ASSIGNMENT 13

FEV (forced expiratory volume) is an index of pulmonary function that measures the volume of air expelled after one second of constant effort. The data-set fev.dat contains determinations of FEV in 1980 on 654 children ages 3-19 who were seen in the Childhood Respiratory Disease Study (CRD study) in East Boston, Massachusetts. These data are part of a longitudinal study to follow the change in pulmonary function over time in children (Tager et.al., 1979, *American Journal of Epidemiology*, 110, 15-26). The data have the following form:

```
Column          Variable              Format or Code
----------------------------------------------------------
 1-5            ID number
 7-8            Age (yrs)
 10-15          FEV (liters)          X.XXXX
 17-20          Height (inches)       XX.X
 22             Sex                   0=female/1=male
 24             Smoking Status        0=non-current smoker/
                                      1=current smoker
----------------------------------------------------------
```

Construct the appropriate model in BUGS to describe which factors affect the FEV measurement. Is there any diffence between males and females? Is smoking an important determinant of FEV? Also infer on the fit of the model? Are there any outliers?