Diploma Programme subject outline—environmental systems and societies					
School name	Ela Green School			**School code**	060876
Name of the DP subject	Environmental Systems and Societies				
Level *(indicate with X)*	Standard completed in two years	*X*	Standard completed in one year *		
Name of the teacher who completed this outline	Shantha Shankar	**Date of IB training**		November 2022	
Date when outline was completed	23/10/2022	**Name of workshop** *(indicate name of subject and workshop category)*		Online ESS Catergory 1	

* All Diploma Programme courses are designed as two-year learning experiences. However, up to two standard level subjects, excluding languages ab initio and pilot subjects, can be completed in one year, according to conditions established in the *Diploma Programme Assessment procedures*.

1. Course outline

- Use the following table to organize the topics to be taught in the course. If you need to include topics that cover other requirements you have to teach (for example, national syllabus), make sure that you do so in an integrated way, but also differentiate them using italics. Add as many rows as you need.

- This document should not be a day-by-day accounting of each unit. It is an outline showing how you will distribute the topics and the time to ensure that students are prepared to comply with the requirements of the subject.

- This outline should show how you will develop the teaching of the subject. It should reflect the individual nature of the course in your classroom and should not just be a "copy and paste" from the subject guide.

	Topic/unit (as identified in the IB subject guide)	Contents	Allocated time Each class 45 mins 3 sessions per week	Assessment Instruments to be used	Resources
Year 1 **(100 hrs/120 sessions)**	**Introduction**	**Course Introduction** ESS Orientation Causation and correlation Statistical Calculations Laboratory safety protocols Introduction to Scientific Investigations	**3 hrs**	**Formative tasks:** Prior knowledge assessment Sample Laboratory report Presentations Quizzes	**https://www.mrgscience.com/statistical-anaylsis1.html** **https://i-biology.net/options/05-ecology-evolution-and-conservation/**

	Topic 1 Foundations of environmental systems and Societies	**1.1 Environmental value systems** Environnmental Value Systems Ecocentric Anthropocentric Technocentric **1.2 Systems and models** Flows Storages Closed system Biosphere **1.3 Energy and equilibria** Laws of thermodynamics Entropy	**16 hours**	**Summative Assessment Task(s)/Performance Task:** • Summative task based on objectives 1-3 **Formative Assessment Tasks:** • Prior knowledge test • Completion of worksheets included in the following tasks will give evidence of understanding. o EVS position o Feedback mechanism o EIA o Closed, open and isolated systems • Practical work o Modeling systems and climates Case studies	**Environmental systems and societies. Second edition, Pearson education limited, 2015.** **Environmental systems and societies. Second edition, Oxford, 2015** **https://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development?language=en** **https://www.youtube.com/watch?v=_6cX2p5cBVg** **https://www.youtube.com/watch?v=kdDSRRCKMiI** **https://scied.ucar.edu/interactive/simple-climate-model** **https://www.ted.com/playlists/30/natural_wonder** **Jane Poytner - Life in Biosphere 2** **http://www.ted.com/talks/jane_poynter_life_in_biosphere_2?language=en** **"Naomi Oreske: Why we should trust scientists" – Models, TOK and Climate Science** **Guardian Interview – "James Lovelock on how to save Gaia"**

		Feedback loop Steady-state equilibrium Resilience Tipping points **1.4 Sustainability** Natural capital Ecological footprint **1.5 Humans and pollution** **Primary pollutant** **Biodegradable pollutant** **Persistent organic pollutants** **Acute pollution** **Chronic pollution**		**ATL skills targeted:Research and communication skills** **LPA: Knowledgeable and caring** Participation in debate on: The use of pesticides	**https://ibpublishing.ibo.org/ess/apps/dpapp/guide.html?doc=d_4_ecoso_gui_1505_1_e&part=2&chapter=2&section=1**

	Topic/unit (as identified in the IB subject guide)	Contents	Allocated time Each class 45 mins 3 sessions per week	Assessment Instruments to be used	Resources
		Case studies related to human pollution			

	Topic 2 Ecosystems and Ecology	**2.1 Species and populations** Species Population Habitat Biotic factors Niche Carrying capacity S and J population curves **2.2 Communities and ecosystems** Community Ecosystem Photosynthesis Trophic level Ecological pyramid	20 hours	**Summative Assessment Task(s)/Performance Task:** • Field work (objectives 3 and 4) **Formative Assessment Tasks:** Completion of worksheets included in the following tasks will give evidence of understanding. Scientific names ○ Quadrat division ○ Calculation of diversity and abundance ○ Calculation of gross and net productivity ○ Differentiate between r and k selected strategies Practical work ○ Construction of ecological pyramids ○ Lincoln index	Environmental Systems and Societies Course Companion 2015 Edition by J. Rutherford and G. Williams "Greg Asner – Ecology from the Air" https://www.ted.com/talks/greg_asner_ecology_from_the_air "George Monbiot – For More Wonder Rewild the World" https://www.ted.com/talks/george_monbiot_for_more_wonder_rewild_the_world "Stephen Palumbi – The hidden toxins in the fish we eat and how to stop them" http://www.ted.com/talks/stephen_palumbi_following_the_mercury_trail?language=en Ecological pyramids: http://www.cwcboe.org/cms/lib04/NJ01001185/Centricity/Domain/143/The%20Biosphere/Labs/Ecological%20Pyramids%20Lab%20Activity.pdf Food web activity http://www.sciencegeek.net/Biology/biopdfs/FoodWebActivity.pdf Lincoln index lab:

		2.3 Flows of energy and matter Productivity Nutrient cycle Maximum sustainable yield **2.4 Biomes, zonation and succession** Biome Biosphere Zonation Succession **2.5 Investigating ecosystems** Quadrat Transect		○ Simpson's index Debate on: The butterfly effect Participation in debate on: The use of pesticides **ATL skills targeted:Thinking and social skills** **LPA: Risk takers and caring**	https://www.sandiegounified.org/.../ESTIMATING%20POPULATION%20SIZE.doc "http://ed.fnal.gov/data/life_sci/prairie//simply_prairie/student/skills/wkst4.html" http://ed.fnal.gov/data/life_sci/prairie//simply_prairie/student/skills/wkst4.html https://ibpublishing.ibo.org/ess/apps/dpapp/guide.html?doc=d_4_ecoso_gui_1505_1_e&part=2&chapter=2&section=1

	Topic/unit (as identified in the IB subject guide)	**Contents**	**Allocated time** **Each class 45 mins** **3 sessions per week**	**Assessment Instruments to be used**	**Resources**
		Salinity Turbidity			

	Topic 3 Biodiversity and conservation	Biodiversity **3 hrs**
		
		Species diversity
		
		Genetic diversity
		
		Habitat diversity
		
		Hotspot
		
		3.2 Origins of biodiversity 3 hrs
		
		Speciation
		
		3.3 Threats to biodiversity 4 hrs
		
		Limiting factors
		
		Vulnerability
		
		IUCN
		
		3.4 Conservation of biodiversity 4 hrs
		Conservation
		Preservation
		Ecotones
			13 hours	**Formative Assessment Tasks:**
				• Completion of worksheets included in the following tasks will give evidence of understanding.
				  ○ Analyse a case study: Galapagos Marine Reserve
				• Practical work
				  ○ Natural selection
				  ○ Plate tectonics
				  ○ Mass extinction
				
				Debate on: The sixth mass extinction
				
				ATL skills targeted:Self organisation and communication skills
				
				LPA: Open minded and Principled
					Environmental systems and societies. Second edition, Pearson education limited, 2015.
					
					Environmental systems and societies. Second edition, Oxford, 2015
					
					TED Talks – "Evolution's Genius Playlist" http://www.ted.com/themes/evolution_s_genius.html
					
					"The Complete BBC Series –Planet Earth" http://topdocumentaryfilms.com/planet-earth-the-complete-bbc-series/
					
					Online articles (http://nationalgeographic.org/ , WWF.org, National Geographic)
					Crash course https://youtu.be/aTftyFboC_M
					Virtual labs http://www.mhhe.com/biosci/genbio/virtual_labs/BL_12/BL_12.html
					PheT simulations https://phet.colorado.edu/en/simulation/natural-selection
					
					https://phet.colorado.edu/en/simulation/plate-tectonics
					
					https://www.hhmi.org/biointeractive/ma

	Topic/unit (as identified in the IB subject guide)	**Contents**	**Allocated time** **Each class 45 mins** **3 sessions per week**	**Assessment Instruments to be used**	**Resources**
					ss-extinctions-interactive http://www.pbs.org/wgbh/aso/tryit/tectonics/#

	Topic 6	**6.1 Introduction to the atmosphere** 2 hrs Greenhouse effect **6.2 Stratospheric ozone** 2.5 hrs Ozone depletion Montreal protocol **6.3 Photochemical smog** 3 hrs Urban air Particulates Thermal inversion **6.4 Acid deposition** 2.5 hrs Acidity Political solutions	10 hours	**Task(s)/Performance Task:** **Summative Assessment Task(s)/Performance Task:** • Presentation on smoggy cities • Summative Assessment (objectives 1-3) **Formative Assessment Tasks:** • Quiz: o Open book quiz o Video assessment on the Montereal protocol • Completion of worksheets: o Evaluating Strategies for Reducing Air Pollution o Analyzing Acid Deposition in Norway • Practical work o Virtual lab of the	**Environmental systems and societies. Second edition, Pearson education limited, 2015.** Environmental systems and societies. Second edition, Oxford, 2015 - PheT simulation https://phet.colorado.edu/en/simulation/greenhouse - Global warming https://docs.google.com/document/d/17o_FQRTlyasJkgRYylgGLzZ3EXgDWfuz91U0pCKwWXM/edit - smoggy cities rubric https://docs.google.com/document/d/1UWGqRTx2gTvFdFpo7P8kZ_nQm5Fccsoi06eOrV1Alh0/edit - Reducing air polluton strategies https://docs.google.com/document/d/1AGlK0lYsIvi5PLCVl8uikgrpCdCgWLrYxV4ldA3U2jw/edit TED Talk – "Rishi Manchanda: What Makes Us Get Sick? Look UpStream" http://www.ted.com/talks/rishi_manchanda_what_makes_us_get_sick_look_upstream UNEP - "The Antarctic Ozone Hole - From Discover to Recovery, a Scientific Journey

	Topic/unit (as identified in the IB subject guide)	Contents	Allocated time Each class 45 mins 3 sessions per week	Assessment Instruments to be used	Resources
				greenhouse effect ○ Global warming in a jar Virtual Lab - Where is Acid Rain World	https://ozone.unep.org/antarctic-ozone-hole-discovery-recovery-scientific-journey Videos and Animations NASA and Monitoring of the Ozone Hole http://ozonewatch.gsfc.nasa.gov/multimedia/SH.html BBC iScience Acid Rain https://environoego.com/bbc-iscience-acid-rain/ Acid deposition https://docs.google.com/document/d/1D0F09_QinsxlmoSwhq2rEw1GXv6pvLRummM-CNbXHsLU/edit

	Topic/unit (as identified in the IB subject guide)	**Contents**	**Allocated time** **Each class 45 mins** **3 sessions per week**	**Assessment Instruments to be used**	**Resources**
	Topic 7 Climate change and energy production	**7.1 Energy choices and security** 4 hrs Energy security **7.2 Climate change—causes and impacts** 5.5 hrs Greenhouse gases Global warming potential **7.3 Climate change—mitigation and adaptation** 3.5 hrs Mitigation Adaptation Adaptive capacity	13 hours	**Task(s)/Performance Task:** Summative assessment (objectives 2 and 3) **Formative Assessment Tasks:** **Formative Assessment Tasks:** • Quiz • Completion of worksheets: Analysing coal-Fired Power to Solar City	Environmental Systems and Societies Course Companion 2015 Edition by J. Rutherford and G. Williams Coal-Fired Power to Solar City https://docs.google.com/document/d/19qXvCyl2TZD6eDx_4cFyZDyRo66kGFB8anQNzNya1RI/edit Online article: the guardian http://www.theguardian.com/environment/ng-interactive/2015/jun/16/drilling-oil-gas-arctic-alaska The Huffington Post "http://www.huffingtonpost.com/entry/potent-methane-gas-leaks_us_570d62fce4b0885fb50e9306"http://www.huffingtonpost.com/entry/potent-methane-gas-leaks_us_570d62fce4b0885fb50e9306

	Topic 8 Human systems and resource uses	**8.1 Human population dynamics** 5 hrs Crude birth rate Crude death rate Natural increase rate Doubline time Total fertitlity rate **8.2 Resource use in society** 4 hrs Renewable natural capital **8.3 Solid domestic waste** 3 hrs **8.4 Human population carrying capacity** 4 hrs Carrying capacity Ecological footprint	16 hours	**Task:** Summative Assessment (Objectives 1-3) **Formative Assessment Tasks:** • Completion of worksheets included in the following tasks will give evidence of understanding. o Calculate values of CBR, CDR, TFR, DT and NIR. o Analyse age–gender pyramids o Reducing AISB's Ecological Footprint debate on: Childless by choice	Environmental Systems and Societies Course Companion 2015 Edition by J. Rutherford and G. Williams TED Talks - "Sustainability by Design Playlist" - Humans are builders and creators—but how can we build thoughtfully, without waste? These talks explore sustainable design—both past and present—and its beautiful, inspiring results. https://www.ted.com/playlists/28/sustainability_by_design TED Talk - "Johan Rockstrom: Let the environment guide our development" http://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development TED Talk – "Melinda Gates: Let's put birth control back on the agenda" https://www.ted.com/talks/melinda_gates_let_s_put_birth_control_back_on_the_agenda TED Talk – "Hans Rosling: On Global Population Growth" http://www.ted.com/talks/hans_rosling_on_global_population_growth?language=en

	Topic/unit (as identified in the IB subject guide)	**Contents**	**Allocated time** **Each class 45 mins** **3 sessions per week**	**Assessment Instruments to be used**	**Resources**

Year 2	Topic 4 Water and aquatic food production systems and societies	**4.1 Introduction to water systems** 3 hrs **Water budget** Water cycle Surface currents climate **4.2 Access to fresh water** 3 hrs **Freshwater** Sustainability Irrigation Salinization Grey water Water wars **4.3 Aquatic food production systems** 4.5 hrs	15 hours	**Task(s)/Performance Task:** Summative Assessment (Objectives 1-2) **Formative Assessment Tasks:** **Formative Assessment Tasks:** • Quiz: ○ Open book quiz on the water state in Jordan ○ Video assessment on the cod situation in Newfoundland • Completion of worksheets: ○ Calculating personal water footprint ○ Analyzing water wars • Practical work ○ Determining water quality • Participation in the	**Environmental systems and societies. Second edition, Pearson education limited, 2015.** Environmental systems and societies. Second edition, Oxford, 2015 - personal water footprint calculator http://www.lanzatech.com/wp-content/uploads/2015/07/Lesson-Plan-Aged-7-12.pdf - A list of water wars http://www2.worldwater.org/conflict/list/ - - Tragedy of the Commons video https://youtu.be/WYA1y405JW0 "http://www.mrspage.com"http://www.mrspage.com https://ibpublishing.ibo.org/ess/apps/dpapp/guide.html?doc=d_4_ecoso_gui_1505_1_e&part=2&chapter=2&section=1

	Topic/unit (as identified in the IB subject guide)	Contents	Allocated time Each class 45 mins 3 sessions per week	Assessment Instruments to be used	Resources
		Sustainable yield Continental shelf Fisheries Aquaculture Tragedy of the commons **4.4 Water pollution** 4.5 hrs Pollutant Indicator species Biotic index Eutrophication Dead zone		debate: The use of aquaculture	

	Topic 5 Soil systems and terrestrial food production systems and societies	**5.1 Introduction to soil systems** 3 hrs Porosity Permeability pH **5.2 Terrestrial food production systems and food choices** 6 hrs LEDC MEDC Agribusiness Animal domestication Efficiency Food waste **5.3 Soil degradation and conservation** 3 hrs	12 hours	**Task(s)/Performance Task:** Summative task based on objectives 1-3. Investigation based on objective 4. **Formative Assessment Tasks:** • Quiz • Completion of worksheets • Case studies • Simulation - modeling systems	Environmental systems and societies. Second edition, Pearson education limited, 2015. Environmental systems and societies. Second edition, Oxford, 2015 Virtual lab http://amrita.olabs.edu.in/?sub=79&brch=18&sim=235&cnt=2 Online articles (World Food Programme, FAO interactive map http://www.fao.org/hunger/en/ , BBC, National Geographic http://news.nationalgeographic.com/news/2013/13/130514-edible-insects-entomophagy-science-food-bugs-beetles/) Youtube https://youtu.be/CZNanlXMXk4 Virtual labs: http://www.glencoe.com/sites/common_assets/science/virtual_labs/ES08/ES08.html Soil labs http://labmodules.soilweb.ca/

	Topic/unit (as identified in the IB subject guide)	Contents	Allocated time Each class 45 mins 3 sessions per week	Assessment Instruments to be used	Resources
		Overcropping Deforestation Urbanization Soil erosion			https://ibpublishing.ibo.org/ess/apps/dpapp/guide.html?doc=d_4_ecoso_gui_1505_1_e&part=2&chapter=2&section=1

	Topic/unit (as identified in the IB subject guide)	Contents	Allocated time Each class 45 mins 3 sessions per week	Assessment Instruments to be used	Resources
		Revision and Assessment Practice			
	CAS connection	ESS Topic : 4 *Water and aquatic food production systems and society* *Water Pollution* *Our school is surrounded by many water bodies such as lakes and ponds. These lakes are also the source of food for some local communities. There are many migratory birds that visit these lakes and make them their home for a few months in a year. Unfortunately, many of these water bodies are polluted with sewage waste dumped into the lake. This is degrading the water quality significantly and the water systems are losing their biodiversity index.* ***Action**: Students will take samples from the lake at different points and test the water quality.* ***Creativity and Action:** After testing the water quality, students will plan for a campaign to spread awareness about the degrading water quality and its implication on the ecosystem.* *There are some NGOs conducting census on the bird and fish species in the lakes. Interested students can work with the NGOs to take further action.* Students will organise lake cleaning campaigns involving the school as well as the local community.			

2. IB practical work and the internal assessment requirement to be completed during the course

As you know, students should undergo 30 hours of practical work related to the syllabus. Use the table below to indicate the names of the experiments, investigations and/or projects you would propose for the different topics in the syllabus. An example is given. Add as many rows as necessary.

Name of the topic	Experiment/investigation/project	Indicate those you would use for assessing planning (PI), data collection and processing (DCP) and discussion, evaluation and
Topic 5 Pollution management, sub-topic 5.2 Detection and monitoring of pollution	Measuring air and water pollution	DEC
Topic 1: Environmental Systems and Societies	Water cycle model creation.	PI
	Environmental issues survey write / administer / study data.	
Topic 2: Ecosystem and Ecology	Abiotic factor measurement lab.	PI
	Lincoln index lab.	PI, DCP
	Pond water analysis lab.	PI, DCP
	Courtyard or field trip transect / sample plot species lab, analysis.	PI, DEC
	Simpson's diversity index lab.	PI, DEC
	Rate of photosynthesis lab.	PI
	Biogeochemical cycle student presentations.	

	GSP / NSP lab / numerical analysis.	DCP
	Common foods as bacterial / fungal media growing lab.	PI, DCP, DEC
	Ecosystem effects of abiotic element changes lab.	PI
Topic 3: Biodiversity and conservation	Interpret and construct cladograms.	
	Human evolution analysis / projection for exoplanet conditions / design of extinction	
	Endangered, threatened, or recovering species research presentations.	
	ESA rewrite debate.	
	Management area design / defense.	
Topic 4: Water and aquatic food production systems and societies	Water oxygen level collection and analysis lab.	PI, DCP, DEC
	Awwali River water quality survey, Flathead River case study for comparison.	PI, DCP, DEC
Topic 5: Soil systems and terrestrial food production systems and societies	Air pollution data analysis from UM boiler / Missoula air quality control station.	DCP
	DDT bioaccumulation calculation / algae growth lab	PI, DCP, DEC
	UV effects on plants lab / Planetary atmosphere comparison / analysis.	PI, DCP
	Acid rain lab / pH indicator lab.	PI, DCP, DEC
Topic 6: Atmospheric systems and societies	Greenhouse effect lab.	PI, DCP, DEC
Topic 7: Climate change and energy production		
Topic 8: Human Systems and Resources Use	Population control debate.	
	Human population graphing exercise (past, present, projected future.	
	Human population counter model design.	PI
	Earth 2 (colonist spaceship) cargo manifest	PI

	AMU or fisheries case study analysis.	DCP / DEC
	Alternative energy presentations.	
	Soil percolation lab.	PI, DCP, DEC
	Erosion stream table lab.	PI, DCP
	Organic vs. non-organic food comparison lab.	PI, DCP, DEC
	Novelty food preparation and sampling.	
	Water quality lab.	PI, DCP, DEC
	Ecological footprint calculator design lab.	PI

3. Laboratory facilities

Describe the laboratory and indicate whether it is presently equipped to facilitate the practical work you have indicated in the chart above. If it is not, indicate the timeline to achieve this objective and describe the safety measures that are applicable.

We do have a well equipped integrated science laboratory for conducting scientific investigations in physics, chemistry and biology, which is being used by the MYP students. Specific kits needed for ESS such as water testing kits, pH level indicators, soil testing kits, quadrants etc will be purchased before July 2023.

4. Other resources

Indicate what other resources the school has to support the implementation of the subject and what plans there are to improve them, if needed.

The school has plans to upgrade the integrated science lab to separate laboratories for physics, chemistry and biology by June 2023.

5. Links to TOK

You are expected to explore links between the topics of your subject and TOK. As an example of how you would do this, choose one topic from your course outline that would allow your students to make links with Theory of Knowledge. Describe how you would plan the lesson.

Topic	Link with TOK (including description of lesson plan)
Topic 1: Environmental Value systems	**Knowledge question:** To what extent do you think the arguments about nuclear power are based on emotion rather than reason? **AOK:** Human sciences – can we use scientific approach with humans? **WOK:** reason vs. emotion This question can be raised for almost every single issue, especially if it is related to the environment, where the best approach at any topic is holistic. Students will do the "Six thinking hats" activity; students have to wear different hats and for each one they have to look at the same issue from a different perspective. The person wearing the blue hat will direct the whole process. The black hat is the hat of logic and critical judgment (although it should never be seen as the negative hat), The yellow hat is the optimistic but logical hat. It allows the person to consider the benefits of a new idea or a particular decision, and how feasible this would be. The green hat is the hat of creativity, and is designed to encourage the person to seek new approaches and innovative solutions. The red hat allows the person to express his feelings, without having to offer a rational explanation. It allows expressing feelings, intuition and emotions. The person wearing the white hat will analyse data and think about how information can help tackle a particular issue.

6. Approaches to learning

Every IB course should contribute to the development of students' approaches to learning skills. As an example of how you would do this, choose one topic from your outline that would allow your students to specifically develop one or more of these skill categories (thinking, communication, social, self-management or research).

Topic	Contribution to the development of students' approaches to learning skills (including one or more skill category)

Topic 8: Human Systems and Resources Use	In a performance task, each group of students will be asked to choose a renewable energy source and design its use in such a way so that it can be used in everyday life. Then they have to convince a jury to adopt their design. They will work in a team collaboratively for this. One set of students will be the design team and the other, the jury team. This task tackles all ATL skills: social skill of collaboration as they need to effectively collaborate in order to come up with a good design, communication skills needed for them to promote for their design, research skills to be aware of the characteristics of the energy source of their choice. They also need self-management skills in the way they produce and assemble their ideas, and then presenting it. Thinking skills are developed along the way.

7. International mindedness

Every IB course should contribute to the development of international-mindedness in students. As an example of how you would do this, choose one topic from your outline that would allow your students to analyse it from different cultural perspectives. Briefly explain the reason for your choice and what resources you will use to achieve this goal.

Topic	Contribution to the development of international-mindedness (including resources you will use)
Topic 7: Climate change and energy production	This lesson could be utilized to promote international mindedness regarding global warming. Students will be divided into teams for a debate about the global warming. Students would be placed in groups that could include More Economically Developed Countries (MEDCs) and Less Economically Developed Countries (LEDCs). Students would also be chosen to represent countries with much to gain (such as high latitude countries like Canada whose growing seasons will lengthen) as well as countries with much to lose (such as low elevation Pacific countries like Tuvalu, or countries experiencing desertification like Niger). Students could be given library time to research information about their countries, and class time to present their findings and arguments. This exercise would serve to promote greater understanding of the issue of global warming, as well as an appreciation for different cultural, economic, and environmental sides of the argument.

8. Development of the IB learner profile

Through the course it is also expected that students will develop the attributes of the IB learner profile. As an example of how you would do this, choose one topic from your course outline and explain how the contents and related skills would pursue the development of any attribute(s) of the IB learner profile that you will identify.

Topic	**Contribution to the development of the attribute(s) of the IB learner profile**
Topic 1: Environmental Systems and Societies	One of the initial student activities is to have them construct a model of the water cycle. The lesson will begin with very limited instruction, but with the stated goal that students will have as complete and present an operational model as possible. Lab materials (some necessary, some superfluous) will be laid out and students will be required to exhibit and utilize several attributes of the IB learner profile, including that of being an inquirer. Students will need to inquire and become knowledgeable (research the topic) to be sure that they know exactly what their model must entail. Students will need to be open-minded and effective communicators to work with other group members in a timely and effective fashion.