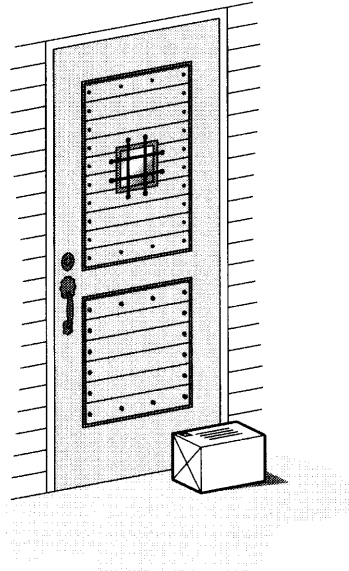




Answer **one** question only on the A3 pre-printed answer sheets provided.

- 1 Many people buy products that are posted to them and there is often nobody at home when parcel is delivered to their house.

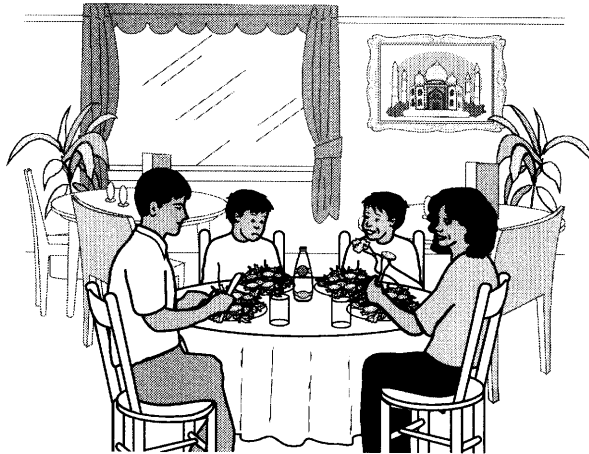


Design a storage unit in which parcels could be left by the postman. The unit should have some kind of locking system to make the unit secure.

Maximum parcel size –  $400 \times 300 \times 200$

- (a) List **four** additional points about the function of such a secure storage unit that you consider to be important. [4]
- (b) Draw **two** different locking devices. [4]
- (c) Develop and sketch ideas for the secure storage 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 major dimensions. [12]
- (f) Suggest 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 in the school workshop. [6]

- 2 Many small children are fussy about what they eat and it is often difficult to persuade different foods.

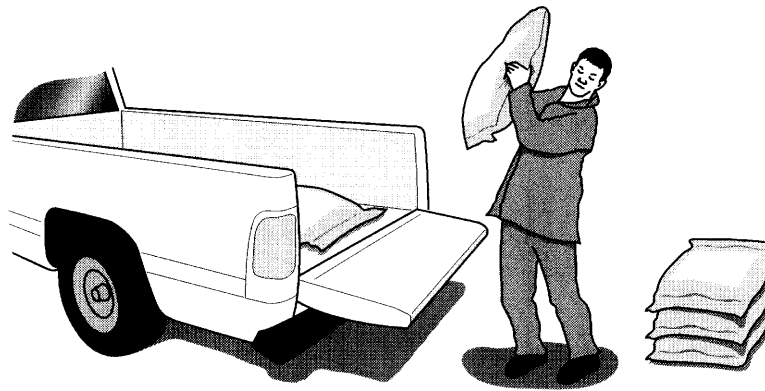


Design a children's menu that will encourage them to try different foods. The menu should include some form of novelty or movement that focuses on a particular type of food.

- (a) List **four** additional points about the function of such a menu that you consider to be important. [4]
- (b) Draw **two** types of mechanism that could be made in card materials. [4]
- (c) Develop and sketch ideas for the menu. [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 major dimensions. [12]
- (f) Suggest suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline the method of producing a prototype of the children's menu in the school graphics studio. [6]

4

3 Loading sacks onto vehicles can be very difficult.



Design a simple lifting device that could be stored in a shed or garage at home, when not in use.

- (a) List **four** additional points about the function of such a lifting device that you consider to be important. [4]
- (b) Draw **two** different mechanisms that might form part of a simple lifting device. [4]
- (c) Develop and sketch ideas for the lifting device. [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 major dimensions. [12]
- (f) Suggest 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 in the school workshop. [6]