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# Planetary Health Report Card:

## *Keele University*

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2020-2021

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## Summary of Findings

<b>Curriculum</b>	<b>B</b>
<ul style="list-style-type: none"> <li>The current Keele Curriculum has strong integration of the effects of pollution, extreme weather and the effect on the pattern of infectious disease, with these sessions being delivered in a variety of ways (lectures, workshops, Academic Mini Reviews (AMR), etc). The importance of Planetary Health is revisited every year allowing students to build on their learning and to introduce them to new Planetary Health concepts. There is emphasis on health inequalities and the effect on health of marginalized communities, which is something Keele teaches very well.</li> <li>To further improve the Keele Curriculum, sessions on the link between Mental Health and Planetary Health or sessions on the effect on Reproductive Health of environmental exposure could be included.</li> </ul>	
<b>Interdisciplinary Research</b>	<b>B</b>
<ul style="list-style-type: none"> <li>The University as a whole has a strong research focus on sustainability and factors that affect planetary health, and this should be celebrated. From sustainable energy to food security, the sustainability research at Keele is very varied.</li> <li>Despite this, there are no research staff associated with the medical school solely focused on planetary health in regard to their research. There are staff who are involved in ongoing community engagement and planetary health projects but this is not their key research focus.</li> </ul>	
<b>Community Outreach and Advocacy</b>	<b>D</b>
<ul style="list-style-type: none"> <li>Keele University is involved with many different community groups and organisations aimed at promoting sustainability and planetary health to our local community. However, this is the institute as a whole that does this, not the medical school. Through our research, we haven't found a community facing event organized by the medical school that fits our criteria.</li> </ul>	
<b>Support for Student-Led Initiatives</b>	<b>B+</b>
<ul style="list-style-type: none"> <li>Funding is available for student led sustainability projects throughout the university, which medical students are eligible to apply for.</li> <li>In order to improve, a specific planetary health student group or society and a sustainability student representative at the medical school would be a good venture and may improve student engagement outside of the curriculum.</li> </ul>	
<b>Campus Sustainability</b>	<b>A+</b>
<ul style="list-style-type: none"> <li>At Keele University, sustainability is very important, and this is evident throughout the current projects and initiatives on our main university campus. With all energy on campus being renewable, a clear carbon neutrality goal and an active retrofitting scheme, it is hard to suggest improvements. The only thing that could be improved is further guidance for student run events within the medical school on sustainability and making this a requirement in order for their event to run.</li> <li>On the hospital campus is where most of the progress should be made, in collaboration with the NHS and the UHNM Sustainability Manager.</li> </ul>	

# Statement of Purpose

*Planetary health is human health.*

The Planetary Health Alliance defines planetary health as “a field focused on characterizing the human health impacts of human-caused disruptions of Earth's natural systems.” 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 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.

# 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 change. Therefore, it is critical that medical students are trained to understand the health effects of climate change, as well as planetary health 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*

<b>1. Did your medical school offer elective courses to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?</b>	
<b>3*</b>	<b>Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year.</b>
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.
<p><i>The medical school offers the opportunity to explore sustainability and the effects of pollution on health through academic mini reviews in first year. The medical school also provides a student selected component focused on Public Health with occupational health and sustainability in 3<sup>rd</sup> and 4<sup>th</sup>, as well as including local sustainable charities and projects in the year 2 SSC. Also, the electives undertaken in the final year are eligible to have a sustainability focus.</i></p>	

## *Curriculum: Health Effects of Climate Change*

<b>2. Does your medical school curriculum address the relationship between extreme temperature health risks and climate change, as well as the socioeconomic/racial disparities in extreme heat exposure?</b>	
3	This topic was explored in depth by the core curriculum.
2	<b>This topic was briefly covered in the core curriculum.</b>
1	This topic was covered in elective coursework.
0	This topic was not covered.

*In year 1 medical students are given an opportunity to explore the effect of rising temperatures on health through an academic mini review, such as how the epidemiology of malaria will be affected. Other topics could be used to look at pollution's contribution to climate change and how this affects health. Rising temperatures along with droughts and heatwaves, was linked to negative health outcomes through the Environmental Health of the Public lecture in year 3.*

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

<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>
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 year 1, medical students receive a lecture looking at Environmental Pathology. This addresses the sources of pollutants that can affect health e.g. natural disasters and looking more in depth at how pollutants affect those with asthma. In year 3, medical students attend workshops focused on how health differs globally as well as locally, focusing on the health of refugees. In addition to this, they received lectures entitled 'Environmental health of the public' specifically covering the global burden of disease attributable to the environment and how the public health sector plans to improve outcomes. This lecture specifically covered heat waves and the increase in mortality, droughts and their effect on populations and the effect of flooding. This also provides an opportunity to explore the relationship of UV light and skin cancer.*

**4. Does your medical school curriculum address the impact of climate change on the changing patterns of infectious diseases?**

<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>
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 year 1 medical students are given an opportunity to explore the effect of rising temperatures on health through an academic mini review, such as how the epidemiology of malaria will be affected. In year 3, this was covered in our Environmental Health of the Public lecture, which discussed the epidemiology of malaria and how this will change.*

**5. Does your medical school curriculum address the cardiorespiratory health effects of climate**

<b>change, including air pollution?</b>	
<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p><i>In Phase 1, medical students receive a lecture called Environmental Pathology. This addresses how pollution affects health, especially cardiovascular and respiratory health and the relationship between pollution and asthma. Additionally, medical students are given an opportunity to explore the effect of pollution on health through a sustainability based academic mini review. Medical students could use this opportunity to look specifically at the effects on cardiorespiratory health. Furthermore, problem-based learning discusses patient cases which push medical students to think about the effects on cardiorespiratory systems. For example, patients with asthma. The Environmental Health of the public lecture in year 3 further emphasized this looking into urban smog and the incidence of asthma and how the public health sector is looking to improve outcomes through the Clean Air Strategy 2018.</i></p>	

<b>6. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?</b>	
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.
<b>0</b>	<b>This topic was not covered.</b>
<p><i>This topic was not covered in the curriculum.</i></p>	

<b>7. Does your medical school curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?</b>	
<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p><i>Medical students are provided the opportunity to address relationships between health and climate change through academic mini reviews in year 1. There is a compulsory workshop in year 3 which covers the health of refugees which goes into detail on the consequences of a lack of food and water</i></p>	

*security. The Environmental Health of the Public lecture within year 3 also covers the effects of drought on water security and its negative health outcomes, how water pollution negatively affects health and attributing these problems to climate change.*

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

3	<b>This topic was explored in depth by the core curriculum.</b>
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 provides lectures that look at racial health inequalities, addressing the impact of migration and socio-economic status on health. Problem Based Learning provides cases that emphasize the effects of socio-economic status and exposure to pollution. The 'effects of pollution on health' seminars in year 3 look into the health of refugees and how healthcare professionals and charities can further support them with water insecurity due to droughts and climate change.*

**9. Does your medical school curriculum address the unequal health impacts of climate change globally?**

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

*The medical school provides lectures and workshops on global health and public health that look at inequalities within communities, such as low income and refugees, as well as covering the topic of health inequalities in great depth both in lectures and seminars within the first two years. In year 3, there is a workshop discussing the health of refugees, which reflects on water instability and the effects of drought on this.*

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

**10. Does your medical school 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.
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2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
<b>0</b>	<b>This topic was not covered.</b>
<i>Whilst the effects of air pollution and toxins on the cardiovascular system have been covered in great detail, the effects on the reproductive health have not been addressed.</i>	

<b>11. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?</b>	
<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<i>In Problem Based Learning, there has been links to the effects of mining on health and respiratory health long term. In addition, the environmental pathology lecture looked at how pollution affects communities and how human caused pollution is correlated with asthma and COPD, in larger industrial cities such as Stoke on Trent, where the potteries are a large employer and workers are exposed to large amounts of dust and dangerous chemicals in the workplace. In year 3s Environmental Health of the Public, this lecture covered the effects of man-made water pollution on health long term, however this was not linked to the local community.</i>	

<b>12. Does your medical school curriculum address the unique climate and environmental health challenges that have impacted and are impacting Indigenous communities?</b>	
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.
<b>0</b>	<b>This topic was not covered.</b>
<i>This topic is not covered in the current curriculum.</i>	

<b>13. Does your medical school 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, and older adults?</b>	
<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>



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 Problem Based Learning, students are encouraged to explore how living in particular regions (e.g., cities rather than more rural areas) can have an effect on health, particularly on people from a low-socio-economic background, and how this affects their health. The 'Effects of pollution on health' seminars in year 3 look into the health of refugees and how healthcare professionals and charities can further support them with respect to water pollution and insecurity as well as air pollution. In year 1, the Environmental Pathology lecture covers the increased exposure to air pollution of low-income communities in urban environments. The impact of environmental toxins on homeless populations was covered as part of the Sustainability in Healthcare workshop where students were encouraged to think about how we can improve the health of homeless people and linking this to the SDGs.*

**Curriculum: Sustainability**

**14. Does your medical school 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.
<b>0</b>	<b>This topic was not covered.</b>

*This topic is not covered in the current curriculum.*

**15. Does your medical school curriculum highlight the waste generated by the healthcare system and identify ways to advocate for and implement sustainable best practices in health care?**

<b>3</b>	<b>This topic was explored in depth by the core curriculum.</b>
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 provides lectures looking at cases of sustainable change in health care and another lecture focusing on sustainable development goals. This focuses on what changes can be made within healthcare to be more sustainable and how we can implement these changes. In addition, the medical school provides workshops where students work together as a group to identify practical solutions to allow for the best sustainable practice in healthcare. This was covered in the Sustainability in*

*Healthcare workshop where students were encouraged to reflect on how our local health providers can reduce waste (including food waste) as well as reducing pollution created onsite.*

***Curriculum: Clinical Applications***

**16. In training for patient encounters, does your medical school’s 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	<b>No, there are not strategies introduced for having conversations with patients about climate change</b>

*This topic is not covered in the current curriculum.*

**17. In training for patient encounters, does your medical school’s curriculum introduce strategies for taking an environmental history or exposure history?**

2	<b>Yes, the core curriculum includes strategies for taking an environmental history.</b>
1	Only elective coursework includes strategies for taking an environmental history.
0	No, the curriculum does not include strategies for taking an environmental history.

*The medical school emphasizes, through communication skill sessions, the importance of asking about lifestyle, which includes exposure to smoke. In addition, all medical students are taught to enquire about a patient’s occupation and environmental exposures in the workplace to think about the impact of this on their presenting complaint or how this may affect recovery.*

***Curriculum: Administrative Support for Planetary Health***

**18. Is your medical school currently in the process of 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	<b>Yes, the medical school is currently in the process of making minor improvements to ESH/planetary health education.</b>

0	No, there are no improvements to planetary health education in progress.
<p><i>There are no imminent changes to the curriculum as it is already robust. The sustainability sessions have changed over the last 5 years and the cases are updated to improve the content of the sessions. The medical school is eager to collect feedback on what students think about the current sustainability sessions and how they can improve them.</i></p>	

<b>19. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?</b>	
6	<b>Planetary health/ESH topics are well integrated into the core medical school curriculum.</b>
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.
<p><i>In years 1 and 2 of the medical school, planetary healthcare topics are delivered in the form of lectures, electives, and workshops. For example, there is a lecture on the effects of pollution of cardiovascular and pulmonary systems, a health inequalities lecture, and opportunities to look at sustainability through elective academic reviews as well as community partner placements. In addition to this, across the first 2 years, at least 3 of the problem bases cases have opportunities to reflect on environmental exposures and their consequences of health. Additionally, there is an interprofessional session looking at budgeting in healthcare. In year 3, it appears to be much more integrated with there being more workshops on Public health, refugee health, and looking at solutions to sustainability issues - there is a Sustainability in Healthcare workshop in 3<sup>rd</sup> year as well as a Health of Refugees workshop and Environmental Health lectures.</i></p>	

<b>20. Bonus: Does your medical school have a program that offers incentives for faculty/departments to develop new planetary health/ESH courses and/or incorporate planetary health/ESH into existing courses?</b>	
1*	Yes, the medical school has an incentive program.
0	<b>No, the medical school does not have an incentive program.</b>
<p><i>Our students union have developed a <a href="#">Sustainability Society Stripes</a>, which is a scheme to reward societies that run green events or sustainability themed events. Students can also receive certificates for attendance to Students for Global Health society events which often have strong sustainability and environmental themes. However, this is not run by the medical school.</i></p>	

<b>Section Total (41 out of 58)</b>	<b>41</b>
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## 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.*

<b>1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?</b>	
4	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health and healthcare sustainability.
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in a planetary health or healthcare sustainability.
2	<b>Yes, there are individual faculty members at the School of Medicine who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.</b>
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.

*There is an [Institute for Sustainable Futures](#), where one of their key goals is to [create a healthy society](#). This institute collaborates with some of the staff members based at the Medical School on projects such as Dr Liza Dikomitis in Anthropology. Associated with our university, there are staff members whose research is also strongly linked to Planetary Health such as Sharon George (food waste and climate change), Lydia Martins (social science and food security), Toby Bruce (food security) and members of the SEND project (energy management). The School of Geography, Geology and Environmental Studies is linked with ULAB in Bangladesh looking into the impacts of flooding on human health.*

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

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.
<p><i>There is a dedicated Occupational Health research team, but this does not include environmental health. There is an <a href="#">Institute for Sustainable Futures</a> which is focused on where one of their key aims, which is building a healthy society, clean energy and food security.</i></p>	

<b>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?</b>	
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	<b>No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.</b>
0	There is no process, and no efforts to create such a process.
<p><i>There is evidence of patient and public engagement within the <a href="#">Primary Care Research Centre</a>. <a href="#">The Institute for Sustainable Futures</a> partners with different local organisations and focuses on providing sustainable governance and community living. However, there is not a process within this institute where community members have influence over the research agenda.</i></p>	

<b>4. Does your institution have a planetary health website, or a website centralizing various campus resources related to health and the environment?</b>	
3	<b>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.</b>
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.

Our university has a [main sustainability page](#) which covers the university as a whole as well as having a main page for [student and staff sustainability](#). Our SU also has a dedicated page aimed towards [student sustainability projects](#) and sustainable volunteering opportunities.

**5. Has your institution recently hosted a conference or symposium on topics related to planetary health?**

4	<b>Yes, the institution has hosted more than one conference or symposium on topics related to planetary health in the past year, including at least one on climate change.</b>
3	Yes, the institution has hosted 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 Institute for Liberal Arts and Sciences runs a [Great Challenges lecture](#) series where planetary health topics are frequently featured. These events run multiple times a year, with planetary health themes integrated into the lectures. Students for Global Health Society, based at Keele have held several events such as 'V-farm: Our sustainable farming future' which was held in October 2019; the Students for Global Health Society are supported by public health staff at the medical school.*

**6. Has your institution or medical school joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education?**

2	Yes, the medical school has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.
1	Yes, the institution has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education, but the medical school specifically has not.
0	<b>No, the institution has not joined the Planetary Health Alliance or the Global Consortium on Climate and Health Education.</b>

*The institution has not joined the Planetary Health Alliance or Global Consortium on Climate and Health Education.*

<b>Section Total (13 out of 19)</b>	<b>13</b>
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## 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.*

<b>1. Does your medical school partner with community organizations to promote planetary and environmental health?</b>	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	<b>Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.</b>
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.
<p><i>Through the year 2 SSCs, the medical school is partnered with local organizations to provide students with long term placements such as Beat the Cold, B-Arts and Growth Point who all have an involvement with planetary health, along with other objectives. Through <a href="#">CASIC</a> which the university co-founded, there is a focus on community engagement and community-focused solutions for local and global issues, which often cover sustainability issues and issues affecting planetary health. The university's <a href="#">KRISP</a> scheme was green gown nominated and provides <a href="#">specific support</a> for local businesses for research and innovation for environmental and social sustainability.</i></p>	

<b>2. Does your medical school offer community-facing courses or events regarding planetary health?</b>	
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	<b>The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.</b>
0	The medical school has not offered such community-facing courses or events.
<p><i>Arts Keele events are open to the public and these events often have an environmental theme. Inaugural lecture series lectures often have an environmental theme and cover planetary health themes. Some of our university staff partner in organizing Stoke In Curiosity, which is a festival based on issues facing our local community and the wider world, which includes Planetary Health topics. There is a Green Festival that runs for two weeks every year on campus aiming to promote sustainability and sustainable living amongst our student community. Through <a href="#">CASIC</a> which the university co-founded, there is a focus on community engagement and community-focused solutions for local and global issues, which often cover sustainability issues and issues affecting planetary health; the events organised through CASIC are community focused.</i></p>	

<b>3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?</b>	
2	Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	<b>Yes, planetary health and/or sustainable healthcare topics are sometimes included in communication updates.</b>
0	Students do not regularly receive communications about planetary health or sustainable healthcare.
<p><i>Our sustainability staff utilize social media for most of their communications. They utilize the Life at Keele facebook page, Student Union pages and Green Keele accounts to advertise sustainable events, green festival and volunteering opportunities. The Sustainability Bungalow pages provide practical advice for students to live more eco-friendly. In terms of email newsletter, sustainable issues often feature on the SU newsletter, KPA newsletter and the central university communications from the Vice Principle. In addition to this, the SU Activities officer does frequent blog post and podcasts on tips for sustainable living. There is a Green noticeboard in the entrance to the Medical school.</i></p>	

<b>4. Do hospitals affiliated with your medical school have accessible educational materials for patients about environmental health exposures?</b>	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	<b>No affiliated medical centers have accessible educational materials for patients.</b>
<p><i>No affiliated hospitals have accessible educational materials for patients.</i></p>	



<b>5. Do hospitals affiliated with your medical school have accessible educational materials for patients about climate change and health impacts?</b>	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	<b>No affiliated hospitals have accessible educational materials for patients.</b>
<i>No affiliated hospitals have accessible educational materials for patients. This is something that they are actively trying to improve.</i>	

<b>Section Total (4 out of 12)</b>	<b>4</b>
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## 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.

<b>1. Does your institution offer support for medical students interested in enacting a sustainability initiative?</b>	
2	<b>Yes, the institution offers grants available to medical students for students to enact sustainability initiatives.</b>
1	The medical school 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.
0	No, the institution does not offer opportunities or support for sustainability initiatives.
<i><a href="#">The Sustainable Fund</a> offers funding to any schools within the university for grants to improve their sustainability. Each school has a staff sustainability representative who can apply for this grant on behalf of a student who wants to create an initiative. The Students Union also uses the profits made</i>	

*from the Weigh to Go shop and the Great Donate to put back into sustainability projects; societies and individuals (including medical students) can bid on this money. The SU also has a separate fund for society sustainability development. The Key Fund is eligible for sustainability projects, such as the polytunnel in the student garden, weigh to go shop and planting a tree for every student who voted in the SU election.*

**2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?**

3*	The institution offers an explicit paid fellowship for medical students to do research related to planetary health and/or sustainable healthcare.
2*	<b>The institution offers paid research opportunities for students and planetary health/sustainable healthcare projects would be considered eligible.</b>
1	There are unfunded research opportunities for students to perform research related to planetary health/sustainable healthcare.
0	There are no opportunities for students to receive funding for planetary health/sustainable healthcare research.

*The [ASPIRE scheme](#) offers funding for summer studentships to year 1-3 pupils, of grants up to £1250 for summer projects, where projects in sustainability and planetary health would be eligible.*

**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	<b>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.</b>
0	There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

*There is a webpage on the [Institute for Sustainable Futures](#) on one of their key goals to create a healthy society. This page demonstrates the current research that is going on connecting the environment and health.*

**4. Does your medical school have funded, registered student groups dedicated towards fostering a**

<b>culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?</b>	
2	Yes, there is a funded 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 and/or funding.
0	<b>No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.</b>
<p><i>There is a student organization at my institution dedicated to Global Health - Students for Global Health Keele, who do run planetary health themed events and have support from faculty members however that is not their only objective. There are quite a few sustainability-based societies alongside our Environmental Sciences course, just none that include healthcare in what they cover. There are no Planetary Health dedicated societies.</i></p>	

<b>5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for sustainability best practices?</b>	
1	Yes, there is a student representative that serves on a medical school or institutional decision-making council.
0	<b>No, there is no such student representative.</b>
<p><i>There is not a student representative who serves on these councils.</i></p>	

<b>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)</b>	
1	<b>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.</b>
1	<b>Panels, speaker series, or similar events related to planetary health that have students as an intended audience.</b>
1	<b>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.</b>
1	<b>Cultural arts events, installations or performances related to planetary health that have students as an intended audience.</b>

<b>1</b>	<b>Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.</b>
<b>1</b>	<b>Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students) that follow Leave No Trace principles.</b>
<p><i>Keele runs a student eats initiative that encourages residents on campus to grow their own food in student allotments. There is also a sustainability bungalow initiative where a group of students each year live as sustainable as possible and provide educational benefit to others around them as well as providing food to those on campus from their organic garden. Many events run throughout the year, such as the lecture series that offers lectures to all students on climate change issues. The students union supported events run by our local Extinction Rebellion group, which allowed students to learn directly from members of the local environmental justice community. At Keele, we have Green Week where all across campus, there are art installations, activities and quizzes for the student population based on sustainability, pollution and how this affects our health. There are volunteer opportunities through the student union to volunteer as part of the Green team with litter picks, student led gardening and other sustainable projects on campus. Nature walks program was started around campus, such as bat walks, which follow a Leave No Trace principle.</i></p>	

<b>Section Total (11 out of 14)</b>	<b>11</b>
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# 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	<b>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.</b>
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
<p><i>The institution has multiple full-time staff dedicated to campus sustainability and with student interns dedicated to developing sustainable projects for the students. There is also dedicated sustainability officers at the hospital campus. Sarah Ainsley is our dedicated member of staff for the medical school, covering the inclusion of sustainability into the curriculum, however this is not her full time job. She works closely with full time sustainability staff to include sustainability within the curriculum. There are also sustainability student representatives as part of our Students Union.</i></p>	

2. Does your medical school and/or institution have a stated goal of carbon neutrality by 2050?	
4*	The medical school is already carbon neutral.
3	<b>Yes, there is a stated carbon neutrality goal and the medical school has a well-defined and adequate plan in place to achieve this goal.</b>
2	Yes, there is a stated carbon neutrality goal, but the medical school has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.
0	There is no stated goal for reduction of CO2 emissions.

The institution has a goal of becoming [carbon neutral by 2030](#) and the medical school falls under the umbrella. The plan to reach carbon neutrality is well set out with clear information being stated about this target on the website.

**3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilize renewable energy?**

3*	<b>Yes medical school buildings are 100% powered by renewable energy.</b>
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.

*Keele University has a certificate to prove that any energy they currently purchase off the national grid, is from a renewable source. Therefore 100% of the energy used on campus and by the medical school is from a renewable source at this moment in time. Keele University has been granted planning permission to generate up to 80% of its own electricity through solar and wind power. The sustainability scheme will see up to 26,000 solar photo-voltaic (PV) panels installed at ground level in fields on the edge of the campus, and two wind turbines, which will power Keele's halls of residence, the chapel, teaching facilities, and Keele Hall. The plan is to become fully operational through 2021.*

**4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published rating system or sustainable building code/guideline?**

3	<b>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.</b>
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 estates team have developed a Sustainable Building Plan, which requires all new buildings to adhere to a certain standard. For all new buildings, habitats and ecological surveys have been considered. There is a budget to retrofit the pre-existing buildings, aiming to make the building more energy efficient, for example by replacing inefficient lab equipment and replacing light bulbs with LEDs.*

**5. Has the medical school implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?**

2	<b>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.</b>
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.

*The university campus has a very good biking infrastructure with dedicated biking lanes spread all over the campus. The introduction of an electric scooter rental system has also aided in having more environmentally-friendly transportation options. The campus is easily accessible via good bus connections, as well as the hospital campus. The medical school also runs a system where they try to group students with a car with those without a car so that they can rely on each other for transport to and from placements. In addition to this, where possible, all placements within the community should be easily reachable via public transport.*

**6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?**

2	<b>Yes, the medical school has both compost and recycling programs accessible to students and faculty.</b>
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 medical school has both compost and a conventional recycling program that can be accessed by students and faculty. Keele University introduced a full waste and recycling scheme in 2010 and since then has seen the recycling rate rise from under 10% to now over 50%. The university also has onsite composting and gives students staying in on campus accommodation the option opt-in to having their food waste recycled.*

**7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections?**

3	<b>Yes, the medical school has adequate sustainability requirements for food and beverages and is engaged in efforts to increase food and beverage sustainability.</b>
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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.
<p><i>The sustainable food policy at Keele covers all outlets and food served by the University and managed by Catering and Retail Services, Commercial and Facilities Management Directorate. Catering and Retail Services take their environmental responsibility seriously. The University has been working with the Soil Association to implement the Food For Life Catering Mark at our main Refectory and at the Nursery. The standard provides a framework for continual improvement in providing sustainable food for customers.</i></p>	

<b>8. Does the medical school or associated institution apply sustainability criteria when making decisions about supply procurement?</b>	
3	<b>Yes, the medical school has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement.</b>
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.
<p><i>Keele's sustainable procurement goal is to procure goods and services in ways that maximise efficiency and effectiveness while minimising social, environmental and other risks. Keele University's Procurement team, with support from staff across the University, have achieved Level 4 of the Government's 'Flexible Framework'. This framework allows organisations to assess, measure and evaluate process and performance against a number of set sustainability criteria.</i></p>	

<b>9. Are there sustainability requirements or guidelines for events hosted at the medical school?</b>	
2	Every event hosted at the medical school must abide by sustainability criteria.
1	<b>The medical school strongly recommends or incentivizes sustainability measures, but they are not required.</b>
0	There are no sustainability guidelines for medical school events.
<p><i>Keele University has a Green Conferencing and Event guidelines and the events team has certification using the ISO20121 system. ISO 20121 offers guidance and best practice to help manage our events and control their social, economic and environmental impact. The university also has its own system</i></p>	



*for ensuring that events held are as sustainable as possible. This includes things such as making sure the menus for events held on site utilise local produce and farming/fishing. There is also encouragement for visitors to events to have sustainable practices, e.g bringing a refillable water bottle.*

**10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?**

2	<b>Yes, the medical school has programs and initiatives to assist with making lab spaces more environmentally sustainable.</b>
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.

*Keele University runs a system where the labs are continuously updated to make them more and more sustainable. This includes innovations such as updating equipment and taps to make them more water saving, reducing the amount of single use plastics, utilizing batch orders to create a need for less packaging, educational signs to promote saving electricity when it is not needed, replacing old energy inefficient equipment and replacing light bulbs to be LED.*

**11. Does your institution's endowment portfolio investments include fossil-fuel companies?**

4	<b>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.</b>
3	No, the institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil-fuel companies.
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.

*Keele University is ensuring that financial investments are ethical and reflect the mission and values of the University. To support this commitment an Ethical Investment Code of Practice has been in place and reviewed annually for a number of years. Keele University has made a commitment to increasingly focus its investments in companies with a positive environmental and/or societal impact, in particular in areas of clean energy and technology. The University's investments will be in line with its strategic aims and its environmental, social and ethical values. The university has made a commitment to divest from fossil fuel extraction companies as they have never had investments with fossil-fuel companies and have stated that they will never do so.*

<b>Section Total (29 out of 29)</b>	<b>29</b>
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# 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%

## Planetary Health Grades for the Keele University School of Medicine

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

Section	Raw Score	Grade
<b>Planetary Health Curriculum (30%)</b>	41 / 58 = 70.7%	B
<b>Interdisciplinary Research (17.5%)</b>	13 / 19 = 68.4%	B
<b>Community Outreach and Advocacy (17.5%)</b>	4 / 12 = 33.3%	D
<b>Support for Student-led Planetary Health Initiatives (17.5%)</b>	11 / 14 = 78.6%	B+
<b>Campus Sustainability (17.5%)</b>	29 / 29 = 100%	A+
<b>Institutional Grade</b>	<b>71.3%</b>	<b>B</b>