Planetary Health Report Card (Medicine):

Peninsula Medical School

2022-2023 Contributing Team:
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Summary of Findings

Overall	B

Curriculum	B

- Peninsula Medical School's curriculum covers many metrics in depth in the core curriculum. However, some topics are covered in one session across the course or not at all e.g., reproductive health effects of environmental toxins, importance of Indigenous knowledge, and benefits of a plant-based diet.
- **Recommendations:** Peninsula Medical School has a spiral curriculum and therefore we recommend that these topics are incorporated into existing sessions across all year groups

Interdisciplinary Research	A

- Within Peninsula Medical School, the Sustainable Earth Institute and Global Health Collaborative run many projects relating to planetary health. The medical school is a member of the Global Consortium on Climate and Health Education but not of the Planetary Health Alliance.
- **Recommendations**: Peninsula Medical School could organise a conference directly related to Planetary Health. They could also join the Planetary Health Alliance.

Community Outreach and Advocacy	D+

- Peninsula Medical School's student newsletter sometimes contains planetary health and sustainable healthcare topics, and the University of Plymouth's internal communications often includes these topics too.
- **Recommendations**: Peninsula Medical School could offer community-facing courses or events relating to planetary health, and more community partnerships relating to planetary health in student selected units. They could also collaborate with affiliated hospitals to provide post-graduate teaching on planetary health and educational materials for patients.

Support for Student-Led Initiatives	A-

- Peninsula Medical School offers a range of sustainability QI projects, some of which require student initiative to seek out. There is a dedicated webpage for planetary health and sustainable healthcare information. Students for Global Health Plymouth hosts education and charity events, but lacks specific faculty support.
- **Recommendations**: Support for student-led initiatives mostly comes from the wider University rather than the Medical School. We recommend the medical school offers increased support to students interested in sustainable initiatives e.g., by creating a website to advertise mentors or opportunities for students relating and prioritising grants for related research.

Campus Sustainability	A-

- Peninsula Medical School recognises sustainability as a key principle in decisions about procurement of supplies and campus food and beverage selections, with investment in making lab spaces more resource conserving. They also aim for further improvement with an approved plan for carbon neutrality by 2030 and steps are being taken to implement a sustainable investment platform for organisation of medical school events.
- **Recommendations:** Improvements can be made by moving completely away from investing in fossil fuel companies and guaranteeing onward investments into renewable energy companies and campus initiatives. Peninsula Medical School could also set guidelines and policies for events hosted by the medical school to adhere to sustainability criteria.

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as "a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth." This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanization, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment, and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change "the greatest threat to global health in the 21st century," many medical school's institutional priorities do not reflect the urgency of this danger to human health.

As future health professionals, we must be prepared to address the impacts of human-caused environmental changes on our patients' health. This preparation is in the hands of the institutions providing our medical training. It is imperative that we hold our institutions accountable for educating medical students about the health impacts of climate change and other anthropogenic environmental changes, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices as much as possible, and engaging with surrounding communities that are most affected by environmental threats. Because climate change and environmental threats disproportionately affect vulnerable populations (for example, communities of color, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among medical schools, we have created a Planetary Health Report Card that medical students internationally can use to grade and compare their home institutions on an annual basis. This medical-student-driven initiative aims to compare medical schools nationally and internationally on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) interdisciplinary research in health and environment, 3) university support for student planetary health initiatives, and 4) community outreach centered on environmental health impacts 5) medical school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as "the health of human civilisation and the state of the natural systems on which it depends." For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional 'environmental health' examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term "planetary health" to satisfy the metric.

- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.

- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:

    1. Describe how the environment and human health interact at different levels.

    2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.

    3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.

- **Medical School vs. Institution:** When "medical school" is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more

broadly. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions providers are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mold after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution.

- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.

- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

Other considerations:

- If there are more than one "tracks" at your medical school with two different curricula (for example, Harvard Medical School has a Pathways and HST curriculum track), you can choose to fill out a report card for each track, or fill out just one report card and average the scores received by each track in cases where the scores are different (see the 2021 Harvard or Oxford report cards as examples).

Added to our resources last year, the Planetary Health Report Card Literature Review by Metric collates the evidence behind each of the metrics in the Planetary Health Report Card. It serves as a collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

Section Overview: ***This section evaluates the integration of relevant planetary health topics into the medical school curriculum.*** *Today's medical students will be on the frontlines of tackling the health effects of climate and other environmental changes. Therefore, it is critical that medical students are trained to understand the health effects of these changes, as well as planetary health issues and principles more broadly. Topics like the changing geography of vector-borne diseases, the health consequences of air pollution, environmental health inequities, and disaster response principles must be part of every medical school's core curriculum.*

Curriculum: General

1. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered **more than one** elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered **one** elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does **not** have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a **lecture** on planetary health.
0	No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.

Student Selected Unit (SSU) option: Green Practice. Creating a more sustainable world in General Practice. Learning outcomes:

- *The planet is changing, and this is due to the way we treat it. We all as individuals need to change our lifestyles to reduce the impact we are having on the earth.*
- *We also need to do that, corporately, in our workplaces. This SSU focuses on a rural general practice.*
- *Taking the model from the national "Green Practice" scheme, we will develop aspects of working to reduce carbon footprint; reduce waste, as well as creating more energy via solar panelling / wind turbines in surgery land.*

Year 2 Doctors as Educators: Sustainability in Healthcare:

- *As the largest UK employer, the NHS and Health and Social Care sectors have a responsibility to contribute to sustainability and reduce their environmental impact while delivering exceptional care. How can medical students contribute to this? What do they need to know to help them be the champions of the future?*

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.

2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Year 1 Planetary health Workshop. Learning objectives - The science of the climate emergency:
- *Doctors responding to the climate emergency threat as part of advocacy*
- *Links between responding to the climate emergency and sustainability targets*
- *Win/Win solutions to the climate emergency*
- *Contribution of health care to emissions*

Year 2 Doctors As Educators (DAE) project subject: "Sustainability in Healthcare"

Year 3 Locally Global Plenary:
- *Climate change: new threats and challenges*

Year 5 elective learning outcome:
- *"Demonstrate a current and in-depth understanding of a topic relating to global health or health inequality."*

3. Does your <u>medical school</u> curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?

3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Planetary health workshop in year 1, learning objectives: The science of the climate emergency:
- *Doctors responding to the climate emergency threat as part of advocacy*
- *Links between responding to the climate emergency and sustainability targets*
- *Win/Win solutions to the climate emergency*
- *Contribution of health care to emissions*

Yer 1 and 2 optional SSU: Extreme Environment Physiology and Medicine
- *"This SSU will cover the physiological effects of exposure, the acute and chronic threats to health, and special medical considerations for activity and exploration in different types of extreme environments.*
- *Important factors to be covered include the effects of changes in gravity, pressure, respiratory gas composition, nutrition, hydration and temperature. Also covered are the physiological mechanisms involved and - where appropriate - their implications for optimizing performance and survival.*
- *Pharmacological, psychological, emergency management and planning implications will also be considered where relevant."*

Year 3 Locally Global Plenary:
- *Climate change: new threats and challenges*

Year 4 optional SSU:

- *How should general practice respond to the climate crisis?*

4. Does your <u>medical school</u> curriculum address the impact of climate change on the changing patterns of infectious diseases?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Briefly described in year 2 plenary 'preparing to travel', learning objectives do not directly describe this:

- *Begin to conceptualise from Global Health in relation to your own clinical practise*
- *Become aware of the challenges that impact infectious disease prevention (vaccines and prophylaxis)*
- *Become aware of some emerging diseases, tropical diseases, and zoonoses*
- *Know where to find relevant information on vaccine and medical guidance for international travel*

5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Planetary health workshop in year 1, learning objectives: The science of the climate emergency

- *Doctors responding to the climate emergency threat as part of advocacy*
- *Links between responding to the climate emergency and sustainability targets*
- *Win/Win solutions to the climate emergency*
- *Contribution of health care to emissions*

Years 1 and 2 optional SSU: "Allergies and the Environment". Learning outcome:

- *"Asthma and atopic allergies are dramatically increasing. This unit will explore the basic immunological mechanisms involved and look at the environmental reasons that may be responsible for these increases"*

Year 2 Quality Improvement (QI) SSU workshop covering air pollution and asthma.

Year 4 plenary on environmental lung disease, learning objectives:

- *Environmental lung diseases associated with the environment, smoking and industrial/occupational hazards.*

6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Year 1 Clinical Leadership and Extension Week (CLEW) - Planetary Health Workshop. Learning objectives - The science of the climate emergency: ● *Doctors responding to the climate emergency threat as part of advocacy* ● *Links between responding to the climate emergency and sustainability targets* ● *Win/Win solutions to the climate emergency* ● *Contribution of health care to emissions*	

7. Does your <u>medical school</u> curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
● *Year 1 Doctors and Planetary Health CLEW session learning objective: "doctors responding to the climate emergency threat as part of advocacy" and "Win/Win solutions to the climate emergency".* ● *Year 1 plenary: "Influences on Health" learning outcome: "Psychological, social, economic and environmental factors that influence an individual's health and well-being at different stages in the life cycle".*	

8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
● *Year 1 workshop: Planetary Health workshop learning outcome: "contribution of healthcare to emissions".*	

- *Year 1 plenary: "Influences on Health" learning outcome: "Psychological, social, economic and environmental factors that influence an individual's health and well-being at different stages in the life cycle".*
- *Maslow's Hierarchy of Needs is discussed in depth in years 1 and 2 (multiple Dr. Tim Ley lectures).*
- *Year 1 Doctors and Planetary Health CLEW session.*
- *Year 2 social engagement essential reading: social determinants of health.*
- *Year 5 elective learning outcome: "Demonstrate a current and in-depth understanding of topic related to global health or health inequality".*

9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?

3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

- *Year 1 Jigsaw (reflective small group seminars) session "Influences on Health" learning outcome: "psychological, social, economic and environmental factors that influence an individual's health and well-being at different stages in the life cycle".*
- *Year 1 Lecture/plenary "Developmental Psychology" considered the role of nature vs nurture or Genetics vs Environment.*
- *Year 2 Lecture "Health of the Homeless" included the learning outcomes "understand social determinants of homelessness-risk factors for homelessness/epidemiology" and "understand common health problems of the homeless and their access to health services".*
- *Year 3 Tutorial week lecture "Prematurity: Biopsychosocial Cause and Consequences" learning outcome: "understand the psychosocial causes of preterm birth".*
- *Year 3 SSU general handbook states that "newly qualified doctors must be able to apply the principles, methods and knowledge of population health and the improvement of health and sustainable healthcare to medical practice, describe the health of a population using basic epidemiological techniques and measurements, and evaluate the environmental, social, behavioral and cultural factors which influence health and disease in different populations.".*
- *Year 3 locally global: a population view of medicine learning objectives: "Describe common factors influencing health at home and abroad, Articulate a Population Health approach to local and global problems, Role and principles of healthcare provision, How to find winning solutions to complex problems".*
- *Year 4 General Practice (GP) clinical pathway week learning outcome: "understand the patient perspective and how family and environment influences health behaviours and outcomes".*
- *Year 4 CC2 tutorial "Environmental Lung Disease" learning outcome "environmental lung diseases associated with the environment, smoking, and industrial/occupational [factors]".*
- *Year 4 SSU module handbook/elective handbook learning outcome: "socioeconomic and environmental determinants of health [including] 1) demonstrate awareness of the non-clinical determinants of health, including social, political, economic, environmental, and gender disparities 2) examine how health can be distributed unequally within and between populations in relation to socially defined measures and 3) describe how the environment and health interact at the global level"*

10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
• *Year 2 LSRC "preparing to travel" learning objectives:"Become aware of the challenges that impact infectious disease prevention (vaccines and prophylaxis)" and "Become aware of some emerging diseases, tropical diseases, and zoonoses".* • *Year 2 LSRC "Disease of the Returning Traveller" learning objective: "Recognise diseases of significant public health importance and know what to do in these situations (VHFs / notifiable diseases)" and "become aware of some additional emerging diseases, tropical diseases and zoonotic diseases".* • *Year 2 learning objective: "Discuss health inequalities from a global perspective".* • *Year 2 social engagement essential reading: social determinants of health.* • *Year 3 locally global: a population view of medicine learning objectives: "Describe common factors influencing health at home and abroad, Articulate a Population Health approach to local and global problems, Role and principles of healthcare provision".* • *Year 4:workshop "Global Health: Providing Healthcare for Global Populations (pre-elective session)" learning objectives: "Appreciate the huge differences in health and healthcare around the world" and "Understand the principal institutions having responsibility for health globally".* • *Year 5 elective learning outcome: "Demonstrate a current and in-depth understanding of topic related to global health or health inequality".*	

Curriculum: Environmental Health & the Effects of Anthropogenic Toxins on Human Health

11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
No learning outcomes cover this topic.	

12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
3	This topic was explored **in depth** by the **core** curriculum.

2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

- *Year 2 'Planetary Health' workshop with learning objective including 'contribution of healthcare to emissions'*
- *Year 4 'Environmental Lung disease' tutorial with learning objectives covering the industrial, and environmental causes of some lung disease.*

13. To what extent does your <u>medical school</u> emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
3	Indigenous knowledge and value systems are **integrated throughout** the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included **briefly** in the core curriculum.
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in **elective** coursework.
0	This topic was **not** covered.

The medical school does not cover this topic.

14. Does your <u>medical school</u> curriculum address the outsized impact of anthropogenic environmental toxins on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, Indigenous populations, and older adults?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

- *Year 1 'Influences on health' Jigsaw session with learning outcome covering 'Psychological, social, economic and environmental factors that influence an individual's health and well-being at different stages in the life cycle'*
- *Year 2 'Sustainable health and QI' workshop with learning objective 'Consider how the environment affects all the social determinants of health and how the environmental impact of health care'*
- *Year 2 Social Engagement 'Gained an understanding of the health-related needs of a given population group, how some of these needs are currently being met and by whom. Explored how these needs relate to wider population needs - locally, nationally and globally.'*
- *Year 2 'Health of the Homeless' plenary covering 'Understand social determinants of homelessness - risk factors for homelessness, epidemiology'*

- *Year 3 'Creative approaches to advocacy and wellbeing' SSU with learning objective 'evaluate the environmental, social, behavioral and cultural factors which influence health and disease in different populations'*

Curriculum: Sustainability

15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
The medical school does not cover this topic.	

16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
3	This topic was explored **in depth** by the **core** curriculum
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

In the Year 5 Supporting Academic Programme, under Population Health and Management, there is a session 'Healthcare Systems'. Learning outcomes for this session are:

- *Principles underlying the development of health service policy in the UK and elsewhere.*
- *Structure and function of the NHS and other systems; including:*
- *Range of settings where care is provided*
- *Issues relating to health economics*
- *Issues relating to equity*
- *Demonstrate how patient care is Delivered in the health service*
- *Outline the principles underlying the development of health, health service policy and clinical guidelines, including principles of health economics, equity and sustainable healthcare*

In Year 2, there is a workshop entitled ''Sustainable Healthcare and QI'. Learning outcomes for this session are:

- *Sustainability in Quality Improvement: an asthma case study*
- *This session aims to deepen your understanding of quality improvement and sustainability as well as some of the challenges in improving the quality of care of patients with asthma. In the session you will:*
    - *Consider how the environment affects all the social determinants of health and how the environment impacts of healthcare*
    - *Discuss what is meant by quality improvement in healthcare*
    - *Start to develop knowledge and skills to improve the quality and environmental sustainability of health care, using asthma as an example*

- *Consider whether and how your responsibility as medical students and future doctors to protect and promote health, includes taking responsibility for environmental factors.*

17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (points for each)	
2	The health **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of **pharmaceuticals** and over-prescribing as a cause of climate health harm. Alternatively teaching on **deprescribing** where possible and its environmental and health co-benefits would fulfill this metric.
1	The health **and** environmental **co-benefits** of **non-pharmaceutical management** of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated
1	The impact of **anaesthetic** gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	**Waste production** within healthcare **clinics** and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)

- *Point 2: "Locally Global: a population view of medicine" Plenary in Year 3 examines the problems of over-prescribing and the benefits of deprescribing.*
- *Point 3: The health benefits of non-pharmaceutical management is explored in Year 4 Tutorial "Caring for patients' wellbeing". Learning outcomes for this session are:*
  - *Discuss the role of complementary and creative therapies in maintaining hope and preserving dignity*
  - *Holistic care: identifying and addressing physical, psychological, social and spiritual needs of patients and their families*
- *Point 7: Reducing waste is mentioned in a Year 4 small group session, "Politics, resource management and how the NHS works". Learning outcomes for this session are:*
  - *Discuss and give examples of the role of the doctor with respect to managing resources, ensuring cost effectiveness and minimising waste.*
  - *Discuss the place of guidelines and incentive schemes in modern medical practice and the implications for their own work.*
  - *Impact of political decisions about the NHS – is there evidence? What do policy changes mean for you as an imminent trainee doctor? And what do they mean for members of the public?*
  - *Understand the current structure of the NHS and implications of resource distribution between primary vs secondary care, and health vs social care*

Curriculum: Clinical Applications

18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework.
0	No, there are **not** strategies introduced for having conversations with patients about climate change

There has been no change to this metric from the previous report card.

The medical school curriculum does not include strategies to have conversations on the health effects of climate change. Lectures and workshops discuss the health effects of climate change, but not at specific patient encounters. They are mainly focused on providing healthcare to global populations, with regards to climate change and health inequalities rather than conversations with individual patients.

- *Year 1 "Planetary Health" Workshop links climate change to healthcare, including advocacy as a way to address this. Learning outcomes:"Doctors responding to the climate emergency threat as part of advocacy" and "Contribution of health care to emissions"*
- *Year 2 Plenary "Public Health Workshop - Global Health". Learning outcomes include:"Global morbidity and mortality, Social determinants of health, health inequalities"*
- *Year 2 Plenary "Health Inequalities" discusses health inequalities in populations and what can be done about this, the effect of climate change is mentioned briefly. Learning outcomes:*
  - *"What are health inequalities?*
  - *How do they arise?*
  - *What is the situation globally and in the UK?*
  - *What can be done about it?*
  - *What is the role of health and doctors?"*
- *Year 3 Plenary "Locally Global: a population view of medicine" Learning outcomes:*
  - *"Provide an overview of key health issues locally and globally*
  - *Describe common factors influencing health at home and abroad*
  - *Articulate a Population Health approach to local and global problems*
  - *Role and principles of healthcare provision*
  - *How to find winning solutions to complex problems"*

19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?	
2	Yes, the **core** curriculum includes strategies for taking an environmental history.
1	Only **elective** coursework includes strategies for taking an environmental history.
0	No, the curriculum does **not** include strategies for taking an environmental history.

This metric is unchanged from last year's report card.

- *Year 1-2 Clinical skills includes teaching on how to take a clinical history with simulated patients, which also involves taking an environmental history. The Calgary-Cambridge Framework was used.*
- *Lectures, workshops and SSUs explore the effects of environment and exposure to risk factors to understand the importance of considering these when taking a history.*
- *Year 2 - Workshop "Sustainable Health and QI" Learning outcomes: "Consider how the environment affects all the social determinants of health and how the environmental impact of health care" and "Start to develop knowledge and skills to improve the quality and environmental sustainability of health care, using asthma as an example" mentions the effect of environmental risk factors, with a focus on asthma.*
- *Year 4 - Tutorial "Environmental lung disease" Learning outcomes: "Environmental lung diseases associated with:*
    - *The environment*
    - *Smoking*
    - *Industrial/Occupational"*
- *Biomedical science SSU - "Allergies and the Environment" Learning outcomes: "Asthma and atopic allergies are dramatically increasing. This unit will explore the basic immunological mechanisms involved and look at the environmental reasons that may be responsible for these increases".*

Curriculum: Administrative Support for Planetary Health

20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
4	Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making **minor** improvements to ESH/planetary health education.
0	No, there are **no** improvements to planetary health education in progress.
On review of the questions in this report card, we believe that the medical school is taking steps to integrate more Education for Sustainable Healthcare (ESH)/ planetary health education into the curriculum. Compared to last year, we can see active changes have been made in the curriculum. For example, sessions across all years now include specific learning outcomes relating to planetary health/education for sustainable healthcare. There is, of course, still room for improvement and hope to continue to see changes in the future.	

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> curriculum?	
6	Planetary health/ESH topics are **well integrated** into the core medical school curriculum.
4	**Some** planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in **(a) standalone lecture(s).**

0	There is **minimal/no** education for sustainable healthcare.
At Peninsula Medical School, many topics are covered throughout the core curriculum across the 5 years. However, there is still room for better integration of planetary health /ESH topics throughout the course, and therefore we have awarded 4 rather than 6 points.	

22. Does your <u>medical school</u> employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?	
1	**Yes,** the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	**No**, the **medical school** does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.
There is no specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.	

Section Total (50 out of 72)	**50**

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Are there additional curriculum resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Interdisciplinary Research

Section Overview: ***This section evaluates the quality and quantity of interdisciplinary planetary health research at the medical school and broader institution.*** *Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. As leading health institutions with talented researchers and research resources, medical schools should fund research studying the health effects of climate change and anthropogenic environmental toxins. This obligation is particularly strong because the public and policymakers are more attentive to climate change when its implications for human health are emphasized.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	Yes, there are faculty members at the **medical school** who have a **primary r**esearch focus in planetary health **or** healthcare sustainability.
2	Yes, there are individual faculty members at the **medical school** who are conducting research **related** to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the **institution**, but none associated with the medical school.
0	No, there are **no** planetary health and/or healthcare sustainability researchers at the **institution** or **medical school** at this time.

These researchers are part of Global Health Research Team within the Faculty of Health:

- *Honorary Associate Professor Dr Rupert Jones (The KUPUMA project)*
- *Senior Research Fellow PenARC Dr Lynne Callaghan*
- *Research Assistant Mrs Lucy Cartwright*
- *Honorary University Fellow Ms Debra Westlake*

The KUPUMA project is "a partnership project between the University of Plymouth and Makerere University in Uganda". This project's aims are:

- *"to bring together medicine, art, music and dance to educate, treat, and develop capacity and capability in Uganda".*
- *"to prevent and treat chronic lung disease in East Africa in partnership with the Makerere University Lung Institute, Uganda" as "chronic lung diseases particularly affect the poorest people in the poorest countries, contributing to health inequalities and disrupting communities. This research has been taken up widely across the globe to try and tackle that problem".*

The Midwife Project in Uganda is an educational programme which aims to "teach midwives and other community healthcare workers about the dangers of biomass smoke and about reducing the risks to mother, foetus and young children".

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is **at least one** dedicated department or institute for interdisciplinary planetary health research.

2	There is **not currently** a department or institute for interdisciplinary planetary health research, but there are **plans** to open one in the next 3 years.
1	There is an **Occupational and Environmental Health department**, but no interdisciplinary department or institute for planetary health research.
0	There is **no** dedicated department or institute.

- *The Global Health Collaborative (GHC) is a forum for global (local and overseas) health education, opportunities, partnerships, research and sustainability. "The GHC was set up in 2016 to bring together individuals and organisations, across Plymouth and the wider South West, who have an interest in or are already working in, global health. They aim to share learning, enable new international health partnerships to be set up, and increase both global health education and work/experience opportunities for health professionals of all levels, both in international and 'locally global' settings."*
- *The Sustainable Earth Institute is "about promoting a new way of thinking about the future of our world. We bring researchers together with businesses, community groups and individuals to develop cutting-edge research and innovative approaches that build resilience to global challenges. We link diverse research areas across the University including science, engineering, arts, humanities, health and business."*

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?

3	Yes, there is a process in which community members impacted by climate and environmental injustice have **decision-making power** in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice **advise** the climate + environmental research agenda.
1	**No**, but there are **current efforts** to establish a process for community members to advise or make decisions on the research agenda.
0	There is **no** process, and **no** efforts to create such a process.

The Global Challenges Research Fund (GCRF) is a £1.5 billion fund that supports cutting-edge research to address challenges faced by developing countries. It is part of the UK's official development assistance (ODA). The fund addresses the United Nations Sustainable Development Goals. It aims to maximise the impact of research and innovation to improve lives and opportunity in the developing world. Plymouth University (including the medical school) chooses relevant projects from the GCRF's lists and uses the funds to conduct research.

One such project taken up by the medical school in partnership with the Makerere University (Uganda) is the KUPUMUA project. Dr Rupert Jones, who is one of the main people in charge of the project, explains that "when such projects are undertaken, we perform stakeholder engagement in a formal way. This often starts with qualitative research with stakeholders including experts, clinicians and community members (patients where appropriate) using in-depth interviews or focus groups (see https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6087019/). For one project, around 50 people from community members to the Ministry of Health were interviewed to understand how to tailor our messages to be culturally appropriate and to fit within the existing health systems. Our research

basically continues in PDSA (Plan-Do-Study-Act) cycles. You identify a problem, you work on a solution, you test the solution, you adapt it, you apply it, you re-evaluate and amend et cetera".

4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?	
3	There is an **easy-to-use, adequately comprehensive** website that **centralizes** various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that **attempts to centralize** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment.
0	There is **no** website.
All institutional links to sustainability can be accessed through the University of Plymouth Sustainability page. *The Sustainable Earth Institute, can be accessed from the main Sustainability page on the University of Plymouth website.* *The page for sustainability education and related events can be found on the sustainable and global citizen page, which has other relevant links as well.* *On the Peninsula Medical School Digital Learning Environment, there is a Planetary Health page linking resources on all aspects of Planetary Health, as well as links to activities and groups.*	

5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the **medical school** has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the **institution** has hosted a conference on topics related to planetary health in the past three years.
1	The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the **institution** has not hosted a conference on topics related to planetary health in the past three years.
The Sustainable Earth Institute:	

- *Sustainable Earth 2021: Two-day online forum across 24 and 25 June, as we bring together researchers, businesses, NGOs, the public sector, community groups and individuals to tackle global and local challenges around the climate emergency.*
- *Research festival 2020 was a 4 day event with various event listings such as Biodiversity at a crossroads, sustainable agriculture, and natural capital for clean growth.*
- *Future Plymouth 2030 started on November 18, 2020. "It is a series of 12 fortnightly webinars exploring collaborative pathways to achieve low carbon, sustainable development in the city, and providing a platform for knowledge exchange and collaborative action".*

6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health **or** ESH organization
0	No, the medical school is **not** a member of such an organization
University of Plymouth, Faculty of Health & Human Sciences is a member of the Global Consortium on Climate and Health Education, but is not a member of the Planetary Health Alliance.	

Section Total (15 out of 17)	**15**

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Are there additional research resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Community Outreach and Advocacy

Section Overview: ***This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health.*** *Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of color. Institutions should partner with local communities affected by climate change and pollution to share information about environmental health threats, advocate together for change, and provide opportunities for students to be a part of this work.*

1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the **medical school** meaningfully partners with **multiple** community organizations to promote planetary and environmental health.
2	Yes, the **medical school** meaningfully partners with **one** community organization to promote planetary and environmental health.
1	The **institution** partners with community organizations, but the medical school is not part of that partnership.
0	No, there is **no** such meaningful community partnership.

Livewell Southwest
Livewell Southwest is an independent, award winning social enterprise providing integrated health and social care services for people across Plymouth, South Hams and West Devon, as well as some specialist services. Students have placements with a range of LiveWell professionals including community nurses, physiotherapists, social workers as well as community mental health services; wellbeing and health improvement services and services for children and young people.

Social engagement
Led by Well Connected, a local charity experienced in community engagement and health improvement, Year 2 students work as a team , over the year, with disadvantaged groups, such as people who are homeless, have learning disabilities, dementia or difficulties with substance misuse. Students work alongside local community organisations and their clients to better understand the needs of their population group and develop a health-related activity. In doing so students gain important skills and understanding, learning about local services, how to design and implement projects and how to communicate with different groups and individuals.

Social Engagement Learning Outcomes:
Actively listen to, and communicate with, local people and staff to develop deeper awareness of their needs and views.
Seek out information and evidence to better understand population needs and possible approaches for addressing these.
Work collaboratively within small and large teams, actively sharing information and pooling skills.
Evaluate current programmes and services on offer and compare to others locally, nationally and globally.
Contribute, as a group, to a health-related activity based on the needs identified and leading to shared learning.

Deliver and evaluate the health-related activity, including identifying appropriate resources and gaining feedback from others.
Communicate the details of your activity and its outcomes, with appropriate justification and rationale, to an appropriate audience in a clear and concise manner.

2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The **medical school** offers community-facing courses or events at least once every year.
2	The **medical school** offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	**The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.**
0	The **institution/medical school** have not offered such community-facing courses or events.
There are no such community-facing courses or events offered by the medical school.	

3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
2	Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are **sometimes** included in communication updates.
0	Students **do not** receive communications about planetary health or sustainable healthcare.

The bi-monthly University of Plymouth Internal Communications updates often include planetary and/or sustainable healthcare topics.

Recent examples include:

- *01 December 2022: Exploring Green Hydrogen*
  Build your understanding of green hydrogen, hearing from those in industry currently utilising this carbon neutral fuel in a variety of settings.
- *Graduate to attend UN youth conference*
  BSc (Hons) Marine Biology and Coastal Ecology graduate Sancha Conway Holroyd has been selected to represent the UK as a delegate at the 17th United Nations climate change Conference of Youth (COY17). The event will be taking place in Sharm El-Sheikh in Egypt from 02-04 November, prior to COP27 which will begin a few days later.
- *01 November 2022: PlyMSEF Plymouth Marine Science Medal Lecture. Entitled Science for solutions to save the sea, the lecture will be given by Professor Heather Koldewey, Senior Marine Technical Advisor at the Zoological Society of London. The free lecture is open to all.*

The quarterly BMBS Student Newsletter sometimes includes planetary and/or sustainable healthcare topics.

For example, in June 2022:

- *Eco Medics Conference Review 2022: Fiona Smith, Year 3 Medical Student*
  In March, Charlie Meeson (4th Year) and I were privileged to have the experience of going on an Expedition Medicine course in the Alps. There we met the founder of Eco Medics, famously known on Instagram as The Expedition Doctor, Dr Nathan Hudson Peacock. Nathan recommended we attend if we have an interest in global health and climate change, promising us an exciting day. Eco Medics certainly delivered on their promise.

4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and skills in planetary health and sustainable healthcare remain up to date during their professional career?	
2	Yes, the **institution** or **main affiliated hospital trust** offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the **institution** or **main affiliated hospital trust** offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are **no** such accessible courses for post-graduate providers
No, there are no such accessible courses for postgraduate trainees provided by Derriford Hospital.	

5. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about environmental health exposures?	
2	Yes, **all** affiliated hospitals have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated medical centers have accessible educational materials for patients.
There is no evidence that any such patient literature is provided by University Hospitals Plymouth (UHP), Torbay Hospital or Musgrove Park Hospital.	

6. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about climate change and health impacts?	
2	Yes, **all** affiliated hospitals have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated hospitals have accessible educational materials for patients.
There is no evidence that any such patient literature is provided by UHP, Torbay Hospital or Musgrove Park Hospital.	

- *UHP declared a climate emergency in 2020 and developed a five-year sustainable development plan "For a Greener Future." The plan and other information is available on the UHP website.*
- *Torbay Hospital is working to develop their five-year sustainability plan.*
- *Somerset NHS Foundation Trust launched a Green plan (June 2022), which sets out plans across the next three years to reduce their carbon footprint.*

Section Total (5 out of 14)	**5**

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Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Support for Student-Led Planetary Health Initiatives

Section Overview: ***This section evaluates institutional support for student-led planetary health initiatives, such as funding, fellowships, programming, and student groups.*** *Planetary health is a young field and, as young people facing a future deeply shaped by climate change, students are often some of the first at an institution to engage with it. Institutions should provide support for students to engage in sustainability quality improvement (QI) initiatives, discover mentors in their area of interest, and receive funding for planetary health projects.*

1. Does your medical school or your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the **medical school** or **institution** *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.
1	The **medical school** or **institution** encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, **but** there is no student funding available and there is no requirement to participate.
0	No, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.

In first and second year students must choose an SSU project and select their research from a list of offered titles. Some titles either focus on, or include an element of planetary health and/or sustainable healthcare, such as 'Allergies and the Environment' and 'World health inequalities: a global or local problem?'

In fourth year, students are required to undertake a QI project, possible topics for students to choose from a catalogue include:

- *"Making sexual health green"*
- *"How should general practice respond to the climate emergency?"*
- *"Green Practice. Creating a more sustainable world in General Practice"*
- *"How to be a "greener" GP Surgery"*

It is not mandatory for students to undertake QI projects related to sustainability. Students are not paid to do this research.

The University hosts the "Get Involved Awards" annually to encourage collaborative research for sustainable solutions, with grants of £6000 to £8000 available for up to five projects. Although not necessarily aimed at students, this is a source of funding through the wider institution which could be used for a sustainability project.

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The **institution** has a **specific** research program or fellowship for students interested in doing planetary health/sustainable healthcare research.

1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these **require student initiative** to seek these out and carry them out in their spare time.
0	There are **no opportunities** for students to engage in planetary health/sustainable healthcare research.
In first and second year students must choose an SSU project and select their research from a list of offered titles. Some titles either focus on, or include an element of planetary health and/or sustainable healthcare, such as 'Allergies and the Environment' and 'World health inequalities: a global or local problem?' *In fourth year it is compulsory for students to engage in a QI project, which can be focused towards planetary health and/or sustainable healthcare.*	

3. Does the medical school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
2	The **medical school** has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a **medical school** webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is **no medical-school** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.
The Peninsula Medical School Digital Learning Environment has a workbook dedicated to planetary health and how it relates to medicine. This workbook includes links to key articles related to the field, as well as other links on how medicine and climate change interact (e.g. the impact of inhalers). However, it lacks a named mentor/contact and does not show any initiatives besides the Planetary Health Report Card.	

4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?	
2	Yes, there is a student organization **with faculty support** at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.**
0	No, there is **not** a student organization at my institution dedicated to planetary health or sustainability in healthcare.

- *Students for Global Health Plymouth is a student-run society hosting a number of educational and charity events. Their aims are education, advocacy and community social action in a number of areas including climate change, women's rights, infectious diseases and access to medicine (https://studentsforglobalhealth.org/plymouth/).*
- *Medical school societies registered with the University of Plymouth Students Union (UPSU) may be eligible for funding from the Students Union (SU) (dependent on fulfilling criteria e.g. membership numbers).*

There does not seem to be any direct faculty support.

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?	
1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.

- *The Student Union's President and Environment and Sustainability Officer are able to attend the institution's Sustainability Advisory Group and relevant sub-groups which advocate for sustainability across the institution.*
- *The Global Health Collaborative currently includes two student representatives on their committee.*
- *General University of Plymouth student leadership and involvement opportunities include:*
  - *The Future Leaders Programme*
  - *Student sustainability ambassadors*
  - *UPSU environment and sustainability forum*

6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	
1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.

1	Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students)

University of Plymouth beekeeping group

Two hives, home to the native Black Honey Bee (more suited to colder climates than the European Honey Bee) are managed by dedicated volunteers. Located at Portland Villas, this voluntary extra-curricular group aims to help support and study the local varieties of honeybee on campus. The vision is to enhance the sustainability of our urban campus and improve conservation within the South West.

University of Plymouth Students Union: Gardening Society

About: "We're the gardening society, hoping to get you all outside, reconnecting with nature, planting seasonally, and doing this in a sustainable way. If this sounds like your cup of tea, grab a membership and come and join us. We hope to run an array of practical gardening sessions, general upkeep of planters, talks from guests, and trips to other local growing projects, as well as hosting nights out and socials (alcoholic and nonalcoholic) so we can get to know all you lovely people!"

Plymouth Tree Partnership: Discovering Trees

"The Plymouth Tree Partnership is delighted to announce its new series of talks, Discovering Trees, taking place monthly in the Sustainability Hub at the University of Plymouth.

- *Thursday 13 October | How trees grow*
- *Thursday 17 November | How to identify and name trees*
- *Thursday 15 December | Threats to tree health*
- *Thursday 19 January | Planting and caring for new trees*
- *Thursday 23 February | Pruning – the whys and wherefores*
- *Thursday 23 March | Identifying and protecting notable trees"*

University of Plymouth Students Union: Green Week

This annual event will see a number of free activities hosted by both the SU and University for all students and staff to engage with. Green Week celebrates the dedication of individuals and organisations in our community who create a more sustainable campus and local environment. During this week students and staff exchange ideas, share knowledge, and work together to improve local spaces, including campus.

Shoresearch Volunteer Survey at Plymouth University

"Shoresearch is The Wildlife Trusts' national citizen science survey of the intertidal shore, the exciting world of extremes where the sea meets the land. It's a great way to explore your local coast, learn more about the wildlife found there and add to our understanding of this important habitat.

You will be trained to identify and record the marine life found on our local shores. The data collected by this project helps The Wildlife Trusts to monitor our fragile sea life and better understand the effects of pollution, climate change and invasive alien species. Shoresearch data has been key to designating many of our Marine Conservation Zones."

The Wildlife Trusts' is a "grassroots movement that believes we need nature and it needs us. More than 900,000 members and 32,500 volunteers work together with their Wildlife Trust to make their local area wilder and make nature part of life, for everyone. Every Wildlife Trust is an independent charity."

Art installation

A new immersive art exhibit is opening in the National Marine Aquarium on the 8th July 2022. Titled 'The Seagrass Walk', the exhibit will be a blue carbon-inspired immersive experience that uses

multimedia informed by scientific research to showcase the ocean's wonder plant, seagrass. Blue carbon and seagrasses are essential puzzle pieces in the fight against the climate crisis.'The Seagrass Walk' has been made possible through a programme led by the University of Plymouth, the Ocean Conservation Trust and Plymouth City Council, supported by funding from the Natural Environment Research Council (NERC)."

Plymouth University Wilderness and Expedition Medicine Society, and other outdoor Societies (e.g. Adventure and Expo)

- *Plymouth University Wilderness and Expedition Medicine Society "is a friendly and inclusive society welcoming students from all courses who love spending time outdoors."*
- *encourage "leave no trace" principles. These principles encourage members to take all belongings and litter home with them and to generally have minimal impact on the environment that they use.*

Section Total (12 out of 15)	**12**

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Are there additional student-led initiative resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Campus Sustainability

Section Overview: ***This section evaluates the support and engagement in sustainability initiatives by the medical school and/or institution.*** *The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive endeavor, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinizing every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our medical schools, clinics, and hospitals must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimizing environmental impact.*

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is **at least one designated staff member** for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but **no specific staff member** in charge of medical school and/or hospital sustainability.
1	There are **no salaried sustainability staff,** but there is a sustainability task force or committee
0	There are **no** staff members **or** task force responsible for overseeing campus sustainability

- *Plymouth University's 'Sustainability Hub' was opened in 2019 which serves the entire campus as an Office of Sustainability. It is on the main campus in Kirkby Lodge and is where the Sustainable Earth Institute and Centre for Sustainable Futures (CSF) is located. Dr Paul Warwick is the Centre for Sustainable Futures Lead at the University of Plymouth, responsible for supporting research and change to increase sustainability education within Higher Education.*
- *The Sustainability Hub is where students and/or staff can have meetings, workshops, events and participate in group work related to sustainability research or education. Although there are no specific staff members in charge of the medical school or hospital sustainability, Dr Richard Ayres, Miss Alice Inman and Professor Sheena Asthena are part of the Centre for Sustainable Future's Sustainable Education Leaders Forum and are staff of the medical school. The staff at the CSF aim to support members of staff in different Faculties to add sustainability into the curriculum.*
- *The 7 members of staff from Estates and Facilities, based in Kirkby Terrace (12 on the map below) aim "To provide a cost effective and coordinated estates and facilities management service in order to give expert support to the University's core business activities thereby enhancing the student experience." This includes providing safe and sustainable services to the University, including increasing recycling and reducing the amount of waste generated.*

2. How ambitious is your institution/medical school plan to reduce its own carbon footprint?	
5	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2030**

3	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2040**
1	The institution/medical school has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate**
0	The institution/medical school does **not** meet any of the requirements listed above

The University of Plymouth has a goal for net zero carbon emissions by 2025 through switching fuel and power sources to more sustainable and low carbon sources. Methods of achieving this aim include:

- *Moving to alternative low carbon fuels and power sources e.g. renewables, green gas and biofuels*
- *Reducing energy and water usage*
- *Adopting energy efficiency projects and investing in low carbon technologies*
- *Involving projects which encourage and enable large scale carbon production*
- *Educating staff and students about low carbon behaviours*
- *Being involved in projects which promote low carbon transitions and methods within the city and across the country*
- *Incorporating carbon impact evaluations into the processes, policies and procedures across the university*
  Reducing emissions from travel and commuting
- *Designing and constructing buildings or refurbishing old ones which are low carbon in use and have sustainable design principles.*

The University of Plymouth Sustainability Hub is also working with "Low Carbon Devon" which is a project to support Devon enterprises to move to a low carbon economy to help Devon reach a net zero carbon target.This is funded by the European Regional Development Fund and is an ongoing 3 year project.
All these targets and aims are from the University of Plymouth which are responsible for the sustainability policies set by the Medical School but not Derriford Hospital.

3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilize renewable energy?	
3	Yes medical school buildings are **100%** powered by renewable energy
2	Medical school buildings source **>80%** of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source **>20%** of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source **<20%** of energy needs from off-site and/or on-site renewable energy.

The medical school buildings are 100%powered by renewable energy. The University of PLymouth Sustainability Team holds Renewable Energy Guarantees of Origin (REGOs) for the 2022/23 academic year. This information will be publicly available in the University of Plymouth Sustainability Report once released.

Source: University of Plymouth Sustainability Team (sustainability@plymouth.ac.uk).

4. Are sustainable building practices utilized for new and old buildings on the <u>medical school</u> campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?	
3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the **majority** of old buildings **have been retrofitted** to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have **not been retrofitted.**
1	Sustainable building practices are **inadequately or incompletely** implemented for new buildings.
0	Sustainability is **not considered** in the construction of new buildings.

The Derriford research Facility opened in 2018 was designed to BREEAM Excellent Standard. The Derriford Research Facility buildings located in the Plymouth Science park are built according to the Building Research Establishment Environmental Assessment Method (BREEAM) "Excellent" standard in 2018. Sustainable practices are also used for all new construction projects, both on the main campus and at Derriford campus. BREEAM is the world's leading science based method of validation and certification system for a sustainably built environment, aiming to improve performance and sustainability in construction and refurbishment.
Any refurbishment of old buildings are designed to target SKA Gold Standard and existing buildings are upgraded to achieve higher levels of energy efficiency and reduced carbon emissions. SKA is an environmental assessment method which is assessed as either Bronze, Silver or Gold ratings.
New construction projects follow similar sustainability principles. New buildings are designed to be as "low carbon" in use, contractors with ISO 14001 accreditation and environmental management systems are used where possible, solar hot water/heating and photovoltaics are used where possible and pollution from construction is minimised as much as possible. Furthermore, local biodiversity is either enhanced or if not possible protected as much as possible during the development of the project. These principles are upheld on projects carried out at the University of Plymouth Main Campus and throughout its other sites including those used by the medical school.

University of Plymouth Sustainability Map
Sustainable Construction & Refurbishment Policy Statement Issue 2
BREEAM | BRE Group
Sustainability Policies - University of Plymouth
Sustainable Campus and Construction - University of Plymouth

5. Has the <u>medical school</u> implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?	
2	Yes, the medical school has implemented strategies to encourage and provide **environmentally-friendly transportation options** such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised.
0	The medical school has **not** implemented strategies to encourage and provide environmentally-friendly transportation options.

University of Plymouth provides free bus transport between the main campus in Plymouth City Centre and the Derriford Medical School campus through the use of University Cards with blue bus logos for eligible students on agreed bus routes due to the split between different campus sites.
The University encourages staff and students to commute by walking, cycling, public transport and car sharing, with 60% of staff and 81% of students travelling sustainably to their campus by sustainable methods in 2018-19. There is a Plymouth University Car Share group for students and staff, developed in 2013 to increase car sharing throughout the University.
Due to the University's commitment to environmental transport and their easily accessible main campus which is located in the centre of Plymouth with readily accessible public transport routes, the use of cars by students apart from those with disabilities is actively discouraged. There are a number of disabled parking spaces throughout the University campus but there is limited on site car parking otherwise to encourage use of green travel.
There are nearly 300 cycle racks with D locks, adequate lighting and extensive CCTV coverage to encourage cycling as a method of commuting to the main campus. The university work with Plymouth City Council and the Bicycle user group to make cycling to campus safe and to promote cycling as a means of daily transport.
Walking is actively encouraged and the University main campus has a "pedestrian first" policy where pedestrians have right of way when moving around the campus. Additional measures have been put in place for the mobility impaired, including slopes and dropped kerb crossings to make walking around campus more accessible to all.
Plymouth Railway Station is only around 400m from the main campus and only a 3 minute walk from Plymouth's coach station. There are multiple bus stops within 200m of the main campus which is along the major bus routes in and out of the city centre. This includes routes to and from Mutley, Southway, Tavistock, Crownhill, St Budeaux and Derriford hospital. There are also 3 Park and Ride sites which provide direct services to the city centre with stops within 200m of the main campus, providing another method of public transport easily accessible to students and staff.
The university's 'Sustainable Construction & Refurbishment Policy Statement' (v2, pub Oct 2020) overviews the sustainability objectives to which all construction projects must adhere, to ensure that the standards are met.

Green travel - University of Plymouth
SUSTAINABLE TRAVEL POLICY AND ACTION PLAN
Green Travel Policy
Sustainability Policies - University of Plymouth

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has **both** compost **and** recycling programs accessible to students and faculty.
1	The medical school has **either** recycling **or** compost programs accessible to students and faculty, but not both.
0	There is **no** compost or recycling program at the medical school.

The University of Plymouth has a mixed recycling collection scheme which includes recycling of paper and cardboard items, plastics and metal but this does not include glass or food waste. In 2017, the University simplified recycling on campus by changing to Dry Mixed Recycling bins to make recycling more accessible for students and members of staff.

There is a team who collect the mixed recycling waste from bins around campus and are responsible for the safe disposal of this. There are mixed recycling bins around the Medical School's John Bull Building and the Plymouth Science Park.
The University aim to reduce the amount of waste generated to 20kg per student or nless by 2027 and increase the amount of recycling and reducing waste so that there is less than 6kg of non-recyclable waste per student by 2027.
In 2013, the University introduced food composting in their food catering outlets which is then taken to the anaerobic digester at Langage Farm in Lee Mill. This includes the catering team based out of John Bull Building at the Derriford Medical School campus. However, there isn't composting bins available for use by students and staff at the main University campus or at the John Bull Building.
Medical school waste removal is run centrally by The University of Plymouth.

SharePoint site waste pages
WASTE MANAGEMENT POLICY AND ACTION PLAN
Waste and Recycling - University of Plymouth
Interactive Sustainability Map - University of Plymouth

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The medical school **is engaged** in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The medical school is **not** engaged in efforts to increase food and beverage sustainability.
0	There are **no** sustainability guidelines for food and beverages.

The medical school's food and beverage selection is run centrally by the University of Plymouth.

The University of Plymouth received a Three Star rating from the Sustainable Restaurant Association in their 2022 Food Made Good report. They were also ranked joint first in the UK for sustainable food in the People & Planet University League 2021 Sustainable Food category. In the 2021 Impact Rankings, the University of Plymouth was ranked 19th out of 422 institutions in the SSDG2 Zero Hunger category.

Almost 56% of food suppliers are based in Devon and Cornwall, and 60% from the South West of England. Over 50% of dishes across all cafes are vegetarian or vegan, and dairy-free alternative milks are available.

There is a 20p discount if reusable cups are used, which translates to an almost 105000 reduction in the use of disposable cups since 2018. As of June 2022, approximately 1600 'unrecyclable' coffee cups have been recycled using the Simply Cups recycling scheme. The takeaway disposables used in cafes are biodegradable.

Leftover food and soups is used for soups and stocks, and unusable food is taken to the anaerobic digester at Langage Farm. Waste cooking oil is collected and repurposed.

Sustainable food - University of Plymouth

8. Does the medical school or institution apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has **adequate** sustainability requirements for supply procurement **and** is **engaged** in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **engaged** in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **not engaged** in efforts to increase sustainability of procurement.
0	There are **no** sustainability guidelines for supply procurement.

The medical school's supply procurement is run centrally by the University of Plymouth.

The University of Plymouth recognises sustainability as an embedded principle across everything they do. The procurement team extends this further to include social, ethical, economic and environmental factors, which they refer to as Responsible Procurement. They ensure that procurement decisions contribute positively to the University's Sustainable Policies and Action Plans. This supports the University's Civic University and Social Value agenda, as well as its sustainability commitments which support the United Nations Sustainable Development Goals.

The University of Plymouth's Procurement and Sustainability teams are currently working to ensure they meet all the criteria of ISO 20400 standards for Sustainable Procurement.

Procurement - University of Plymouth
Sustainable Procurement - University of Plymouth

9. Are there sustainability requirements or guidelines for events hosted at the medical school?	
2	Every event hosted at the medical school **must** abide by sustainability criteria.
1	The medical school **strongly recommends or incentivizes** sustainability measures, but they are **not required.**
0	There are **no** sustainability guidelines for medical school events.

Events hosted by the medical school are required to follow the University of Plymouth's policies and guidance:

- *Working alongside the university's current policies and guidelines, particularly in regard to Green Travel, Catering Services, Waste Recycling and Finance and Procurement.*
- *Where possible we eliminate paper programmes and handbooks by putting event materials online*
- *We recycle and reuse name badges and any other event materials that we can*
- *We've developed online and hybrid event models to reduce travel, waste and recycling*
- *Any external event contractors are also procured through a robust tendering process so that they too meet environmental impact and sustainability measures*

The University's Carbon Management Plan also details some further guidance:

- *This includes goals to achieve 0 net carbon output for event based resources such as grid electricity, refrigerant gases and solid, liquid and gaseous fuels. Campus protocol, including for the hosting of events, considers and is taking steps to improve the sustainability of water usage and sewage, recycling and waste management, procurement (as detailed above), energy intake and carbon emissions.*
- *There are also steps being taken to implement a sustainable investment platform, of which the involvement of medical and healthcare students may encourage the Medical School to formalise specific sustainable event protocols.*

CARBON MANAGEMENT PLAN
Source: University of Plymouth Events Team

10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
2	Yes, the medical school has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable.
1	There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are **no** efforts at the medical school to make lab spaces more sustainable.

LEAF (Laboratory Efficiency Assessment Framework) Labs are being introduced this year. This is a tool containing actions lab users can take to save plastics, water, energy and other resources.

Source: University of Plymouth Sustainability Team (sustainability@plymouth.ac.uk).

11. Does your institution's endowment portfolio investments include fossil-fuel companies?	
4	The institution is **entirely divested** from fossil fuels **and** has made a **commitment to reinvest divested funds** into renewable energy companies or renewable energy campus initiatives.
3	The institution is **entirely divested** from fossil fuels.
2	The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments.
1	The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organized advocacy** for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that.

The University has no direct investment in fossil fuel companies. However, 10.1.4 of the "Ethical Investment Policy schedule 10 2021" states that "onward investments" cannot be guaranteed and it "is not reasonable for the University to have control over onward investment".

See points: 10.1.1 iii, 10.1.2 and 10.1.4 on the following for information on direct investments:

The following pages are an extract from: Treasury Management Policy Version 12 June 2021 Sustainability Policies - University of Plymouth

Section Total (27 out of 32)	**27**

Back to summary page here

Are there additional sustainability resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Grading

Section Overview
This section focuses on the grading of the report card. The institution received a grade for each of the individual sections as well as an overall institutional grade. Section point totals were tallied, divided by the total points available for the section, and converted to a percentage. The overall institutional grade is a weighted average of the section grades, with curriculum receiving a higher weight owing to its larger number of metrics. Letter grades for each section and the institution overall were then assigned according to the table below.

Letter Grade*	Percentage
A	80% - 100%
B	60% - 79%
C	40% - 59%
D	20% - 39%
F	0% - 19%

**Within each grade bracket, a score in the top 5% (_5 to_9%), receives a "+", and a score in the bottom 5% (_0-_4%) receives a "--". For example, a percentage score of 78% would be a B+.*

Planetary Health Grades for Peninsula Medical School
The following table presents the individual section grades and overall institutional grade for the Peninsula School of Medicine on this medical-school-specific Planetary Health Report Card.

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(50/72) x 100 = 69.44%	B
Interdisciplinary Research (17.5%)	(15/17) x 100 = 88.24%	A
Community Outreach and Advocacy (17.5%)	(5/14) x 100 = 35.71%	D+
Support for Student-led Planetary Health Initiatives (17.5%)	(12/15) x 100= 80.00%	A-
Campus Sustainability (17.5%)	(27/32) x 100 = 84.38%	A-
Institutional Grade	**(69.4x0.3 + 88.2x0.175 + 35.7x0.175 + 80x0.175 + 84.4x0.175) = 71.27%**	**B**

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which Peninsula Medical School has participated in the Planetary Health Report Card initiative.