels very faint.

EXPLORE

A visit to a medical museum, a schools programme at a hospital or a London sporting or food growing venue will allow students the opportunity to explore the ways that science supports health in London past and present.



EXPLORE HEALTH IN THE CITY



BIG IDEA

How can Londoners maintain and improve their health?



LEARNING OBJECTIVES

Could compare and contrast the health benefits of given activities seen on the visit both contemporary and historical.

Should be able to explain how their chosen visit has been involved in the improvement of Londoners health through disease prevention and/or promotion of fitness.

Must ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.

EXPLORE: HEALTH IN THE CITY

PRE-VISIT ACTIVITY

From the previous lesson, students will have identified some enquiry questions they want to investigate. Get students to discuss their questions in pairs and improve them, thinking about how well their question links to the venue and ensuring they have a mix of open and closed questions.

Many of the potential visit sites below run specific activities for schools. Students need to be encouraged to relate what they find at the visit to the connect lesson. In this final lesson they will be asked to summarise their learning from the unit in a report to the governing body of the school about how the health and wellbeing of the school population can be improved. Resource 5.1: Planning tool for presentation (page 68) could be used as a guide for information finding whilst on the visit.

Homework

If not already done so, the survey of students' food and exercise habits can be carried out.

EXPLORE: HEALTH IN THE CITY

POSSIBLE MUSEUM VISITS

Science Museum

Exhibition Road, SW7 2DD

020 7942 4777

edbookings@sciencemuseum.ac.uk

Journeys Through Medicine displays the wide diversity of ways that people have perceived health, using examples that range from prehistoric surgical tools to modern medical equipment.

Who am I? explores the way biomedical science is challenging our perceptions of our own identity, behaviour and origins.

You can see the most important piece of mould you'll ever see. There's an early sample of Penicillin in *Making the Modern World* along with one of the first X-ray machines and Crick and Watson's molecular model of DNA.

[sciencemuseum.org.uk/visitmuseum/plan_your_visit.aspx?suggestion=0](https://www.sciencemuseum.org.uk/visitmuseum/plan_your_visit.aspx?suggestion=0)



EXHIBITION ROAD
© Olivia Woodhouse



OLD OPERATING THEATRE
image by Michael Reeve ©

Old Operating Theatre Museum

9a St. Thomas St, SE1 9RY

020 7188 2679

curator@thegarret.org.uk

The Old Operating Theatre Museum is one of the most unusual museums in London. The operating theatre is the oldest in Europe and found in a unique space in the Herb Garret of St Thomas Church, and was part of old St Thomas Hospital.

thegarret.org.uk

EXPLORE: HEALTH IN THE CITY

POSSIBLE MUSEUM VISITS CONTINUED

Barts Pathology Museum

3rd Floor Robin Brook Centre, EC1A 7BE

020 7882 5555

bartspathology@qmul.ac.uk

Barts Pathology Museum is based in St Bartholomews Hospital at West Smithfield and houses over 5,000 medical specimens on display over 3 mezzanine levels of the Victorian museum.

qmul.ac.uk/bartspathology/about/index.html

There is also has a virtual version of the museum for those who cannot visit:

vpathmuseum.smd.qmul.ac.uk

Hunterian Museum

35 – 43 Lincoln’s Inn Fields, WC2A 3PE

020 7869 6566

museums@rcseng.ac.uk

The Hunterian Museum is home to extensive collections of human and non-human anatomical and pathological specimens, models, instruments, painting and sculptures that reveal the art and science of surgery from the 17th century to the present day.

Classes from year 7 upwards are welcome to visit the Hunterian Museum. The museum staff are happy to provide free introductory tours of the museum to all UK-based schools. Tours must be booked in advance and can accommodate a maximum of 30 students plus accompanying staff (1:10).

rcseng.ac.uk/museums/hunterian/learning/key-stages-3-and-4

Florence Nightingale Museum

2 Lambeth Palace Rd, SE1 7EW

020 7620 0374

contact.stephanie@florence-nightingale.co.uk

The museum’s collection spans the life of Florence Nightingale, the Crimean War and Florence’s nursing legacy up to the present day. Due to the size of the museum there is a maximum group size of 15. Whilst one group is in the museum other members of the class can visit the mini museum in St Thomas’ Hospital.

The mini museum shows how, over the years, medicines and operating techniques have advanced and new equipment has been invented, in some cases, thanks to the inspiration of staff within the Guy’s and St Thomas’ NHS Foundation Trust.

florence-nightingale.co.uk

EXPLORE: HEALTH IN THE CITY

POSSIBLE MUSEUM VISITS CONTINUED

Royal London Museum

Newark Street, E1 2AA

020 7377 7608

rlharchives@bartshealth.nhs.uk

The Museum has sections on the history of the hospital since its foundation in 1740, Joseph Merrick (the ‘Elephant Man’), and former London hospital nurses Edith Cavell and Eva Luckes. A showcase on forensic medicine features original material on the Whitechapel (‘Jack the Ripper’) murders and hospital surgeon and curator, Thomas Horrocks Openshaw who helped investigate. It also has a permanent exhibition of artefacts and archives relating to the hospital and the history of healthcare in the East End. Works of art, surgical instruments, medical and nursing equipment, uniforms, medals, and written archives and printed books are included.

The Museum is in three sections: the 18th, 19th and 20th centuries.

bartshealth.nhs.uk/rlhmuseum#About-the-museum

Wellcome Collection

183 Euston Road, NW1 2BE

020 7611 8361

youthprogrammes@wellcomvecollection.org

Wellcome Collection’s school programme offers a range of free activities for 14–19 year olds, from study days and teacher events, to more in-depth projects.

Wellcome Collection is the free destination for the incurably curious, where you can enjoy exhibitions, events, and the world-famous Wellcome Library.

Consider what it means to be human through an intriguing mix of art, science, medicine and ideas.

wellcomecollection.org/youth-and-schools-events



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EXPLORE: HEALTH IN THE CITY

POSSIBLE OUTDOOR/SPORTING VISITS



HAMPTON HILL JUNIOR SCHOOL/
CAPITAL GROWTH

Capital Growth Gardens

020 7065 0902

capitalgrowth@sustainweb.org

Capital Growth is London's largest food growing network, with over 2,000 gardens throughout the city, including a flagship site in The Regent's Park which schools are encouraged to visit.

Support is offered to people and groups who grow their own food in London, including discounted training, networking events, support with growing to sell and discounts on equipment. Joining is free and new ideas or offers of support are always most welcome. Find one near your school

capitalgrowth.org

Queen Elizabeth Olympic Park

Stratford, E20 2ST

0800 0722 110

customerservices@queen-elizabetholympicpark.co.uk

Schools are encouraged to use the parklands, venues and waterways as an inspiring learning environment.

The links below provide a range of activities to try at different sites around the park.

queenelizabetholympicpark.co.uk/~media/qeop/files/public/learning%20trails/ks3%20physical%20education

queenelizabetholympicpark.co.uk/the-park/things-to-do/for-schools

EXPLORE: HEALTH IN THE CITY

POSSIBLE HOSPITAL AND UNIVERSITY VISITS

St George's University of London

Cranmer Terrace, SW17 0RE

020 8266 6483

wp@sgul.ac.uk

St George's University of London works with over 5,000 students, from more than 200 schools and colleges each year. St George's offers events and activities for year 2-13 students that are fun, practical and informative, giving students a real insight into the healthcare professions. These include experiments roadshows that put the science students learn in schools into real-life medical and health care contexts. Clinical skills taster days at St George's give a taster of the clinical skills practised by healthcare professionals.

[sgul.ac.uk/about-us/what-is-widening-participation/schools-and-colleges](https://www.sgul.ac.uk/about-us/what-is-widening-participation/schools-and-colleges)

Centre of the Cell

Blizard Institute, 4 Newark St, E1 2AT

0207 7882 2562

Centre of the Cell is a science education centre based at the Whitechapel Campus of Queen Mary, University of London. It is the first science education centre in the world to be located within working biomedical research laboratories. Centre of the Cell seeks to have a positive impact on the educational, career and health choices of the children, young people and families we work with.

[centreofthecell.org](https://www.centreofthecell.org)

CONNECT

Students conduct a school based survey and compile a report presenting recommendations to improve health in the school community.

