Other ways of fitting the linear model

stan_glm() function for linear models and priors!

$$y_i \sim N(\mu_i, \sigma)$$

$$\mu_i = \alpha + \beta x_i$$

And some standard priors...

```
> sglm_fit = stan_glm(growth ~ tannin, data = df, cores = 4)

> summary(sglm_fit, probs = c(0.025, 0.975))[, 1:7]
                            mean        mcse        sd       2.5%       97.5% n_eff
(Intercept) α -0.01069275 0.015974907 0.6971944  -1.403377   1.3696905  1905
tannin      β -1.21608408 0.005609107 0.2482728  -1.716820  -0.7229236  1959
sigma          1.98129172 0.016244872 0.6447948   1.145132   3.5859302  1575
mean_PPD      -0.01273309 0.020249189 0.9958192  -2.030730   2.0076369  2418
log-posterior -23.56539992 0.046443876 1.4480299 -27.365501 -21.9264227   972
                   Rhat
(Intercept)    1.000676
tannin         1.001776
sigma          1.000847
mean_PPD       1.000271
log-posterior  1.003540
```

What about categorical predictors?

Linear regression is flexible

- Our questions are frequently based on categories:
  - Is a treatment effective in improving outcomes?
  - Are two geographical regions different in some aspect?
  - Does the diet of a group of species affect their size?