Worksheet 3.3

Investigating sustainability through creative writing

Answers to section B

1. Exist in finite amounts and will not be replenished or renewed following removal of natural capital; will eventually run out if they are not replaced; Natural resources which cannot be replenished within a timescale of the same order as that at which they are taken from the environment (i.e. cannot be replenished at the same rate at which they are used): any use of these resources results in depletion of the stock e.g. minerals, fossil fuels, groundwater, soils, etc. \[2 \text{ max}\]

2. Truffula trees \[1 \text{ max}\]

3. Truffula fruits; Swomee-Swans; Brown Bar-ba-loots; Humming-Fish \[3 \text{ max}\]

4. Natural capital: natural resources (living or non-living) that can be exploited to produce natural income. Natural income: the yield from the natural capital; services or goods (products) derived from the natural capital. \[2 \text{ max}\]

5. Replant trees; harvest trees on a sustainable basis so that stock is not depleted; provide income by sustainably harvesting other natural resources; ecotourism. \[2 \text{ max}\]

6. 400; \[1 \text{ max}\]
   [Sustainable yield = rate of increase in natural capital that can be harvested without diminishing original stock (i.e. harvest equal to or less than their natural productivity so the natural capital is not diminished); natural capital = 5000, and after 30 years number of harvestable trees = 400].

7. a) As a sustainable yield was no longer possible, to continue to produce an income he had to carry on ‘biggering’ – cutting the Truffula trees until the last tree was cut down; At this point he should have planted more Truffula tree seeds! \[1 \text{ max}\]

   b) The uncontrolled use of a resource shared by all; a conflict exists between the common good and the needs of the individual. \[1 \text{ max}\]

8. Water quality; biodiversity (swomee-swans \textit{et al.}); atmospheric quality (photosynthesis producing O$_2$ and removing CO$_2$); \textit{other valid ideas}. \[1 \text{ max}\]
Answers to Section C

- Present your story to the rest of the class. Either read it out or show as a PowerPoint presentation.
- The rest of the class can give you marks out of 10 for:
  - covering as much of the syllabus as possible (3 points)
  - scientific accuracy (3 points)
  - creativity and flair (3 points)
  - quality of the presentation (1 point).
- Work out the average marks from the class, out of 10. [10 max]