Scoring Guide Revised Climate 101 Test

You can allocate points as seems most appropriate to you. For example, each of the first 20 questions could count as one point. Depending on accuracy and depth of answer, Task 20 could count for 0 to 2 points and Tasks 21 and 22 could each count for 0 to 3 points.

1 A	11 A
2 C	12 D arrow to B arrow to A arrow to C arrow to D
3 B	13 D
4 C	14 A
5 D	15 D
6 B	15 A
7 A	17 D
8 B	18 A
9 C	19 Energy Flows; Matter Cycles; Life Webs
10 C	

Task 20

One point for location near the equator resulting in higher temperatures (could include higher amounts of direct sunlight)

One point for warmth and humidity resulting from being surrounded by the ocean

Task 21

Completely correct answer includes all of the following carbon reservoirs: atmosphere, ocean, biosphere (organisms or plants/trees/soil), rocks, and fossil fuels. Answer does not need to include amounts in each reservoir but completely correct answer includes some correct comparison of amounts in each of these reservoirs. Do not need to correctly identify all the forms of carbon in the different reservoirs unless you want to include that as a criterion.

AND

Completely correct answer includes flows of carbon into the atmosphere from biosphere via respiration; from gas (carbon dioxide) escaping from the ocean; from fossil fuels into atmosphere via human use; and also into atmosphere from human effects on land or organisms (e.g., deforestation); AND flows of carbon out of the atmosphere from biosphere via photosynthesis and via air/gas dissolving in the ocean. Does not need to include flows between atmosphere and rocks. Also does not need to correctly identify the rate of flows but should have some indication that effects of human activities are causing amount of carbon dioxide in the atmosphere to increase.

Task 22

Completely correct answer identifies sunlight radiating from the sun as the source of energy flowing into the Earth system and that some of energy is immediately reflected but that most of

the input solar energy is absorbed. Completely correct answer should include some indication of flow of absorbed energy from tropics toward poles, and could identify conduction and convection as mechanisms of energy flow within the Earth system. Completely correct answer must identify radiation of absorbed energy as the only mechanism by which that energy leaves the Earth system and that the radiated energy is absorbed in the atmosphere by greenhouse gases which then radiate energy within the atmosphere, back to Earth's surface, and also out of the atmosphere. Completely correct answer also explains that the human caused increase in atmospheric greenhouse gases (especially carbon dioxide) are the main cause of global warming. Does not need to include role of the ocean in storing absorbed thermal energy or any mention of Earth's internal energy.