

# GETTING AHEAD



ALTON

Start to develop skills that are relevant to your course before you join HSDC this September!

## Environmental Sustainability – BTEC Level 3 Subsidiary Diploma

Hello!

You may be reading this from a few different perspectives:

1. All of this is totally new to you
2. You have already made a start on the first set of Getting Ahead activities and still have to finish some
3. You have completed everything in the first set of Ahead work – well done!

It doesn't matter where you are – work at your own pace and enjoy finding out more about this exciting subject! We have added new activities for you to continue working on to prepare you for this course. Students often tell us they find working at their own pace on coursework for the BTEC a really good way to ensure they understand the work fully as they go. Making sure that you complete work set for deadlines also teaches you good time management skills and helps you progress to being an independent worker. We hope you enjoy the additional materials added and hope these will help you work on skills you will need to be successful on the course!



### The Gaia Hypothesis

In BTEC Environmental Sustainability you will have topics explained to you by your teacher and then you will need to research the topics and write about them for tasks.

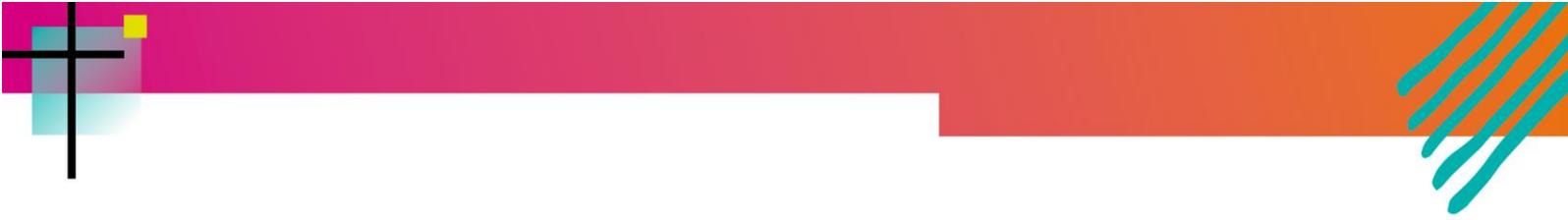
Here is the Task for Pass Task 2 (P2):

Review the Gaia hypothesis and the human, evolutionary and global issues that impact on sustainability. (P2)

Here is an artist's impression of what the Gaia Hypothesis (Theory) is all about. Look at the painting carefully. Gaia is the Greek goddess of the Earth.

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Can you find the different 'spheres' of the planet: the Biosphere (living organisms), the Atmosphere (gases), the Hydrosphere (water), and the Pedosphere or Lithosphere (rocks and soil). Your task is to find out about this theory which was proposed by the Scientist James Lovelock who was working for the NASA Space Programme investigating Mars. This led him to thinking about why is there life on Earth but not on Mars? He decided that the complex interactions between the planet and life evolving together formed a balance which kept the conditions 'just right' for life to exist. The name 'Goldilocks Planet' comes from the idea of a planet having exactly the right conditions for life like the Mother Bear's porridge in the children's tale of Goldilocks and the three bears!

Read the Harvard University article on the Gaia Hypothesis by clicking on the link below and answer the following questions:

<https://courses.seas.harvard.edu/climate/eli/Courses/EPS281r/Sources/Gaia/Gaia-hypothesis-wikipedia.pdf>

1. Review the Gaia Hypothesis  
Explain what the Gaia Hypothesis is –

Write a summary paragraph to explain in your own words what the hypothesis is. About 100-150 words is enough. If you meet words you don't understand, Google the definition and explain your understanding of the term e.g. what does Hypothesis mean?

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2. What are the human, evolutionary and global issues that impact on sustainability?

Split this into three parts:

- a) human
- b) evolutionary
- c) global

The article only covers the evolutionary issues (part b), but in a complex way which is difficult to understand. You will find lots of complex articles on the internet, also lots of articles which are too basic. Try to think about what this article is telling you. Use your basic understanding of what this is telling you to do further searches using Google e.g. by typing in what happens to sustainability if creatures harm their environment? This website explains that if creatures (e.g. by introduction into a new environment by humans) harm their environment then the ecosystem is disturbed and this leads to extinction and, eventually no evolution which reduces sustainability.

<https://www.theworldcounts.com/stories/Impact-of-Ecosystem-Destruction>

Parts a) and b) are not covered by the article so you will need to use other sources to find out about these. You can either use the references at the end of the article or do a google search and type in 'what are the human issues impacting on sustainability?' and then 'what are the global issues impacting on sustainability?' to find about these two criteria. Think about the difference between the two criteria – 'human' issues are what humans are doing and 'global' issues are what problems are being caused around the globe because of what humans are doing.

Write 2 or three lines on each part and give an example for each part to explain the issues

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### 3. List the references you used for the task

Get used to keeping a list of your references as you find them. You will use internet sources mainly – to reference these copy the url from the address bar at the top and then paste the references you used in the box below. When you have done this make sure you include the date you accessed the website as in the example below:

<https://courses.seas.harvard.edu/climate/eli/Courses/EPS281r/Sources/Gaia/Gaia-hypothesis-wikipedia.pdf> (Accessed 09/07/20)

Remember Wiki web sites could be written by non-experts so always go to the bottom of a wiki site and find the original reference at the bottom like this one which is a Harvard University article.

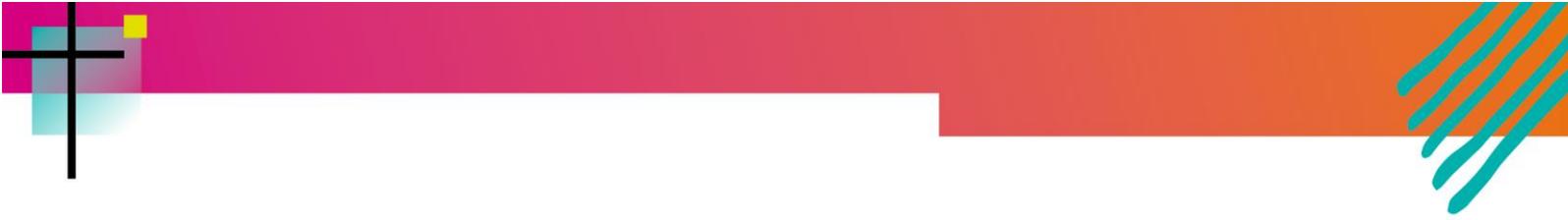
List the references you used for your answers below (if you used books or other sources and don't know how to reference those, these days there are lots of web sites which will generate your references for you – this link will take you to a good one:

<https://www.citethisforme.com/uk/referencing-generator>

List your references here:

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Hopefully, you will have more of an idea now about how humans are having an impact on Gaia and the importance of the balance of Nature.

If you want to find out more about James Lovelock and Daisy World here are some YouTube videos to watch:

<https://www.youtube.com/watch?v=44yiTg7cOVI>

<https://www.youtube.com/watch?v=sCxlqgZA7ag>

## Further Activities:

One thing which has been keeping lots of us going is seeing how Nature is thriving in response to humans being under lockdown. If you didn't watch Springwatch this year watch this last episode on iPlayer about making connections with wildlife:

<https://www.bbc.co.uk/iplayer/episode/m000jyl4/springwatch-2020-episode-12>

There are lots of YouTube videos like these to see how animals are coming into cities around the world:

[https://www.youtube.com/watch?v=1ye0L1s\\_gg8](https://www.youtube.com/watch?v=1ye0L1s_gg8)

<https://www.youtube.com/watch?v=Ma3k6FAozZk>

This video shows how the waters of Venice's canals and Italian ports are clear and fish and dolphins are thriving:

<https://www.youtube.com/watch?v=jv0DLTVfwlc>

Also have a look at current research into other aspects of the environment:

<https://www.msn.com/en-gb/news/causes-environment/scientists-are-trying-to-save-coral-reefs-heres-whats-working/ar-BB153Kfz?ocid=spartanntp>

<https://www.theguardian.com/environment/2020/apr/27/weatherwatch-after-coronavirus-climate-future>

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<https://www.carbonbrief.org/analysis-coronavirus-set-to-cause-largest-ever-annual-fall-in-co2-emissions>

### **Environmental Quiz**

Have a go at this online quiz and test your knowledge!

<https://quizizz.com/join/search/environmental?languages=English>

### **Operation Wallacea**

Every other year we have the opportunity of joining the Biology students on an overseas trip to join scientists working on research projects with Operation Wallacea. This gives students a taste of what it is really like to be an environmental scientist undertaking research projects.

This year students were heading to the Bay Islands, Honduras to help with marine research projects in the Caribbean for 2 weeks, but this had to be postponed – hopefully this expedition will go ahead next summer and you might like to be a part of it!

The trip will cost approximately £2,500-£3,000, and students in the past have fund raised or completed part-time jobs to save up for the trip. The trip also includes a PADI Scuba Diving qualification, which if taken in the UK will cost about £600.

Here are links to find out more about the trip:

<https://www.opwall.com/>

<https://www.opwall.com/location/bay-islands/>

<https://www.youtube.com/watch?v=DDnhccdZfTI>

<https://www.youtube.com/watch?v=luta86g2lGg&feature=youtu.be>

We hope these activities have given you a taste of what you will be doing in Environmental Sustainability lessons. Have a good summer and we look forward to you joining us in lessons at the start of term.

If you have any questions email the course leader - [lesley.newell@alton.hsdac.ac.uk](mailto:lesley.newell@alton.hsdac.ac.uk)

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