

- 1 Hot concentrated hydrochloric acid reacts with solid manganese(IV) oxide to make chlorine gas. Chlorine gas is toxic and more dense than air. Concentrated hydrochloric acid is corrosive.

Fig. 1.1 shows the apparatus used to make and collect a sample of chlorine gas.

There is **one** error in the way the apparatus has been set up in Fig. 1.1.

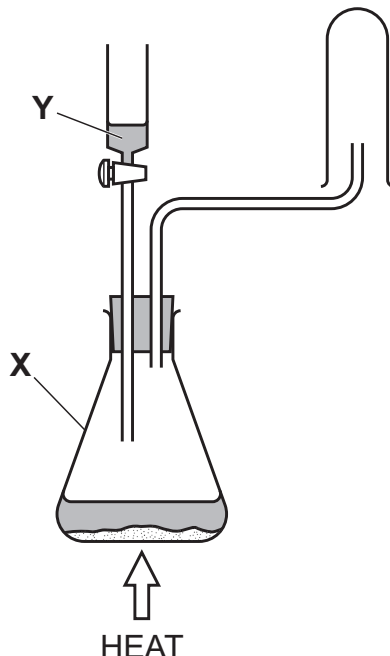


Fig. 1.1

- (a) Name the item of apparatus labelled **X** in Fig. 1.1.  
..... [1]
- (b) Identify the substance labelled **Y** in Fig. 1.1.  
..... [1]
- (c) Name an item of apparatus that can be used to heat **X** in Fig. 1.1.  
..... [1]
- (d) There is **one** error in the way the apparatus has been set up.  
Describe a change that needs to be made to the apparatus in Fig. 1.1 to correct this error.  
..... [1]
- (e) Explain why this experiment should be carried out in a fume cupboard.  
..... [1]