Discussion Week 4 Activity: Find the secret parameters

In [22]:
```
import numpy as np
import matplotlib.pyplot as py
```

Let's create a simulation where we know the true parameters

In [49]:
```
np.random.seed(1)

# How many points should we use?
n = 15

# What mean and standard deviation to use for the noise?
mu = 0
sd = 2

# Select n points from the uniform distribution between -10 and 10
x = np.random.uniform(-10, 10, n)

# Select two parameters from the uniform distribution between -5 and 5 to be our
# y-intercept and slope
m_true = np.random.uniform(-5, 5, 2)

# Make some noise
#noise = np.random.normal(mu, sd, n)
noise = np.random.gumbel(mu, sd, n)

# Generate simulated data points
y = m_true[0] + m_true[1]*x + noise
```

In [50]:
```
#help(np.random.uniform)
```

Plotting our mystery function

In [51]:
```
ax = py.axes();
ax.scatter(x, y);
ax.grid(which='both');
ax.axhline(y=0, color='k');
ax.axvline(x=0, color='k');
ax.set_xlabel('Inputs (x)')
ax.set_ylabel('Outputs (y)')
```