

science

R Documentation

# School Science Survey Data

## Description

The science data frame has 1385 rows and 7 columns.

The data are on attitudes to science, from a survey where there were results from 20 classes in private schools and 46 classes in public schools.

## Usage

science

## Format

This data frame contains the following columns:

State

a factor with levels ACT Australian Capital Territory, NSW New South Wales

PrivPub

a factor with levels private school, public school

school

a factor, coded to identify the school

class

a factor, coded to identify the class

sex

a factor with levels f, m

like

a summary score based on two of the questions, on a scale from 1 (dislike) to 12 (like)

Class

a factor with levels corresponding to each class

## Source

Francine Adams, Rosemary Martin and Murali Nayadu, Australian National University

## Examples

```
classmeans <- with(science, aggregate(like, by=list(PrivPub, Class), mean))
names(classmeans) <- c("PrivPub", "Class", "like")
dim(classmeans)

attach(classmeans)
boxplot(split(like, PrivPub), ylab = "Class average of attitude to science score", boxwex = 0.4)
rug(like[PrivPub == "private"], side = 2)
rug(like[PrivPub == "public"], side = 4)
detach(classmeans)
if(require(lme4, quietly=TRUE)) {
  science.lmer <- lmer(like ~ sex + PrivPub + (1 | school) +
                      (1 | school:class), data = science,
                      na.action=na.exclude)
  summary(science.lmer)
  science1.lmer <- lmer(like ~ sex + PrivPub + (1 | school:class),
                      data = science, na.action=na.exclude)
  summary(science1.lmer)
  ranf <- ranef(obj = science1.lmer, drop=TRUE)[["school:class"]]
  flist <- science1.lmer@flist[["school:class"]]
  privpub <- science[match(names(ranf), flist), "PrivPub"]
  num <- unclass(table(flist)); numlabs <- pretty(num)
  ## Plot effect estimates vs numbers
  plot(sqrt(num), ranf, xaxt="n", pch=c(1,3)[as.numeric(privpub)],
       xlab="# in class (square root scale)",
       ylab="Estimate of class effect")
  lines(lowess(sqrt(num[privpub=="private"]),
               ranf[privpub=="private"], f=1.1), lty=2)
  lines(lowess(sqrt(num[privpub=="public"]),
               ranf[privpub=="public"], f=1.1), lty=3)
  axis(1, at=sqrt(numlabs), labels=paste(numlabs))
}
```