1 A range of equipment is used by young school children when they are having practical lessons.

Design a unit that will hold eight pencils, a pair of scissors, a rubber, a glue bottle and a 150 mm rule. The unit should be easily transported and stored when not in use.

(a) List four additional points about the function of such a unit that you consider to be important. [4]

(b) Use sketches and notes to show two types of carrying handle that could form part of such a unit. [4]

(c) Develop and sketch three ideas for the unit. [12]

(d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]

(e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]

(f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

(g) Outline a method used to manufacture one part of your solution. [6]
2 Young children are to take part in a school play where they will each be playing a different animal.

Design a mask, to represent a particular animal, that could be worn by a child.

The mask will be made from lightweight materials.

(a) List four additional points about the function of such a mask that you consider to be important. [4]

(b) Use sketches and notes to show two ways of securing lightweight materials that are easy to fasten and unfasten. [4]

(c) Develop and sketch three different ideas for the mask. [12]

(d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]

(e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]

(f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

(g) Outline a method used to manufacture one part of your solution. [6]
3 It can be quite difficult to explain to school children the difference between the three different orders (classes) of lever.

Design a teaching aid that could be used to show school children how the three orders of lever operate.

(a) List four additional points about the function of such a teaching aid that you consider to be important. [4]

(b) Use sketches and notes to show examples of two orders of lever. [4]

(c) Develop and sketch three ideas for the teaching aid. [12]

(d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]

(e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]

(f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

(g) Outline a method used to manufacture one part of your solution. [6]