Supporting Technical Education Teaching:

**Curriculum Resources**

Teaching Guide

Topic: Cancer care

Version information

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| **Topic** | Cancer care |
| **Specification coverage** | **B2: Further science concepts in health**  B2.30, B2.31 |

This resource is part of a series of materials to support technical education teaching. The approach to developing the materials draws from research led by Professor Kevin Orr that sets out a model for understanding of technical education pedagogy.

The curriculum development begins with the knowledge that students are working to learn and apply. Teachers draw from their subject and industry expertise, and their knowledge of their students, to make decisions about the core concepts the curriculum will focus on, how they will sequence these concepts, and the activities that are selected to support students’ learning. The decisions behind the resources suggested in this topic are the result of choices made by the curriculum development team, which will be reviewed and improved by teachers’ decision-making and ongoing reflection in their own circumstances.

The materials also seek to support teachers in bringing classroom and industry closer together, by providing assets that draw from authentic industry materials, and using opportunities to capture workplace practice that can be shared with students.

HEALTH AND SAFETY

It is assumed that activities outlined in this Teaching Guide will be undertaken in suitable facilities or work areas and that good practices, appropriate use policies and procedures will be observed. Teachers should consult their employers’ risk assessments before use and consider whether any modification is necessary for the particular circumstances of their own class/institution.

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Materials for other topics are available at: [www.technicaleducationnetworks.org.uk](http://www.technicaleducationnetworks.org.uk)

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Introduction

This document for teachers outlines both the topic area covered, and the approach to using the suite of resources and assets for each lesson. Unless otherwise stated, definitions of key terms have been developed by the authoring team and reviewed in the context of the activities. Teachers may choose to revise definitions as necessary.

# Topic purpose

Taking students through the content within this topic will enable them to develop an understanding of different cancers and how they affect individuals as well as wider family and support networks. They will also explore the holistic nature of treatment and support, and the professionals engaged.

The topic is made up of four lessons and each lesson is assumed to be 1.5 hours. Teachers may want to adapt the suggested sequencing of concepts and activities as appropriate for the students and circumstances. The lessons are broken down to provide teacher flexibility on the depth covered in the activities; lessons can also be split over multiple shorter lessons if required. Lesson 1 is an introductory lesson to cancer and covers researching data and risk factors for cancer. The following three lessons explore the treatment and impact of five different types of cancer and the work of professionals and organisations who treat and support.

The lessons are designed so that initially students are offered more support. This is gradually reduced as the lessons continue, to allow students to demonstrate more independent decision-making.

There are also opportunities to build several essential skills that are developed during the course. This includes general competencies for maths and English, and wider communication skills including compassion and empathy. Opportunities for digital skills engagement will be included. Person-centred care sits at the heart of the care and support students will explore.

The content in the lessons can be reinforced throughout the course to support students’ learning. For example, students might reflect on their own experiences: when preparing for an upcoming industry placement, they can observe how person-centred care is practised in the daily care and support they witness and record these insights in their logbooks. For example: [support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students](https://support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students)

# Industry importance

Although a specialist area, due to the incidence of cancer in the wider population, students will encounter individuals with cancer in various clinical and social care areas, as well as those who are involved in cancer care and support. They will develop an understanding of the impact of this diagnosis on the patient and on the wider support network. They will gain an understanding of the treatment process and the patient journey. Cancer care, support and diagnosis have an economic impact on the NHS and society as a whole, and this topic will help contextualise this for the student.

*With cancer affecting one in two people, and treatments often impacting quality of life for years, it's essential that our future health and care workforce understands not just the disease itself, but the human experience behind it. Equipping T Level students with the knowledge and skills to provide compassionate, person-centred support will empower them to make a meaningful difference to patients and families alike.*

***Claire Reynolds, Therapeutic Radiographer***

# Industry links

General information

* Cancer Research UK – a leading charity dedicated to researching cancer prevention, diagnosis and treatment to improve outcomes for patients: [www.cancerresearch.org.uk](http://www.cancerresearch.org.uk)
* Macmillan – provides specialist health care, information and emotional support for people affected by cancer, from diagnosis through treatment and beyond:

[www.macmillan.org.uk](http://www.macmillan.org.uk)

* Marie Curie – offers care and support to people living with a terminal illness and their families, both in hospices and at home:

[www.mariecurie.org.uk](http://www.mariecurie.org.uk)

* Coppafeel – a breast cancer awareness charity that educates young people on the importance of knowing their bodies and checking their breasts regularly: [coppafeel.org](https://coppafeel.org/)
* Royal Marsden NHS – the world's first hospital dedicated to cancer diagnosis, treatment, research and education:

[www.royalmarsden.nhs.uk](http://www.royalmarsden.nhs.uk/)

Links to NHS web pages on the different cancers covered in the topic, including information about symptoms, causes and treatments

* [www.nhs.uk/conditions/thyroid-cancer/](http://www.nhs.uk/conditions/thyroid-cancer/)
* [www.nhs.uk/conditions/testicular-cancer/](http://www.nhs.uk/conditions/testicular-cancer/)
* [www.nhs.uk/conditions/acute-myeloid-leukaemia/](http://www.nhs.uk/conditions/acute-myeloid-leukaemia/)
* [www.nhs.uk/conditions/testicular-cancer/](http://www.nhs.uk/conditions/testicular-cancer/)
* [www.nhs.uk/conditions/non-hodgkin-lymphoma/](http://www.nhs.uk/conditions/non-hodgkin-lymphoma/).
* [www.nhs.uk/conditions/breast-cancer-in-women/](http://www.nhs.uk/conditions/breast-cancer-in-women/)
* [www.nhs.uk/conditions/breast-cancer-in-men](http://www.nhs.uk/conditions/breast-cancer-in-men)

Person-centred care

* Overview – [www.nmc.org.uk/standards/code/code-in-action/person-centred-care/](http://www.nmc.org.uk/standards/code/code-in-action/person-centred-care/).
* Study days from The Kings Fund – [www.kingsfund.org.uk/leadership-development/courses/leading-kindness-compassion-health-social-care](http://www.kingsfund.org.uk/leadership-development/courses/leading-kindness-compassion-health-social-care?utm_term=thekingsfund&utm_source=LinkedIn&utm_medium=social)

# Prior learning

Students will have considered the anatomy and physiology of cellular structure in their first year, as well as having learned about cell structure, the cell cycle and the difference between malignant and benign during their science GCSE. This is revisited and built on during the topic. Students’ own relatable experiences around cancer with family, friends and from news and social media may have also given them some knowledge. Students may have some misconceptions, which will be addressed in the lessons. The importance of sensitivity in delivering this content cannot be overstated.

# Accessibility

The teaching materials have been designed to provide teachers with a flexible framework, including different approaches to activities, suggested consolidation activities to further embed knowledge and adaptable study questions to assess learning. As with all resources, teachers will wish to consider the specific needs of their students when using the materials, including special educational needs and disabilities (SEND). Although content has been reviewed, accessibility in externally linked resources cannot be guaranteed.

Learning outcomes and specification coverage

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| **Lesson** | **Learning outcomes** | **Specification coverage** | **Skills and general competencies** | **Links to other specification content** |
| **1** | Students will be able to:   * explain what cancer is; * describe the difference between benign and malignant tumours; * analyse statistics surrounding cancer survival rates; * explain how the failure of the cell cycle leads to cancer; * describe the risk factors for different types of cancer. | **B2.30** The difference between benign and malignant tumours:   * benign – a tumour that is not cancerous, it will not invade nearby tissue or spread around the body; * malignant – a tumour that is cancerous, it can invade nearby tissue and spread around the body.   **B2.31** The development, impact and management of cancer:  Causes of the condition:   * failure of cell cycle leading to cancer; * role of mutation in the development of cancer; * risk factors for different types of cancers. | Skills  **CS2.1** Communicate clearly and effectively with a variety of stakeholders  **CS3.2** Undertake collaborative work  **CS5.1** Apply research skills  General competencies  English:  **GEC2** Present information and ideas  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  Maths  **GMC5** Processing data  **GMC6** Understanding data and risk  Digital  **GDC1** Use digital technology and media effectively  **GDC3** Communicate and collaborate  **GDC4** Process and analyse numerical data | **A2.6** The potential impacts of future developments in the healthcare sector in relation to care provision  **A9.7** How lifestyle choices impact good health and wellbeing  **B1.1** The three principles of cell theory  **B1.6** The function of mitosis in nuclear division within cells  **B1.7** The purpose of each stage of the cell cycle |

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| **2** | Students will be able to:   * describe three types of cancer:   + thyroid cancer (TC)   + acute myeloid leukaemia (AML)   + germ cell testicular cancer (GCTC); * explain common cancer treatments; * compare and contrast the impact of different cancers within the body and on physical health; * compare and contrast different cancer treatments depending on the tumour. | **B2.31** The development, impact and management of cancer:   * Different types of cancer and how common treatments relieve symptoms: * thyroid cancer: thyroidectomy, radioactive iodine treatment * acute myeloid leukaemia: chemotherapy, bone marrow or stem cell transplants * germ cell testicular cancer: surgical removal of affected testicle; * Impact on systems within the body and on physical and mental health. | Skills  **CS1.1** Plan and develop person-centred care  **CS3.2** Undertake collaborative work  **CS4.1** Undertake reflective practice and record reflections and experiences  **CS5.1** Apply research skills  **CS6.1** Present their project findings in a range of formats  General competencies  English  **GEC2** Present information and ideas  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  **GEC6** Take part in/lead discussions  Digital  **GDC1** Use digital technology and media effectively  **GDC3** Communicate and collaborate  **GDC5** Be safe and responsible online | **A2.6** The potential impacts of future developments in the healthcare sector in relation to care provision  **B1.4** The structure and function of specialised cells in complex multi-cellular organisms  **B2.1** The structure and function of the musculoskeletal system |
| **3** | Students will be able to:   * describe two types of cancer:   + non-Hodgkin lymphoma (NHL)   + invasive breast cancer (IBC); * explain common cancer treatments:   + breast-conserving surgery and mastectomy;   + monoclonal antibody therapy;   + talking therapies; * explain the impact on systems within the body and on physical and mental health. | **B2.31** The development, impact and management of cancer:   * Different types of cancer and how common treatments relieve symptoms: * Invasive breast cancer: breast-conserving surgery and mastectomy, monoclonal antibody therapy, chemotherapy, radiotherapy, talking therapies; * Non-Hodgkin lymphoma: chemotherapy, monoclonal antibody therapy, radiotherapy, talking therapies. * Impact on systems within the body and on physical and mental health. | Skills  **CS3.2** Undertake collaborative work  **CS5.1** Apply research skills  **CS6.1** Present their project findings in a range of formats  General competencies  English  **GEC2** Present information and ideas  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  Digital  **GDC1** Use digital technology and media effectively | **A8.5** The key values of the healthcare sector when providing care and support  **A8.9** The considerations when providing person-centred care to people with pre-existing conditions or living with illness  **A8.14** How to support people with bereavement and how to communicate with families  **A9.8** A range of methods of taking a holistic approach to healthcare  **A9.9** The purpose of signposting individuals to interventions, or other services, and how this can support their health and wellbeing |
| **4** | Students will be able to:   * explain holistic approaches to cancer treatment and their importance; * discuss cancer treatment pathways from different professionals’ perspectives; * consider how could the role of each person in a multidisciplinary team (MDT) contributes to the physical and mental health of the patient; * describe a person-centred treatment plan. | **B2.31** The development, impact and management of cancer:  Invasive breast cancer (IBC):   * breast-conserving surgery and mastectomy; * chemotherapy; * radiotherapy; * talking therapies; * impact on systems within the body and on physical and mental health. | Skills  **CS1** Demonstrate person-centred care skills  **CS2** Communication  **CS3** Team working  **CS4** Reflective evaluation  **CS6** Presenting  General competencies  English  **GEC1** Convey technical information to different audiences  **GEC2** Present information and ideas  **GEC3** Create texts for different purposes and audiences  **GEC4** Summarise information/ideas  **GEC5** Synthesise information  **GEC6** Take part in/lead discussions  Digital  **GDC1** Use digital technology and media effectively  **GDC3** Communicate and collaborate | **A8.5** The key values of the healthcare sector when providing care and support  **A8.10** How mental health conditions can influence a person’s needs in relation to overall care  **A8.12** The range of terms used in the healthcare sector in relation to death and bereavement including their meaning  **A8.13** The role of healthcare professionals in providing person-centred care for the individual during the active dying phase  **A8.15** What the 6 Cs are in relation to person-centred care  **A8.16** The importance of practicing and promoting the 6 Cs in relation to demonstrating person-centred care skills, through own actions and promoting the approach with others  **A9.8** A range of methods of taking a holistic approach to healthcare  **A9.9** The purpose of signposting individuals to interventions, or other services and how this can support their health and wellbeing |

Lesson guidance

# Lesson 1: What is cancer?

This lesson introduces students to cancer, its causes, risk factors and treatments. Students will analyse UK cancer survival rates and examine risk factors. Although this can be delivered as a stand-alone lesson, if used in conjunction with other materials it is designed to be delivered first, as it will give the students the background knowledge required for the other lessons.

## Preparation

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| **Resources provided** | * Lesson 1 Slide deck * Activity 1 Worksheet * Activity 2 Worksheet * Activity 3 Worksheet * Activity 3 Worksheet answers * Consolidation Worksheet |
| **Equipment needed** | Access to a device with internet connection. |
| **Safety factors** | Be aware of any students in the class who have a loved one with cancer. |
| **Prior learning** | * GCSE science: cell division and cell cycle, benign and malignant tumours, mutation.   Health T-Level content:   * + B1.1 The three principles of cell theory   + B1.6 The function of mitosis in nuclear division within cells   + B1.7 The purpose of each stage of the cell cycle   + B1.12 The purpose of deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) as the carrying molecules of genetic information   + K1.3 The requirements for following a duty of care and duty of candour within the scope of the supporting healthcare role – 6 Cs: care, compassion, competence, communication, courage and commitment (launched in the Compassion in Practice vision and strategy, NHS England 2012). |
| **Common misconceptions** | * Cancer is a communicable (infectious) disease. In this lesson students will understand that cancer is not infectious. * Breast cancer cannot affect men. It is important for students to understand that breast cancer can affect anyone regardless of biological sex. * Cancer only affects older people. While it is more prevalent in adults, children can have cancer. * Mobile phones cause cancer. Current research shows that there is no known link between mobile phones and cancer. * All lumps are cancerous – in both men and women the vast majority are non-cancerous or benign – however, every lump should be checked by a healthcare professional. |
| **Accessibility** | * Seek to ensure wide representation for any visiting speakers and case studies used. * Basic animation is used in the slides in this lesson to improve cognitive load, stagger information or present instructions. Teachers may wish to remove this feature if it is unsuitable for students. |

## Activity guide

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| **Introduction**  SUGGESTED TIME:  20 minutes  RESOURCES:   * L1 slide deck – slides 4–12 | * Raise that this is a challenging topic, and that some students might find the content triggering due to their own experiences with cancer – either personal or someone they know. Teachers should communicate this topic is being delivered before the day this lesson starts and appropriate support offered to meet the needs of their students. This is applicable for all lessons in this topic. * Use slide 2 to introduce the learning objectives for this lesson. * Make sure students understand this classroom is a safe space, but they are not obliged to share experiences. Students need to know that they can take a break if they are finding the content too much. Consider informing students of the support services available to them at school/college in case they need further support. You could ask students to co-develop a learning contract for these sessions, including ground rules. * Acknowledge this can be a difficult topic to discuss, and that health practitioners use a lot of compassion when speaking to service users. * Ask students to discuss in pairs, ‘What is cancer?’ (slide 3). Listen to their ideas, then use slide 4 to give a definition. * Explore any misconceptions about cancer that students may have by using the cards on slide 5. For each card, ask students to raise their hand if they think the statement is correct, then reveal the answers on slides 6 and 7.   + It is important for students to understand that cancer is not a contagious disease that you can catch. Confusion could come from the use of vaccines, for example the HPV vaccine. Discussion point for students: HPV is a virus, and it can cause various cancers, but HPV is not itself cancer. It is possible to be infected with HPV and not develop cancer.   + We often refer to breast examination in relation to women, but men can develop breast cancer and should also be carrying out regular chest examinations. Source: Cancer Research UK (2023) *Breast cancer in men:* [www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer](http://www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer)   Please note that these resources use the terminology ‘men’ and ‘women’ to be consistent with NHS and major charity advice, but cancer affects everyone. Further information to specifically support the LGBTQ+ community can be found on the Macmillan website: [www.macmillan.org.uk/support-for-lgbtq-affected-by-cancer](http://www.macmillan.org.uk/support-for-lgbtq-affected-by-cancer)   * + Cancer is indiscriminate and anyone of any age can develop cancer. However, there are some cancers that are more prevalent in children (leukaemias, brain and central nervous system tumours, lymphomas) and others that are more prevalent in adults (breast, lung, prostate and colorectal). Cancer Research UK (2024) *Children’s cancer survival:* [*https://www.cancerresearchuk.org/about-cancer/childrens-cancer/about/survival*](https://www.cancerresearchuk.org/about-cancer/childrens-cancer/about/survival)and Cancer Research UK *Cancer incidence for common cancers:* <https://www.cancerresearchuk.org/health-professional/cancer-statistics/incidence/common-cancers-compared>   + It is important to stress that a lot of people receive curative treatment and survival rates are improving all the time. Discuss the importance of early diagnosis, along with the new treatments that are being developed.   + Currently there is thought to be no link between cancer and mobile phone use. Source: National Cancer Institute (2024) *Cell phones and cancer risk:* [www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet](http://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet) * Use slides 8–12 to explore what is meant by ‘tumour’, ‘benign’, ‘malignant’ and ‘primary and secondary tumours’. It is important to highlight that not all tumours are malignant. A benign tumour does not act in the same way as a malignant one and will often remain localised. However, they can still grow, and at differing speeds. Even if a tumour is benign, patients will still need to have regular reviews to ensure that any growth is not impacting on other organs in the body. Surgery can be used to remove benign tumours, and they can be treated in the same way as malignant tumours. * You may wish to show the students a short video explaining the difference: [www.youtube.com/watch?v=ijnNNdBu4yk](http://www.youtube.com/watch?v=ijnNNdBu4yk) * Make sure that students understand that while we are referring to cancer as a tumour, it is important to remember that not all cancers form tumours: cancers in the blood affect the cells within the blood, but do not form a tumour. * Malignant tumours are categorised as either primary or secondary.   + Primary – this is the term used to refer to the area in which the tumour originated. When someone is diagnosed at a later stage and the cancer has spread, it is not always possible to identify the primary.   + Secondary – this is the term used to refer to any cancer that has spread; it is also called ‘metastatic cancer’. Although the cancer can spread to any other part of the body, often you will find it migrating to specific areas; this helps the oncologist in predicting spread and planning treatment. For example: breast cancer commonly spreads to the bone, liver, lungs or brain, while testicular cancer commonly spreads to the lymph nodes, liver and lungs. |
| **Activity 1: Cancer statistics**  Suggested time:  30 minutes  Resources:   * L1 Slide deck – slide 13 * L1 Activity 1 Worksheet | * Introduce the research activity in which students will explore cancer survival trends. In this activity, they will apply research skills, analyse and process data and synthesise findings before presenting a summary. * Ask students to work in groups of three. Each student will use reliable internet sources to research one question as shown on the Activity 1 worksheet. This set-up allows them to collaborate effectively, while independently applying research skills and using digital tools. * You might like to discuss with students what is meant by a reliable source, and how they can be sure that a source is reliable: for example, if the author is an expert in their field, or from a reputable organisation, e.g. a government department; if the claims are backed by data or research; if the content is free of bias; if the content is recent. * Also discuss with students how they will make fair comparisons, e.g. make sure that rates are counted over a similar period. * Students will need access to a device connected to the internet to do their research. URLs for reliable sources of information are given on the worksheet, but students can source their own data if they wish. * You may wish to direct students to suitable national and regional statistics. National statistics can be found here: [www.cancerresearchuk.org/health-professional/cancer-statistics-for-the-uk](http://www.cancerresearchuk.org/health-professional/cancer-statistics-for-the-uk) and regional here: [digital.nhs.uk/data-and-information/publications/statistical/cancer-survival-in-england](https://digital.nhs.uk/data-and-information/publications/statistical/cancer-survival-in-england) (this is the most up-to-date information on regional cancer statistics, although it is only up to 2021). * Groups then discuss what they found out and compile a short summary. * Allow time for a feedback session in which groups report their findings. Use these to decide on some important headlines about cancer statistics in the UK. For example, the one-year index of cancer survival for England has increased from 65.6% in 2005 to 74.1% in 2019 and 74.6% in 2020 (NHS England), but the UK ranks lower than many countries, including Australia and the USA. |
| **Activity 2: Cell division**  Suggested time:  15 minutes  Resources:   * L1 Slide deck – slides14–18 * L1 Activity 2 Worksheet | * Check that students understand the terms ‘cell division’, ‘mutation’ and ‘the cell cycle’ by using slide 14. Cell division and the cell cycle were covered in B1.6 and B1.7 and at GCSE. * Make sure students understand that cell division is a normal process that is usually tightly controlled to make sure that only healthy cells divide, and that cells grow, repair and reproduce in a regulated manner. This process ensures that damaged or unnecessary cells are removed while maintaining proper tissue function and development. * Mutation is a change in the DNA sequence of a cell. Some mutations have no effect, while others can lead to diseases such as cancer if they disrupt normal cell function. Mutations can occur naturally during cell division or be caused by external factors like radiation, chemicals or viruses (which are risk factors for cancer, covered in Activity 3). * Students then answer the questions on the Activity 2 worksheet (slide 15), where they name the stages of the cell cycle and consider the different possible ways in which mutation can cause a cell to become cancerous. * Use slides 16–18 to allow students to check their answers. * Almost all cancers are caused by mutations in the DNA. Further information is given below, which you may like to share with the class:   + **Oncogenes** are genes that can cause cancer. When mutations occur in the DNA of a cell, it will normally undergo a process named apoptosis. This simply means a sequence of events occur that allow the cell to die without any harmful substances impacting on the surrounding tissue – this includes replication of mutated DNA. However, if the mutation has meant that the gene affected has become an oncogene, this can impact the process of apoptosis and instead of the cell dying, it replicates. For an oncogene to become cancerous it usually requires an extra causal factor. This could be another mutated gene or environmental factors.   + **Tumour suppressor genes** normally slow down the process of cell division to stop mutated cells from dividing and growing to form tumours, but if the mutation is affecting this gene, this process is impacted and it can result in uncontrolled cell division, which can lead to the development of a tumour.   + **DNA repair genes** repair damaged DNA, but if they themselves are mutated, this process is inhibited, meaning that DNA errors accumulate in the cell and can lead to the cells becoming cancerous. Example: mutations in the BRCA1 or BRCA2 genes can increase the risk of breast and ovarian cancer.   + How quickly cells are replaced in the body is all under homeostatic control, which determines whether new cells are required, and how many. Mutations in cells can impact on this normal process and cause the cell to behave differently.   The following information on abnormal cellular behaviour is for teacher information, which you may like to share with students (although it is not part of the specification):   * Hyperplasia – mutated cells do not respond to the signals that would cause apoptosis or stop mitosis, so they keep on multiplying. * Dysplasia – all cells have a specialised function, but during dysplasia cells lose this and become abnormal cells in that location. * In situ cancer – the abnormal cells continue to multiply, and as they do so further mutations occur. * The stages of hyperplasia and dysplasia are often referred to as the precancerous phase. The in situ phase is also considered ‘pre-malignant/pre-cancerous’. This means that the cells are abnormal but they haven’t yet invaded the surrounding tissues. However, it does require treatment (often similar to the treatment for invasive cancer) as it can progress if left untreated. Invasive cancer forms the malignant phase. * It is important to realise that cancer risk increases with age because DNA damage accumulates over time. Typically, one mutation alone is not enough to cause cancer. |
| **Activity 3: Risk factors**  Suggested time:  15 minutes  Resources:   * L1 Slide deck – slides 19–20 * L1 Activity 3 Worksheet * L1 Activity 3 Worksheet answers | * Use slide 19 to introduce the term ‘risk factors’. * Ask the students if they can come up with one specific risk factor in each group. Give an example, e.g. smoking is a lifestyle choice that is a risk factor for cancer (because cigarette tar is a carcinogen). * Give students a copy of the Activity 3 worksheet and play the video on slide 20 ‘risk factors for cancer’ (<https://vimeo.com/1092718134/a70ee2e539>). Pause the video to allow students to fill in types of cancer linked to each risk factor. * Ask students to do their own research to fill in the column about how to reduce risks. If time allows, ask them to add more risk factors for each category. Go through their ideas as a class. * Consider talking to students about how the categories of genetic, lifestyle, environmental, biological, etc are subjective when talking about risk factors. Some risk factors could fall into more than one of these categories. For example, HPV is shown in the video as environmental, but this could be thought of as a biological or lifestyle factor. * Explain that the actual cause of a malignant cancer is difficult to determine. We must consider how long someone was exposed to a carcinogen (any substance that can cause cancer) and the individual's risk factor (made up of genetics and lifestyle factors). * Inform the class that specific types of cancer and their treatments will be covered in more detail in subsequent lessons. * Students can use the Activity 3 answers to check their completed table. Note that the answers given are an example. Other answers are correct, for example prostate cancer has a genetic risk, smoking is a risk factor for breast cancer and excessive alcohol consumption is linked with many other cancers, including breast cancer. |
| **Plenary**  Suggested time:  10 minutes  Resources:   * L1 Slide deck – slides 21–22 | * Use the questions on slide 21 to test students’ knowledge of the lesson objectives. * Revisit learning outcomes on slide 22. |
| **Follow-up/consolidation** (to be completed outside of lesson)  Suggested time:  45 minutes  Resources:   * L1 Slide deck – slide 23 * L1 Consolidation Worksheet | * Ask students to do research to evaluate a UK cancer campaign. * The Consolidation worksheet provides URLs that give information on four different campaigns (or students can choose their own, for example if there is a local campaign). * Students should describe the key features of the campaign and evaluate how well it improves cancer outcomes. They should use what they have learned in the lesson about risk factors and cancer statistics in their answer. * You may need to remind students what the command verb ‘evaluate’ means: to review information and bring it together to make judgements and conclusions from available evidence. * Students can choose how to present their findings. It could be a written report, a presentation or another format of their choosing. |

# Lesson 2: Cancer types and their treatments – Part 1

This lesson will introduce three types of cancer from the specification: acute myeloid leukaemia (AML), thyroid cancer (TC) and germ cell testicular cancer (GCTC). Students will work together to improve their understanding of cancer treatments and apply their knowledge to understand the specific treatments for these cancers. They will work to understand how different cancers and their treatments can affect physical health and impact the systems of the body and apply their knowledge by answering extended questions.

## Preparation

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| **Resources provided** | * Lesson 2 Slide deck * Activity 2 Information sheet * Activity 2 Worksheet * Activity 3 Worksheet answers |
| **Equipment needed** | Access to a device with internet connection. |
| **Safety factors** | Be aware of any students in the class who have a loved one with cancer. |
| **Prior learning** | * A general knowledge of how cancer might be treated from personal experience, news or social media * B1.4: specialisation of blood cells occurs through differentiation from stem cells found in bone marrow * B2.1: the skeleton is a source of blood cell production (as above) * B1.31/B1.32 the definition of half-life: the types and properties of ionising radiation to apply to radioactive iodine treatment of thyroid cancer (TC) |
| **Common misconceptions** | * Cancer treatment is always accepted and often successful. Students should be encouraged to think about how to handle situations where patients decline the cancer treatments offered, and/or where end-of-life care is needed. * Cancer treatment only affects physical health. Although this lesson focuses on physical health, students should be reminded that cancer and its treatment will affect the patient’s mental, spiritual, social and emotional life. This is covered in more detail in Lesson 3. |
| **Accessibility** | * Seek to ensure wide representation for any visiting speakers and case studies used. * Basic animation is used in the slides in this lesson to improve cognitive load, stagger information or present instructions. Teachers may wish to remove this feature if it is unsuitable for students. |

## Activity guide

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| **Introduction**  SUGGESTED TIME:  15 minutes  RESOURCES:   * L2 Slide deck – slides 2–3   . | * Lesson objectives can be shared from slide 2 of the slide deck. * As a starter task, students are asked to think, pair, share their current knowledge of cancer treatments. There are some prompts on slide 3 to encourage students to think about this in depth. * As they pair up and share answers, if they are not much improved by their paired-up/group knowledge, you could allow them to use a suitable student book or a limited number of internet resources to allow them to improve their knowledge within the task time. |
| **Activity 1: Cancer treatments**  Suggested time:  15 minutes  Resources:   * L2 Slide deck – slides 4–10 | * Use slides 4–9 to help students summarise their new knowledge and check their level of understanding. * Play the video on slide 10 (<https://www.youtube.com/watch?v=FtdXAZ048hA>). This news report outlines how technologies such as AI and robotics are helping to discover more effective drugs with fewer side-effects. Students will consolidate and extend their knowledge in this area by completing the Consolidation activity at the end of the lesson. * This video provides valuable insights into the evolving landscape of cancer treatment and the ongoing efforts to improve survival rates and patient care. * Students will consolidate and extend their knowledge in this area by completing the Consolidation activity. |
| **Activity 2: Cancer types**  Suggested time:  30 minutes  Resources:   * L2 Slide deck – slides 11–15 * L2 Activity 2 Information sheet * L2 Activity 2 Worksheet | * Slide 11 Introduces Activity 2 and explains that acute myeloid leukaemia (AML) will be used as a best-practice example of the expected level of detail needed. * To be able to discuss cancer treatments, students need to know about types of cancer, and Activity 2 aims to help them to understand why certain treatments are offered for different cancers. * Provide students with a copy of the Activity 2 information sheet, which is a profile of AML. Ask them to read through it. * Slide 12 asks students to decode the medical terms in the name ‘acute myeloid leukaemia’. This is good practice in learning new vocabulary and may assist in recall about the different cancers. It also serves as an opportunity to check previous learning about stem cells and bone marrow. Reveal the answers on slide 13 and explain the relationship between bone marrow/stem cells and AML – one treatment is a bone marrow transplant as a source of blood cell production. Students can write the answers on the information sheet. * Slide 14 pictures white blood cells and how stem cells are linked to myeloid (white) blood cells as another way to remember and understand the effects of this cancer. It could also be a stimulus to ask students why it would have the symptoms it does, and why it would be treated with stem cell transplant and chemotherapy. * Slide 15 serves as instructions for the student task and gives suggested sources of information to help keep students on time and using reliable sources. Give students a copy of the Activity 2 worksheet and ask them to work in pairs. One person will complete a profile for thyroid cancer (TC) and the other for germ cell testicular cancer (GCTC). Encourage them to use reliable sources such as those given on the slide: [www.nhs.uk](http://www.nhs.uk/), [cks.nice.org.uk/specialities/cancer](https://cks.nice.org.uk/specialities/cancer/), [www.cancerresearchuk.org](http://www.cancerresearchuk.org) * After they have completed the profiles, ask them to swap and make brief notes on the cancer their partner researched. * Initiate a class discussion comparing and contrasting the impact of different cancers on the body and on physical health. |
| **Activity 3: Answering extended questions**  Suggested time:  20 minutes  Resources:   * L2 Slide deck – slides 16–18 * L2 Activity 3 Worksheet answers | * Slide 16 serves as a stimulus to get students to consider how they would structure and use appropriate vocabulary in an exam answer. * Suggested answers are:   1. What vocabulary do you choose to use? (so, therefore, because)   2. How do you structure your writing? (paragraphs, PEEL: point, explain, evidence/example, link)   3. Which facts do you need to introduce to support the explanation? (facts that are not already stated in the question, but which form the basis of the explanation)   4. What examples illustrate your explanation? (examples from the specification and/or from clinical experience)   5. How will you summarise to ensure you have answered the question? (link back to the question, making sure you have made enough points for the number of marks, and that you have met the command word – in this case, ‘explain’) * Marks are available for defining, describing and factual knowledge in the T-level exams. Students should be encouraged to move to explaining, applying knowledge, justifying and evaluating in any questions that have more than 3–4 marks available, depending on the command word in the question. * Slide 17 gives a question that builds on previous discussion in the class about why AML is treated with stem cell/bone marrow transplant. Students need to apply their knowledge in a structured answer. * Any fast finishers could be asked to detail why AML has such system-wide symptoms, or they could be moved onto question 2 (slide 18). * Slide 18 gives an example exam question which stretches students to apply their new knowledge of treatments and specific cancers. If timing is tight, students can complete these questions as an additional consolidation activity. * A challenge question is also available for fast finishers (slide 18), or as a point at which to bring in the mental health implications of cancer treatment. * Supply students with the Activity 3 answer sheet, which they use to peer-assess their answers and offer feedback. * Questions like those shown on slides 17 and 18 are usually worth 6 marks. Students can check SAMs and past papers to gain additional practice. |
| **Plenary**  Suggested time:  10 minutes  Resources:   * L2 Slide deck – slides 19–20 | * Slide 19 is a chance for students to reflect on their learning, either from the whole lesson or on the exam-style questions. * Slide 20 reshares the learning outcomes from the lesson. |
| **Follow-up/consolidation** (to be completed outside of lesson)  Suggested time:  40 minutes  Resources:   * L2 Slide deck – slide 21 | * Ask students to do their own research on a new form of cancer treatment or diagnosis tool for testicular cancer (GCTC), thyroid cancer (TC) or acute myeloid leukaemia (AML) that interests them. * They should use what they found out to write a report that outlines:   + how the cancer is normally treated/diagnosed   + what the new treatment/diagnosis tool aims to do   + how it will do this   + what its impact might be on cancer care. |

# Lesson 3: Cancer types and their treatments – Part 2

This lesson will explore invasive breast cancer (IBC) and non-Hodgkin lymphoma (NHL), their impact on physical and mental health and available treatments. Although this can be delivered as a stand-alone lesson, if used in conjunction with other materials it is designed to be delivered third so that the students have the required background knowledge from Lessons 1 and 2.

## Preparation

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| **Resources provided** | * Lesson 3 Slide deck * Activity 1 Worksheet * Activity 2 Worksheet * Activity 3 Worksheet * Activity 3 Worksheet answers * Consolidation Worksheet * Consolidation Worksheet answers |
| **Equipment needed** | Postbox (a box with a hole in the lid – you might want to paint or cover it); slips of paper for students to write questions on.  Access to a device with internet connection. |
| **Safety factors** | Be aware of any students in the class who have a loved one with cancer. |
| **Prior learning** | * Anatomy and physiology of the reproductive system (which should have covered breast tissue and breast development). * Anatomy and physiology of the lymphatic and immune systems. |
| **Common misconceptions** | * Breast cancer is a disease of the elderly. In fact, many young people are diagnosed, with Cancer Research UK (2021) ([www.cancerresearchuk.org/health-professional/cancer-statistics/incidence/age](http://www.cancerresearchuk.org/health-professional/cancer-statistics/incidence/age)) showing that 43% of diagnoses occur in 25–49-year-olds, 34% in 50–74-year-olds and 21% in the 75+ category (these figures are for females in the UK between 2016 and 2018). * Breast cancer is a life sentence. Data shows that 76% of patients survive for ten or more years (Cancer Research UK figures from 2013–2017: [www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer](http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer)). * Only women develop breast cancer. In the UK, around 370 men per year are diagnosed with breast cancer ([www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer](http://www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer)) and this will often involve a lump around or behind the nipple, which is where the male breast tissue is found. Companies like Coppafeel ([coppafeel.org](https://coppafeel.org/)) are moving towards more inclusive terminology such as ‘chest examination’ rather than ‘breast examination’. |
| **Accessibility** | * Seek to ensure wide representation for any visiting speakers and case studies used. * Basic animation is used in the slides in this lesson to improve cognitive load, stagger information or present instructions. Teachers may wish to remove this feature if it is unsuitable for students. |

## Activity guide

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| **Introduction**  Suggested time:  15 minutes  Resources:   * L3 Slide deck – slides 2–5 * Box with a lid, pieces of paper | * Start by introducing the learning outcomes for the lesson on slide 2 and discuss what will be covered. * This lesson will be covering invasive breast cancer (IBC). As the most common form of cancer in the UK, there is a strong likelihood that someone in the room has been impacted by this. * This lesson might raise questions that students do not want to ask in the class or in front of their peers. Suggest having a secure, closed postbox (with a lid) that students can post their question into, either anonymously or (if they need a personal answer) with their name on. * Use the questions on slide 3 for students to review their understanding from previous lessons. The questions increase in challenge as they go on. Briefly discuss the answers:   1. Recall four ways of treating cancer. (Surgery, radiotherapy, chemotherapy, tumour specific treatments, e.g. immunotherapy and hormone therapy.)   2. Describe the difference between a benign and a malignant tumour. (A benign tumour is non-cancerous, does not spread to other parts of the body, and usually grows slowly; it can often be removed without it returning. A malignant tumour is cancerous, can invade nearby tissues and spread (metastasise) to other parts of the body, making it more dangerous.)   3. Explain why treatment for AML includes chemotherapy and a bone marrow transplant. (Chemotherapy is used to destroy the leukaemia cells in the bone marrow and bloodstream. However, it also damages normal bone marrow cells. A bone marrow transplant replaces the damaged or destroyed bone marrow with healthy stem cells, helping the body to produce normal blood cells again.)   4. Suggest possible treatments for breast cancer and explain your choices. (This question is used to see if students have any prior knowledge of breast cancer treatment. They may mention surgery, including breast-conserving surgery (also known as wide local excision and colloquially as lumpectomy) and mastectomy; chemotherapy; radiotherapy; hormone therapy; immunotherapy.) * Remind students that they are going to learn about IBC. Use slide 4 to recap understanding of breast anatomy. Explain that at puberty, a female’s ovaries produce and secrete oestrogen, which causes fat in the connective tissue of the breast to build up and stimulate the growth of milk ducts. The breast tissue is sensitive to hormonal changes during the menstrual cycle due to the production of oestrogen and progesterone. It is important to remember that these changes can cause breasts to feel lumpy. This is why regular breast examination at varying times of the menstrual cycle is important for females, so that they know what is normal for them. * Ask students what body system they think non-Hodgkin lymphoma (NHL) affects. * Use slide 5 to give a quick recap of the lymphatic system. * Extra information that you might like to include:   + Lymph fluid is a clear to white fluid that comes from plasma (the liquid part of blood).   + It contains white blood cells (which help fight infection), mainly lymphocytes and macrophages. Lymphocytes attack and fight bacteria and other foreign substances, while macrophages fight bacteria, viruses and other foreign bodies by engulfing them in a process called phagocytosis.   + Lymph also contains:     - nutrients – minerals and salts;     - waste products collected from around the body, including damaged cells and cell waste;     - chyle, a fluid from the intestines containing fats and proteins;     - foreign bodies such as bacteria and viruses. * Remind them that like the circulatory system, the lymphatic system is a network of vessels that travel around the body transporting lymph fluid. |
| **Activity 1: Cancer profiles**  Suggested time:  30 minutes  Resources:   * L3 Slide deck – slides 6–8 * L3 Activity 1 Worksheet | * Explain to students that they will be completing profiles on IBC and NHL (slide 6), as they did in Lesson 2. Encourage them to use reliable sources such as those given on the slide: [www.nhs.uk](http://www.nhs.uk/), [cks.nice.org.uk/specialities/cancer](https://cks.nice.org.uk/specialities/cancer/), [www.cancerresearchuk.org](http://www.cancerresearchuk.org/) * Ask students to work in pairs. Give each student a copy of the Activity 1 worksheet (this is the same as the one they used in Lesson 2). * One student writes a profile describing NHL. The other writes a profile on IBC. Students will need access to the internet to carry out their research. * Students should also include three short questions on the type of cancer they are researching based on information in the profile. * When the profiles are completed, pairs swap profiles, read through them and answer the questions. They should also make brief notes on the information. * Use slides 7–8 to recap important information about NHL. * Some additional points that you might like to discuss are:   + NHL is part of a group of cancers known as blood cancers. Others in this group are:     - leukaemia;     - lymphoma;     - myeloma;     - myelodysplastic syndrome (MDS);     - myeloproliferative neoplasms (MPN).   + NHL affects the white cells in the blood known as lymphocytes. There are two types of lymphocytes: T and B. The majority of NHLs affect the B lymphocytes, although some of the rarer forms affect T lymphocytes. Statistically, around 90% have B-cell lymphoma while 10% have T-cell lymphoma.   + Lymphoma develops when the lymphocytes divide abnormally and grow out of control.   + Due to the nature of the cancer and where it is situated, it is sometimes referred to as lymphatic cancer.   + Students may have heard of Hodgkin lymphoma (previously ‘Hodgkin’s disease’), but they are different. In Hodgkin lymphoma there are Reed–Sternberg cells, but these are not present in non-Hodgkin lymphoma (NHL). Oncologists need to determine which one the patient has, as the treatment pathway is different for each disorder.   + There are more than 60 types of NHL, so while the lesson is looking at this type of cancer, the information is generic. |
| **Activity 2: Monoclonal antibody therapy**  Suggested time:  20 minutes  Resources:   * L3 Slide deck – slides 9–14 * L3 Activity 2 Worksheet | * Ask students if they have heard of monoclonal antibodies before asking them to decode the term using slide 9. * Reveal the meanings of each term using slide 10. Students will probably need more information on antibodies and antigens before fully understanding what monoclonal antibodies are and how they can be used as a cancer treatment, so use slides 11–13 to recap knowledge on these terms. Each slide has a question for students to answer. * Give students a copy of the Activity 2 worksheet and ask them to watch the video about monoclonal antibody treatment ([www.youtube.com/watch?v=dxnjAc-rqz8](http://www.youtube.com/watch?v=dxnjAc-rqz8)) linked from slide 14. They should use this information to explain what monoclonal antibodies are and then draw cartoon strips to show the three ways they can be used to treat cancer (block, flag, deliver). * Students should answer Q1 in their own words. If needed for clarity, the following model answer can be used to check against: Monoclonal antibodies are lab-made molecules that mimic the body's natural antibodies. They are Y-shaped molecules that are designed to target a specific antigen, such as those on the surface of a cancer cell. * Explain that not all cancers have suitable antigens on their surface, so they cannot all be treated by monoclonal antibody therapy. |
| **Activity 3: Invasive breast cancer**  Suggested time:  20 minutes  Resources:   * L3 Slide deck – slides 15–19 * L3 Activity 3 Worksheet * L3 Activity 3 Worksheet answers | * Use slide 15 to recap information on IBC. Breast cancer is found worldwide and is the most common form of cancer in women across 157 countries. * Explain further a definition of invasive cancer–when the cells reach this stage, they can evade the body’s immune system. Blood vessels form that supply the cells with nutrients needed for growth, forming tumours. These tumours are made up of cancer cells that can move around the body to other areas where they can settle and grow (known as secondary tumours or metastases). * Treatment options are listed on slide 16. * Further information that you might like to share:   + Most people start treatment for breast cancer with surgery, but there are different types of surgery.   + Breast-conserving surgery (also known as wide local excision and colloquially as lumpectomy) removes the lump and the surrounding tissue. Depending on the size and location of the lump, it may not be possible to have this type of surgery.   + Mastectomy – this is where all the breast tissue is removed; this can be accompanied by breast reconstruction.   + Breast reconstruction – there are different types of reconstruction, which the surgeon would discuss with the patient.   + Chemotherapy uses cytotoxic (cell-killing) drugs, which destroy cancer cells but also destroy normal, healthy cells. Chemotherapy is given in cycles, the duration of which vary depending on the type of chemotherapy.   + Treatment can be given prior to surgery to try and shrink the tumour – this is called neo-adjuvant chemotherapy. This can make the difference between a patient having a mastectomy and a lumpectomy.   + Chemotherapy given after surgery is referred to as adjuvant chemotherapy and is given if it is thought that there is a risk the cancer could have spread to other parts of the body. The main aim of adjuvant chemotherapy is to reduce the risk of recurrence.   + Chemotherapy can also be used in secondary breast cancer – this is where the cancer has spread to other parts of the body. It can help to control further spread, shrink the cancer and help to relieve symptoms. This type of chemotherapy can help control the symptoms of secondary cancer for months and in some cases years.   + Radiotherapy – this is a common form of treatment for cancer. It involves the use of high-energy X-rays to destroy the cancer cells. There are various types of radiotherapy, and which one is used is usually determined by the type of cancer. In breast cancer, the most common form is external beam therapy; the X-ray beam comes from a machine which is targeted towards the whole of the affected breast. * At this point you might like to spend some time talking about regularly checking the chest for any changes that could be caused by breast cancer.   + A good visual aid is the Know Your Lemons campaign ([www.knowyourlemons.org)](about:blank) which uses lemons to show the different symptoms of breast cancer – skin changes are really noticeable when depicted in this way.   + Discuss that breast pain is common and not necessarily a sign of breast cancer; it could be hormonal, whether in one breast or both. There might be no obvious reason, despite undergoing tests.   + The symptoms in men are very similar in presentation to those in women, apart from the location of any lump. * Give students a copy of the Activity 3 worksheet and ask them to watch the two IBC case study videos linked from slide 17: Carina ([www.youtube.com/watch?v=KZAawwDjNvI](http://www.youtube.com/watch?v=KZAawwDjNvI)) and Julie ([www.youtube.com/watch?v=ANAqBf8f3O8](http://www.youtube.com/watch?v=ANAqBf8f3O8)). Students should answer the questions on the sheet, which focus on the differences in treatment, the mental health impact of a cancer diagnosis and treatment and physical impact on the body. * Students can self- or peer-assess using the Activity 3 answers sheet. * Note that Carina’s course of treatment isn't the normal treatment course that most students would have been exposed to or would see in a hospital. She had a double mastectomy rather than breast-conserving surgery. The reason for this could be patient choice, or she may have had a family history that meant she had a high risk of the cancer returning. Also, radiotherapy is not routinely given after mastectomy (while it is after breast-conserving surgery) due to the increased risk in comorbidities from both treatments. It is unclear why Carina’s treatment plan included this. * Recap the mental health impact of cancer and the available support using slides 18–19. Links to the two organisations mentioned are:   + Macmillan Cancer Support: [www.macmillan.org.uk](http://www.macmillan.org.uk)   + Maggie’s: [www.maggies.org](http://www.maggies.org) |
| **Plenary**  Suggested time:  5 minutes  Resources:   * L3 Slide deck – slide 20 * Box with a lid, pieces of paper | * Recap learning outcomes – do the students feel they have met these? * Ideally, students will have asked questions as the lesson progressed. However, some students may have questions they did not feel they could ask in the lesson. * Remind students that if they have questions they did not feel they could ask in the lesson, they can post them in the postbox, and you will answer them at the next opportunity. |
| **Follow-up/consolidation** (to be completed outside of lesson)  Suggested time:  40 minutes  Resources:   * L3 Slide deck – slide 21 * L3 Consolidation Worksheet * L3 Consolidation Worksheet answers | * Give students the Consolidation worksheet, which contains a case study for an NHL patient. Suggest to students that they research any unknown terms to ensure they fully understand the information before trying to answer the questions. * Students answer the questions using their knowledge from the lesson plus extra research where needed. * The Consolidation worksheet answers can be used for self-assessment or teacher assessment. |

# Lesson 4: Occupational roles in cancer care

This lesson introduces several occupational roles in the multidisciplinary team around a patient: nurses, doctors and allied health professionals. It also looks at the role of the multidisciplinary team and considers its contribution to person-centred care. Although this can be delivered as a stand-alone lesson, if used in conjunction with other materials it is designed to be delivered fourth, as it will help students contextualise the patient journey from diagnosis to recovery or mortality.

It may be useful for students to undertake some research into the different roles that support a cancer patient's journey, emphasising the role of multidisciplinary working prior to the lesson.

## Preparation

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| **Resources provided** | * Lesson 4 Slide deck * Activity 2 Worksheet * Activity 2 Information sheet * Activity 3 Worksheet * Activity 3 Worksheet answers * Consolidation Worksheet * Consolidation Worksheet answers |
| **Equipment needed** | Access to the internet.  Flip chart paper or large sheets of paper, pens, colours.  Optional: LEGO®, modelling clay, student laptops/tablets/computer room. |
| **Safety factors** | Be aware of any students in the class who have a loved one with cancer. |
| **Prior learning** | * Principles of person centred care and the 6Cs. * Breast anatomy and physiology (covered earlier in this topic in Lesson 2: Cancer types and their treatments – Part 1). * Elara’s case study (covered earlier in this topic in Lesson 3: Cancer types and their treatments – Part 2, Consolidation Worksheet). |
| **Common misconceptions** | * You can train as a pharmacist through an apprenticeship – currently this is not an option, though entry-level qualifications can lead to a pharmacy career. * Treatment decisions are made by one doctor – in reality, patient cases are discussed in multidisciplinary team meetings. * All radiographers treat cancer – only therapeutic radiographers deliver cancer treatment. * Oncology is a separate profession – in fact it is a medical specialism focused on cancer care. * Clinical and community pharmacists do the same job – oncology teams work with clinical pharmacists. * Teamwork happens naturally – students must establish a shared code of conduct and problem-solving strategies. |
| **Accessibility** | * Seek to ensure wide representation for any visiting speakers and case studies used. * Basic animation is used in the slides in this lesson to improve cognitive load, stagger information or present instructions. Teachers may wish to remove this feature if it is unsuitable for students. |

## Activity guide

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| **Introduction**  SUGGESTED TIME:  10 minutes  RESOURCES:   * L4 Slide deck – slides 2–5 | * Start by introducing the learning outcomes for the session on slide 2. * Ask students to work in pairs or small groups and to write a list of all the individuals they think are involved in caring for a patient with cancer (slide 3). Encourage students to think of mental-health support as well as physical-heath support. * Reveal the roles on slide 4. Ask groups if they thought of any that are not shown on the diagram. * Use slide 5 to review the term ‘multidisciplinary team’. Students may have come across this role before. Explain that the roles on the previous slide, and those discussed in their groups, form the multidisciplinary team (MDT) around the patient and their family and/or carers. These are the professionals and volunteers who are responsible for the patient’s care, from the point of diagnosis to the end of their care. It is important to recognise that while a lot of patients survive their cancer journey, there will always be people who do not. In these cases, the palliative care team have an important role. |
| **Activity 1: Person-centred care**  Suggested time:  10 minutes  Resources:   * L4 Slide deck – slides 6–10 | * Watch the video on slide 6 from the NMC (Nursing and Midwifery Council) about the importance of person-centred care (PCC): [www.youtube.com/watch?v=rM9QAxFSBMU](http://www.youtube.com/watch?v=rM9QAxFSBMU) * Ask students to write down their definition of PCC and how it relates to the NHS values (you may need to remind students about these: working together for patients, respect and dignity, commitment to quality of care, compassion, improving lives, everyone counts). Ask some students to share their answers with the class. * Reveal a definition on slide 7. Discuss that PCC is based on the biopsychosocial model and takes the patient’s physical, psychological and sociological status into account. This involves assessing physical needs and emotional and mental health needs, as well as taking account of their sociological status (home life, support networks, employment, education, and so on). When planning care for a patient, it is important to consider all these aspects and to involve the patient in developing the care plan. This helps the patient to take ownership of the care plan and adhere to it. (Note that we no longer use terms like ‘compliance’ or ‘non-compliance’.) * Ask students to recall the 6 Cs in healthcare. Hints are given on slide 8, and the answers are revealed on slides 9–10. Explain that the 6 Cs, introduced in the Compassion in Practice document (Department of Health and NHS Commissioning Board 2012) define a set of values and behaviours that healthcare professionals are expected to follow. * Discuss links between PCC and the 6 Cs. Emphasise that although the 6 Cs are often associated with the nursing profession, they were designed for all health and social care professionals. |
| **Activity 2: Professionals working in oncology**  Suggested time:  20 minutes  Resources:   * L4 Slide deck – slides 11–18 * L4 Activity 2 Worksheet * L4 Activity 2 Information sheet | * Introduce Activity 2 with slide 11 and the Activity 2 worksheet. * The weblinks on slide 12 link to YouTube videos in which professionals discuss their role in an oncology setting. These are also on the worksheet for students to access. They should also do their own research to gather more information, if there is time.   Oncologist: www.youtube.com/watch?v=AbWXt1boxXQ (from 2.48 to 5.01)  Therapeutic radiographer: [www.youtube.com/watch?v=pDBH2OYHvMc](http://www.youtube.com/watch?v=pDBH2OYHvMc) (until 3.44)  Nurse: [www.youtube.com/watch?v=DtO5kKF-VqI](http://www.youtube.com/watch?v=DtO5kKF-VqI)  Pharmacist: [www.youtube.com/watch?v=zKkVZWXfwFA](http://www.youtube.com/watch?v=zKkVZWXfwFA) (until 2.25)  Physiotherapist: [www.youtube.com/watch?v=6SXU9-d1WB8](http://www.youtube.com/watch?v=6SXU9-d1WB8)  Occupational therapist: [www.youtube.com/watch?v=YUmgwnCUb4o](http://www.youtube.com/watch?v=YUmgwnCUb4o)   * Students should research how their assigned professional would support a patient with cancer, and how they might work in a team with other professionals to support the care of a cancer patient. * Any students that finish early can be asked to research another professional involved in cancer care of their choosing. * After carrying out their research and making notes, pairs share with each other what they found out. * You may wish to use slides 13–18 to recap the roles of each professional. The Activity 2 information sheet lists what qualifications are needed for each role, which could be shared with students who are interested. * You might also like to discuss the following roles:   + Healthcare assistants (HCAs), also referred to as care workers, support workers, or healthcare support workers, are an essential part of the nursing team and often undertake a lot of the work around activities of daily living. HCAs also work with many allied health professional teams too.   + Nursing Associates (NA) are registered professionals with the Nursing and Midwifery Council and can perform a lot of the same tasks as a registered nurse (RN). They bridge the gap between the HCA and the RN, but there are some essential differences. NAs are not able to perform initial assessments or develop care plans, but they can reassess and monitor patients in their care and help to adapt care plans to the changing needs of the patient. NAs are only working in England currently, but the other nations are considering bringing in this role. Unlike the RN scope of practice, which is relatively similar regardless of where you are working, the scope of practice for NAs varies between individual practice areas. * Students may be interested in viewing the ACCEND framework ([www.hee.nhs.uk/our-work/cancer-diagnostics/aspirant-cancer-career-education-development-programme/accend-framework](http://www.hee.nhs.uk/our-work/cancer-diagnostics/aspirant-cancer-career-education-development-programme/accend-framework)), which supports the development of professionals working in cancer care. |
| **Activity 3: IBC case study**  Suggested time:  20 minutes  Resources:   * L4 Slide deck – slide 19 * L4 Activity 3 Worksheet * L4 Activity 3 Worksheet answers | * Students remain working in their professional pairs from Activity 2. * Introduce Zara’s case study and Activity 3 using slide 19 and the Activity 3 worksheet. * Note: two possible outcomes are given, to expose students to as many professionals as possible involved in cancer care. Students should consider both. * This activity prepares students for the Activity 4 project work. * Students may need reminding about what they learned about breast anatomy and physiology from Lesson 2; they may need to be told that some breast cancers are hormone driven like Zara’s, and that this means they can be treated using hormone therapy, which blocks the hormone receptors to prevent the cancers growing. * Students need to link the lymphatic supply to breast and axillary lymph nodes as the way in which breast cancer cells can spread to the other parts of the body, as they have in Zara’s case. * Students need to address the physical health impacts associated with different treatments: the risks associated with surgery (both mastectomy and breast-conserving surgery); the impact of fatigue from both chemotherapy and radiotherapy; nausea and lowered immunity from chemotherapy; and skin reactions from radiotherapy, for example redness, dryness, itchiness (known as erythema) and more rarely, peeling and blistering. * Students need to make links between Zara’s mental health being impacted by facing uncertainty and her mortality, with teenage children and her partner to consider. * She may need to stop work, and this might affect her self-esteem and put pressure on the household finances. Students may mention the work of the talking therapies, Macmillan nurses and other psychotherapies to help support Zara through treatment. * Students could check their answers using the Activity 3 answer sheet. |
| **Activity 4: Collaborative project**  Suggested time:  20 mins (could need a lesson’s work with a presentation and feedback)  Resources:   * L4 Slide deck – slide 20 | * Students work together as an MDT to produce a visual, presentable and displayable piece of work that shows Zara’s cancer care journey, the different professionals that would be involved and at which stages and their specialist contributions. * Elara’s case study (covered earlier in this topic in Lesson 3: Cancer types and their treatments – Part 2, Consolidation Worksheet) could be used instead. * In a big class, students could be split into groups of six as per the professional pairings from slide 11. * Students may need assistance to work together efficiently and problem-solve. They may need longer to produce the project than one lesson allows. In the case of needing another lesson, students could also present their work to another class, or each other, to practice presenting. Listening students could offer feedback, evaluating how well students met the brief. * Students do not need to follow the suggested spiral pathway and should be encouraged to be creative about how they could make the interaction of the different professionals in a cancer care journey visual and detailed. |
| **Plenary**  Suggested time:  10 minutes  Resources:   * L4 Slide deck – slides 21–22 | * Students work independently to reflect on their learning at the end of this series of lessons. (If a stand-alone lesson, they can reflect on how well they met the brief for the project and how well they worked together as a team). * Slide 21 gives them a visual prompt for the key words and concepts covered over the cancer care topic. * Slide 22 covers the learning outcomes from today’s lesson. |
| **Follow-up/consolidation** (to be completed outside of lesson)  Suggested time:  30 minutes  Resources:   * L4 Slide deck – slide 23 * L4 Consolidation Worksheet * L4 Consolidation Worksheet answers | * Students consolidate their learning from Lesson 4 to create a person-centred care plan (PCP) for Zara using the template on the Consolidation worksheet. They should consider the different professionals and the support they can offer. * Students gain experience in seeing what a person-centred care plan is by using what they know about Zara to fill in her care plan. They then practise both justifying their treatment recommendations from the perspective of a professional and explaining the diagnosis and treatment options to the patient. The focus here could be on making sure they are adapting their language accordingly, practising the skill of conveying technical information to different audiences. * It is important to note that while person-centred care is important, there are gold standards of treatment (for IBC) based on evidence-based practice, and also NICE guidelines about what a patient can and cannot receive. * This overlaps with the skills needed for students’ Employer Set Project, as well as writing techniques for their exams. * Example answers are provided in Consolidation answer sheet |

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| Teaching Guide page 3 | [www.ncfe.org.uk/qualification-search/qualification-detail/t-level-technical-qualification-in-health-level-3-delivered-by-ncfe-1644](http://www.ncfe.org.uk/qualification-search/qualification-detail/t-level-technical-qualification-in-health-level-3-delivered-by-ncfe-1644) (with permission) | NCFE\* | June 2025 |
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| Teaching Guide page 5 | [support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students](http://support.tlevels.gov.uk/hc/en-gb/articles/360015345420-Industry-placement-logbook-for-students) (with permission) | GOV UK | June 2025 |
| Teaching Guide page 6, 19 and 23, Lesson 2 slide 15, Lesson 3 slide 6 | [www.cancerresearch.org.uk](http://www.cancerresearch.org.uk/) (with permission) | Cancer Research UK | June 2025 |
| Teaching Guide page 6 and 26 | [www.macmillan.org.uk](http://www.macmillan.org.uk/) (with permission) | Macmillan | June 2025 |
| Teaching Guide page 6 | [www.mariecurie.org.uk](http://www.mariecurie.org.uk/) (with permission) | Marie Curie | June 2025 |
| Teaching Guide page 6 and 21 | [coppafeel.org](http://coppafeel.org/) (with permission) | CoppaFeel | June 2025 |
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| Teaching Guide page 6 | [www.nhs.uk/conditions/thyroid-cancer](http://www.nhs.uk/conditions/thyroid-cancer/) (with permission) | NHS England | June 2025 |
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| Teaching Guide page 6, Lesson 2 Activity 2 Information sheet | [www.nhs.uk/conditions/acute-myeloid-leukaemia](http://www.nhs.uk/conditions/acute-myeloid-leukaemia) (with permission) | NHS England | June 2025 |
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| Teaching Guide page 6 | <http://www.kingsfund.org.uk/leadership-development/courses/leading-kindness-compassion-health-social-care> (with permission) | Kings Fund | June 2025 |
| Teaching Guide page 12 and 21 | [www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer](http://www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer) (with permission) | Cancer Research UK | June 2025 |
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| Teaching Guide page 14, Lesson 1 Activity 1 Worksheet | [digital.nhs.uk/data-and-information/publications/statistical/cancer-survival-in-england](http://digital.nhs.uk/data-and-information/publications/statistical/cancer-survival-in-england) (with permission) | NHS England | June 2025 |
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| Teaching Guide page 19 and 23, Lesson 2 slide 15, Lesson 3 slide 6 | [cks.nice.org.uk/specialities/cancer](https://cks.nice.org.uk/specialities/cancer/) (with permission) | NICE | June 2025 |
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| Teaching Guide page 25, Lesson 3 slide 17, Lesson 3 Activity 3 worksheet | [www.youtube.com/watch?v=KZAawwDjNvI](http://www.youtube.com/watch?v=KZAawwDjNvI) (with permission) | NMC / YouTube | June 2025 |
| [www.youtube.com/watch?v=ANAqBf8f3O8](http://www.youtube.com/watch?v=ANAqBf8f3O8) (with permission) | South Tyneside and Sunderland NHS Foundation Trust / YouTube | June 2025 |
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| Teaching Guide page 29, Lesson 4 slide 12, Lesson 4 Activity 2 Worksheet | [www.youtube.com/watch?v=AbWXt1boxXQ](http://www.youtube.com/watch?v=AbWXt1boxXQ) (with permission) | ecancer / YouTube | June 2025 |
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| Teaching Guide page 29 | [www.hee.nhs.uk/our-work/cancer-diagnostics/aspirant-cancer-career-education-development-programme/accend-framework](http://www.hee.nhs.uk/our-work/cancer-diagnostics/aspirant-cancer-career-education-development-programme/accend-framework) (with permission) | NHS England | June 2025 |
| Lesson 1 Consolidation Worksheet | <https://campaignresources.dhsc.gov.uk/campaigns/help-us-help-you-cancer/> | GOV UK | June 2025 |
| <https://www.bowelcanceruk.org.uk/support-us/partner-with-us/andrex/> | Bowel Cancer UK | June 2025 |
| <https://www.bowelcanceruk.org.uk/news-and-blogs/this-is-bowel-cancer-blog/how-cara-spearheaded-awareness-partnership-with-marks-and-spencer/> | Bowel Cancer UK | June 2025 |
| [www.standuptocancer.org.uk](http://www.standuptocancer.org.uk) (with permission) | Stand Up To Cancer | June 2025 |
| Lesson 1 Activity 1 Worksheet | <https://www.nuffieldtrust.org.uk/resource/cancer-survival-rates> (with permission) | Nuffield Trust | June 2025 |
| Lesson 1 Activity 1 Worksheet | <https://www.theguardian.com/society/2024/jan/11/uk-cancer-survival-rates-developed-world-report> | The Guardian | June 2025 |
| Lesson 1 Activity 1 Worksheet | [gco.iarc.who.int/en](https://gco.iarc.who.int/en) (with permission) | Global Cancer Observatory | June 2025 |
| Lesson 3 Consolidation Worksheet | [www.nice.org.uk/guidance/ng52/chapter/Recommendations](http://www.nice.org.uk/guidance/ng52/chapter/Recommendations) (with permission) | NICE | June 2025 |
| Lesson 3 Consolidation answers | [www.prehab4cancer.co.uk](http://www.prehab4cancer.co.uk/) | Prehab4Cancer / NHS | June 2025 |

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